River *of* Grass Greenway

Feasibility Study *and* Master Plan

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Part 01
INTRODUCTION

1.1 Project Origination

The idea for the proposed River of Grass Greenway (ROGG) was born out of a notion to provide public access to one of the most unique and well-studied landscapes in the world. Building on the allure of a long-distance hiking and biking experience for a variety of users, the ROGG is envisioned to bring awareness to the Greater Everglades ecosystem, including the ongoing ecological restoration in the region. The concept of the ROGG comes at a time when there are growing concerns about the environmental impacts of providing vehicle-only access to our National Parks. Shared-use path and alternative transportation access have proven to be effective means of reducing natural resource impacts, while still encouraging access to sensitive natural areas. Well-planned, shared-use paths such as the ROGG allow access to natural areas, provide pathways for alternative modes of transportation and enhance opportunities for improved fitness.

Drawing upon the historical corridor of the Tamiami Trail, designated as U.S. 41 /Tamiami Trail/S.R. 90 (hereafter U.S. 41), the proposed ROGG links seven national and state parks, preserves, forests, and wildlife refuges. Many of these natural areas have received intensive focus in recent decades as part of the Comprehensive Everglades Restoration Plan (CERP), the largest ecological restoration project in the world. Through these alternate transportation connections, the ROGG will provide an opportunity for millions of residents and visitors of South Florida to experience the Everglades landscape and culture in a sustainable manner. Connecting Naples and Miami, the ROGG is envisioned as a 76.47-mile pathway that may be parallel to U.S. 41 that is suitable for a wide range of non-motorized transportation and recreation activities such as walking, bicycling, bird watching, photography, fishing and general enjoyment and education of the Everglades ecosystem.

The concept of the ROGG was originally conceived by the Naples Pathways Coalition (NPC) in 2006 as:

> ***The concept for ROGG was originally conceived by members of the NPC that formed a committee in 2006 to explore the idea for a pathway separated from U.S. 41 that would allow folks of all ages and all abilities the opportunity to safely experience the Everglades at a slow pace, outside of their cars. The idea was for a pathway that could be used by walkers, cyclists, bird-watchers, photographers, fisherman, and more. An important focus of the pathway is the potential for environmental education and stewardship with a strong desire by the committee for the pathway to be built for sustainability with the least amount of environmental impact. This concept was rooted in the supporters' deep interests in the Everglades region and a strong environmentally-based understanding for the environment.***

Between 2006 and 2009, the NPC presented the concept of the ROGG across the South Florida region and worked to obtain letters of support from municipalities, local regulatory agencies, and private interests. In 2009, the National Park Service (NPS) Rivers, Trails & Conservation Assistance (RTCA) program in collaboration with the NPC submitted a grant proposal to the U.S. Department of Transportation (USDOT) Federal Transit Administration (FTA) to fund a feasibility study and master plan for ROGG through the Paul S. Sarbanes Transit in Parks Program (TRIP). The grant for this work was funded by the FTA through an interagency agreement with the NPS RTCA. The NPS RTCA contracted with the Miami-Dade County Parks, Recreation, and Open Spaces Department (MDPROS) to serve as the project manager for the study. In 2012, MDPROS contracted with AECOM Technical Services, Inc. (AECOM) to provide planning, public outreach, documentation, and vision development services to assist in the preparation of the Feasibility Study and Master Plan.

The objectives for the ROGG feasibility study and master plan identified by the FTA agreement with the NPS RTCA include:

- Identification of potential alignments, routes, links, and connections;
- Determination of alignment of intersections and access points;
- Identification and mapping of previous research and analysis of the corridor;
- Identification and analysis of necessary considerations for the proposed corridor area;
- Determination of legal feasibility and compatibility with surrounding land parcels;
- Identification of environmental constraints and needed mitigation;
- Promotion of public participation;
- Analysis of the demand, use, and benefits of the ROGG;
- Assessments and other necessary tasks to determine the feasibility of the ROGG and an efficient and ecologically sensitive design to meet the viable goals of communities, multiple agencies, jurisdictions, and various organizations.

1.2 Feasibility Study and Master Plan Approach

The approach for the Feasibility Study and Master Plan included a variety of assessment, public outreach, and documentation tasks accomplished over an estimated 3.5-year schedule. The Project Team consisted of MDPROS and a team of consultants led by AECOM, including Alta/Greenways, a trails planning firm with extensive international experience, and transportation planning firm Nelson Nygaard. MDPROS' role was as manager and facilitator of the scope of work for the NPS. All statements included in this report are a reflection of the public involvement process and are not to be interpreted as official statements from MDPROS or Miami-Dade County, which is neutral. These organizations worked in coordination with the NPS RTCA and the ROGG Executive Committee from the NPC. Collectively, these tasks included pre-planning, existing conditions analysis, conceptual corridor vision development, development of an implementation plan, and compilation of the Feasibility Study and Master Plan Report. The following provides a brief overview of these tasks:

- **Pre-Planning** – This step consisted of the identification of stakeholder groups, development of the process for engaging the public, and initial evaluations of the corridor and comparable projects. MDPROS, in association with the NPS RTCA, established a project Steering Committee comprised of approximately 16 representatives from a variety of land management agencies, regulatory agencies, tribes, and other key groups found within the general ROGG Study Area. A Public Involvement Plan (PIP) was developed to provide a schedule and plan for engaging the public using a variety of different techniques ranging from public meetings to a project website for public comment for the duration of the project.

  A kick-off workshop and corridor tour was conducted with the Steering Committee and Project Team in September 2012 to develop a common understanding of existing conditions; and to discuss general opportunities and constraints, and management within the corridor. The Steering Committee tour consisted of ten selected locations throughout the corridor Study Area to allow committee members to get an overall understanding of the breadth and diversity of the proposed ROGG. In November 2012, the Steering Committee met with the Project Team to review best practices and lessons learned from comparable existing greenway corridors from around the country and the world.

- **Existing Conditions Analysis** – This task consisted of the compilation, review, and assessment of existing data, reports, and site physical conditions relative to the ROGG. Geographic Information System (GIS) maps and data were compiled and distilled into base maps for initial site evaluations. Technical reports such as regional environmental studies, regulatory documents, traffic studies, and recreation plans were assessed for potential relevance to the ROGG planning process.

  In November 2012, the Project Team conducted site evaluations over the entire corridor to assess the base maps and technical documentation in the field. A summary of this site review was presented to the Steering Committee in January 2013. At this meeting, the Project Team also reviewed other potential projects occurring within the Study Area that had the potential to affect the planning of ROGG. The results of the Existing Conditions Analysis are included in Part 2 – Research and Analysis of this report.

- **Conceptual Corridor Vision Development** – This task consisted of the development of concepts and alternatives to be collated into a conceptual master plan and considered for feasibility. It also included an assessment of the costs and benefits provided by the ROGG. This task was initiated with a series of advertised public workshops held in various portions of the corridor to provide extended opportunities for public comment and input to the feasibility study and plan. Workshops were held in Naples (January 29 – February 2, 2013), Everglades City (February 26 – March 2, 2013), and Miami-Dade County (March 12 – March 16, 2013). Regional advocacy groups,

clubs, and organizations with special interests along the ROGG corridor were specifically invited to participate in the workshops. Individuals that attended were interviewed to document ideas and concerns. Participants were invited to provide input on potential routing alternatives, trailhead and gateway opportunities, and ways to connect to existing destinations along the corridor.

The feasibility of concepts that emerged from these workshops was refined based on criteria developed during the workshops that included resource impacts and benefits, expected costs, and estimated economic benefits. These criteria were used to improve the conceptual master plan for the corridor. The conceptual master plan and associated assessments were reviewed with the Steering Committee and the public through a variety of presentations. The results of the Conceptual Corridor Vision Development task are documented in Part 3 – Corridor Vision and Feasibility.

- **Implementation Development** – This task consisted of assessing potential funding sources, partners and sponsors, project phasing recommendations, and benefit-cost analyses. These assessments were reviewed with the Steering Committee to identify actions for short-term, medium-term, and long-term implementation based on prioritization. The results of the Implementation task are documented in Part 4 – Implementation of this report.

- **Final Feasibility Study and Master Plan Report** – The Project Team prepared a Feasibility Study and Master Plan report for review by the Steering Committee. Comments from the Steering Committee were incorporated into a final Feasibility Study and Master Plan report along with summary materials. Non-profit and environmental groups, interested individuals, and elected officials were educated and informed about the ROGG Feasibility Study and Master Plan through presentations in various public forums.

These tasks have been completed and documented as part of the report in four chapters (see **Diagram 1**). The first chapter identifies the project origin and approach. The second chapter provides an overview of the existing conditions, literature and comparables relevant to the feasibility of ROGG. The third chapter establishes a feasibility criteria and tests each option for trail routing developed during extensive public involvement. The fourth chapter contains a project implementation plan complete with funding opportunities and cost estimates. Additional information may be found in the appendix of the document.

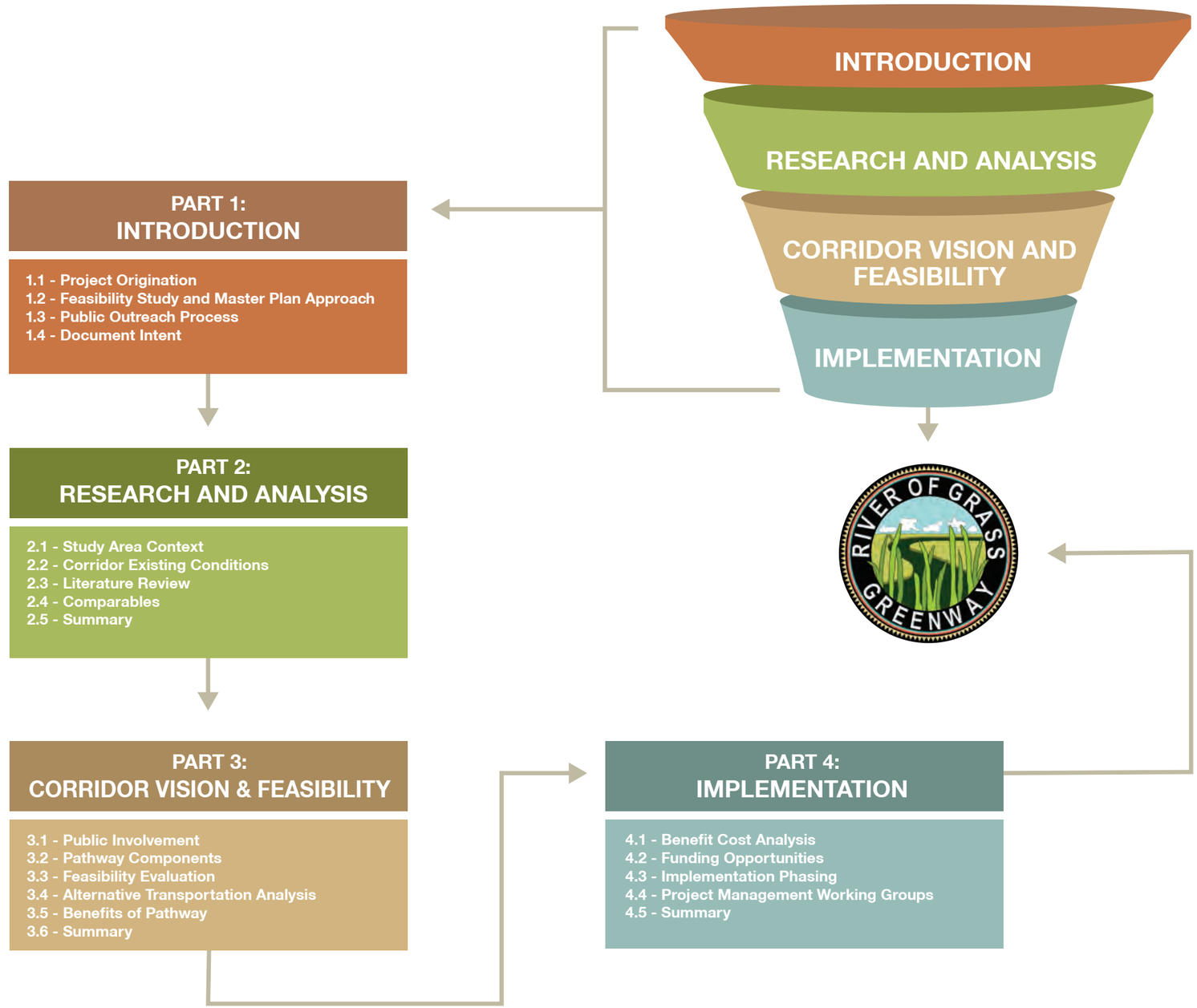


Diagram 1- ROGG Feasibility Study and Master Plan Format

1.3 Public Outreach Process

A Public Involvement Plan (PIP) was developed to guide effective outreach and timely distribution of information to participants that engaged in the ROGG Feasibility Study and Master Plan. The following diagram illustrates the techniques identified in the PIP and used as part of the Study, as well as the flow of input and feedback from the groups identified in the plan.

1.3.1 Goals

The ROGG planning process included a variety of communication channels to help stakeholders understand the scope, issues, impacts, and benefits of work completed (see **Diagram 2**). The planning process solicited input and feedback from the public as to their specific needs, issues, concerns, and recommendations.

1.3.2 Techniques and Objectives

The ROGG Feasibility Study and Master Plan relied on public participation through outreach, information exchange, feedback, and consensus. In an effort to ensure broad public participation, the planning process included the following formats:

a. Steering Committee
b. Advisory Groups
c. Primary Agency Presentation and Review Meeting
d. Community Meetings
e. Community Workshops/Planning Area Work Sessions
f. Stakeholder Interviews
g. Project Website (Miami-Dade County)
h. Public Engagement Site (MindMixer)
i. Public Presentations
j. Press Releases
k. Handout Materials

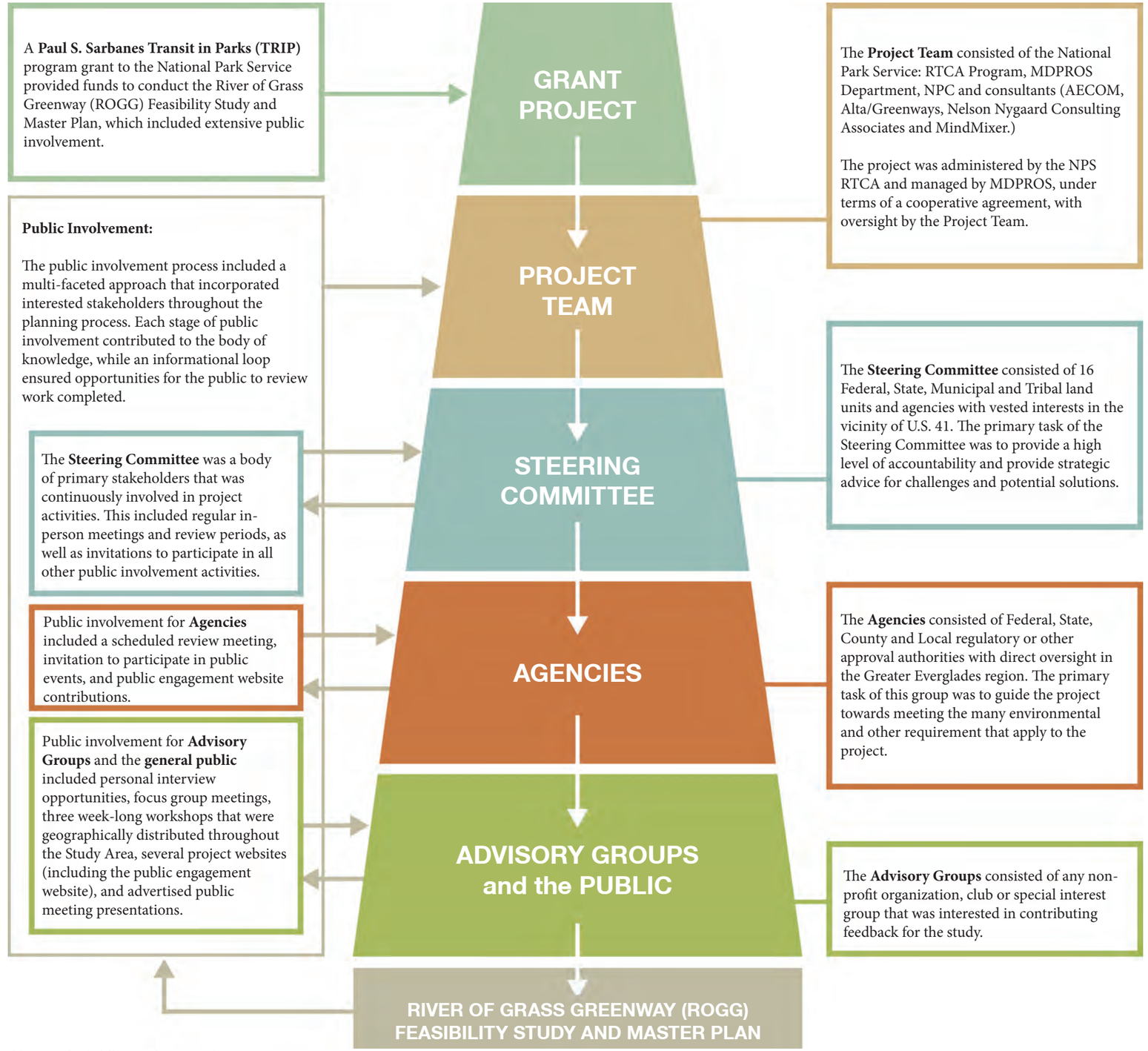


Diagram 2- Public Involvement Process

1.4 Document Intent

The ROGG Feasibility Study and Master Plan document was developed with the intent of providing information needed by all parties associated with the planning and design of the pathway. This document considered the technical aspects, recreation objectives, and public priorities identified in previous studies completed throughout the Greater Everglades region. Its four chapters include:

- Chapter 1 – Introduction
- Chapter 2 – Research and Analysis
- Chapter 3 – Corridor Feasibility and Vision
- Chapter 4 – Implementation

Supplemental information is included in the Appendix.

Important Notes: The work contained in this document is intended for a feasibility study and master plan for ROGG and includes preliminary research and analysis. The next step, should elements of the ROGG continue would be a Project Development and Environment (PD&E) study which is Florida Department of Transportation's (FDOT) process for complying with environmental regulations and the National Environmental Policy Act (NEPA) regardless of funding source. A PD&E Study meets State of Florida and Federal requirements for determination of feasibility.

The PD&E process begins with the Efficient Transportation Decision-Making (ETDM) process with a Planning Screen and Programming Screen. This is where the project need, engineering required, environmental studies required, permit issues/types and dispute resolutions are all identified. If a project advances to PD&E it typically would cover engineering analysis, environmental analysis, public community involvement and permit and commitment compliance.

The Planning and Programming stages include an analysis by environmental resource agency staff known as the Environmental Technical Advisory Team (ETAT). The ETAT reviews various databases using an interactive Geographic Information System (GIS) platform and other departmental reference material.

The objectives of a PD&E study are to perform necessary social, environmental and engineering studies of a proposed transportation improvement, to support decisions concerning if and where a project should be built and to decide what the basic design concepts will be. The social, environmental and engineering studies to be conducted are in response to comments received from the ETAT reviews of the project during the Planning and Programming screens.

The ETAT will also provide additional information needed. Throughout this process, the public will have effective input into these decisions. The public includes individual citizens as well as state and federal agencies, permitting agencies, local governments, Tribal Councils, businesses, and environmental and other interest groups. The products of a PD&E study are the reports of findings and recommendations, appropriate environmental documents and preliminary engineering concepts. The engineering included in a PD&E study varies depending on schedule, funding and required study. This engineering component might result in a level of detail necessary to obtain the project's environmental permits.

When the project has completed the Programming screen, FDOT's ETDM Coordinator will work with the lead federal agency, in making an environmental Class of Action Determination. This determination is made part of the final Programming Summary Report (PSR) which is completed prior to the project being programmed in the FDOT's five-year work program.

Federally funded projects are classified as one of the following: Categorical Exclusion (CE), Environmental Assessment (EA) or Environmental Impact Statement (EIS).

Each potential phase of work on ROGG will require additional funding and approval in order to proceed. Future phases, if advanced, will include additional public and Tribal involvement and coordination. These future phases of work will also answer many important remaining questions that are beyond the scope of the FSMP.

It should also be noted that ROGG will not move forward unless other critical subsequent future phases of work are fully funded, completed and approved by other agencies and departments.

Upon the conclusion of this planning project, the ROGG has not been designed, engineered, or permitted. Ideas, illustrations, recommendations and alternatives included in this FSMP report are strictly conceptual and based on public involvement, research and analysis and steering committee members input which includes past participation by designated Tribal staff representatives. Preliminary pathway concepts and alternative routes were evaluated through analysis of opportunities and constraints strictly on a planning-level basis.

ROGG is a long-term vision that, if implemented, will be done in incremental phases as funding becomes available and permitting is approved. The estimate of visitors is based on a continuous 76+ mile long shared-use path. If the length of the path is less, the number of visitors will decrease accordingly and the volume of users will be less than projected.

A proposed path as long and as complex as ROGG is made up of hundreds of individual components, each specifically designed to meet a need, constraint or opportunity. These components have been conceptually developed through broad public involvement that included nearly three (3) weeks of corridor-wide advertised public workshops in 2013, three (3) advertised open house meetings in 2014 and two (2) websites and one (1) online public engagement or townhall website, as well as input from various public agencies and Tribal staff representatives. Typical components are grouped by either location within the cross-section of the US 41 right-of-way or by function of component, i.e., crossings, trailheads, hubs and gateways, and wayfinding. The typical cross-sections shown in the report represent existing conditions found throughout the corridor as well as 28 different concepts for potentially locating ROGG within or parallel to U.S. 41 summarized and evaluated in Section 3.3.2 on pages 134-139.

Advancement of any future built elements, contingent upon receiving additional funding, support and approval, would need to meet all federal, state and local permitting requirements which will include extensive environmental and cultural resource evaluations. Permitting and regulatory agencies will require avoidance and minimization of unsafe conditions or impacts to existing conditions.

Cyclist riding along the Shark Valley Tram Road in Everglades National Park

Part 02
RESEARCH AND ANALYSIS

The miracle of light pours over the green and brown expanse of saw grass [sic] and water, shining and slowly moving, the grass and water that is the meaning and the central fact of the Everglades. It is a river of grass.

– Marjory Stoneman Douglas

Introduction

The ROGG is proposed within a complex environmental, social and cultural region that has a long history of human use and occupation, but has undergone dramatic changes in land use, hydrology, and population over the last 50 to 100 years. Opportunities to experience and engage in this environment provide both the impetus for establishing a regional greenway as well as conditions and context that affect its feasibility and implementation.

The context provided by the regional setting, coupled with specific conditions within the corridor, represents the fundamental baseline that needs to be addressed by the feasibility study and master plan. This review of context and conditions does not occur in isolation from the extensive array of previous studies or the history of successful greenway and trail development across the world. The regional studies expand the knowledge base for issues, opportunities, and constraints posed by the context and conditions of the corridor, while comparable greenway projects provide technical and social examples of solutions to opportunities and constraints for the ROGG.

To that end, the purpose of this chapter is to provide summary documentation of context, existing conditions, relevant aspects of published studies and records, and comparable projects along with the implications of those elements for the feasibility study and master plan. To accomplish this, the chapter is divided into five sections, including the following:

1. Corridor Context – This section documents seven elements, including a) history, b) climate, c) geography, geology, and soils, d) hydrology and hydrogeology, e) ecology, f) public and tribal ownership, and g) transportation components of the lands in and adjacent to the ROGG Study Area. Descriptions of each element are provided, which are then followed by an assessment of the implications each element has for the feasibility study and master plan for ROGG.

2. Existing Conditions – This section documents the typical conditions and key nodes for potential alignment alternatives, points of interest, and relevant findings for the ROGG Study Area. For documentation purposes, the ROGG Study Area was divided into three segments to allow for more detailed focus on the conditions in specific areas of the corridor. While these segments provide convenience in documenting and presenting information for portions of the corridor, the feasibility study and master plan for the entire ROGG corridor addressed the findings from these segments as a whole for the entire corridor.

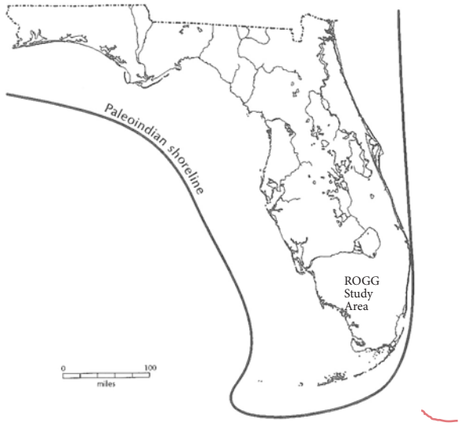
3. Literature Review – This section provides a comprehensive list of influencing documents that have been prepared for, or govern the lands within or adjacent to, the ROGG Study Area. It also summarizes a subset of these documents with particular relevance to the feasibility study and master plan. These summaries include a brief overview of each document and an assessment of issues relevant to ROGG that were identified in these documents.

4. Comparables – This section documents greenway and shared-use path projects from state, national, and international locations that exhibit successful implementation of design, construction, and/or operational aspects relevant to the ROGG. It provides descriptions of seven categories of greenway and trail projects, documentation of best practices, and lessons learned from those projects.

5. Summary – This section provides a summary of the overall conditions and context, literature review, and comparable projects and it provides planning implications for those elements related to ROGG.

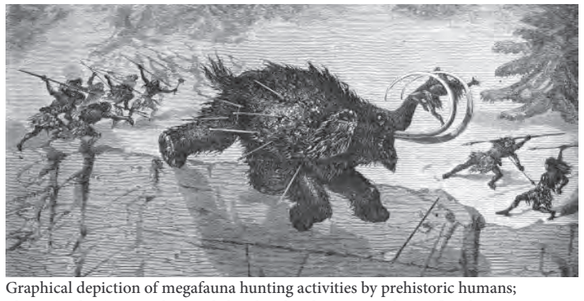
For the purpose of this approach and study, the following are defined terms utilized for a number of situations and descriptions:

- The use of the term Tamiami Trail refers to the concept and original configuration of the roadway built to provide a connection between Miami and Tampa, while the use of the term U.S. 41 refers to the current pavement types and widths and shoulder configuration of the existing roadway.
- The use of the term Old Tamiami Trail refers to the portions of the original roadway that were removed from motorized vehicular use by improvements and construction of U.S. 41.
- The use of "maintained U.S. 41 right-of-way (ROW)" refers to the portion of U.S. 41 ROW that consists of the paved roadway and grassed shoulder (in general, this ranges from 34 - 125 feet), while "U.S. 41 ROW" refers to the entire width of the established right-of-way for the U.S. 41 corridor (in some cases this is 200 feet wide).
- Words such as trailheads that can be written as one or two words will be referred to in the text as one word, except for re-printing of titles of published reports in which the word was spelled as two words for consistency with the original report.



Approximate extent of Florida's shoreline during the Paleoindian period, with sea levels 130 to 165 feet below those of today.

Approximate extent of Florida's shoreline during the Paleo-Indian period, with sea levels 130 to 165 feet below those of today. From: Milanich, J.T. 1995. Florida Indians and the Invasion from Europe.



Graphical depiction of megafauna hunting activities by prehistoric humans; Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/35557

Seminole Indians with dugout canoes, Everglades National Park, 1921; Photo Credit: http://newspaperrock.bluecorncomics.com/2009_12_01_archive.html

2.1. Corridor Context

The purpose of this section is to document the physical, cultural, and ecological setting for the ROGG and planning implications for the feasibility study and master plan stemming from this contextual setting through a review of the following seven elements:

- **History** - This element summarizes the rich historical and cultural heritage of the corridor and notes the uses and features resulting from historical and current land uses within the corridor.
- **Climate** – This element summarizes weather and climatic conditions for south Florida.
- **Geography, Geology, and Soils** – This element provides an overview of the physiography, geology, soils, and significant geographic features of the region around the Study Area.
- **Hydrology and Hydrogeology** – This element summarizes the hydrological and hydrogeological setting for the Study Area.
- **Ecology** – This element provides an overview of the natural systems and related natural processes that support flora and fauna occurring within the corridor.
- **Public and Tribal Ownership** – This element reviews the ownership patterns for public and tribal entities within the Study Area.
- **Transportation** – This element summarizes traffic characteristics for U.S. 41, including the effects of visitation patterns for the parks on traffic patterns within the Study Area.

Each element begins with a summary of applicable data available and ends with an assessment of potential implications for planning efforts. A bibliography of documents from which information was compiled to prepare the summaries is included in **Appendix 1**.

2.1.1. History

In addition to its well-documented natural resources, the Everglades region has a rich and complex human history. The Everglades region has had a human presence for more than 12,000 years, even prior to the earliest formation of the Everglades system. This human presence has shaped and altered the natural systems of the region through that time, ranging from shell midden formation to fire patterns to regional drainage features. The population of the region rapidly expanded beginning in the early 1900s, which was coupled with construction of physical features such as the Tamiami Trail, levee and canal system, and expansion of residential and commercial uses on the eastern and western margins of the Everglades system. The following provides an overview of the historical and cultural context in which the proposed ROGG occurs. For purposes of this document, this context was broken down into three separate general categories for ease of reference, consisting of: Native Americans, 20th Century Development and Hydrology Alterations, and Conservation.

Native Americans

Like other parts of North America, Florida has been occupied by humans for more than 12,000 years. For south Florida and the Everglades, Lodge (2005) notes that four distinct cultural periods define the interaction of Native Americans with the Everglades system, including the Paleo-Indian Period, Archaic Period, Formative Period, and Seminole/Miccosukee Period. Paleo-Indians were early hunter/gatherers that hunted large animals, or megafauna, throughout the state. The Archaic Period began with the extinction of the megafauna and included the transition of subsistence from hunting to shellfish as well as the beginning occupation of the newly forming Everglades systems. Over subsequent centuries during the Formative Period, complex cultures developed in south Florida that cultivated agriculture and fired clay pottery, traded with groups throughout the southeastern United States, and developed temple mounds and village complexes. At the time of first European contact, two primary Native American groups controlled the south Florida region: the Calusa and Tequesta. After the decimation of these two people groups by disease and slave raids, few Native Americans inhabited the region until members of Maskókî tribes, referred to as the Creek Nation by white settlers, migrated into Florida and became known as the Seminole and Miccosukee tribes. The following provides a brief overview of the Native American use of the region consistent with the periods outlined in Lodge (2005).

Paleo-Indian Period

The Paleo-Indian period began with the advent of humans to Florida at least 12,000 years ago and extended until approximately 9,000 years ago. Archaeological research conducted at two sites in south Florida, Little Salt Springs near Charlotte Harbor (southwest) and the Cutler Fossil Site within the Deering Estate at Cutler (southeast), found evidence of Paleo-Indian occupation dated to approximately 12,000-13,000 years ago and 10,000 years ago, respectively. Large, now extinct, megafaunal species such as giant land tortoises, camels, and sloths occurred in the state. The semi-nomadic Paleo-Indians hunted these megafaunal species, but also supplemented their diets with smaller game and plant products. Although data is limited, human occupation of the region around the ROGG was likely sparse during the Paleo-Indian period.

During this time, the land area of the Florida peninsula was wider than current conditions due to lower sea levels and the climate was cooler and drier. The climatic conditions limited human habitation primarily to areas around coastal areas, rivers, and other large water sources. Moreover, the systems of the Everglades had not yet developed and the dry conditions on the interior of the state likely limited the occupation of the interior portions of the Everglades and Big Cypress regions. However, the coast line continually changed during this period as sea levels rose approximately six-feet per century, which also resulted in wetter climate conditions and more water sources for Paleo-Indians to use.

Archaic Period

The transition to the Archaic period began approximately 9,000 years ago with the extinction of the megafauna and extended until approximately 3,500 years ago when fired clay pottery began to be used and settlements began to be occupied. In the early part of the Archaic period, the extinction of the megafauna required modifications to hunting and food gathering, which included transitions to the use of shellfish and the use of different tools for food gathering. Coupled with the still rapid sea level rises characteristic of the end of the Paleo-Indian period, the early Archaic period exhibited drier conditions than the late Paleo-Indian period decreased available water resources, which made living conditions difficult in south Florida. However, conditions began to moderate 7,000 years ago through slower sea level rise, which allowed for more stable coastal resources such as shellfish availability, and increased moisture that allowed the formation of mesic habitats now common to south Florida, including the area that later became the Everglades.

As rainfall continued to increase and as Lake Okeechobee formed in the late Archaic, the modern ecological system of the Everglades completed its transformation into its current ecological system. People in the late Archaic period spread throughout the Everglades, using tree

islands, hammocks, and other higher elevation areas within the marshes for habitation. The close proximity of extensive freshwater resources such as turtles and snails and productive coastal resources such as shellfish provided rich resources for continuous occupation of desirable locations, eventually leading to the establishment of villages and other settlements and the establishment of middens that may have contributed to the formation and longevity of some tree islands.

Formative Period

Following the beginning of the use of fired clay pottery tempered with fibers from Spanish moss or palmetto fibers, the Formative Period contained the gradual transition from the late Archaic cultures to the increasingly complex social organizations associated with Glades cultures, including the Calusa and Tequesta peoples encountered by the early Spanish contacts in Florida. Populations increasingly drew upon the very productive estuaries in the region as well as the freshwater and upland habitats of the region, leaving behind middens in a widespread area of the Everglades including on tree islands. Associated with the population increase, increasing social organization included the development of social strata ranging from ruling classes to labor classes, an organization that allowed for the construction of large mounds used for burials and other social purposes and canals for drainage and transportation. These cultures also used fire as a management tool, potentially for the propagation and management of natural plant communities used for food supplies.

Within the vicinity of the proposed ROGG Study Area, this increasing social organization culminated in the chieftain social orders associated with the Calusa and Tequesta peoples, which were the two people groups dominant in south Florida when the Spanish first arrived in the state. The Calusa controlled the southwest portion of Florida centered around Charlotte Harbor and the Caloosahatchee River, while the Tequesta controlled the southeast portion of Florida around the Miami River. However, the Tequesta were required to show allegiance to the Calusa chief by the time of Spanish contact. The Calusa traveled extensively around the coastal systems and rivers of south Florida and were capable of using sea going canoes to travel to Cuba, while the Tequesta also canoed through the coastal systems rivers and seasonally used tree islands within the Everglades for habitation.

Led by Pedro Menendez de Aviles, the Spanish formally visited with the Calusa in their main settlement at the mouth of the Caloosahatchee River in 1566. In the following years, the Spanish introduced new foods and goods to the Calusa, while the Calusa worked to use the military skills and equipment of the Spanish to maintain influence in the region. However, the fatal diseases transmitted from the Spanish to the Native Americans, coupled with slave raids from other European powers, ultimately resulted in the destruction of the Calusa and Tequesta societies. In 1763, a group of 300 Calusa and Tequesta peoples left Florida for Cuba, thereby effectively ending these cultures in Florida.

Seminole/Miccosukee Period

The Seminole/Miccosukee period includes the renewed habitation of the Everglades region by members of the Seminole and Miccosukee tribes beginning approximately in 1825 and extending to the present day. In the early 1700s, members of the Creek Nation began to move into Spanish-held Florida to occupy lands left essentially unoccupied by the effects of European diseases and slaving raids and/or to move away from encroaching European settlers. The Creeks that moved to Florida included speakers of the related, but separate, Mikasuki and Muskogee languages, but came to be collectively known as “Seminoles” by European settlers. In the early 1800s, a number of factors led to a series of conflicts called the Seminole Wars. These resulted from friction between the Seminoles and settlers in Georgia and Alabama resulting from the incorporation of escaped slaves into the Seminole population in Florida, raids by Seminoles into Georgia that were encouraged by the British during the American Revolutionary War, and forced relocations of Native Americans from the eastern United States after Florida became a Territory in 1821 and later a state in 1845.

The Seminole Wars ranged throughout Florida, including the battle of Turner River during the Third Seminole War, with the Seminoles gradually being forced to withdraw into south Florida. These conflicts, coupled with forced relocations of Seminoles to lands west of the Mississippi River reduced the Seminole population significantly, with estimates of less than 500 Seminoles and 100 Miccosukee remaining. Moreover, these conflicts left the Seminoles living in lands around Lake Okeechobee, Big Cypress Swamp, and the eastern edge of the Everglades. Miccosukees were relegated to living deep in the wilderness of the Everglades, isolated from the majority of the other residents of Florida.

The late 19th century and first half of the 20th century brought changes in the use of the Everglades system for many of the Seminoles and Miccosukees. Following the cessation of the Seminole Wars, the remaining Seminoles and Miccosukees adapted to life within the Everglades. In the late nineteenth century, living in small, temporary camps on “tree islands” and sustaining themselves through hunting, trapping, fishing, and trading with settlers at remote frontier outposts. Similar to the earlier Tequesta, they began to occupy trees islands for agriculture, hunting camps, and burial purposes.

The completion of the Tamiami Trail in 1928 blocked traditional north/south canoe travel, added east/west travel routes on the Tamiami Canal, and established tourist trade in formerly isolated portions of the lands used by the tribal members. Tribal members, especially from the Miccosukees, also began to leave the tree islands and settle along the Tamiami Trail. However, some continued to live traditionally within the Everglades system and requested to be left alone from assistance or interference from governmental agencies. This perspective was communicated to state and local officials at a meeting with tribal members and on the Tamiami Trail in 1936. The meeting is now commemorated with a historical marker on Tamiami Trail. Tribal access to lands south of Tamiami Trail was curtailed following the establishment of Everglades National Park (EVER).

The Miccosukee Tribe maintains a significant presence within the ROGG corridor. The United States officially recognized the Seminole Tribe in 1957 and the Miccosukee Tribe in 1962 as sovereign governments, although a few individuals maintained a status as independent Seminoles separate from the tribes. Reservation lands were placed in trust for the tribes, including lands at the eastern terminus of the ROGG at Krome Avenue and the Miccosukee Indian Village. Both tribes established federal corporations to guide the economic development and independence of the tribes. Although the primary economic enterprise for the tribes is gaming such as the Miccosukee Resort and Gaming facility on the trust lands at Krome Avenue, the tribes also engage in agricultural activities associated with citrus and cattle; tobacco sales; educational, tourism, and cultural activities; and a variety of other enterprises. Tribal members own and/or live within single family residences on individual parcels or in small communities, some of which have been repatriated from federal land holdings within Federal parks. Significant cultural sites, including those used for the Corn Dance ceremonies occur near Tamiami Trail in or near portions of the proposed ROGG corridor.

Graphical depiction of a Spanish explorer in Florida; Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/2803

Drawing of Indian Mound near Fort Taylor, Monroe County, Florida. Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/3274

Seminoles canoeing through the Everglades - 1910s Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/35068

Military Map of the peninsula of Florida south of Tampa Bay, 1856 (Lieut. J. C. Ives under the general direction of Capt. A. A. Humphreys by the order of the Hon. Jefferson Davis, NY: Leve & Alden Printing Co., 1856, downloaded from Maps ETC, at http://ect.usf.edu/maps #f3793

Monument for the 1936 Seminole Conference

Native Americans - Relevance to ROGG: The Native American cultural use of the ROGG corridor affected feasibility assessments, potential alignment selection, construction requirements, and material selection for the ROGG feasibility study and master plan efforts. Specific influences on analysis for the feasibility study included:

- **Archaeological Resources** – Archaeological resources reflecting the long use of the areas by Native Americans could be distributed throughout the ROGG corridor and have been noted in the vicinity of the Study Area as part of surveys completed for the Big Cypress National Preserve General Management Plan (GMP). However, specific surveys within the entire Study Area have not been done as part of the ROGG feasibility study. Surveys for archaeological and/or cultural resources will be required prior to construction activities consistent with laws and regulations such as the Antiquities Act of 1906 and National Historic Preservation Act.

  Sites determined to be significant during later studies will need to be addressed after the master plan is finalized. The ROGG provides opportunities to interpret the archaeological resources in the region and along the proposed trail. The final alignment of the ROGG will by law avoid or cause no impact to mounds, middens, burial grounds, or other archaeologically significant features determined through the surveys or through review of documented records. For those sites located in or adjacent to the ROGG Study Area, measures will be required to protect archaeological sites from looting and vandalism. Future requirements may include a Cultural Resource Assessment Study (CRAS) as well as extensive coordination with area tribes and land owners during future phases of analysis and design to ensure identification and protection of archaeological resources.

- **Tribal Lands** – Tribal lands consisting of reservation trust lands, repatriated home sites, or lands owned fee simple by tribes or individual Miccosukee or Seminole occur throughout the Study Area, although this ownership does not extend into the U.S. 41 ROW. Depending on the trust lands involved, the Miccosukee and/or Seminole Tribes of Florida would control the potential feasibility of any trail alignment options through reservation trust lands. Routing alignments extending on and through privately held, fee simple ownership land will not be considered feasible unless approved by the subject property owner(s).

- **Battle of Turner River Battlefield** - The battlefield for the Battle of Turner River is generally situated between Birdon Road and Burns Lake Road within the Turner River floodplain and related prairies, although the boundaries are indistinct. Additional studies on the complete extent of the battlefield would shed light on its boundaries. During the battle, multiple individuals from both sides of the conflict perished within the battlefield, with many bodies left unburied where they fell. Due to the loss of life within the battlefield and lack of distinguished grave sites, concerns were expressed during advertised public workshops about potential impacts to unknown grave sites that would result from construction activities for the ROGG. Placing the shared-use path on existing infrastructure within the U.S. 41 right-of-way would likely not preclude feasibility of routing the ROGG through this portion of the corridor. Specific route locations that occur outside of existing infrastructure and disturbed lands within the battlefield were subject to additional public comment during the feasibility review.

- **Meeting Monuments** – The location of the 1936 meeting between state and tribal leaders has been commemorated with two separate monuments at the entry road into the Monument Lake Campground. One monument comprised of low stone walls in a square shape occurs on the south side of U.S. 41, while a stone historical sign marks the location on the north side of U.S. 41. Routing alignments that avoid the monuments would not preclude feasibility of the ROGG in this portion of the Study Area. Any future construction activities will need to avoid the monuments or other associated features identified during surveys for design and permitting. Review of activities in and around these monuments may require additional public review during permitting efforts.

- **Ceremonial Sites** – The Big Cypress National Preserve GMP notes the presence of two ceremonial sites important for the cultural practices of the Miccosukee and Seminole tribes that occur within the vicinity of U.S. 41 and the ROGG Study Area. The specific locations of the sites have been reviewed and addressed as part of the feasibility study and master plan process for ROGG, but are not documented here out of sensitivity to the significance of the sites. The Superintendent's Compendium 2012 documents buffers and closures to public use for those two sites within the Preserve. The feasibility for ROGG in this segment depends on routing locations that accommodate land use and construction requirements in the vicinity of these sites, including any restrictions on construction activities and public use associated with lands on which the ROGG would occur. The planning for specific routing alignments will need to address the buffers and associated restrictions, which may include limiting route locations to existing infrastructure associated with the U.S. 41 ROW. The master plan needs to accommodate access for tribal members as well as access controls to limit unwanted intrusions into the sites from non-tribal members.

Native American Summary

Florida has been occupied by humans for more than 12,000 years, starting with the Paleo-Indian period when the land area of the Florida peninsula was wider than current conditions and the climate was cooler and drier. The Archaic period (9,000 – 3,500 years ago) included the advent of clay pottery and permanent settlements, and it was the period in which the modern ecological system of the Everglades formed. The Formative Period included the establishment of increasingly complex social organizations associated with Glades cultures, including the Calusa and Tequesta peoples encountered by the early Spanish contacts in Florida. The Calusa controlled the southwest portion of Florida, while the Tequesta controlled the southeast portion of Florida. The Spanish formally visited with the Calusa in their main settlement at the mouth of the Caloosahatchee River in 1566. Over the next 200 years, factors such as fatal diseases and slave raids resulted in the destruction of the Calusa and Tequesta societies. Archaeological resources from these centuries of human habitation occur within the corridor and provide potential constraints and interpretation options for the feasibility study and master plan for ROGG.

The Seminole/Miccosukee period includes the renewed habitation of the Everglades region by members of the Seminole and Miccosukee tribes. In the early 1700s, Mikasuki and Muskogee speaking members of the Creek Nation began to move into Spanish-held Florida, collectively becoming known as "Seminoles" by European settlers. Following the conflicts called the Seminole Wars, the remaining Seminoles and Miccosukees adapted to life within the Everglades. With the completion of the Tamiami Trail in 1928, some members of the Miccosukee tribe began to settle along the roadway, while others continued to live traditionally within the Everglades system. The ROGG Study Area includes reservation trust lands for the Miccosukee Tribe and several significant cultural sites, including those used for the Corn Dance ceremonies. Relevant elements of the Seminole and Miccosukee historical period considered in the feasibility assessment include considerations for tribal trust lands, the Battle of Turner River battlefield from the Seminole Wars, historical monuments from tribal and government interactions, and avoidance of significant ceremonial sites for the tribe.

20th Century Development and Hydrology Alterations

Florida's Everglades were one of the final frontiers for European settlers in the United States. Although Europeans explored Florida as early as the 1500s, much of interior portions of South Florida remained essentially unoccupied by European-Americans for centuries. Some settlers began to arrive in the region as a result of the Armed Occupation Act of 1842, which granted 160 acres to anyone who would help settle the frontier. But for the most part, the subtropical climate, hydrology, landscape, and conflicts with indigenous populations of the region limited the settlement of the region by Europeans until late in the 19th century. These early settlers were generally self-sufficient and valued personal independence and a restraint-free life over material possessions, characteristics associated with the "Florida Cracker" culture.

Over time, these residents adapted their lifestyles and subsistence patterns to include fishing and reliance on the diverse resources of the wetlands and tree islands of the Everglades and Big Cypress systems, giving rise to a regional variant of the Florida Cracker culture called "the Gladesmen Swamp/Folk Culture." The Gladesmen relied on the steady supply of fish and game provided by the Everglades ecosystem for sustenance and hides, pelts, and bird plumes for trading at outposts, all of which was similar in many respects to the subsistence and lifestyles of Native Americans within this area at the time. Although the homesteads of early Gladesmen tended to be in isolated locations, a number of informal fishing and hunting camps evolved over time into social gathering places. Practices that focused on access and use, both for subsistence and recreation, became significant features of members of this cultural group. Modern day Gladesmen retain many of the same independent, self-sufficient outdoorsmen characteristics of the early Gladesmen, but now rely on the natural resources of the Everglades more for cultural and recreational experiences than for subsistence, which arises from their respect of and traditional use of the natural areas. These Gladesmen actively participate in public forums to advocate for conservation of natural systems and access for their traditional uses.

Beginning with Hamilton Disston in the 1880s, large-scale drainage projects were implemented to lower natural water levels and drain the vast Central and South Florida wetlands, which created more arable land and provided land to supply development booms spurred by railroads along the coasts of south Florida constructed by Henry Flagler and Henry Plant. Although state policy for drainage of the Everglades and smaller scale drainage activities began prior to 1903, the

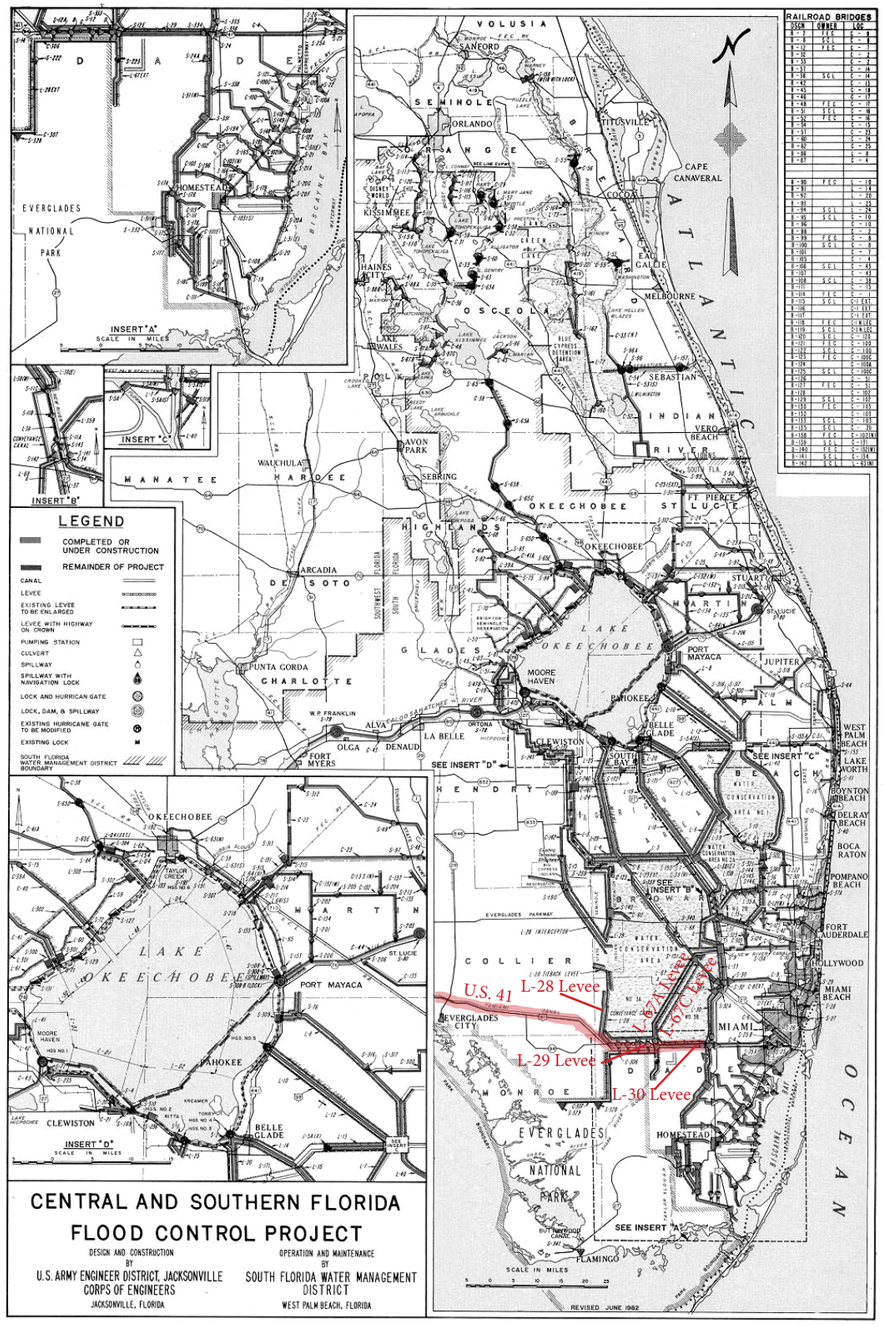
Tamiami Trail

As early as the 1910s, a regional goal emerged to connect the growing population centers of Miami and Tampa through the Everglades and Big Cypress Swamp by the Tamiami Trail, a direct link between Miami and Tampa via the town of Naples. Counties connected by this roadway were responsible for funding segments of the roadway, although many of the counties through the proposed Tamiami Trail corridor lacked the funds to construct the roadway. As a result, private developers stepped in to complete the project. Beginning in 1921, the Chevelier Corporation constructed a southern route of the Tamiami Trail through Monroe County, a segment now known as the Loop Road. A few years later, the Florida State Road Department changed the route of Tamiami Trail back to a Collier County route. Barron Collier, a New York advertising mogul who owned almost one million acres in Lee County including areas now part of Everglades City, agreed to fund construction of the Collier County route of Tamiami Trail.

Completed in 1928, the Tamiami Trail stretched across the marshes and wet prairies of the Everglades. The paved road was originally 20-feet wide and stretched 30 feet when measured shoulder to shoulder with the borrow canal occurring on the north side of the road. Six roadside service stations were established along the road to provide gas, food, overnight facilities, and police patrols along the trail. Over time, bridges and culverts were added to the road to allow for water to pass from north to south and the width of the pavement and shoulder were expanded, especially in the Miami-Dade section of the road, to the current configuration of U.S. 41. As part of improvements to the current configuration, portions of Tamiami Trail east of the Miami-Dade County line were constructed to the north of the original roadway. The original roadway was detached from the main traffic flow and exists as a separate facility called the Old Tamiami Trail. Near Fakahatchee Strand Preserve State Park, small segments of the roadway were similarly detached from traffic use when a curve in the road was straightened. Although considered an engineering feat when constructed due to the harsh conditions of the Everglades through which it had been constructed, the roadway was a significant obstruction to the historical water flow patterns from north to south throughout the corridor, resulting in significant hydrological alterations in the region.

Relevance to ROGG: The Tamiami Trail/U.S. 41 corridor is the southernmost crossing of the Everglades and the primary infrastructure component within the ROGG Study Area. General aspects associated with the assessment of ROGG based on historical conditions are provided here, while other specific information and relevant aspects of the U.S. 41 corridor are provided in the Existing Conditions section of this chapter. The historical elements of Tamiami Trail relevant to ROGG consisted of assessments of feasibility for portions of the corridor, alignment routing options and infrastructure available for incorporation into a future ROGG, future construction requirements, and long-term operations, including:

- **Way Stations** –The way stations within the corridor provide opportunities for rest stations, trailheads, and other amenities and infrastructure for the ROGG. One of these stations, Monroe Station, is listed on the National Register of Historic Places (NRHP). The other way stations are more than 50 years old as well and may be evaluated as historical resources during future permitting or implementation efforts within the corridor.
- **Scenic Byway Designation** – Due to the historical significance and scenic nature of the roadway, the Tamiami Trail was designated as a National Scenic Byway in 2000. However, the roadway was de-designated in 2008 at the request of the sponsor organization. Requirements for a scenic byway will not apply to ROGG within the U.S. 41 corridor.
- **Historical Status** – Although the Tamiami Trail and associated Tamiami Canal on the north side of the road are more than 50 years old, non-historic alterations to these features for improvements and other work have rendered these features ineligible for listing on the NRHP.
- **Loop Road** – Consistent with an Environmental Assessment (EA) published in 2010, Loop Road has been enhanced to repair pavement in previously paved portions of the roadway and to enhance the gravel roadbed and drainage under the road in the remaining portions. The current gravel surface accommodates motorized vehicular traffic, but is a rough surface for cyclists. Loop Road provides a potential alignment alternative to U.S. 41 that was evaluated as part of the ROGG feasibility study and master plan. The NPS has also identified ORV trailhead improvements along Loop Road for future implementation. Potential improvements for trailheads or other amenities for ROGG separate from NPS initiatives will require extensive permitting and public coordination, especially with in-holders and other traditional users of Loop Road. Paving the remainder of Loop Road to accommodate the ROGG was not considered feasible based on previous NPS coordination for work on Loop Road.
- **Old Tamiami Trail** – Two primary segments of the Old Tamiami Trail occur within the ROGG Study Area, one consisting of approximately 9.5 miles stretching from the L-67 levee through the Miccosukee Indian Village to Loop Road and the other consisting of two segments near the Fakahatchee Strand Preserve State Park boardwalk. The Tamiami Trail also passes through a segment of Everglades National Park east of Shark Valley for a distance of 6 miles. Portions of the Old Tamiami Trail in the first segment have been removed and/or degraded to provide for additional water flow to the south. Another portion occurs within the trust lands of the Miccosukee Tribe of Florida. The Old Tamiami Trail segments were evaluated for potential alignments for ROGG. The original roadbed is generally extant, although the portions of the Old Tamiami Trail occurring east of the Miccosukee Indian Village have been targeted for removal as part of the regional restoration efforts. Dense and tall shrubs have grown on the banks on the side of the road, providing both shade for potential users as well as visual blocks to views of the adjacent marshes. In addition, exotic plant species comprise a significant portion of the shrubs.
- **Tamiami Trail Next Steps** – The NPS prepared the Tamiami Trail Next Steps Environmental Impact Study (EIS) to evaluate alternatives to address hydrologic alterations caused by U.S. 41 in the eastern portion of ROGG north of EVER. The EIS approved the construction of bridges and alterations to the existing road base for U.S. 41, one of which was completed in 2013. The proposed modifications to U.S. 41 approved in this EIS are noted in Section 3 – Literature Reviewed of this chapter.



C&SF Project Map, 1962

Horse drawn carriage crossing of Everglades. 1906. Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/28871

Construction of Tamiami Trail. Before 1928. Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/25989

Constructing Tamiami Trail. 1924. Photo Credit: State Archives of Florida, Florida Memory,

ceding of more than 20 million acres of land from the U.S. federal government to Florida coupled with the establishment of the Everglades Drainage District in 1907 increased the rate and pace of drainage of south Florida. The populations of Miami and other existing south Florida cities rapidly increased as did tourism, including nature-based tourism. As populations increased on both coasts, the concept of and need for a roadway connecting the coasts through the Everglades became a regional goal, which was realized in 1928 with the construction of the Tamiami Trail.

Hydrological alterations to accommodate development activities and agriculture were initiated directly through drainage and flood control projects or indirectly through construction activities such as the Tamiami Trail. While an engineering feat, the Tamiami Trail had the effect of damming the flow of water into the Everglades and Florida Bay. Following catastrophic hurricanes in 1926 and 1928, flood control and navigation improvements began to be implemented within the Everglades system, including a dike around Lake Okeechobee that significantly altered water flows from the lake into the Everglades. After several years of drought that caused salt intrusions into regional water supplies, the southeast coast of Florida was inundated with more than 100 inches of rain followed by two additional hurricanes in 1947, resulting in extensive flooding. Congress authorized the Central and Southern Florida (C&SF) Project for Flood Control and Other Purposes in 1948 to prepare and implement a massive flood control plumbing system. The C&SF Project was comprised of four main components, including a perimeter levee on the eastern side of the Everglades for flood control, the designation of an agricultural area south of Lake Okeechobee, the establishment of Water Conservation Areas as water impoundments, and enlargement of the overall canal system for the region. The State of Florida created the Central and South Florida Flood Control District in 1949 to be the state manager of the C&SF Project, which was the predecessor agency to the South Florida Water Management District (SFWMD). Over the next two decades, the C&SF Project was implemented, resulting in flood control and drainage as well as significant alterations to the timing of water delivery, water quality and quantity, and freshwater available for water supply.

Beginning in the 1970s, several initiatives began to address the deterioration of the south Florida ecosystem caused by implementation and operation of the C&SF Project. The restoration of the Kissimmee River, an important source of water to Lake Okeechobee, began in the mid-1980s with the filling of a segment of the canal that had straightened the river. As part of the 1989 federal Everglades Expansion Act, activities were identified as part of the Modified Water Deliveries, or "Mod Waters," project to modify the C&SF Project to improve water deliveries to the Everglades National

Park. In 1994, the State of Florida enacted the Everglades Forever Act, which set criteria for phosphorus levels to address water quality issues in the Everglades. In 1992, Congress authorized the Water Resources Development Act, which gave federal approval to the Kissimmee Restoration Project and authorized the U.S. Army Corps of Engineers (USACE) to re-evaluate the C&SF Project performance and provide recommended improvements and modifications to restore south Florida ecosystems and provide other water resource needs. Over the next seven years, the USACE prepared the Central and Southern Florida Project Comprehensive Review Study, or Restudy, which was submitted to Congress in 1999 and became the Comprehensive Everglades Restoration Plan (CERP) upon approval in the Water Resources Development Act of 2000. Other efforts, such as the Tamiami Trails Next Steps EIS prepared by the NPS, were also initiated by state and federal agencies to identify projects to restore the Everglades and Big Cypress systems.

Projects to restore and enhance hydrology and ecology of the region have begun to be implemented within the ROGG Study Area. A one-mile long bridge raising U.S. 41 to allow for improved hydrological conveyance was completed in 2013. The portion of the Turner Road canal south of U.S. 41 was backfilled to route water back to Turner River. More than seven miles of canal have been backfilled and 65 miles of roadway removed within the Picayune Strand State Forest, which was coupled with the installation of a series of culverts under U.S. 41 to enhance sheetflow. In addition, the USACE and SFWMD completed the Project Implementation Report for the Central Everglades Planning Project (CEPP) in 2013. The CEPP report was submitted to Congress upon finalization for funding approval for a number of projects designed to enhance the hydrology of the central Everglades. The Record of Decision was signed on August 31, 2015 signifying the completion of the final administrative review for the ecosystem restoration project.

Comprehensive Everglades Restoration Plan (CERP)

The CERP is a guide and framework for the restoration of the south Florida ecosystem, which includes the Everglades. CERP was approved under the Water Resources Development Act of 2000 based on plans identified in the C&SF Project Comprehensive Review Study, or Restudy. The Restudy reviewed the status of the existing C&SF Project and made recommendations on how the C&SF Project could be modified to restore south Florida ecosystems and meet the flood abatement and water supply needs for south Floridians. Described as one of the world's largest ecosystem restoration projects, CERP provides a framework and guide for restoring, protecting, and preserving water resources over a 16 county/18,000 square mile area that centers on the infrastructure for the C&SF Project, which includes 1,000 miles of canals, 720 miles of levees, and several hundred water control structures. The USACE and SFWMD lead the implementation efforts, although a variety of federal, state, tribal, and local agencies were involved with the development and implementation of components of the plan.

The approved plan for CERP called for a series of more than 60 ecological and water system improvements across southern Florida ranging from construction projects to operational schedule changes. Construction projects were identified for nine regions that occur in or near the ROGG Study Area, including projects such as restoration of the Picayune Strand, modifications to the L-28 levee system on the east side of Big Cypress Swamp, modifications to the Water Conservation Areas (WCAs), and seepage management along the L-31 levee on the east side of the Everglades. The original Restudy identified many of these projects at a conceptual level and noted that additional details would be determined as implementation proceeded. Since the initial authorization for CERP only included certain projects, the implementation plan for CERP spelled out a process for additional studies to support project development and future Congressional authorizations, which included the Project Implementation Reports process. As noted on the CERP website, major benefits anticipated to result from CERP include:

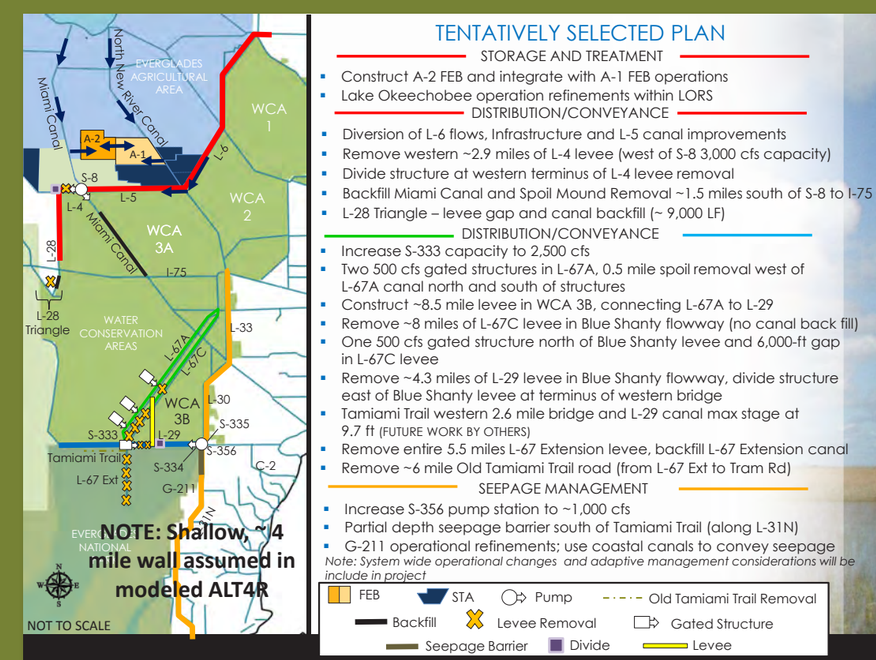
- Restoring natural flows of water, water quality and hydroperiods;
- Improving the health of more than 2.4 million acres of the south Florida ecosystem, including the Everglades and Biscayne National Parks; and improving habitat for native flora and fauna, including threatened and endangered species;
- Ensuring a reliable, adequate supply of fresh water for use by all – the environment, urban residents and visitors, and agriculture;
- Maintaining flood protection set in place by the C&SF Project; and
- Creating wide-ranging economic benefits, not only for Florida, but the entire nation.

Additional details about ongoing projects that are part of the implementation for CERP can be found on the official website of the CERP at http://www.evergladesplan.org.

Central Everglades Planning Project (CEPP)

The CEPP is designed to advance restoration efforts in the central portions of the Everglades by identifying and planning projects on land already in public ownership to allow for more water to be directed south to the central Everglades, EVER, and Florida Bay. Since 2011, a team lead by the USACE in partnership with the SFWMD completed the Final Integrated Project Implementation Report and Environmental Impact Statement in July, 2014. The USACE signed the Record of Decision for CEPP on August 31,2015, signifying the completion of the final administration review for the ecosystem restoration project's report. Project components to be developed as part of CEPP include increasing storage, treatment, and conveyance of water south of Lake Okeechobee; removing and/or plugging canals and levees within the central Everglades; and retaining water within EVER to protect urban and agricultural areas to the east from flooding.

The tentatively selected plan as of July 2013 shown below included 19 projects requiring construction or operational changes including: removal of a portion of the L-29 levee, removal of portions of the Old Tamiami Trail, and levee modifications in the southwest corner of WCA 3B. Recreation elements have been evaluated as part of the plan and have been identified for construction in the final Project Implementation Report. A draft Project Implementation Report was issued in August 2013, which identified the preferred plan and implementation plan. Based on this report, although the projects identified in the CEPP are anticipated to take multiple years to implement subject to available funding. Generally, the current draft phasing plan identifies projects in the northern portion of CEPP needing to be completed, along with the construction of bridges authorized for the Tamiami Trail Next Steps project, prior to removal of portions of the L-29 levee.



Man guiding boat in the Everglades 1913. Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/2778

Dedication for Everglades National Park. 1947. Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/67965

Collier-Seminole State Park entrance

20th Century Development and Hydrology Alterations - Relevance to ROGG: The legacy of development and hydrological alterations affected feasibility assessments for: alignment selection and public access, connections to existing infrastructure, drainage to address hydrology, and temporal phasing considerations. Specific influences on analysis for the ROGG study included:

- **Gladesmen** – The region around the ROGG Study Area is extensively used by members of the Gladesmen culture for hunting, fishing, and backcountry access for recreation and property use. Consistent with access control requirements for national and state land holdings, this access generally ranges from pedestrian to Off Road Vehicles (ORV) access. Restrictions on use, pedestrian access and parking, speed limit changes, and parking for ORVs on U.S. 41 have faced significant opposition from members of the Gladesmen cultural group. Considerations of the traditional uses of the Gladesmen for ROGG included alignment alternatives that limit encroachments onto access and parking for traditional uses, designs that accommodate ORV access, and evaluations of potential trailheads on parking access. An ethnographic study of the Gladesmen culture conducted in 2011 identified two sites, including the Airboat Association of Florida in the eastern portion of the ROGG Study Area, as Traditional Cultural Properties (TCP) eligible for listing in the National Register of Historic Places. Routing options for the ROGG that avoided known TCPs were not precluded from being considered feasible by the presence of the TCPs and will be further evaluated through the completion of a Cultural Resource Assessment Study (CRAS) and permitting.

- **C&SF Project**– Infrastructure from the C&SF Project, including levees (L-28, L-29, and L-31), canals, and structures, occur within the ROGG Study Area and were evaluated for feasibility as alternative routes for the ROGG. However, much or all of several of these levees have been identified for removal as part of the regional hydrological restoration efforts for CERP. Due to operational concerns, canals pose a constraint on ROGG routing options by limiting crossing locations to existing or proposed control structures and/or limited locations for bridges. Shared-use path crossings of structures are currently maintained by the SFWMD and are not precluded from feasibility for the ROGG. These crossings require routing protocol that will not impact operation and water flow in case of an accidental fall from the path.

- **Regional Restoration** – Regional restoration efforts for CERP, Tamiami Trail Next Steps, and other projects will change the infrastructure available for ROGG routing alternatives, especially in the eastern portion of the corridor. CEPP has designated a 4.3 mile long segment roughly from the Blue Shanty flow way to the L-67 for removal, although implementation of other elements such as construction of additional bridges would likely need to be constructed prior to the levee removal to accommodate water flows. A temporary route for ROGG on the levee while it still remains was evaluated for feasibility. The design for the bridges identified in the approved plan for the Tamiami Trail Next Steps project did not include a shared-use path facility separated from traffic use, but did include wide shoulders for vehicle recovery.

20th Century Development and Hydrology Summary

Florida's Everglades were one of the final frontiers for European settlers in the United States as the subtropical climate, hydrology, and conflicts with indigenous populations limited extensive settlement until late in the 19th century. Over time, the early settlers adapted to the diverse resources of the wetlands and tree islands of the Everglades and Big Cypress systems, giving rise to a regional variant of the Florida Cracker culture called "the Gladesmen Swamp/Folk Culture". The early Gladesmen relied on the steady supply of fish and game provided by the Everglades ecosystem for sustenance and for trade items. Modern day Gladesmen retain many of the same independent, self-sufficient outdoorsmen characteristics of the early Gladesmen, but now rely on the natural resources of the region more for cultural and recreational experiences than for subsistence. They also actively participate in public forums to advocate for conservation of natural systems and access for their traditional uses. Considerations for the traditional uses of the Gladesmen including access and parking requirements and ORV access are elements relevant to the planning, design, and operation for ROGG.

Beginning in the 1880s, large-scale drainage projects were implemented to lower natural water levels and drain the vast Central and South Florida wetlands. The populations of Miami and other existing south Florida cities rapidly increased as did nature-based tourism. As populations increased on both coasts, the concept of and need for a roadway connecting the coasts through the Everglades became a regional goal. This was realized in 1928 with the construction of the Tamiami Trail. While an engineering feat, the Tamiami Trail had the effect of damming the flow of water into the Everglades and Florida Bay despite later additions of bridges and culverts to assist in movement of hydrological flow. Elements of Tamiami Trail relevant to the feasibility assessment of ROGG consisted of the existing infrastructure for the road and way stations available for future ROGG trails, the historical status of facilities, existing improvements and permits for Loop Road, Old Tamiami Trail segments, and the Tamiami Trail Next Steps improvements program.

Congress authorized the C&SF Project in 1948, which included four main components: a perimeter levee on the eastern side of the Everglades for flood control, designation of an agricultural area south of Lake Okeechobee, establishment of Water Conservation Areas as water impoundments, and enlargement of the overall canal system for the region. Over the next two decades, the C&SF Project was implemented, resulting in flood control and drainage as well as significant alterations to the timing of water delivery, water quality and quantity, and freshwater available for water supply. Elements of the C&SF Project relevant to ROGG include existing infrastructure such as levees and canals that could be available for ROGG routing alternatives consistent with the regional hydrological restoration efforts, and trail crossing requirements for structures.

Beginning in the 1970s, several initiatives began to address the deterioration of the south Florida ecosystem caused by the C&SF Project. As part of the 1989 federal Everglades Expansion Act, the Mod Waters project was identified to modify the C&SF Project to improve water deliveries to the EVER. In 1992, Congress authorized the Water Resources Development Act that included approval to re-evaluate the C&SF Project performance, provide improvements to restore south Florida ecosystems and provide other water resource needs. This re-evaluation resulted in the CERP upon approval in the Water Resources Development Act of 2000. In 1994, the State of Florida enacted the Everglades Forever Act to address water quality issues. Projects to restore and enhance hydrology and ecology of the region have begun to be implemented within the ROGG Study Area, including a one mile long bridge to allow for improved hydrological conveyance under U.S. 41, backfilling of portions of the Turner Road canal, and restoration efforts in the Picayune Strand State Forest. The Central Everglades Planning Project (CEPP) Record of Decision was signed on August 31, 2015 signifying the completion of the final administrative review for the ecosystem restoration project. Elements of the restoration efforts relevant to the feasibility assessment of ROGG include the removal and/or modification of existing infrastructure that would not be available for future trail options, the necessity for ROGG to be consistent with regional restoration efforts, and opportunities to incorporate ROGG elements on future bridges.

Conservation

In the midst of the drainage and development activities of the early 1900s, concerns about their effects on natural resources began to be expressed in public forums, and proposals to protect and conserve the natural systems of the Everglades began to appear. Initial efforts by local citizens groups resulted in the State of Florida establishing Royal Palm State Park in 1916 to set aside a unique hammock in the glades, which grew to a 4,000 acre state park through acquisition and donation by 1921. Between 1925 and 1934, Ernest Coe advocated for the creation of the "Tropical Everglades National Park" to protect the nationally unique resources of the Everglades. Congress eventually authorized the establishment of EVER in 1934, but the EVER was not dedicated until 1947 due to lack of funding and the need for land acquisition. Beginning at 460,000 acres, the EVER expanded to 1.4 million acres in 1958. In 1989, Congress passed the Everglades National Park Protection and Expansion Act that added 109,506 acres to the EVER, including lands adjacent to U.S. 41. At approximately 1.5 million acres, the EVER is the largest designated wilderness east of the Rocky Mountains and protects a large portion of the original "River of Grass" noted in the book by Marjory Stoneman Douglas published in the same year the EVER was dedicated called The Everglades: River of Grass. The approval and implementation of CERP has provided a focus on continued efforts to protect and enhance the hydrology and natural resources of the EVER.

In 1944, land conservation efforts within the Big Cypress basin began with the acquisition of the Collier-Seminole State Park. The State of Florida acquired title to the initial area of Collier-Seminole State Park through a donation from the Lee County Land Company. Over subsequent years, the park was expanded through the acquisition of additional parcels through perpetual leases and fee simple title. One of the significant reasons for creation of the park was the high quality rockland hammock vegetation near the current park facilities. The entire extent of the park is listed on the NRHP based on the presence of high quality natural systems representative of south Florida and the presence of cultural features, including the last walking dredge used in the construction of the Tamiami Trail. The hydrology of the park has been altered by regional drainage and canals within the park. Efforts associated with the Picayune Strand Restoration project will route additional water through the park to assist in enhancing hydrology.

The C&SF Project established three Water Conservation Areas (WCA) to provide detention reservoirs for excess water from agricultural areas, flood protection, recharge for the Biscayne Aquifer, and to assist in limiting salt water intrusion. The only WCA adjacent to the ROGG Study Area is WCA 3, which is the largest of the three WCAs in the original C&SF Project plan. In 1962, the WCA 3 was divided into two separate facilities called WCA 3A and WCA 3B through the construction of two interior levees called the L-67A and L-67C. In the vicinity of the ROGG Study Area, three levees forming part of the boundary for WCA 3A and WCA 3B include the L-28 and L-31 levees on the west and east, respectively, and the L-29 along U.S. 41. The ownership of WCA 3 is comprised of a mixture of interests, including the State of Florida, SFWMD, and private ownership. The Florida Fish and Wildlife Conservation Commission (FFWCC) manages the WCA 3 as part of the Francis S. Taylor Wildlife Management Area.

Initial plans for a large project known as the Everglades Jetport elicited substantial public debate and development of a coalition of interests that resulted in the formation of the Big Cypress National Preserve. In 1969, the initial runway at the Everglades Jetport, now known as the Dade-Collier County Transition and Training Airport, was constructed and put in operation on a portion of an approximately 23,500 acre parcel on the eastern edge of the Big Cypress Swamp just west of the Collier/Miami-Dade County line. Following substantial public debate and comment concerning the environmental impact of the proposed facility, the U.S. federal government, state of Florida, and Miami-Dade and Collier Counties entered into a pact to not enlarge the Jetport and to find a suitable alternative location for an airport. Based on plans developed in 1971 arising from work done to support the pact, the U.S. Congress authorized the formation of the Big Cypress National Preserve in 1974. Although included in the authorized boundary for the Big Cypress National Preserve, the Jetport remained a non-federal holding at the time of the ROGG study. Based upon substantial input by a coalition of interests including local conservationists, Gladesmen, Seminoles and Miccosukee Tribes of Florida, the establishing legislation for the Big Cypress National Preserve did not include the property within the Everglades National Park with its accompanying restrictions. Instead, provisions such as maintenance of traditional uses by the Miccosukee and Seminole tribes, ORV access, and hunting were maintained for the lands within the Big Cypress National Preserve. The reservation of oil exploration and extraction was also maintained as a use within the preserve.

In 1974, the State of Florida acquired property that later formed the Fakahatchee Strand Preserve State Park, an approximately 75,000 acre conservation parcel centered around the Fakahatchee Strand. Nicknamed "the Amazon of North America," the Strand is the largest linear cypress strand within the Big Cypress system, extending approximately twenty miles in length. Although much of the canopy of large cypress trees was harvested from the area between 1944 and 1954, the cypress canopy is recovering within the strand. Known for its plant diversity, the strand provides habitat for at least 11 species of plants found nowhere else in North America as well as the Florida panther and a variety of other listed and non-listed wildlife species. Access from U.S. 41 includes a boardwalk near a gift shop. The park is currently designing and permitting the construction of a visitor interpretation center, which is anticipated to be built on a segment of Old Tamiami Trail on the north side of U.S. 41.

Primarily comprised of two major tracts of land, the approximately 79,000 acre Picayune Strand State Forest is located in west central Collier County within the Big Cypress basin. In the 1960s, a large subdivision called the Golden Gate Estates was planned for the western side of the Big Cypress watershed near Naples. Roadways and canals supporting this future development were constructed over a broad area significantly altering the hydrology of the area. However, the developer eventually entered bankruptcy and the development was not completed. In 1985, the State of Florida embarked on a large undertaking to acquire lands from more than 17,000 landowners within the South Golden Gate Estates using Conservation and Recreation Lands funds supplemented by money provided by the federal government. The restoration of the Picayune Strand was identified as one of the restoration projects in CERP. This restoration is anticipated to include plugging miles of canals, removal and degrading of roadways, exotic species removal, and other flood control and hydrological operation elements.

Conservation efforts of the Big Cypress basin continued through the 1980s and 1990s with the acquisition and establishment of the Florida Panther National Wildlife Refuge (NWR) and the Ten Thousand Islands NWR. Consistent with the final recovery plan for the Florida panther, the Florida Panther NWR was established in June of 1989 under the Endangered Species Act to protect Florida panthers. The U.S. Fish and Wildlife Service (USFWS) acquired 24,300 acres in 1989 and 26,400 acres in 1996 from the Collier family through fee title acquisitions. The primary purpose of the Florida Panther NWR is the protection of the Florida panther and habitat for the panther and its prey. Under the provisions of the Arizona-Florida Land Exchange Act of 1988, the Department of the Interior was authorized to exchange 108,000 acres of land in Collier County owned by Collier family interests for 68 acres of land in Phoenix, Arizona. In 1996, the Ten Thousand Islands NWR was established through the conveyance of approximately 35,000 acres acquired as part of this exchange to the USFWS. The remaining 73,000 acres were conveyed to the Big Cypress National Preserve and the Florida Panther NWR as part of the 1996 acquisition. The Ten Thousand Islands NWR protects estuarine and freshwater marshes, shell midden islands, and other habitats for a variety of listed and non-listed wildlife species.

Large cypress trees in Florida;
Photo Credit: State Archives of Florida, Florida

Oil well derrick for Sunniland Well #2, Collier County. 1944.
Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/125520

Steam shovel in cypress area constructing Tamiami Trail. 1924.
Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/27040

Conservation - Relevance to ROGG: The substantial public conservation lands within the ROGG Study Area affected feasibility assessments for potential alignment selection, considerations for public and regulatory coordination, the identification of destinations and amenities that could be co-located, connections to existing infrastructure, and post-construction operation options. Specific influences on analysis for the ROGG study included:

- **Everglades National Park** – The Shark Valley Entrance provides a potential destination for connection from ROGG, but parking is limited within and near the facility. Options that allow ROGG users to access the Shark Valley Entrance without requiring parking, including transit options and parking in the vicinity, were evaluated. Use of the Old Tamiami Trail at the park entrance was considered as a potential route alternative.

- **Collier-Seminole State Park** – The Park provides a destination for ROGG trail users. Connections to the main park facilities were evaluated as part of the master plan development. Existing tram roads within the park provide opportunities for routing alternatives separated from U.S. 41. Hydrological improvements in the park that would result from the upstream Picayune Strand Restoration project would affect the design, configuration, and maintenance requirements for ROGG alignments using these tram roads. The main entry for the Park adjacent to U.S. 41 provides open lawn and shade trees for a shelter for ROGG.

- **Water Conservation Area 3** – The levees around and through WCA-3 provide potential routing alternatives for ROGG separated from the U.S. 41 ROW, although these may be only available for the short term until the regional restoration plans are completed. The feasibility of short term use of the levees considered the perspective that even short-term use of the levees for the ROGG sets public expectation about shared-use path use that may limit or affect the anticipated removal of the levees. The CEPP-proposed Blue Shanty levee and L-67 levee would provide a spur trail loop option for connection to the ROGG. The L-31 levee is anticipated to remain for seepage control and was evaluated for use as connections to other trail networks. The recreation plan for CEPP identifies parking facilities and boating access points on portions of the levee near the S-333 structure at the L-67 levee that provide trailhead connection opportunities for ROGG.

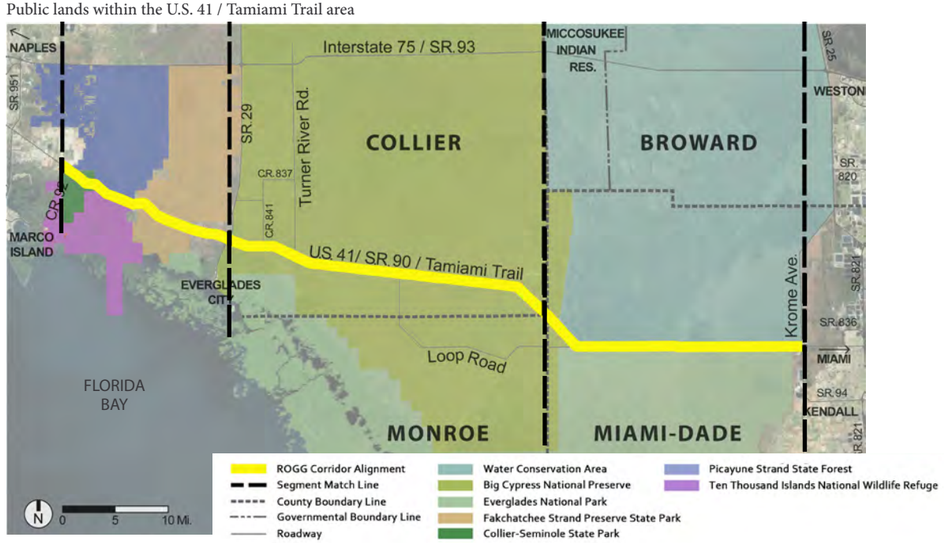
- **Big Cypress National Preserve** – The Preserve provides multiple opportunities for ROGG to connect to destinations and/or provide trailhead facilities, including the Big Cypress Swamp Welcome Center, the Turner River canoe launch, H.P. Williams Park, Burns Lake Campground, Monument Lake Campground, Oasis Visitor Center, and Midway Campground. These facilities occur on both sides of U.S. 41, which requires feasible portions of the ROGG to have design features for safe crossings of the roadway. Roads and scenic drive loops like Loop Road within the Preserve were evaluated for potential connections to ROGG. Options, including transit and parking in the vicinity, that allow ROGG users to access facilities such as the Turner River canoe launch without requiring parking were prioritized. Route alternatives outside of the U.S. 41 ROW would require NPS review and approval as well as extensive regulatory coordination. The NPS recently completed several ORV trailheads in portions of the Preserve along U.S. 41 and Loop Road. These trailheads are open to the public and could potentially support ROGG uses.

- **Fakahatchee Strand Preserve State Park** – The current boardwalk and proposed visitor center occur on the north side of the road, which requires design elements to accommodate pedestrian road crossings if path alignments for the rest of the corridor occur on the south side of U.S. 41. The proposed visitor center is a destination within the corridor and has parking and restroom facilities that would provide trailhead facilities for the ROGG. Options to use the Old Tamiami Trail segments in this vicinity were evaluated with respect to currently proposed mitigation activities and potential conflicts with extending the ROGG through a parking lot.

- **Picayune Strand State Forest** – The Picayune Strand State Forest occurs on the north side of the ROGG Study Area, but restoration activities within the Picayune Strand will result in hydrological restoration along U.S. 41 and within conservation lands within the Study Area. Accommodations of hydrological flows consistent with the restoration project were incorporated into design elements for ROGG.

- **Ten Thousand Islands NWR** – The Marsh Trail facility provides a destination and potential trailhead options for ROGG. Path alignment options outside of the U.S. 41 ROW would require review and approval from the USFWS, extensive regulatory coordination, and potential impacts to salt marsh and/or mangrove systems.

Public lands within the U.S. 41 / Tamiami Trail area



Conservation Summary

In the midst of the drainage and development activities, protection and conservation of the natural systems of the Everglades and Big Cypress also occurred. The State of Florida established Royal Palm State Park in 1916. Congress authorized the establishment of EVER in 1934, but the EVER was not dedicated until 1947 due to lack of funding and the need for land acquisition. At approximately 1.5 million acres, the EVER is the largest designated wilderness east of the Rocky Mountains and protects a large portion of the original "River of Grass." In 1944, land conservation efforts within the Big Cypress basin began with the acquisition of the Collier-Seminole State Park. The C&SF Project established three WCAs (including WCA-3 - the only WCA in the ROGG Study Area) to provide detention reservoirs for excess water from agricultural areas, flood protection, recharge for the Biscayne Aquifer, and to assist in limiting salt water intrusion.

Conservation within the western portion of the Study Area began after the EVER conservation activities, but has grown into a significant aggregation of conservation lands owned by a variety of agencies. Following the construction of an initial runway for the Everglades Jetport in 1969, substantial public debate resulted in the formation of the Big Cypress National Preserve. Based upon substantial input by a coalition of interests including local conservationists, Gladesmen, Seminole and Miccosukee Tribes of Florida, the establishing legislation for the Big Cypress National Preserve excluded the property from the EVER to allow for continued maintenance of traditional uses by the Miccosukee and Seminole tribes, ORV access, and hunting. In 1974, the State of Florida acquired property that later formed the Fakahatchee Strand Preserve State Park, an approximately 75,000 acre conservation parcel centered around the Fakahatchee Strand. Conservation efforts of the Big Cypress basin continued through the 1980s and 1990s with the acquisition and establishment of the Florida Panther National Wildlife Refuge (NWR), Picayune Strand State Forest, and the Ten Thousand Islands NWR.

The substantial public conservation lands within the ROGG Study Area affected feasibility assessments for potential alignment selection, considerations for public and regulatory coordination, the identification of destinations and amenities that could be co-located, connections to existing infrastructure, and post-construction operation options.

2.1.2. Climate

The Everglades region occurs at the southern end of the State of Florida at the interface between subtropical and temperate climate conditions, due in part to the warm waters of the Gulf of Mexico and Atlantic Ocean. Because the average monthly temperature for all months is above 64°F (18°C) and the area exhibits a pronounced wet and dry seasons, classification systems such as the Köppen classification defines the region south of Lake Okeechobee as "Tropical Savanna," which is a climate classification normally characterized by grasslands with scattered trees. Climate in the area is moderated both by extensive rainfall and occasional cold events from continental systems. As a consequence, an abundance of tropical species is generally limited to the coastal portions of the Everglades region.

The region exhibits two distinct seasons based on rainfall and temperatures. Temperatures in the winter/spring dry season (November through April) are generally mild and pleasant, though rare cold fronts may create near freezing conditions. The average temperatures in the winter/spring dry season generally range between a high of 77°F (25°C) and a low of 53°F (12°C). The summer wet season (May through October) is hot and humid, with temperatures exceeding 90°F (32°C) and humidity over 90%. Afternoon thunderstorms in the summer wet season form quickly and frequently are accompanied by heavy rainfall and frequent lightning strikes. Average rainfall is approximately 53-inches per year, and more than 60% of this total falls during four months of the wet season from June to September. Water levels in the Everglades typically rise rapidly during the wet season, reaching maximum levels late in the season, while the area slowly dries out during the dry season.

Daily weather conditions are similar during the summer wet season and more variable during the winter/spring dry season. During the wet season, trade winds bring a near continuous supply of wet air from the Gulf of Mexico and Atlantic Ocean. As this warm, wet air passes over land areas, it heats up and frequently causes heavy afternoon thunderstorms often characterized by a high frequency of lightning. The Atlantic hurricane season is June through November. During this period, tropical storms or hurricanes result in significant weather disturbances in the area. Continental frontal systems periodically pulse cold fronts through the area, which are preceded by limited rainfall events during the dry season. Following the passage of a front, the area exhibits lower temperatures and humidity levels for a few days until temperatures moderate.

Climate - Relevance to ROGG: The climate and weather conditions of the region primarily affect material selection and shelter requirements for the ROGG feasibility and planning efforts. These include:

- **Afternoon Thunderstorms** – Heavy rainfall and lightning from frequent thunderstorms in the summer wet season pose both a safety and design issue. Shelters providing protection from rain and lightning located periodically along the corridor will be required to provide path users refuge from quick-forming storms. Path stormwater systems will need to treat and disperse water from heavy rainfall events sufficient to not flood adjacent roadways or users, while maintaining usable trail surfaces.
- **Tropical Storms** – Periodic tropical storms and hurricanes can provide extreme rainfall and wind conditions. Structures on the path will need to be sufficient to withstand wind loads caused by these tropical storms. The path itself will likely be located within areas exposed to occasional storm surges, and its design will need to be resilient to these periodic, extreme events.
- **Sunlight and Temperature** – The intense sunlight and variable temperatures in the region will affect material selection and shelter requirements. Materials used in path construction should be resistant to fading and degradation from exposure to sunlight. Similarly, materials used for path surfacing and furnishings will need to accommodate long periods of warm temperatures and short term exposure to near-freezing temperatures. Shelters providing shade and potable water will need to be located periodically along the corridor to provide refuge from sunlight and respite from the heat.

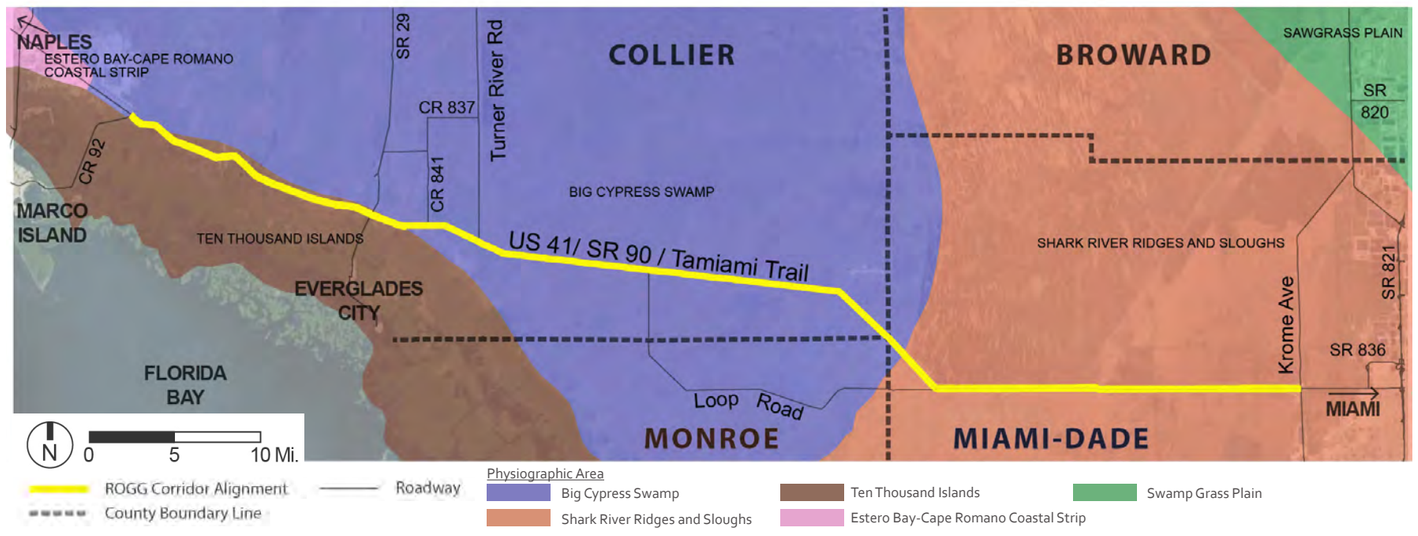
Thunderstorm over Everglades National Park (nps.gov))

Climate Summary

The ROGG Study Area occurs in south Florida at the interface between subtropical and temperate climate conditions within the climate classification of Tropical Savanna. The region exhibits two distinct seasons based on rainfall and temperatures. Temperatures in the winter/spring dry season (November through April) are generally mild and pleasant, though rare cold fronts may create near freezing conditions. The summer wet season (May through October) is hot and humid with frequent afternoon thunderstorms accompanied by heavy rainfall and frequent lightening. During the Atlantic hurricane season from June through November, tropical storms or hurricanes result in significant weather disturbances in the area.

Significant elements of climate relevant to the design and operations for ROGG considered for the feasibility assessment include rapidly developed afternoon thunderstorms, tropical storms, and intense sunlight and high summer temperatures. These climate specific impacts necessitate a need for periodic shelter for ROGG users which can withstand high winds and intense sunlight and temperatures.

Physiographic Map of U.S. 41 / Tamiami Trail area



2.1.3. Geography, Geology and Soils

South Florida lies within the Atlantic Coastal Plain physiographic region. This region is divided into several provinces that span the ROGG Study Area, which includes the Atlantic Coastal Ridge, Big Cypress Swamp, Everglades (comprised of the Saw Grass Plains and Shark River Ridges and Sloughs subprovinces), and Mangroves and Coastal Glades (including the Ten Thousand Islands subprovince). The Atlantic Coastal Ridge is a narrow belt along the east coast of Florida that ranges from 10 to 50 feet in altitude. The Everglades is slightly lower than the Atlantic Coastal Ridge and the Flatwoods, and gently slopes to the south at a rate of less than two inches per mile. This expansive, gentle slope leads to shallow inundation and slow drainage to the southwest during the rainy season. The Big Cypress Swamp is west and slightly higher than the Everglades and is comparatively flat with numerous strands and sloughs that drain water south and southwest. The Mangroves and Coastal Glades province is a relatively flat band around the southern tip of Florida that lies at or near sea level and is comprised of swamps and marshes.

The Florida Peninsula rests on a deep backbone of ancient (>650 million years old) igneous and metamorphic rock covered by thick layers of sedimentary rocks of younger vintage (1.5 to 140 million years old). These sedimentary layers are comprised of a variety of materials ranging from sands and silts to marls and shellbeds. During inter-glacial periods, sea levels rose and inundated the region with shallow seas resulting in surficial geological layers comprised primarily of limestone. Wind, waves, and currents moved sediments around and influenced the formation of the shallow ridge and slough systems found in the region. Over time, limestone formed from compressed layers of carbonaceous materials, sand, and shells deposited during these inundation periods.

Surface soils are generally comprised of limestone, marls, peats, and sand. The underlying limestone stone is exposed in various areas throughout the Study Area. This limestone typically exhibits karst characteristics where exposed due to acidic water drainage through the carbonate rock. Typically found in short-hydroperiod wetland areas, marls are mixtures of calcareous clays and calcite particles, sand, and/or shell fragments, often resulting from oxidation of periphyton (algal mats). Peats and the associated muck soils are derived from partially decayed plant materials that form in anaerobic conditions associated with long periods of inundation. Sand deposits are infrequent in natural settings in the corridor and likely derived from old shorelines.

Several natural and man-made geographic features within the Study Area deserve mention for their relevance to ROGG due to physical conditions, recreational connection opportunities, or uniqueness in the landscape. Occurring approximately eight miles from the western boundary of the Study Area, the Faka Union Canal provides boating connections between the Port of the Islands community to Fakahatchee Bay. The Fakahatchee Strand is a linear swamp system and drainage feature in the western portion of the Study Area that was incorporated into the Fakahatchee Strand Preserve State Park. Approximately 2.5 miles east of Ochopee, the Turner River meanders through forested floodplain forests, marshes, and mangroves to Chokoloskee Bay. Approximately 21 miles west of Krome Avenue, the L-28 levee extends north from U.S. 41 where it forms the western edge to the WCA-3A. The L-29 levee and canal runs along the north edge of U.S. 41 in the eastern portion of the Study Area. The Shark Valley Slough is the primary source of water for Everglades National Park and occurs south of U.S. 41 in the eastern portion of the Study Area.

Geography, Geology and Soils - Relevance to ROGG: The geology and geography of the region affect potential alignment selection, construction requirements, and material selection for the ROGG feasibility and planning efforts. These include:

- **Soils** –Soils in the vicinity of the project would serve as either the base on which the path is constructed or as the source for fill material. Limestone provides a firm base for pilings or fill, although solution holes or subsurface caverns will need to be evaluated during final construction. Significant peat or muck aggregations increase the costs and complexity of construction, so alignment alternatives through sloughs and marshes with the potential for muck require careful consideration. Although limestone can be a fill material, sources of fill material within the Study Area will be limited due to the protected status of lands in the area. To the extent that importation of fill was considered feasible, these costs were addressed as part of the implementation assessment.
- **Drainage** – The flat character of the Study Area influences the location, sizes, and configurations of drainage systems serving future facilities. Positive drainage from path features will require elevating the features either through pilings or fill so that drainage outfalls can accommodate discharge during dry and wet conditions. Because of the perviousness of the underlying limestone, and the prevalence of surface-water and groundwater throughout much of the year, opportunities to excavate stormwater treatment facilities are limited. Consideration of drainage requirements were a part of the assessment of the feasibility of installing potential trail features.
- **Geographic Features** – Features within the Study Area provide opportunities for connections to recreation opportunities, such as blueways or other experiences as well as potential constraints for alignment selection or construction requirements for crossing or connecting to the feature. Crossings for canals or channels like the Faka Union Canal and the Turner River will require new or expanded bridges, and the alignment location and/or feasibility for the crossing was evaluated based on effects on species using the channel (i.e. manatees) or the need to maintain boat access. Landscape features such as the Fakahatchee Strand provide opportunities for environmental interpretation and destinations for path users, although the feasibility for access necessitates safe path connections that minimize potential impacts to function of the natural systems. Regional drainage structures like the L-28 and L-29 levees provide existing infrastructure that were evaluated for path use, **although the long-term use of these features for the ROGG will continue to be guided by regional restoration efforts**.
- **Mineral Resources** – Active oil and gas production has been occurring in the vicinity of Big Cypress National Preserve prior to the Preserve's establishment in 1974. Although all production fields are located outside of the ROGG Study Area, access to these areas must be taken into consideration in order to separate users of ROGG from any truck traffic that may be required for any ongoing operation of these production fields.

Geography, Geology and Soils Summary

The ROGG Study Area lies within the Atlantic Coastal Plain physiographic region, which consists of several provinces including the Atlantic Coastal Ridge, Big Cypress Swamp, Everglades, and Mangroves and Coastal Glades. Geologically, the Florida peninsula rests on a deep backbone of ancient igneous and metamorphic rock covered by thick layers of sedimentary rocks of more recent origin. The sedimentary layers are comprised of a variety of materials ranging from sands and silts to marls and shellbeds that were deposited during higher sea levels associated with inter-glacial periods and compressed over time to form limestone. Surface soils are generally comprised of limestone, marls, peats, and sand. Significant elements of geology and soils relevant to the design and operations for ROGG considered for the feasibility assessment include the structural capacity of local soils and use of soils for fill material, drainage conditions that result in marl soils, and accommodation for mineral extraction.

Several natural and man-made geographic features occur within the ROGG Study Area. Large canals, including the Faka Union Canal and L-29 canal, and natural streams such as the Turner River provide fishing and/or boating opportunities. The L-28 and L-29 levees occur in the eastern portion of the ROGG Study Area and provide existing infrastructure available for potential ROGG use, although this use cannot affect the long-term regional hydrological restoration efforts. Landscape features including the linear Fakahatchee Strand and wider Shark Valley Slough serve as natural drainage features and sources of freshwater for downstream areas. Geographic features provide opportunities for connections to recreation, design considerations for new water crossings, environmental interpretation, and/or infrastructure that could be used consistent with regional hydrological restoration goals.

2.1.4. Hydrology and Hydrogeology

The ROGG Study Area occurs within a complicated hydrological setting associated with the Everglades and Big Cypress Swamp watersheds, both of which have been subjected to extensive hydrological alterations that changed flow conditions, direction of flow, water quantity and quality in the region. The Everglades watershed originates in central Florida in lakes draining into the Kissimmee River and then flows south through Lake Okeechobee into the Everglades and south into Florida Bay. The Big Cypress Swamp headwaters originate in the northern sandy flatlands south of the Caloosahatchee River drainage area. Water from the northwest portion of this watershed drains west into Estero Bay, while several large slough and strand systems drain the remainder of the watershed west and south. Significant strands in the Big Cypress watershed include Devil's Garden, Corkscrew Swamp, Okaloacoochee Slough, Fakahatchee Strand, Roberts Lake Strand, Turner River, and Mullet Slough. The surface hydrology interacts with and is influenced by the hydrogeology of the relatively permeable geological strata underlying the peninsula. Due to the significance of hydrology to the ecology of the ROGG Study Area, understanding historic and current conditions coupled with the hydrological improvements anticipated from the regional restoration projects that are proposed or underway was a critical aspect of the feasibility study. The ROGG has the potential to make changes that enrich and restore hydrology which at the same time provides for recreation purposes by, for example, periodic plugs in the Tamiami Canal as part of the trail network improvements in coordination with approved CEPP plans.

Hydrogeology and Aquifers

There are three aquifers within the marine carbonate sediments: the Floridan aquifer system, the intermediate aquifer system, and the surficial aquifer system. The Floridan aquifer is the lowest of the strata. It starts roughly 500 feet below sea level on the west coast and slopes to about 750 feet below sea level on the east coast. The intermediate aquifer system is located above the Floridan aquifer. Its domed shape peaks in Big Cypress Swamp and the Everglades at sea level and slopes off towards both coasts. The surficial aquifer system is composed of two triangular-shaped features located between the peak of the intermediate aquifer and each coast. The eastern triangle is called the Biscayne aquifer, and the western is called the shallow aquifer. The Biscayne aquifer is a significant water source for the east coast population. Freshwater in the WCA-3 limits saltwater intrusion into the Biscayne aquifer. Restoration activities within the region are anticipated to maintain hydrological inputs into the aquifers.

Pre-Drainage Conditions

The hydrological system in which the ROGG Study Area occurs is dominated by the watersheds of the Everglades and Big Cypress, both of which were historically interconnected with uplands, coastal areas, and marine systems. The vast wetlands associated with these watersheds dominated the pre-drainage landscape of south Florida. Throughout their extent, the majority of these basins are characterized by extremely flat topography that slopes generally north/northwest to south/southwest with a very low gradient, typically ranging from one to two inches per mile. The soils and upper geological strata are highly permeable limestone, which provide connections to surficial aquifers and allow groundwater seepage into creeks, rivers and other surface waters.

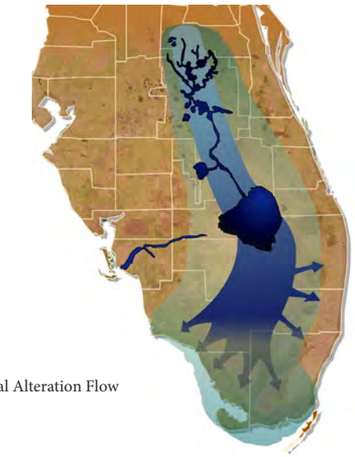
The pre-drainage wetland systems exhibited three essential characteristics: dynamic storage and sheet flow, large spatial scales of drainage, and heterogeneity in habitat. The large expanse of wetlands spread rainfall and upstream drainage into shallow sheetflows over a wide area, the depth of which significantly influenced vegetation heterogeneity and the formation of peat and marl substrates. Drastic seasonal variations in rainfall interacted with this hydrological action to create dynamic water conditions within the system. This broad flow of freshwater strongly influenced the upstream extent of salt marshes and other brackish systems as well as the salinity levels within downstream estuaries. The slow rate of flow through the topographically flat system resulted in a discharge of freshwater into estuaries well into the dry season.

Water flowing through both the Everglades and Big Cypress systems was generally low in nutrients. Nutrients transmitted through the water column were rapidly removed by vegetation and periphyton communities, all of which were adapted to low-nutrient environments. Although conditions in both the Everglades and Big Cypress watersheds were generally oligotrophic for phosphorus and nitrogen compounds, Big Cypress surface waters typically would have exhibited slightly higher total phosphorus and nitrogen levels than those in the central Everglades marshes due to different soil conditions.

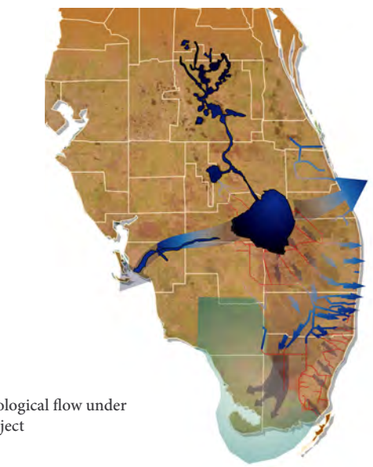
Post-Drainage Conditions

Drainage and development projects such as C&SF Project, roads and associated ditches such as Birdon Road in the central portion of the study area, and Tamiami Trail altered the hydrological elements that were characteristic to the Everglades and Big Cypress watersheds and resulted in significant ecological changes. Roadways served as dams, which effectively blocked or rerouted the broad sheet flow characteristic of the systems into narrow channels that could pass through culverts or narrow bridges. Canals captured and channelized sheetflow as well as intercepted groundwater that was then conveyed towards the coast, often in a direction that contrasted with historical flow patterns. Canals modified the period of inundation and provided avenues for saltwater or brackish water to extend into interior portions of south Florida. Levees were constructed as part of the C&SF Project to retain floodwaters and control flow discharge, which had a pronounced effect on the hydrology of the eastern half of south Florida. However, the Tamiami Canal and Tamiami Trail coupled with the extensive network of roads and ditches that extend north and south from the Tamiami Trail also impacted a large drainage area, and interrupted the historic overland sheet flow as well as direction of flow within sub-watersheds through the Big Cypress. These alterations reduced the depth and duration of inundation, introduced tidal influences into interior freshwater systems, and modified surface discharges to occur too often, too little, or at the wrong times of the year. As described in Section 2.5 – Ecology, the changes to hydrology resulted in ecological changes to the plant and wildlife populations of south Florida.

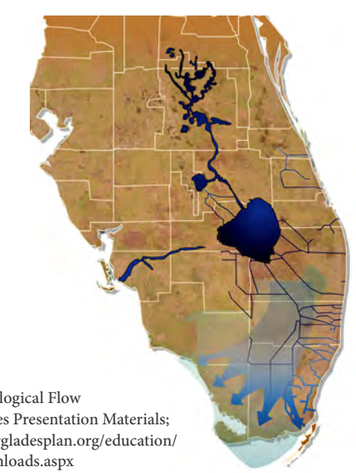
In addition to water flow and quantity issues, the water quality of the region has also changed, although water quality inputs for the Big Cypress have generally been affected less than those of the Everglades. The Everglades occurs at the end of a hydrological gradient beginning near Orlando, a gradient that includes extensive agricultural lands. Water from cattle operations occurring upstream of Lake Okeechobee along the Kissimmee River contain phosphorous and nitrogen at higher levels than historic background levels. Between Lake Okeechobee and the remaining Everglades lies the 700,000 acre Everglades Agricultural Area (EAA). Sugarcane, the predominant crop in the EAA, is chemically intensive to grow on a sustained basis. In south Dade County, farming operations use heavy tilling to break up sea shells and coral (limestone) covering the area in order to cultivate vegetables. This farming method requires extensive use of fertilizer and pesticides, some of which drains into the Everglades



Pre Hydrological Alteration Flow



Current hydrological flow under the C&SF Project



Restored Hydrological Flow
CERP Everglades Presentation Materials; http://www.evergladesplan.org/education/requested_downloads.aspx

Turner River canoe launch at Big Cypress National Preserve

View northwest of WCA-3 near Gator Park

View east of the L-29 canal from the S-334 structure

watershed. Moreover, altered water levels within the region result in the oxidation of the underlying organic soils. This oxidation releases organically bound nitrogen that combines with other elements to form nitrates at higher levels than the historical levels, including both in surface waters and the aquifer. In addition, regional hydrological alterations reduced seepage into the aquifer, allowing salt water to intrude into portions of the aquifer and to extend farther upstream into historically freshwater wetland systems. The Big Cypress watershed is less affected by altered nutrient loads as upstream drainage into the watershed is limited, but salt water intrusion through canals has modified conditions in upstream freshwater wetlands.

The waters of Big Cypress National Preserve, EVER, Florida Panther NWR, Collier-Seminole State Park, and Fakahatchee Strand Preserve State Park are currently designated as Outstanding Florida Waters. This is a state designation overseen by the Florida Department of Environmental Protection (FDEP) and codified in Rule 62-302.700 Florida Administrative Code (F.A.C). It is intended to protect existing, high-quality waters. For the most part, these wetland systems are located at the down-gradient end of an altered watershed, and they are subject to the effects of upstream water management practices.

Hydrological Features

The ROGG Study Area includes a number of hydrological features and/or structural components of water control efforts, including levees and canals, natural creeks, and sloughs in additional to extensive wetland systems. The following provides an overview of these different features.

Natural Water Features

Natural water features ranging from sloughs to creeks and rivers occur within the ROGG Study Area, with the Shark Valley Slough dominating the eastern portion of the study area and a variety of rivers and lakes occurring in the western portion of the study area. The Fakahatchee Strand occurs west of S.R. 29 and is a five mile wide, 20 mile long swamp forest that ultimately drains south of U.S. 41 into the Fakahatchee and East Rivers and related estuarine tidal systems. Several other tidal creeks, including the Whitney and Blackwater Rivers, occur south of U.S. 41 in the western portion of the ROGG Study Area. Extending to Chokoloskee Bay, the Turner River intersects U.S. 41 east of Ochopee. Restoration efforts, including plugging of the Turner River Canal, have increased flows within the river, which has increased the accessibility of this river for canoeists and kayakers. Preliminary restoration efforts have helped return more natural water flows to the area, however, additional work is needed to fully restore flows and hydroperiods. Historically approximately 20 miles wide at U.S. 41, the Shark River Slough occurs in the eastern portion of the study area and is the primary source of water for the EVER. It consists of extensive wet prairies and slough vegetation until it discharges into the Shark River.

Water Conservation Areas

As part of the CS&F Project, three WCAs were established in the mid-1940s to provide flood protection, water supply storage, and environmental resource protection for the lands lying south and east of Lake Okeechobee. The southernmost element of this system, WCA-3, occurs north of and adjacent to U.S. 41 in the ROGG Study Area and is the largest of the three WCAs covering more than 921 square miles. The L-67A and L-67C levees subdivide WCA-3 into two portions, which are known as WCA-3A west of the levees and WCA-3B east of the levees. Other levees, including the L-28 and L-29 levees, form the exterior boundary for WCA-3, except for a seven mile long gap on the west side that allows for free water exchange from the Big Cypress via Mullet Slough. WCA-3A receives water from Lake Okeechobee, WCA-2 and the EAA via the North New River and Miami Canals, and from several other canals and pump stations and delivers water to EVER and Miami-Dade County. The majority of WCA-3 consists of sawgrass marsh and tree islands, although the inundation depths and durations differ from the natural free-flowing sheetflow that historically occurred within the Everglades. The direction of flow has also been modified by the canals and levee system, with the L-67A and L-67C levees directing flows in a more southwesterly direction than historically occurred. WCA-3B is a significant recharge area to the Biscayne aquifer and helps control saltwater intrusion in municipal wells in populated areas along the coast. It receives most of its water from rainfall and occasionally from WCA-3A via the Miami and L-67 Canals. Water is discharged from WCA-3B via the Miami Canal although plans are underway to enable discharges to the Northeast Shark River Slough along the northeast boundary of EVER from WCA-3B.

Big Cypress Canals

Water within the Big Cypress watershed generally flows southwest under U.S. 41 and other roads through several culverts and bridges before discharging through tidal marshes and mangroves into the Gulf of Mexico, although the eastern portion of the watershed is connected hydrologically to the eastern Everglades. U.S. 41 and other roads such as Birdon Road, Loop Road, and Turner River Road and their accompanying parallel canals obstruct sheet flow in the region and channel water to narrow culverts or bridges. The sheetflow and channelization elements from the canals along the road significantly altered the Turner River watershed so that the river became shallow, slow-moving, and clogged with vegetation, thereby affecting the ecology of the river and estuarine areas at the outflow in Chokoloskee Bay. A system of plugs was placed into the canal and culverts were placed under Turner River road to slow and redirect water flow back to the river in the 1980s, resulting in increased flows for Turner River and adjacent wetland habitats, and a series of small connected ponds in the remainder of the Turner River Road Canal. Flows in some sections of U.S. 41 were improved in the mid-1990s by the construction of several new culverts or bridges under the road, although many of these were still widely separated in the landscape. An additional 16 culverts were installed under U.S. 41 between 2003 and 2006 as part of the Western Tamiami Trail Culverts Critical Project to further enhance water movement under U.S. 41. Recently, the NPS completed improvements to Loop Road to stabilize the road and install additional culverts to improve hydrological connections. Restoration work to date is considered preliminary with current infrastructure projects helping to restore hydrology.

Several other large canals were constructed in the western portion of the ROGG Study Area to provide drainage for development tracts planned for the area. The Halfway Canal provides drainage for lands now used for the Big Cypress National Preserve headquarters and Visitor's Center. Ideally, headwater flows feeding into Halfway Creek would be diverted into upstream wetlands instead of draining directly to tide. Restoration of this is currently being planned. The canal along S.R. 29/C.R. 29 provides drainage for the road serving Everglades City. The Faka Union Canal was constructed as the primary drainage feature for the Port of the Islands development, but also served as an outlet for the Golden Gate Estates planned development. A number of roads and canals were constructed in the planned southern portion of the Golden Gate Estates, which modified water movement within the western portion of the ROGG Study Area. These roads and canals are now part of the Picayune Strand State Forest and restoration activities are ongoing to remove roads and modify these canals as part of the Picayune Strand restoration efforts. All three of these canals channelized sheetflow and provided an avenue for brackish water to extend further inland.

Brackish Marsh Considerations

The extent and salinity of tidally influenced wetlands in the western portion of the ROGG Study Area were altered by the installation of U.S. 41 and the Tamiami Canal, particularly near the intersection of S.R. 29/C.R. 29. The canals in this area provide an avenue for brackish water to extend into freshwater wetland systems, while the Tamiami Canal spreads this brackish water east/west through the landscape. U.S. 41 blocks the movement of freshwater from the north and tidal, brackish water from the south except through a limited number of bridges and culverts. This results in differences in salinity on the north and south sides of U.S. 41. Planning and implementation of projects to restore tidal exchange to these areas by increasing groundwater recharge and reducing large and unnatural freshwater inflows are underway. The Picayune Strand Restoration Project, a sub-project of CERP, includes 55,000 acres located between Alligator Alley and U.S. 41. This project involved plugging canals, building and operating pump stations, placing culverts under U.S. 41 and removing old road beds, which were designed to restore freshwater flows south of U.S. 41 and improve the tidal exchange.

Future Restoration Considerations

Hydrological restoration activities have begun to be implemented in the vicinity of the ROGG Study Area. Several projects associated with the Mod Waters project have been completed in recent years, including improvements to the 8.5 Square Mile area to protect private lands from increased flows in the EVER, conveyance and seepage control features such as raising the elevation of Tigertail Camp, and the completion of construction of a one mile bridge for U.S. 41 to facilitate flow into Shark River Slough. Several CERP projects have had elements that were completed, including the construction of Stormwater Treatment Areas (STA) and the Picayune Strand Restoration Project. To improve water quality flowing in to the WCAs through the removal of phosphorus, the SFWMD has constructed several STAs between the EAA and the WCAs providing an effective treatment area of more than 57,000 acres as of late 2012. In the western portion of the ROGG Study Area, the Picayune Strand Restoration Project has included removal of more than 160 miles of roadways, installation of plugs for more than 20 miles of canals, and installation of pump stations to assist with water control.

Additional projects are anticipated to be implemented in the next 10+ years to continue to improve the hydrology of the Everglades, primarily through the implementation of projects identified for CEPP. Projects identified for CEPP include elements in the vicinity of the ROGG Study Area include the removal of portions of the L-29 levee and six miles of the Old Tamiami Trail, installation of a new levee adjacent to the Blue Shanty flow-way, and modifications to water control structures. Projects occurring north of the ROGG Study Area include construction of additional storage and detention basins, backfill of the Miami Canal, levee removal, and other canal improvements to route more water into WCA-3. The CEPP plan identifies project details that will guide phasing of projects identified for CEPP. Generally, the projects north of the ROGG Study Area will need to be completed prior to constructing and completing the CEPP projects within the ROGG Study Area. In addition, the construction of the bridges associated with the Tamiami Trail Next Steps project, especially the 2.6-mile bridge between the proposed Blue Shanty flow-way and L-67 levee, is required prior to the removal of the L-29 levee and/or discharge of the increased water quantity from the northern projects. The draft Project Implementation Report for CEPP that documents the final plan elements, schedules, and other elements was released in August 2013 with the goal to have it available for congressional review and approval as part of an upcoming Water Resources Development Act project. Additional projects within the CEPP study area that were identified as part of the Decompartmentalization of WCA-3 CERP project, including the removal of the L-28 levee and the remaining portions of the L-29 levee, were not included in the CEPP plan and are not anticipated to be implemented in the next 10+ years unless other funding is secured.

Although not addressed in current CERP projects, hydrological restoration activities in the Big Cypress have also been identified for future implementation within the ROGG Study Area. Although the Western Tamiami Trail Culverts Critical Project has been partially implemented, funding has limited the implementation of the remainder of the culverts (approximately 60) under U.S. 41 and Loop Road. Hydrological restoration activities for wetlands in the Ochopee area of the Big Cypress National Preserve have been identified to enhance sheetflow and are currently being designed and permitted. These activities include scraping roadbeds used for historical agricultural activities back to existing grade, installing new culverts under Birdon Road, Wagon Wheel Road and Turner River Road, and installing plugs in the Birdon and Diagonal canals. These activities are anticipated to restore sheetflow to drained wetland systems and to eliminate saltwater intrusion along Birdon Road.

Hydrology - Relevance to ROGG: Regional hydrology is one of the most significant elements affecting the regional character and ecology in which ROGG would occur as well as a primary consideration for the design and implementation of ROGG. The role of hydrology at both the regional levels associated with watershed drainage and restoration activities as well as local sheetflow and water movement affects feasibility assessments for routing options, design of shared-use path and trailhead facilities, regulatory coordination, and constructibility. Specific influences on analysis for the ROGG included:

- **Regional Hydrological Restoration** – The regional hydrological restoration efforts associated with CERP and other projects are the primary drivers for the prevailing physical conditions, improvements and infrastructure that would be available for ROGG. Further, hydrologic restoration and management must be accommodated as part of design. Any aspect of ROGG that would compromise the fundamental objectives or implementation of regional hydrological restoration efforts are considered infeasible for this study. The post-restoration configurations and conditions for infrastructure, water levels, and/or flows are the baseline condition for feasibility evaluations of routing alternatives and design options for ROGG. Infrastructure with particular relevance to feasibility assessments for ROGG includes the proposed U.S. 41 bridges identified in the Tamiami Trail Next Steps EIS, levee removals associated with CEPP, Turner River and Copeland Prairie hydrological modifications, and culverts and bridges for the Picayune Strand Restoration Project. The water levels and flow requirements for post-restoration systems set the baseline for the design of trail surface elevations and stormwater treatment drainage requirements.

- **Sheetflow/Channelization** – U.S. 41 hinders sheetflow in much of the corridor due to the effects of channelization from the adjacent Tamiami Canal as well as the limited number of bridges and culverts that occur under the road. Installation of new culverts through projects such as the Western Tamiami Trail Culverts Critical Project or the Copeland Prairie Mitigation Plan assists in providing additional avenues for flow under U.S. 41 that will contribute to re-establishing sheetflow. The feasibility evaluation for the design and routing for ROGG segments and/or facilities considered the current and proposed future sheetflow conditions as well as proposed structural improvements to enhance sheetflow. Opportunities to design ROGG facilities to enhance sheetflow by diverting or collecting the runoff from the culvert channel under U.S. 41 and spreading it across the relatively flat landscape was also considered as part of the feasibility evaluation, especially for portions of the ROGG occurring on the south side of U.S. 41. In the ROGG Central area, projects to enhance sheetflow over a broad area identified by the NPS or other public landowners such as the Copeland Prairie Mitigation Plan were considered as potential mitigation activities for the ROGG feasibility assessment.

- **Water Features/Canals** – A number of natural rivers and canals occur within the ROGG Central Study Area, many of which are or can be utilized for fishing or other water related recreation. ROGG facilities would be designed to accommodate existing canal crossings through the construction of bridges or culverts that accommodate future restoration efforts. The incorporation of safety features for shared-use path crossings over water features was included in the feasibility evaluation. Fisherman and pass-through path users pose potential conflicts for path crossings of water features. Incorporation of methods to separate users and/or provide separate facilities to accommodate fishing was considered as part of the feasibility assessment.

Faka Union Canal bridge crossing

- **Saltwater Intrusion** – Tidal exchange has been affected by U.S. 41, especially in the Copeland and Ochopee areas of the ROGG Study Area, resulting in salinity changes on the north and south sides of U.S. 41. In addition, canals and freshwater diversion have allowed brackish or saltwater intrusion into historically freshwater systems. The routing and design of ROGG facilities should not negatively affect tidal exchange nor limit opportunities to restore appropriate tidal dynamics. Opportunities to use ROGG to limit surface saltwater intrusions by disconnecting or filling artificial channels that undesirably allow saltwater intrusion to occur into historically freshwater systems as part of shared-use path placement and configuration were evaluated as part of the feasibility assessment.

- **Aquifer** – Aquifers are naturally replenished by rainfall and surface waters that saturate into the ground and work their way through the soil and geological substrate to the water table. ROGG facilities may include the installation of impervious surfaces that would hinder percolation into the groundwater and/or surface aquifers. However, stormwater facilities and the relative narrow profile of the ROGG relative to the thousands of acres of natural lands in the vicinity may limit or negate the potential effects on aquifer recharge from ROGG facilities. ROGG facilities would be designed to maintain existing recharge to the surficial aquifer or improve recharge in areas where existing impervious surfaces could be removed or replaced with pervious structures in the Study Area. Where ROGG facilities require water sources, the feasibility of using surficial water sources rather than other aquifers was evaluated.

Completed one-mile bridge for the Mod Waters Project; Photo Credit: USACE Tamiami Trail Construction Update March 2013

Hydrology and Hydrogeology Summary

The ROGG Study Area occurs within the Everglades and Big Cypress Swamp watersheds, both of which have been subjected to extensive hydrological alterations. The ROGG has the potential to make changes that enrich/restore hydrology which at the same time provides for recreation purposes, i.e., adding periodic plugs in Tamiami Trail as part of the path network. The Everglades watershed originates in central Florida in lakes draining into the Kissimmee River and then flows south through Lake Okeechobee into the Everglades and south into Florida Bay. The Big Cypress Swamp headwaters originate in the northern sandy flatlands south of the Caloosahatchee River drainage area. The surface hydrology interacts with and is influenced by the hydrogeology of the relatively permeable geological strata underlying the peninsula. There are three aquifers within the marine carbonate sediments underlying the southern peninsula: the Floridan aquifer system, the intermediate aquifer system, and the surficial aquifer system that includes the Biscayne aquifer, a significant water source for the east coast population. Restoration activities within the region are anticipated to maintain hydrological inputs into the aquifers.

Historical and Current Conditions

The hydrological system in which the ROGG Study Area occurs consisted primarily of vast wetlands associated with the Everglades and Big Cypress watersheds in the extremely flat topography of the pre-drainage landscape of south Florida. The pre-drainage wetland systems exhibited three essential characteristics: dynamic storage and sheet flow, large spatial scales of drainage, and heterogeneity in habitat. The slow rate of flow through the topographically flat system resulted in a discharge of freshwater into estuaries well into the dry season. Water flowing through both the Everglades and Big Cypress systems was generally low in nutrients. Drainage and development projects such as C&SF Project and Tamiami Trail altered the hydrological elements that were characteristic to the Everglades and Big Cypress watersheds. Roadways and canals blocked or rerouted sheet flow into narrow channels, changed the direction of historical flow patterns, and modified brackish water exchange. Levees were constructed as part of the C&SF Project to retain floodwaters and control flow discharge. In Big Cypress National Preserve, legacy road and transportation network has caused ecohydraulic alterations, and now that the land is in conservation status, will require correction. These alterations and legacy Big Cypress road and canals reduced the depth and duration of inundation, introduced tidal influences into interior freshwater systems, and modified surface discharges to occur too often, too little, or at the wrong times of the year. In addition to water flow and quantity issues, the water quality of the region has also changed through increased nutrient levels, although water quality inputs for the Big Cypress have generally been affected less than those of the Everglades. The Everglades occurs at the end of a hydrological gradient beginning near Orlando, a gradient that includes extensive agricultural lands.

Hydrological Features

The ROGG Study Area includes a number of hydrological features and/or structural components of water control efforts, including levees and canals, natural creeks, and sloughs in addition to extensive wetland systems. Natural water features ranging from sloughs to creeks and rivers occur within the ROGG Study Area, with the Shark Valley Slough dominating the eastern portion of the study area and a variety of strands and rivers occurring in the western portion of the study area. These include the Fakahatchee Strand, Whitney River, Blackwater River, and Turner River. The Turner River is the only river that passes under U.S. 41 within the ROGG Study Area. Constructed as part of the CS&F Project, WCA-3 occurs north of and adjacent to U.S. 41 in the ROGG Study Area. The L-67A and L-67C levees subdivide WCA-3 into two portions, while the L-28 and L-29 levees generally form the exterior boundary for WCA-3. U.S. 41 and other roads, such as Birdon Road, Loop Road, and Turner River Road, and their accompanying parallel canals obstruct sheet flow in the Big Cypress watershed and channel water to narrow culverts or bridges. Several other large canals were constructed in the western portion of the ROGG Study Area to provide drainage for development tracts planned for the area, including the Halfway Canal, the canal along S.R. 29/C.R. 29, and the Faka Union Canal. All three of these canals channelized sheetflow and provided an avenue for brackish water to extend further inland, while the Tamiami Canal spreads the brackish water from these canals east and west.

Future Restoration Considerations

Hydrological restoration activities have begun to be implemented in the vicinity of the ROGG Study Area. Several projects associated with the Mod Waters project have been completed in recent years, including the completion of construction of a one-mile long bridge for U.S. 41 to facilitate flow into Shark River Slough. Several CERP projects have had elements that were completed, including the Picayune Strand Restoration Project. Additional projects are anticipated to be implemented in the next 10+ years as part of CEPP, including the removal of portions of the L-29 levee and six miles of the Old Tamiami Trail, installation of a new levee adjacent to the Blue Shanty flow-way, and modifications to water control structures. The CEPP plan identifies that projects north of the ROGG Study Area will need to be completed prior to constructing and completing the CEPP projects within the ROGG Study Area to ensure that water quality meets project objectives and to manage the amount of water flowing through the system. In addition, the construction of the bridges associated with the Tamiami Trail Next Steps project, especially the 2.6-mile long bridge between the proposed Blue Shanty flow-way and L-67 levee, is required prior to the removal of portions of the L-29 levee and/or discharge of the increased water quantity from the northern projects. Although not addressed in current CERP projects, hydrological restoration activities in the Big Cypress have also been identified for future implementation within the ROGG Study Area, including hydrological restoration activities for wetlands in the Ochopee area of the Big Cypress National Preserve to enhance sheetflow.

Feasibility Considerations

Regional hydrology is one of the most significant elements affecting the character and ecology of the ROGG Study Area and a primary consideration for the design and implementation of ROGG. Any aspects of ROGG that would compromise the fundamental objectives or implementation of regional hydrological restoration efforts are considered infeasible for this study. The post-restoration future conditions for infrastructure, water levels, and/or flows were considered the baseline condition for feasibility evaluations of routing alternatives and design options for ROGG. Other elements with specific relevance to ROGG include maintaining or enhancing existing sheetflow, incorporating water related recreation opportunities and opportunities to restore historic patterns of tidal exchange.

2.1.5 Ecology

The ecological resources in the regional context of the ROGG Study Area provide both the impetus for establishing a regional greenway and the challenge of managing human access into such a unique and sensitive ecosystem. The suite of ecological resources found in south Florida are uniquely adapted to the region's subtropical climate, geology and soils, and the overriding influence of water at the regional scale. At the same time, this area is extremely sensitive to perturbations caused by the presence and activity of humans who live, recreate, or visit within the systems. Although many of the component species are similar across vegetation communities, the characteristics of specific community types can be distinguished due to differences in the way the species and vegetation assemblage responds to natural processes and alterations caused by human activity. While the regional ecosystem provides a uniquely recognizable setting, a full appreciation for the ecological setting for the ROGG Study Area requires a more detailed review of specific elements occurring across the ecosystem. These range from the resources of vegetation communities and wildlife to the ecological processes that interact subtly to form the diverse mosaic of the overall system.

The purpose of this portion of the report is to document these ecological conditions within the ROGG Study Area and the relevance those conditions have to the feasibility and master plan of ROGG. To accomplish this purpose, this Ecology element is divided into five elements, including:

- **Vegetation Communities** – Provides an overview of the composition, relevant ecological processes, and issues for the vegetation communities that occur within the ROGG Study Area.
- **Listed Wildlife Species** – Provides an overview of the range, habitat requirements, life history, and threats to the listed wildlife species that could be affected by ROGG.
- **Exotic Species** – Summarizes the types, areas affected, and issues posed by exotic and invasive species.
- **Wetlands** – Provides a consolidated assessment of the jurisdictional requirements and issues associated with wetlands.
- **Ecological Processes** – Provides an overview of the natural processes that affect or drive the ecological character and that pose specific constraints or opportunities for design and construction requirements.

Each element begins with a description of resources or processes for the section and ends with an assessment of potential implications to feasibility assessments and master plan design. For simplified presentation, the common names of plant and animal species are used throughout the text. Scientific names are provided for reference in **Appendix B.**

Natural Resource Regulatory Context

Impacts to natural resources in the Study Area would require authorization from several agencies having jurisdiction over Waters of the United States (WOUS), including wetlands and water bodies, and protected wildlife and plant species. The review and authorization for proposed impacts would be coordinated through a variety of regulatory mechanisms, ranging from National Environmental Policy Act (NEPA) coordination to application and approval of various environmental permits. Construction of the ROGG may require coordination with the USACE, USFWS, EPA, National Marine Fisheries Service (NMFS), State Historic Preservation Office (SHPO), SFWMD, FDEP, FFWCC and the Miami-Dade County Department of Regulatory and Economic Resources (MDRER), resulting in the need to obtain one or more of the following permits:

- USACE Individual Permit (IP),
- SFWMD Environmental Resource Permit (ERP) and/or Dewatering Permit,
- FDEP National Pollutant Discharge Elimination System (NPDES),
- MDRER Environmental Permit (Class I-VI) commensurate with impact details,
- USFWS Biological Opinion (BO) or Bald and Golden Eagle Protection Act (BGEPA) Permit for Non-Purposeful Take of Eagles,
- FFWCC Incidental Take Permits or Relocation Permits.

Current regulations and permitting requirements for each regulatory agency are summarized in **Appendix C**.

National Environmental Policy Act (NEPA) Coordination:

The objectives for the National Environmental Policy Act (NEPA) must be met when federal funds are used, a federal nexus exists, or funds are contemplated to be used for any aspect of a project. Signed into law on January 1, 1970, NEPA was established to "foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Generally speaking, NEPA requires that federal agencies consider the effects of their decision on the quality of the human environment based on one of three levels of analysis: Categorical Exclusion Determination, EA/ Finding of No Significant Impact (FONSI), or Environmental Impact Statement (EIS). The analyses are accomplished through a variety of methods depending on the subject federal agency, but typically include an extensive review of the project purpose, project alternatives, data review, and public involvement. Coordination with regulatory agencies is part of the NEPA process, but construction authorization is still required subsequent to completion of the study.

Wetland Permitting:

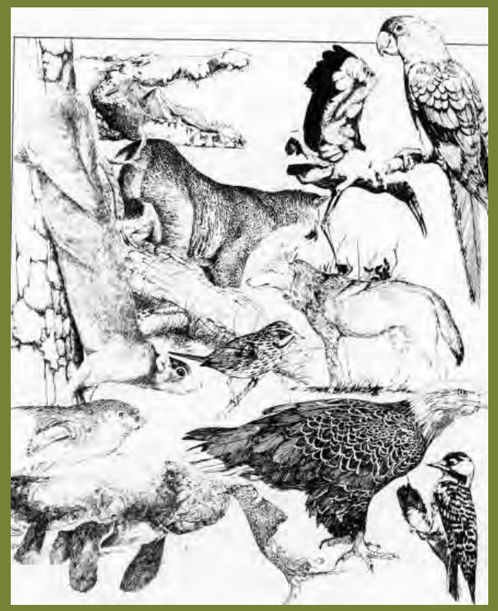
Impacts to WOUS would be subject to USACE review under the Section 404 regulatory program in compliance with the Clean Water Act (CWA). A permit application would be submitted to the USACE for proposed activities that are regulated by that agency in conformance with Section 404 of the CWA. If construction actions involve activities in the surface waters and wetlands of Florida, an ERP would need to be obtained from SFWMD. Stormwater requirements are integrated into the state dredge and fill ERP permitting process in Florida. An ERP serves as water quality certification under Section 401 of the CWA. Issuance of an ERP is also the means of obtaining concurrence with the federal consistency provisions of the Coastal Zone Management Act. Adjacent residents and the public at-large are encouraged to participate in the wetland permitting process at both the state and federal levels.

Listed Species Permitting:

Listed plant and wildlife species and habitats are protected by the USFWS, the FFWCC, NMFDS, and the Convention on International Trade in Endangered Species. The USFWS, through the Endangered Species Act (ESA) and other regulatory instruments, and the FFWCC, through Chapter 68 of the F.A.C., regulate activities that may affect protected plant and wildlife species. Impacts and mitigation are determined on a species-by-species basis, and potential impacts to an individual animal or nest structure, nesting habitat, foraging habitat or all suitable habitat may require permits.

Relevance to ROGG: Although the permit process would be initiated after the ROGG feasibility study and master plan are completed, an assessment of the types and kinds of permits as well as the potential impacts to resources that would trigger the need for those permits was a critical aspect of the feasibility assessment of ROGG. The types of permit process required to address different types of impacts and mitigation informs the costs and schedule for implementation, and potential scrutiny to which permit applications or regulatory reviews would be subjected. All of these were incorporated into the feasibility assessment.

Wetlands near Kirby Storter Roadside Park



Depiction of rare and extinct animals from Florida; Photo Credit: State Archives of Florida, Florida Memory, http://floridamemory.com/items/show/17723

Everglades System Overview

Subject to some of the largest civil works projects in the world, the ecological resources of the Everglades have experienced significant changes over the last century, yet are proving resilient after implementation of restoration efforts to address the alterations. The characteristic view of the Everglades is the near monotonous expanse of wet prairies dominated by sawgrass and dotted with tree islands. Yet, the ridge and slough landscape adds subtle diversity to the system where differences in elevation of only a few inches may cause significant differences in water flow and vegetation communities. Regional drainage alterations have led to habitat changes and exotic/ invasive species encroachment, but restoration efforts targeted to restore appropriate hydrology promise possibilities of improved ecological function over time. For the ROGG Study Area, the Shark Valley Slough provides a representative landscape feature that has been significantly impacted by regional drainage projects, but is now the target for significant hydrological enhancements that include features that will directly affect the feasibility and master plan for ROGG.

Big Cypress System Overview

Comprising the western 2/3 of the ROGG Study Area, the Big Cypress watershed is driven by similar elements as the Everglades, but contrasts in ecological character and relative degree of alterations. The forested strands, sloughs, and prairies of the Big Cypress comprise one of the largest stands of interconnected cypress wetlands in Florida, and provide a home for rare and endangered species unique to North America. Hydric pine flatwoods and scattered hammocks weave through the mosaic of the Big Cypress wetlands in areas with elevations that may be only inches above the adjacent cypress. The freshwater passing through the Big Cypress gradually grades into the brackish estuarine system of the Ten Thousand Islands characterized by salt marshes and mangroves. Although alterations in the hydrology of the Big Cypress such as canal and road construction in the Picayune Strand and the construction of the Tamiami Trail and associated canal occurred, the degree and intensity of these changes across the watershed were less concentrated than the levee and canal system through the Everglades. These regional alterations have resulted in habitat changes through increased salinity and inundation changes, but restoration efforts have begun to address some of the elements. The ROGG Study Area traverses the entire range of systems within the Big Cypress and could provide a window on the ecological processes of this region.

Vegetation Communities

Typically the most visible aspect of the south Florida ecosystem, vegetation communities vary from freshwater systems of the Everglades and the Big Cypress to tidally connected estuarine systems. Locally, diversity and structure depend on soil, hydrology, and topographic variability. The vast majority of the ROGG Study Area consists of vegetation communities associated with wetland habitats such as wet prairies, freshwater sloughs, salt marshes, cypress systems, hydric pine flatwoods, and coastal mangroves. Generally, the eastern portion of the ROGG Study Area exhibits marsh and wet prairie systems, while the western portion exhibits cypress systems, hydric pine flatwoods, and tidally connected estuarine systems. Open water systems also occur throughout, including those associated with natural stream bodies like the Turner River, although the majority are associated with canals or other excavated water bodies. Naturally vegetated upland areas such as pine flatwoods and hammocks exhibit limited to no inundation during average years, but typically grade gently into the adjacent wetland areas both in vegetation composition and topographic elevation. Other upland areas occur within the corridor on filled areas associated with roads, fill pads for current or historical structures, and/or levees and often exhibit dense stands of exotic, invasive vegetation. The following provides a summary description of the dominant habitat types found within the corridor.

Freshwater Vegetation Communities

Marsh – Sawgrass marsh is the dominant vegetation community and one of the defining characteristics of the Everglades, but can also occur in smaller patches within the Big Cypress. Sawgrass overwhelmingly dominates these marsh systems ranging from dense monospecific stands with plants up to nine feet in height to low growing and patchy plants intermixed with a diversity of other marsh species depending on soil conditions, fire history, and depth and duration of inundation. A variety of grasses and forbs such as maidencane, pickerelweed, spikerush, and arrowhead occur in more open areas of the sawgrass marsh. Cattails occur throughout sawgrass marshes as a minor component of the diversity, although elevated nutrient levels can result in dense stands of cattails that replace sawgrass as the dominant species. The culms of sawgrass provide an attachment area for periphyton, or algal mats, which can form dense mats in more open areas of the marsh. Sawgrass marshes can grow and thrive in a variety of hydroperiods, but these marshes typically occur where inundation of 1.0 to 1.5 feet occurs for most of the year. Fire is an important natural process for sawgrass marshes depending on the timeframe and intensity of the fire. Fires during the wet season can renew vegetation growth and provide nutrients to the system, while fires that burn into the soil during drought conditions can destroy sawgrass roots and change the composition of the community.

Freshwater Sloughs – Freshwater sloughs are deeper channels that are one to two feet deeper than the adjacent sawgrass marsh. They remain inundated for most months out of any given year, including through typical drought conditions. These channels provide significant areas of water flow for the Everglades throughout the year. Vegetation within freshwater sloughs in the Everglades typically includes a variety of submerged vegetation such as bladderwort, water hyssop, waterlily, and spatterdock and emergent vegetation such as maidencane, but sawgrass typically exhibits little to no presence within the sloughs. Sloughs in the Big Cypress are generally dominated by herbaceous species such as waterlily, water hyssop, ludwigia, and southern wild rice, although a variety of shrubs such as pond apple and pop ash can occur on the margins of the slough. Transitions between sawgrass marsh and sloughs typically are abrupt in vegetation composition with a dense “wall” of sawgrass vegetation bordering the more open slough with lower growing vegetation. This pattern is termed as a ridge and slough landscape. Major sloughs in the ROGG Study Area include Shark River Slough, which drains to Florida Bay, and smaller sloughs in the Big Cypress National Preserve, Fakahatchee Strand Preserve State Park, and Collier-Seminole State Park.

Wet Prairies – Wet prairies are treeless features dominated by herbaceous understory species that occur throughout the Big Cypress as well as shallower areas of the Everglades. Wet prairies are characterized by diverse flora including sedges, rushes, and grasses such as muhly grass, blue maidencane, and south Florida bluestem that grow over marl or fine sand soils, although the presence of limestone near the soil surface can also provide substrate for wet prairies to grow. Sawgrass may occur, but generally is a minor component of this system. Wet prairies typically inundate for three to seven months of the year at an average depth of approximately four inches. Periphyton mats occur within many wet prairies during the wet season. Prairies will burn during periods of drought, which limits the growth of shrubs. Wet prairies can grade with cypress systems to form the cypress prairies that are characteristic of the Big Cypress National Preserve.

Forested Wetlands – Forested wetlands occur primarily in the Big Cypress watershed and exhibit several forms ranging from cypress dominated domes, strands, and prairies to mixed hardwood swamps. The underlying soils and hydrology as well as the history of fire interact to allow the growth of the three types of cypress communities. Cypress domes are characterized by a monospecific overstory of cypress, which grow tallest in the center and taper off toward the fringes, forming a dome-like feature. Domes occur where the limestone substrate has given way to circular solution holes and appear visually isolated from other canopy systems within the landscape.

Cypress strands form along major drainages and generally retain a north-south orientation, parallel with the flow of water. Very large cypress trees may occur in these strands, especially in remote areas that were relatively inaccessible to timber harvesting operations. Strands such as the Fakahatchee Strand can extend for miles and be a mile or more in width. A variety of mixed hardwood species can occur with the cypress trees in interior portions of the wide sloughs. The near constant presence of water, coupled with high humidity provides conditions favorable for large numbers of orchids, bromeliads, and other epiphytic plants to grow on canopy and shrubs within or near large strands. They exist in microcosms where soils are richer and the area is protected from fire. Cypress prairies are characterized by an open forest of stunted cypress trees, called dwarf cypress. They are distributed in low densities in poor soils, and scattered, sparse growths of understory vegetation. Fires from the adjacent marshes and prairies burn into the margins of cypress domes and strands, which limits shrub growth and can lead to smaller trees due to damage from fire and nutrient changes.

Hydric Pine Flatwoods – One of the most diverse south Florida vegetation communities, fire dependent hydric pine flatwoods, also termed as wet pinelands, are comprised of a south Florida slash pine canopy over a groundcover generally dominated by herbaceous species and scattered shrubs. The herbaceous layer is generally dominated by grasses and sedges such as muhly grass, sand cordgrass, broomsedge, and beaksedges similar to the wet prairies, but can also include scattered shrubs such as wax myrtle and saw palmetto. The shrubs can become dense in the absence of fire. The boundaries between hydric pine flatwoods and wet prairies or cypress strands can be gradual due to intergradation between the communities. These systems typically exhibit a short hydroperiod with

inundation or saturation generally lasting for two months or less. These communities are dependent on frequent fires that burn the fine fuels of the grasses and pine needle litter, thereby limiting the growth of shrubs.

Tree Islands - Tree islands consist of aggregations of canopy trees and/or shrubs that look like tear-drop shaped islands of taller vegetation amidst the surrounding marshes and prairies. The majority of the tree islands within the Everglades consist of wetland vegetation and experience some inundation during the wet season, although some tree islands do include higher elevation hardwood hammocks that do not inundate regularly, if at all. Tree islands were extensively used by Native Americans and often exhibit archaeological or historical artifacts. Although cypress domes are sometimes called tree islands, reference to tree islands in this report are targeted towards the bayhead and willowhead communities more common in the Everglades. Bayheads are typically dominated by a variety of shorter trees such as swamp bay, pop ash, sweetbay, cocoplum, pond apple, and dahoon, although cabbage palms can project through these lower growing trees. Willowheads generally occur in slightly lower elevations than the bayheads and are dominated by Carolina willow. A variety of herbaceous species often dominated by ferns can occur within the tree islands. Willowhead islands occur on peat, which is very sensitive to fire during drought conditions.

Tidally Connected Vegetation Communities

Tidal Marsh - Tidal marshes are generally dominated by herbaceous communities that exhibit a low diversity of species adapted to high salinity and tidal fluctuations. Characteristic species found in tidal marshes include saltmarsh cordgrass, needle rush, perennial glasswort, saltgrass, saltwort, seaside oxeye, and saltmeadow cordgrass. Tidal marshes often exhibit distinct zones of vegetation in which one or two species of these characteristic species occurs, depending on frequency, depth, and salinity. The uplands adjacent to tidal marshes are dominated by salt tolerant shrub species such as grounsel, marshelder, and cocoplum. Salt pans occur within the marshes in areas that only periodically inundate and exhibit much higher salinity levels than the adjacent marshes. Vegetation within these pans is limited to species that tolerate high salinity levels such as saltgrass, perennial glasswort, and saltwort. Tidal marshes are highly productive and are important in the lifecycles of a variety of commercial marine species for food and shelter. The corridor exhibits salt marshes through significant portions of the corridor west of Ochopee, Florida.

Mangroves - Mangrove wetlands are intertidal wetlands common to coastal habitats. In the ROGG Study Area they also occur on the banks of canals exposed to tidal fluctuations. These wetlands are dominated by trees that are specially adapted to the high-salinity environment found on and near the coast. Typically, mangroves forests are dominated by a mix of white, red, and black mangroves or buttonwood, a mangrove associate. The most salt tolerant is the red mangrove, which also occurs in the deepest inundation zones. As flooding becomes less frequent, black mangroves and white mangroves can be found with buttonwood occurring on the areas with least frequent flooding. These species help protect the coastline during storms and high surf and they provide nursery habitat for fish and other wildlife in the coastal systems. Inundation and salinity levels within mangrove forest stands are influenced both by tides and runoff from upstream sloughs and swamps. Fires and frosts can limit mangrove growth, while hurricanes and storm surges can result in death or removal of mangroves. Within the ROGG Study Area, mangroves are found primarily west of Ochopee to near the Collier-Seminole State Forest along tidal creeks and open water bodies such as excavated ponds and canals subject to tidal influences, including the banks of the Tamiami Canal.

Upland and Transitional Habitats

Mesic Pine Flatwoods – Similar to hydric pine flatwoods in canopy composition, mesic pine flatwoods typically occupy higher elevations and experience little, if any, inundation during normal hydrological conditions. Pinelands are dominated almost exclusively by south Florida slash pine in the canopy, although cabbage palms can also occur, especially in areas that were historically logged. In contrast to hydric pine flatwoods, mesic flatwoods generally exhibit dense shrub layers of saw palmetto with lesser amounts of herbaceous species. In drier portions of the mesic flatwoods, a variety of scrub oaks such as sand live oak and myrtle oak can occur, although this scrubby flatwoods variant is limited in distribution through the ROGG Study Area. These forests often take root in the exposed limestone substrate of south Florida. Pineland communities are adapted to frequent fires that burn through the shrubs and accumulated pine needles. Long-term exclusion of fire can result in the increase in shrub density as well as more extreme fire events when fires do occur. These can result in the loss of canopy trees. Mesic pine flatwoods occur in the western portion of the ROGG Study Area in the Collier-Seminole State Park, although smaller aggregations occur in other portions of the Big Cypress watershed.

Forested wetlands

Mesic pine flatwoods

Wet prairies

Hardwood hammock lining the entry to Collier-Seminole State Park

Mangroves

Tamiami Canal near the Big Cypress National Preserve Oasis Visitor Center

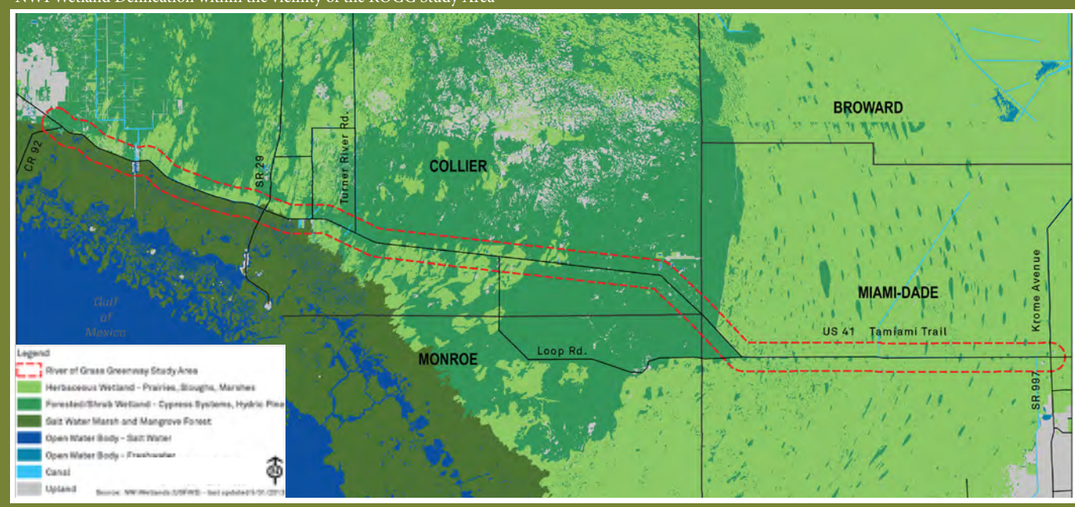
Wetland Regulatory Framework

Generally, wetlands are defined as low-lying areas in the landscape that are seasonally to permanently inundated and vegetated with plants tolerant of flooding or frequent saturation. Formal definitions of wetlands and the methods for determining the extent of wetland jurisdiction are found in the following applicable regulatory instruments: Chapter 24 of the Miami-Dade County Code of Ordinances, Chapter 62-340 of the FAC, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual (2010). Wetlands within the ROGG Study Area were mapped by the USFWS as part of the National Wetlands Inventory. The majority of the ROGG Study Area is classified as wetland with the exception of scattered hardwood hammocks, some pinelands, and artificially filled areas. Wetlands within the ROGG Study Area occur in both non-forested and forested form and included as Freshwater Vegetation Communities and Coastal Vegetation Communities vegetation community categories. All of the prairies, marshes, cypress, slough, mangrove, and some of the hardwood hammock and pineland communities are wetland.

Wetlands in the ROGG Study Area provide substantial habitat value for wildlife and are crucial for water storage and sustaining or enhancing water quality. Wetlands within EVER, Big Cypress National Preserve, Fakahatchee Strand Preserve State Park, and Picayune Strand State Forest are designated as Outstanding Florida Waters (OFWs), which is a designation intended to protect existing, high-quality waters by mandating that proposed projects within these areas to not degrade the existing water quality. If determined to be feasible, implementation of ROGG would likely require impacts to jurisdictional wetlands. As noted in Appendix 3, this requires the review and approval of a number of environmental permits from regulatory agencies. The reviews of any permits for future segments of ROGG will include functional assessments of potential impacts and mitigation to offset those impacts to ensure no net loss of wetland function resulting from ROGG.

Slough provides a representative landscape feature that has been significantly impacted by regional drainage projects, but is now the target for significant hydrological enhancements that include features that will directly affect the feasibility and master plan for ROGG.

NWI Wetland Delineation within the vicinity of the ROGG Study Area



Pine Rockland – Pine rocklands occur on outcrops of limestone that have hydrological conditions similar to hydric and/or mesic pine flatwoods depending on ground elevations. Similar to mesic and hydric pine flatwoods, the canopy of pine rocklands is dominated by south Florida slash pine. However, the herbaceous layer is typically comprised of shrubs such as saw palmetto and scattered cabbage palm. Typically, herbaceous species are more diverse in this community with a higher number of endemic species than herbaceous layers in the pine flatwoods. The limestone within pine rocklands is typically pitted with fissures. Pine rocklands depend on frequent fire to discourage the growth of shrubs. In the absence of fire, pine rocklands gradually transition to rockland hammock communities dominated by a variety of fire intolerant shrub and canopy species. Pine rocklands in the ROGG Study Area are most prominent within EVER, but do occur in scattered areas within the Big Cypress watershed. This habitat is unique to south Florida within the continental United States.

Hardwood Hammock – Hardwood hammocks occur on higher elevations that are scattered throughout the ROGG Study Area and are a habitat unique to south Florida within the continental United States, especially those that provide conditions suitable for royal palms. Many of the hammocks are located on shell mounds, while the remaining hammocks occur on natural rises within pine flatwoods, pine rocklands, or strands. Hammocks on shell mounds vary in composition depending on location with hammocks in coastal areas being dominated by tropical hardwoods such as gumbo limbo, mastic, and poisonwood and inland hammocks dominated by live oak and/or cabbage palm. Rockland hammock areas occur on broader areas of higher elevation and consist of diverse tropical hardwood forests dominated by species such as inkberry, satinleaf, Jamaica dogwood, and strangler fig. Rockland hammocks can grade into pine rocklands and can represent the successional climax community when fire is excluded. For both types of hardwood hammock forests, the herbaceous layer is generally sparse, while shrub and vine layers can be dense. Typically, hardwood hammocks in the ROGG Study Area are relatively small in size, although larger expanses of hardwood hammock can occur such as the rockland hammock in Collier-Seminole State Park. Fire in hardwood hammocks is generally an infrequent to rare occurrence, but can significantly change the composition of the hammock, especially if occurring during dry conditions.

Disturbed Lands – A variety of disturbed upland habitats occur throughout the ROGG Study Area. These uplands consist of areas that were historically cleared and/or filled for residential or commercial structures, levees, roadbeds, or other uses. Existing residential or commercial parcels include houses or other structures as well as lawns and/or parking facilities that are often landscaped with a variety of native and non-native vegetation. Vacant lots often exhibit dense stands of exotic plants, typically comprised of Brazilian pepper and melaleuca although a variety of other exotic invasive species can also occur. Levees exhibit a variety of conditions; sand or gravel serves as a driving surface on the top or bench of the levee and the slopes are comprised of ruderal vegetation subject to frequent mowing. Roadbeds range from the paved road section and grassed shoulder of U.S. 41 to narrow filled gravel/limestone roads through marshes and swamps used for historical logging operations. The banks of many of these roadways are lined with shrubs ranging from natives such as cocoplum and wax myrtle to exotic plants such as Brazilian pepper. Other lands used in historical agricultural production have been left fallow and now consist of ruderal lands.

Open Water

Waterbodies - Significant surface water features within the ROGG Study Area include rivers, canals, lakes and excavated reservoirs. Several natural riverine drainage ways occur in the vicinity of U.S. 41, including the Blackwater, Whitney, Faka Union, Fakahatchee, New, East, and Turner Rivers. The majority of these rivers are tidally influenced and occur south of U.S. 41, although Turner River extends north of U.S. 41 as a significant freshwater drainage way. One major canal feature, the Tamiami Canal was excavated to create fill for road construction and is located north of U.S. 41. Additional regional canals, including the S.R. 29, L-28, L-67A, L-67C, L-30, and Faka Union canals, intersect the Tamiami Canal within the ROGG Study Area. These features are detrimental to sheet flow in that the roads block flow, and the canals divert water from adjacent wetlands. The Faka Union is tidally influenced and provides Critical Habitat for manatees. Several small lakes and water bodies occur throughout the ROGG Study Area, some of which naturally occur in depressions or sinks in the landscape, while others were created as borrow ponds. These water bodies provide year round aquatic habitats for wildlife refuge during drought conditions.

Vegetation - Relevance to ROGG: Vegetation communities within the ROGG Study Area affected feasibility assessments for routing options, design of shared-use path and trailhead facilities, considerations for public and regulatory coordination, and post-construction operation. Specific influences on analysis for the ROGG included:

- **Routing Alternatives** – Routing alternatives for ROGG considered both the potential presence of rare vegetation communities and options that would primarily traverse previously disturbed habitats. Several rare vegetation community types occur within the ROGG Study Area, including hardwood hammocks and pine rockland. Although these habitats typically include shade trees and upland habitat that would provide beneficial elements for ROGG, they can also be home to rare plant and animal species. The route alternatives for ROGG included an assessment of both the educational and experiential opportunities associated with access to the rare communities as well as potential impacts to the species comprising the habitats and/or management implications that would be caused by a shared-use path through the natural community. Management implications could include reduced capacity to apply prescribed fire and/or breaks in vegetation structure that cause vegetation communities to experience increased susceptibility to damage from hurricane winds, native hardwood encroachment into historically open systems, and exotic species and native hardwood encroachment (since pine rocklands are particularly susceptible to hardwood encroachment whether native or exotic). Routing alternatives that used previously disturbed lands were prioritized both to take advantage of conditions favorable for shared-use path use as well as opportunities for the shared-use path operation to remove exotic plants present in the disturbed areas.

- **Wetlands** - Vegetation communities in the vast majority of the ROGG Study Area are wetlands subject to the regulatory authority of local, state, and federal entities, which are described in more detail in **Appendix C**. Construction of a shared-use path within wetland communities will require extensive permitting and was a significant factor for the overall feasibility of implementing all or portions of the ROGG segments. Accommodations for wetlands were included in design options evaluated for ROGG facilities, which included boardwalks to reduce fill and allow light penetration, and options to use the trail to spread out the flow of water from channelized flow-ways to closer mimic the historical sheetflow of the region.

- **Lack of Shade** – The majority of the ROGG Study Area consists of prairies, marshes, or other relatively non-forested communities. Shared-use path sections for ROGG through these areas would have little natural canopy available to provide shade for shared-use path users, which could require the installation of shade structures or way stations to mitigate the heat and sun in south Florida.

- **Waterbodies** – A number of excavated canals and ponds occur within the ROGG Study Area, the majority of which have steep banks and no vegetated edge. Some of these have structures that limit access to the water, such as the guardrails between the road surface of U.S. 41 and the Tamiami Canal. Likewise, trails located adjacent to, or over water will require railings to limit access. Some of these water features may be targeted for restoration, which would affect both the slopes anticipated at the water's edge as well as the experience of shared-use path users. Water features also serve as a fishing location. Fishing provides a potential user conflict between pass-through trail users and the fisherman that want to stay near good fishing locations. The incorporation of design features such as platforms and "no fishing" locations were evaluated as part of the study.

- **Shrub Management** – Many of the natural vegetation communities in the ROGG Study Area have a sparse shrub layer due to the history of fire and inundation, which creates the characteristic vista across open prairies in the region. However, areas that have been disturbed by historical agricultural activities, hydrological alterations, and/or fill placement provide drier conditions and protection from fire that allows dense shrubs to grow, including both native and exotic invasive shrub species. Along roadways and fill pads of the Old Tamiami Trail and portions of Loop Road, these shrubs can grow into an almost impenetrable thicket that limits views across the natural systems. These shrub thickets have become part of the cultural landscape along roadway corridors, which may limit the amount or intensity of management allowed to thin the shrubs and allow additional views into the surrounding natural systems. New shared-use path facilities built on filled areas will require management during path operations to limit the growth of undesirable shrubs. In areas where exotic invasive shrub species occur, the ROGG was identified as a potential catalyst for removal of these undesirable species.

- **Landscape Palette** – The ROGG Study Area traverses vast expanses of native vegetation communities in which a diversity of native plants that should be used for landscape designs within the region. The incorporation of native plants into the landscape palette for the shared-use path and/or shared-use path facilities can minimize abrupt transitions between constructed features and the adjacent natural areas. These species are adapted to the ecological setting of the region, which can limit the maintenance requirements once the species are established.

- **Tidal Communities** - Vegetation communities that rely on tides and the associated influence of salinity occur in the western portion of the ROGG Study Area. Routing alternatives and design options that would alter historical tidal fluctuations were deemed essentially infeasible. On the other hand, opportunities to use ROGG to enhance or restore historical tidal operation and salinity levels were evaluated as part of the feasibility study.

Vegetative Communities Summary

The vast majority of the ROGG Study Area consists of vegetation communities associated with wetland habitats. Generally, the eastern portion of the ROGG Study Area exhibits marsh and wet prairie systems, while the western portion exhibits cypress systems, hydric pine flatwoods, and tidally connected estuarine systems. Unique tear-drop shaped tree islands occur within the marshes and wet prairies of the Everglades. Forested wetlands occur primarily in the Big Cypress watershed and exhibit several forms ranging from cypress dominated domes, strands, and prairies to mixed hardwood swamps, such as the Fakahatchee Strand. Open water systems also occur throughout, including those associated with natural stream bodies like the Turner River, although the majority of these systems are associated with canals or other excavated water bodies.

Naturally vegetated upland areas such as pine flatwoods and hammocks exhibit limited to no inundation during average years, but typically grade gently into the adjacent wetland areas both in vegetation composition and topographic elevation. Small portions of the ROGG Study Area consist of pine rockland, a habitat unique to south Florida that consists of pine forests growing on limestone outcrops. Other upland areas occur within the corridor on filled areas associated with roads, fill pads for current or historical structures, and/or levees. These uplands often exhibit dense stands of exotic, invasive vegetation.

Specific influences on analysis for the ROGG from vegetation communities included routing alternatives in the vicinity of rare vegetation communities, areas requiring intensive management, and previously altered sites, the need for additional shade features due to limited available tree canopy, access to water features, design and management considerations to address shrub management and tidal communities, regulatory requirements for wetlands, and vegetation that could be incorporated into a landscape palette for the ROGG.

Primary Listed Species Regulations Summary

A number of regulations require review of activities with the potential to impact listed species and changes to project design and/or permits if the impacts would be realized in the final implementation. Five of these have specific relevance to ROGG as the primary regulations affecting potential impacts to listed species in south Florida. The following provides a brief summary of each regulation.

Endangered Species Act (ESA) of 1973, as amended (PL 93-205)

The ESA was developed to protect threatened and endangered species and the ecosystems upon which they depend by prohibiting the take of a species through a variety of actions defined in the ESA. Plants and animals listed as federally threatened and endangered are protected under the ESA, which is administered and enforced by the USFWS. The ESA allows for exceptions to prohibited activities through the issuance of a permit for taking of a listed species incidental to otherwise lawful activities.

The ESA also regulates Critical Habitat, which is a defined land area containing the habitat area essential for the conservation of the species. Critical Habitat may require special management considerations or protection, but the area does not necessarily represent the total extent of suitable or occupied habitat for the species. Approximately 50% of species listed by the USFWS have Critical Habitat designations.

Magnusson-Stevens Fishery Conservation and Management Act (MSFCMA)

The MSFCMA is the primary law governing the management of fisheries for marine fish species within waters subject to the federal jurisdiction of the U.S. The MSFCMA provides statutory authority for the protection of Essential Fish Habitat (EFH), which is the habitat essential for survival and reproduction federally managed fish species across their life stages. Working with regional fishery management councils, the National Marine Fisheries Service (NMFS) has designated EFH for approximately 1,000 managed species, including EFH within the ROGG study area. Some of this EFH overlaps with Critical Habitat for species protected under the ESA. The NMFS reviews potential impacts to EFH as part of the review of Federal agency actions and provides conservation recommendations that need to be addressed by the permitting agencies, including by incorporating conditions that acquire compliance as part of permits issued for a project.

Migratory Bird Treaty Act (MBTA)

Most native birds within the ROGG Study Area are protected under the Migratory Bird Treaty Act (MBTA). The MBTA made it illegal for people to "take" migratory birds, their eggs, feathers or nests. "Take" is defined in the MBTA as an attempt at hunting, pursuing wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof by any means or in any manner. The MBTA allows for legal hunting of certain species protected under the MBTA and within the hunting regulations established by the State of Florida.

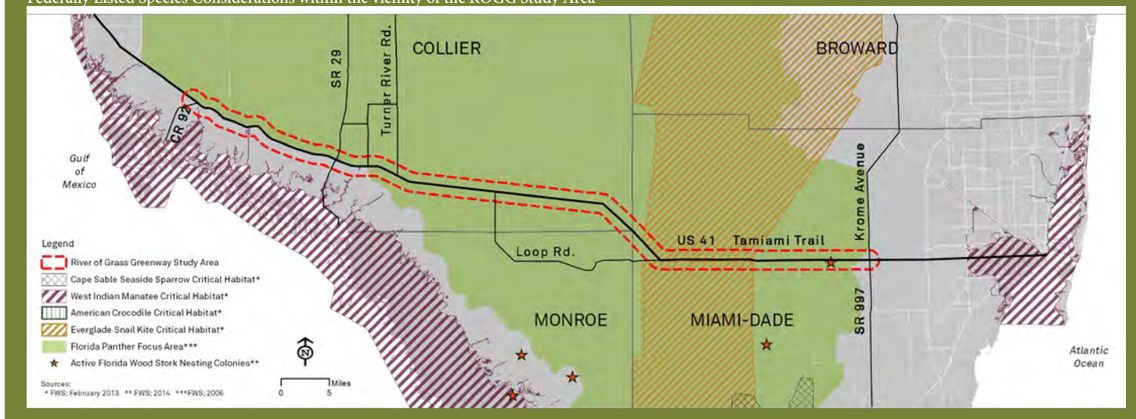
Bald and Golden Eagle Protection Act (BGEPA)

Following the removal of the bald eagle from the ESA in 2007, the USFWS implemented a permitting program under the auspices of BGEPA for potential impacts to bald eagles. BGEPA prohibits the taking of bald eagles and golden eagles, their parts, nests, or eggs within the United States without appropriate permits issued by the Secretary of the Interior. Originally issued as the Bald Eagle Protection Act of 1940, BGEPA was expanded in 1962 to address protection of the golden eagle. Under BGEPA, "take" is defined as any action that will kill, injure, molest, or disturb these species to the point where productivity or reproduction is affected. Both the FFWCC and the USFWS implement elements of the permitting program for BGEPA.

Chapter 68 of the Florida Administrative Code

Through Chapter 68 of the F.A.C., the FFWCC regulates activities that may affect listed species within the State. The purpose and intent of this chapter is to conserve or improve the status of endangered and threatened species with the understanding that lawful, nature-based recreational activities may be managed to be compatible with species protection measures. The FFWCC regularly reviews the status and listing designation for species meeting the criteria of the Code, develops and implements management plans that are designed to protect the target species throughout the state, and administers the permitting program.

Federally Listed Species Considerations within the vicinity of the ROGG Study Area



Listed Wildlife Species

The ROGG Study Area traverses expanses of publicly-owned land noted for or set aside specifically to conserve habitat suitable for occupation by rare and endangered species protected by state and/or federal government regulations (hereafter listed species). Management plans for parks and conservation lands produced by county, state, and federal agencies that manage these parcels have documented occurrences of listed species throughout the ROGG Study Area. In addition, the USFWS completed a Multi-Species Recovery Plan for 68 federally listed species that occur in south Florida to assist with project planning, management actions, and environmental compliance. Based on the species noted in these plans, the following 22 listed wildlife species have the potential to occur in or adjacent to the ROGG Study Area and/or be affected by the proposed project:

- Florida panther,
- West Indian manatee,
- Everglade snail kite,
- American alligator/ American crocodile,
- Cape Sable seaside sparrow,
- Wood stork,
- Eastern indigo snake,
- Bald eagle,
- Little blue heron,
- Roseate spoonbill,
- Snowy egret,
- Tricolored heron,
- Southeastern American kestrel,
- Osprey (Monroe County population),
- Florida sandhill crane,
- Everglades mink,
- Big Cypress fox squirrel,
- Florida black bear,
- Red-cockaded woodpecker,
- Smalltooth sawfish,
- Florida bonneted bat.

The USFWS has designated Panther Focus Areas, Critical Habitat for Cape Sable seaside sparrow, American crocodile, West Indian manatee and Everglade snail kite, and Core Foraging Areas (CFAs) for wood storks within the vicinity of the ROGG Study Area. The NMFS has designated Critical Habitat for the Smalltooth sawfish with the vicinity of the ROGG Study Area. These designations include habitat occupied or suitable for occupation, roosting, foraging, and nesting by species listed as threatened and/or endangered by the USFWS. These designations are a tool used to guide agencies in fulfilling conservation responsibilities by requiring them to consult with the USFWS if projects occur in these locations.

Listed plant species occur within or near the ROGG Study Area, including several species within the Fakahatchee Strand Preserve State Park that are found nowhere else within North America. The majority of these plant species occur within wetlands that would be subject to a variety of

regulations intended to protect wetlands and wetland-dependent species. In addition, regulations addressing potential impacts to listed wildlife species typically require consideration of potential impacts to listed plants. As such, additional detailed descriptions of listed plant species within the corridor are not included in this document.

Florida Panther

The Florida panther is a tawny-colored, medium-sized cat that historically occupied much of Florida, but has experienced significant range and population reductions due to a variety of factors, including habitat loss and road mortality. The Florida panther occupies an estimated two to three million acres in south Florida, which is less than five percent of its historic range. The population is estimated to be 100 - 120 individuals that generally prefer large, remote tracts of land with adequate prey, cover, and reduced levels of disturbance as suitable habitat. The small population size makes this species susceptible to a bottleneck caused by a lack of genetic diversity. The lack of genetic diversity can render the population more susceptible to the spread of contagious diseases, which have the potential to wipe out the remaining population if the disease is severe.

The quality of suitable panther habitat is largely driven by forage available for prey species, which include white-tailed deer, feral pig, raccoon, armadillo, and rabbit. Mature forested uplands provide relatively dry conditions with dense vegetation enabling panthers to rest and den while still providing visibility and access to large prey in bordering swamps, marshes, or pinelands. Much of the prime panther upland habitat is north of I-75, but the conservation lands within the corridor, including the Florida Panther National Wildlife Refuge, the Big Cypress National Preserve, Big Cypress Seminole Indian Reservation, EVER, Fakahatchee Strand Preserve State Park and Picayune Strand State Forest, form a large contiguous tract of panther habitat.

The home range of this solitary species varies according to gender, habitat availability, and habitat quality, although males generally have larger home ranges than females. Males are polygamous and their home ranges typically overlap with the home ranges of several females and their dependent offspring. Florida panther breeding may occur throughout the year with a peak during the period of winter and spring. The gestation period is 90 to 95 days and litter size ranges from one to four kittens. The young will disperse between 18 to 24 months after birth. The overall breeding cycle lasts two years.

Threats to this species include road mortality, habitat loss and fragmentation, disease, and inbreeding. Regional habitat loss and declines in habitat quality have decreased suitable habitat available, which has contributed to dispersal of panthers. Habitat fragmentation has separated the large blocks of habitat desired by panthers. Instead, panthers have to use corridors of unsuitable habitat to disperse (even through corridors with human activity). Corridors that cross roadways expose panthers to potential motorized vehicular collisions, which accounted for 20% of panther deaths between 1972 and 2004. Regionally, wildlife underpasses along I-75 and S.R. 29 have decreased motorized vehicular accidents. However, the majority of panthers using these crossing are males looking for additional habitat, while females still rarely cross major roads or use the underpasses, essentially sustaining their habitat as fragmented. Panther mortality on S.R. 29 has historically been a significant percentage of the total deaths caused by vehicles, even following the installation of wildlife fencing along the roadway. Panther mortality has also occurred on U.S. 41, especially in the vicinity of the Turner River.

The ROGG Study Area includes portions of the U.S. 41 corridor within the Big Cypress National Preserve that have been equipped by FDOT with the Roadside Animal Detection System (RADS) technology. RADS are electronic motion and/or infrared sensors that detect the movement of large animals on or near roadways. When sensors are activated, RADS triggers a warning message that signals drivers to reduce their speed and proceed with caution.

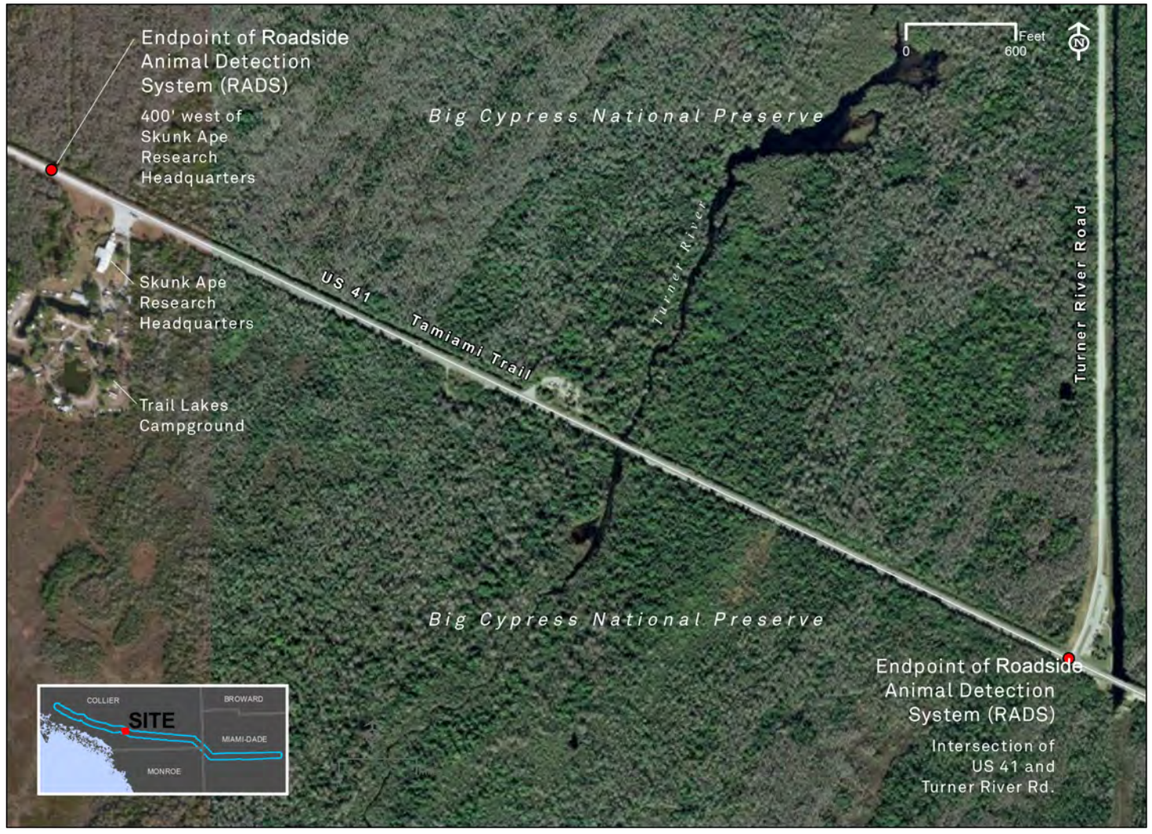
The ROGG Study Area is located within the primary zone of the Panther Focus Area. Conservation of these lands is essential for the long-term survival of this species, and any disturbance within the Focus Area has the potential to impact the species.

West Indian Manatee

The West Indian manatee is a large aquatic mammal that can be found in saltwater, brackish, and freshwater environments. Manatees can be found in shallow, slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas, particularly where foraging areas for seagrass or freshwater submerged vegetation occur. Manatees are mostly herbivores, however small fish and invertebrates can be ingested when they consume a large variety of submerged, emergent, and floating plants. This migratory species travels to peninsular Florida in the winter to use warm waters, such as natural springs or power plant discharges. Reproductive rates are low for manatees with one calf being born every two to five years. Gestation lasts 11 to 14 months and mothers nurse their young for one to two years. Manatees have no natural enemies and can live 60 years or more. Historically, the major cause of natural death was likely exposure from cold weather. Most human-related manatee fatalities occur from collisions with watercraft, but other causes for human-related mortality include being crushed and/or drowned in canal locks and flood control structures; ingestion of fish hooks, litter and monofilament line; and entanglement in crab trap lines. Critical Habitat has been mapped by the USFWS for this species, which includes the Faka Union Canal and portions of the Tamiami Canal within the ROGG Study Area.

Florida panther - Photo Credit: fwsgov

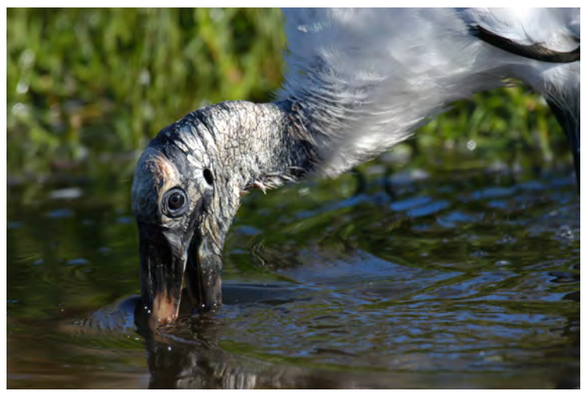
Roadside Animal Detection System (RADS) on U.S. 41



Western Indian manatee - Photo Credit: fwsgov

Cape Sable seaside sparrow - Photo Credit: fwsgov

Male Everglade snail kite


Wood stork

American alligator

Eastern indigo snake

Everglade Snail Kite

The Everglade snail kite is a medium-sized raptor that forages for its primary prey, the apple snail, in open herbaceous wetlands of south Florida. This subspecies is limited to wetlands of central and south Florida. In the vicinity of the ROGG Study Area, this species regularly occurs in the expansive marshes of the WCA-3 and EVER. The Everglade snail kite is highly mobile and will move from one portion of its range to another in search of food if foraging conditions decline in one area. Open herbaceous wetlands comprised of spike rushes, maidencane, and bulrushes comprise important components of habitat since they provide suitable conditions for apple snail availability. Dense vegetation is not optimal for the Everglade snail kite because it complicates the ability to forage successfully. They nest in a variety of vegetation types, including both native and exotic woody vegetation and cattails. Typically, nests occur approximately three to ten feet above the water in areas with good foraging habitat nearby. Critical Habitat has been mapped for this species, which includes much of the eastern portion of the ROGG Study Area.

American Alligator/ American Crocodile

The American alligator and American crocodile are two similar-looking reptiles found in open water bodies of south Florida. American Alligators are protected to their similarity to American crocodiles, which are much rarer in terms of population numbers and range. Alligators are common throughout the Coastal Plain of the southeastern United States, while crocodiles are limited to south Florida and the neotropics. Alligators are found primarily in freshwater habitats, while crocodiles typically occur in coastal estuaries. Both are opportunistic predators that will consume any prey that is easily accessible. Both reptiles are an important part of their ecosystem because they establish depressions through their nesting activities that can provide habitat for a number of other species. Along the ROGG Study Area, the American alligator is abundant and often observed thermo-regulating along the banks of canals adjacent to roadways. Critical Habitat has been mapped by the USFWS for the American crocodile, but it does not occur within the ROGG Study Area. Activities involving American alligators are regulated by the FFWCC.

Cape Sable Seaside Sparrow

The Cape Sable seaside sparrow historically occupied a range in Collier, Miami-Dade, and Monroe counties, including areas in the vicinity of the ROGG Study Area. The population has declined due to loss of habitat as a result of development, changes in vegetation, fire, natural disasters, and hydrologic alteration. The Cape Sable seaside sparrow is a relatively small bird with drab colors that uses the marshes and wet prairies of interior southern Florida that remain dry most of the year, but become seasonally flooded with fresh to slightly brackish water. These vegetative communities burn periodically and the timing of these fires are critical to the survival of the sparrow. Sparrows build nests near the ground with an average nest height of approximately 6 inches. Nesting may happen two to three times in a nesting season, which begins as early as late February and can persist into early August commensurate with rainfall. Fires that occur late in the dry season threaten eggs and newly fledged young. Ideally, fires would occur during the wet season and water levels would not be artificially elevated during the dry season to prevent disturbance to nesting sparrows. The USFWS has mapped Critical Habitat for this species and it does not occur within the ROGG Study Area. However depending upon the final location of the alignment, the ROGG may occur within the consultation area for this species.

Wood Stork

Wood storks are large wading birds that utilize shallow marshes and prairies throughout Florida. They have exhibited population declines attributed to loss of wetland habitat and regional hydrological alterations. Wood storks feed on small fish in shallowly-inundated wetlands or manmade water bodies. The ideal hydrologic regime for wood stork foraging includes periods of flooding (at which time prey items proliferate) alternated with dry periods (at which time prey items become concentrated). Periods of drought typically instigate the breeding season, and ultimately this timing results in concentrated prey for fledgling wood storks. Artificial impoundments, levees, and canals in south Florida have changed the natural hydrology of wetlands, which has impacted prey availability and foraging potential for this species.

Beginning as early as October in south Florida, wood storks produce nests in colonies that utilize large cypress trees or mangrove islands. Wood stork nesting within the ROGG Study Area is rare, but sporadic nesting has been documented since the mid-90s. In south Florida, wood

stork CFA is defined as any suitable foraging habitat located within 18.6 miles of a known wood stork rookery.

The ROGG Study Area is located within the CFA of several currently active wood stork colonies. For projects occurring in a CFA, activities ranging from filling of foraging habitat to hydrological alterations that change the depth and/or duration of inundation may be considered as adverse impacts to wood storks. Minimization of adverse impacts to the wood stork can include replacement of foraging habitat through hydrological and habitat improvements or in the purchase of wetland credits from an approved mitigation bank as long as the impacted wetlands occur within the permitted service area of the bank.

Eastern Indigo Snake

The eastern indigo snake is a large, black, non-venomous snake found in a variety of upland habitat types throughout the State, although they are not commonly found in great numbers in the wetland complexes of the ROGG Study Area. Eastern indigo snakes frequent several habitat types ranging from scrubby uplands to freshwater marsh edges to agricultural fields and typically require a mosaic of habitats to meet their complex habitat needs. In wetter habitats such as those in the vicinity of the ROGG Study Area, eastern indigo snakes may take shelter in hollowed root channels, hollow logs, or the burrows of rodents, armadillo, or land crabs. Their diet includes fish, snakes, frogs, turtles, eggs, small alligators, birds, and small mammals. Critical Habitat has not been mapped for this species by the USFWS.

Bald Eagle

The bald eagle is a large raptor found throughout most of the US that exhibited significant population declines in the 1900s, but has since substantially recovered throughout the state. This species typically nests in expanses of forested habitat located within 1.8 miles of open fresh or salt water where they forage. Bald eagles nests, or eyries, are usually built in native pines, but they have been observed in cypress, mangroves, and artificial structures. Their diet is comprised primarily of fish and waterfowl, although mammals, amphibians, and reptiles are also consumed. The bald eagle uses a variety of methods to obtain food, including eating carrion, stealing fish from other birds or hunting for its own prey. Bald eagles are no longer protected under the ESA, but They are protected under the MBTA and the BGEPA. Based on data obtained by the FFWCC in triennial surveys through the 2011-2012 nesting season, a total of nine bald eagle nests, all of which are in Collier County, (nests numbered CO-006, CO-011, CO-012, CO-013, CO-016, CO-017, CO-037, CO-042, and CO-044) are known to occur within one mile of U.S. 41 in the ROGG Study Area.

Red-cockaded Woodpecker

Named for the red streak (or cockade) on the side of the black cap of the males, the red-cockaded woodpecker is a small woodpecker that historically were common throughout the longleaf pine ecosystem, but declined in numbers as these forests were timbered in the early to mid-1900s. Red-cockaded woodpeckers live in family groups that include a breeding pair and “helper” non-breeding woodpeckers that typically consist of male offspring from previous years. The helpers typically assist in raising the offspring of the breeding pair. Red-cockaded woodpeckers live and nest within cavities that typically are excavated within living mature pine trees generally more than 80 years old. These older pines often are subject to a fungus that makes the inner heartwood soft enough for excavation. Cavity trees for a family group are aggregated in clusters that may include 1 to 20 or more cavity trees spread out over an average of 10 acres. Red-cockaded woodpeckers typically have territories of approximately 125 to 200 acres within which they forage, although this is dependent on habitat suitability and population density. Red-cockaded woodpecker clusters occur within the Big Cypress National Preserve, where the population is relatively stable.

Smalltooth Sawfish

The smalltooth sawfish is one of two sawfish species that inhabit U.S. waters, primarily within waters south of the Everglades region of south Florida. This species typically inhabits shallow coastal waters very close to shore over muddy or sandy bottoms such as those found in estuaries. Typically, they occur within waters with warmer temperatures (71-82 degrees F), but will ascend inland in river systems periodically. Nursery areas for juvenile sawfish include mangroves and other shallow habitats with vegetation. Limited data is available concerning the population size of this species, but indications are that the population has dramatically declined over the last century likely due both to death caused by bycatch in various fisheries and the loss of juvenile nursery areas due to habitat modifications. This species was listed as endangered under the ESA by the NMFS in 2003 and Critical Habitat for this species was designated in 2009. Critical Habitat for this species occurs in the vicinity of the ROGG Study Area.

Florida Bonneted Bat

Known only from roosts in seven south Florida counties, the Florida bonneted bat is the largest and rarest bat within Florida with an estimated population of only a few hundred individuals. Like many other bat species, the Florida bonneted bat is a colonial roosting species that is known to roost in tree hollows, buildings, chimneys, limestone out-croppings, dead palm fronds, under Spanish tile roofs, and bat houses. Open fresh water and wetlands are the prime foraging habitats for this non-migratory bat species where they typically forage on night-flying insects. The Florida bonneted bat is thought to have low reproductive capacity with potentially up to two breeding seasons a year. The habitat and foraging requirements of this bat are not well documented or studied. Roosts for this bat species are known to occur within the Fakahatchee Strand Preserve State Park and the Big Cypress National Preserve within the ROGG Study Area.

Little Blue Heron / Roseate Spoonbill / Snowy Egret / Tricolored Heron

Four species of wading birds that occur in the ROGG Study Area are listed as Species of Special Concern by the FFWCC: little blue heron, roseate spoonbill, snowy egret, and tricolored heron. The population of wading bird species declined rapidly in the early 1900’s due to egg and plume hunting, but the population declines have continued and been attributed to habitat degradation and loss, reduced prey availability, and disturbance at breeding and foraging sites. All six of these species range throughout Florida, where they generally forage in shallow water on a variety of fish, crustaceans, insects, and small reptiles. Estuaries and wetlands along the ROGG Study Area are prime habitat for these wading birds. All but the limpkin breed in colonies, many of which include multiple wading bird species. According to FFWCC’s Florida Breeding Bird Atlas and the 2010 South Florida Wading Bird Report, a number of rookeries have been documented in and around the ROGG Study Area. The FFWCC Board of Directors recently approved the removal of the white ibis and snowy egret and limpkin from Florida’s endangered and threatened species list pending adoption of a management plan that is currently in process.

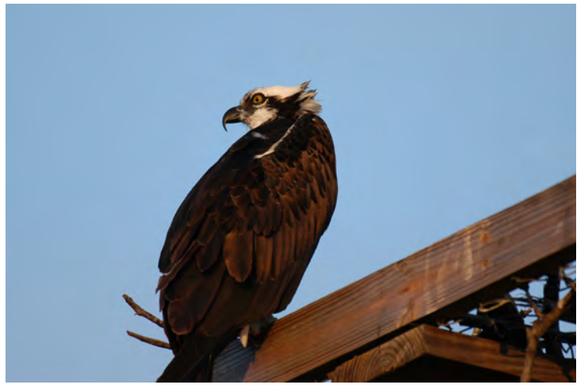
Florida Sandhill Crane

The Florida sandhill crane is a subspecies of sandhill crane that inhabits Florida year round where it forages

Bald eagle

Little blue heron

Sandhill crane



Osprey

Big Cypress Fox squirrel

Florida black bear

and nests within a variety of open habitats. These large birds with distinguishing red crowns utilize prairies, freshwater marshes, and pasture lands for foraging and nesting, but generally avoid forests and deep marshes. Florida sandhill cranes typically nest in late winter and early spring in matted vegetation surrounded by shallow water. They are omnivorous and forage on seeds, roots, berries, insects, invertebrates, small reptiles, amphibians, and mammals. Florida sandhill cranes have large home-range requirements, so protection measures are concentrated on the acquisition and/or conservation of land that bolster existing populations. Periodic fire is important to retard invasion of woody vegetation in marshes on protected habitat. In addition, the FFWCC approved upgrading the status of roseate spoonbill, little blue heron, and tricolored heron from Species of Special Concern to Threatened.

Osprey

The osprey is large raptor that ranges throughout Florida year round and uses open water bodies such as freshwater lakes and oceans for foraging on a variety of fish species. Pesticides, shoreline development and declining water quality threaten the abundance and availability of food and nest sites for ospreys. They build large stick nests on live or dead trees as well as manmade structures such as utility poles, channel markers and nest platforms. Nest initiation typically begins between December and February. There is both a resident population and a migrant population that passes through Florida each spring and fall. The osprey is protected in Monroe County only, but permits are required to remove nests located anywhere within the state and a replacement structure must be erected to mitigate the removal of the nest. Suitable habitat occurs continuously without geographic barriers to movement throughout the ROGG Study Area. Osprey are protected under the MBTA and state protected under Chapter 68A F.A.C., where they are specifically protected in Monroe County as a Species of Special Concern.

Southeastern American Kestrel

The southeastern American kestrel is the smallest North American non-migratory falcon. It uses a variety of agricultural and natural systems for foraging and nesting. Both resident and migratory kestrels occur within Florida; only the resident kestrel population is present between April and October when wintering northern kestrels have returned to their nesting ranges. Territory sizes can range up to approximately 800 acres in size. Suitable habitat includes pastures and low-intensity agriculture, open woodlots and fields within residential areas as well as fire-dependent sandhill and open pine savanna habitats. Ideal habitat provides suitable nesting and foraging habitat. In Florida, their diets are comprised primarily of grasshoppers and small lizards, but other invertebrates can also be eaten. Kestrels prefer to hunt from perches, but will hunt from the air if perches are lacking. Southeastern American kestrels breed from mid-March to early-June, typically using cavities previously excavated by woodpeckers in large dead trees and/or artificial nest boxes. A breeding pair of kestrels will defend their territory for multiple years. Mortality sources include mammalian and avian predators, but vehicle collisions also occur. An overall decline in nesting and foraging habitat as a result of development and agricultural conversion is the primary threat to this species. This species benefits from acquisition and management of suitable habitat, planting of canopy species in prairies and pastures, and prescribed fire to maintain a grassy, open understory and snags for nesting sites.

Big Cypress Fox Squirrel

The Big Cypress fox squirrel is a relatively secretive, large squirrel that uses a variety of habitats in south Florida. This species is found in Collier County, mainland northern Monroe County, and extreme western Miami-Dade County, including lands within the ROGG Study Area. Most information concerning the Big Cypress fox squirrel is based on ecological characteristics of fox squirrels in general as subspecies specific information is limited. Preferred habitat includes pine forests and cypress and mangrove swamps from which they eat fungi, nuts, seeds, and other plant material. They breed in late winter and the middle of summer, and typically the litter is comprised of two or three young. Primary threats to the Big Cypress fox squirrel include loss and fragmentation of habitat, suppression of fire that allows the growth of an undesirable dense understory, and disease.

Everglades Mink

The Everglades mink is a member of the weasel family with a limited range in the marshes and swamps of the EVER, Big Cypress National Preserve, and Fakahatchee Strand Preserve State Park. It is a semi-aquatic species with partially webbed toes specially adapted to hunting in water. This carnivorous species is an opportunistic hunter that will kill much larger aquatic and terrestrial species. They are solitary animals unless they are raising young, which typically consist of litters of three to six kits born in the spring. They den in hollow logs and stumps or under tree roots. The quality of their habitat has been degraded through development, stream channelization, and the drainage of wetlands and they are susceptible to the canine distemper virus. Other threats include the increase of invasive species into their habitat, especially the Burmese python.

Florida Black Bear

The Florida black bear is a subspecies of the American black bear that historically ranged throughout Florida and the southern portions of adjoining states, but currently occupies only a small portion of their historic range. There are five subpopulations of Florida black bear in Florida and the ROGG Study Area traverses habitat occupied by the Big Cypress subpopulation. Florida black bears are adaptable to a wide variety of habitats, including flatwoods, swamps, bayheads, and hammocks common to south Florida. The Florida black bear is the largest mammal in Florida with adult males typically weighing an average of 250 to 350 pounds and females weighing 130 to 180 pounds. Florida black bears are generally solitary by nature, with typical home ranges ranging from 50 to 120 square miles for males and 10 to 25 square miles for females. Their diet is comprised of predominantly plant material with insects with occasional consumption of meat. This species was delisted by the FFWCC in 2012 upon approval of the Black Bear Management Plan and passage of the Florida Black Bear Conservation Rule (Chapter 68A-4.009 F.A.C.). The rule continues to make it illegal to "take" a bear and also states that the FFWCC will assist landowners and regulating agencies with the objectives of the minimizing and avoiding negative human-bear interactions.

Listed Wildlife Species - Relevance to ROGG: The presence of listed species within the ROGG Study Area affected feasibility assessments for routing options, design of trail and trailhead facilities, considerations for public and regulatory coordination, and post-construction operation options. Specific influences on analysis for the ROGG included:

- **Routing Alternatives** – The ROGG Study Area occurs within the primary zone of the Panther Focus Area and includes Critical Habitat for West Indian manatee and Everglade snail kite. While the occurrence of the project within the primary zone for the Panther Focus Area does not necessarily preclude the construction of new facilities, any new

facilities, and activities including the construction of new facilities or modifications to existing facilities that result in changes to land uses and/or loss of habitat within the primary zone would require consultation with the USFWS. Routing alternatives that utilized previously disturbed habitats and/or accounted for high use areas for panthers within the corridor, including near Turner River, were evaluated as part of the study. Similarly, routing alternatives across Critical Habitat for West Indian manatees and Everglade snail kite would be subject to additional regulatory and public review.

- **Panthers and Roadways** - Vehicle collisions result in the death of numerous panthers. Anecdotal accounts during workshops for ROGG suggested that guardrails and canals for U.S. 41 complicate a panther's ability to quickly avoid ongoing traffic. Although the RADS system is in place, the location of the RADS system close to the paved road surface limits the time between the signal being triggered and the panther crossing the roadway. Other factors, including frequent vandalism has limited the effectiveness of the system. Opportunities to support or enhance the effectiveness of the RADS were evaluated as part of ROGG.
- **Wildlife Friendly Design Elements** – The ecology and behavior of several listed species affected considerations for design features for the trail. American alligators and American crocodiles warm themselves in the sun on canal banks and pavement to regulate their body temperature. ROGG facilities would be designed to deter use by these species, especially when located adjacent to open water bodies, and to minimize potential for reptile/human interaction. Wildlife, including Florida black bears, have been known to scavenge trash receptacles as a part of their foraging routine. Design accommodations for wildlife-proof trash receptacles were evaluated for ROGG to provide users the opportunity to dispose of food appropriately so that wildlife do not further associate people with food. Several species of wildlife discussed above tolerate nest boxes and/or platforms to augment nesting opportunities. ROGG facilities would be designed to maximize the opportunity to install nest platforms suitable for use by osprey and bald eagle and artificial cavities suitable for use by southeastern American kestrel.
- **Permitting** – The permit process associated with listed species and/or their habitats was considered as part of the costs and schedule for public involvement and permitting for the ROGG. Future construction activities will require authorization through permits that specify the scope of impact and species-specific compensatory mitigation to offset unavoidable impacts. Specific permitting requirements for several species of note include:
  - **Florida Panther** – Potential impacts to Florida panther habitat, especially forested habitat, for ROGG would require an assessment of Panther Habitat Units through a functional panther habitat assessment administered by the USFWS. This assessment would determine the habitat value of the lands impacted and the mitigation requirements to compensate for the impacts. Mitigation could include purchase of Panther Habitat Units from one of the several conservation banks permitted by the USFWS to offset impacts to panther habitat. If unavoidable impacts to panther habitat are required as a part of the construction of the ROGG, mitigation requirements will be negotiated and quantified during the formal USFWS consultation process.
  - **Wood Stork** - If construction impacts result in more than five acres of impacts to CFA occurs with 0.47 mile of active colony, and/or has greater than 0.5 acre of impact to wetlands within an active colony CFA, the impact and mitigation areas require a functional assessment as outlined in the "Wood Stork Core Foraging Analysis Methodology". If unavoidable impacts to wood stork foraging habitat are required as a part of the construction of the ROGG, mitigation requirements will be negotiated and quantified during the formal USFWS consultation process.
  - **Everglade Snail Kite** - The ROGG Study Area occurs within the Consultation Area for Everglade snail kites administered by the USFWS. Critical Habitat occurs in the eastern portion of the Study Area. Impacts to Critical Habitat will require review and approval by the USFWS. Nest protection buffers of 500 feet (no-entry zone) and 1,640 feet (limited activity buffer zone) will be required for active nests.
  - **Red-cockaded Woodpecker -** Potential impacts to red-cockaded woodpecker habitat will require review by the USFWS. Impacts to pinelands with mature pines greater than 6 inches dbh will require surveys and/or assumption of the presence of red-cockaded woodpeckers within the Consultation Area administered by the USFWS, which occurs in the western portion of the ROGG Study Area. For impacts that are unavoidable, mitigation and/or a habitat management plan may be required as part of the USFWS review.
  - **Smalltooth Sawfish and EFH -** The construction of ROGG within areas in or adjacent to EFH such as mangroves and/or Critical Habitat designated for the smalltooth sawfish will require consultation with the NFMS. As part of this consultation, an EFH Assessment will likely be required including a description of the proposed action, analysis of the effects of the action on EFH and smalltooth sawfish, and proposed mitigation.
  - **Florida Bonneted Bat** - Potential impacts to habitat used for roosting and/or foraging by Florida bonneted bats will require consultation with the USFWS. Surveys for Florida bonneted bat roosts may be required to evaluate for the presence of active colonies. Potential impacts to active roosts may require modifications to the ROGG design.
  - **Eastern Indigo Snake** - The construction of the ROGG may require impact to habitat preferred by this species. Typically, impacts are minimized to this species by adhering to the "Eastern Indigo Snake Programmatic Effect Determination Key and "Standard Protection Measures for the Eastern Indigo Snake."

Listed Species Summary

The ROGG Study Area traverses expanses of publicly-owned land noted for or set aside specifically to conserve habitat for listed wildlife and plant species. Although a variety of listed species could occur within the public lands, the following 22 listed wildlife species have the potential to occur in or adjacent to the ROGG Study Area and/or be affected by the proposed project:

- Florida panther,
- West Indian manatee,
- Everglade snail kite,
- American alligator/ American crocodile,
- Cape Sable seaside sparrow,
- Wood stork,
- Eastern indigo snake,
- Bald eagle,
- Little blue heron,
- Red-cockaded woodpecker
- Smalltooth sawfish
- Florida bonneted bat
- Roseate spoonbill,
- Snowy egret,
- Tricolored heron,
- Southeastern American kestrel,
- Osprey (Monroe County population),
- Florida sandhill crane,
- Everglades mink,
- Big Cypress fox squirrel,
- Florida black bear.

The USFWS has designated Panther Focus Areas; Critical Habitat for Cape Sable seaside sparrow, American crocodile, West Indian manatee and Everglade snail kite; and Core Foraging Areas for wood storks within the vicinity of the ROGG Study Area. In addition, the NFMS has designated Critical Habitat for Smalltooth sawfish within the vicinity of the ROGG Study Area. These designations include habitat occupied or suitable for occupation, roosting, foraging, and nesting by species listed as threatened and/or endangered by the USFWS. These designations are used to guide agencies in fulfilling conservation responsibilities by requiring them to consult with the USFWS if projects occur in these locations. Listed plant species occur within or near the ROGG Study Area, including several species within the Fakahatchee Strand Preserve State Park that are found nowhere else within North America. The majority of these plant species occur within wetlands that would be subject to a variety of regulations intended to protect wetlands and wetland-dependent species. In addition, regulations addressing potential impacts to listed wildlife species typically require consideration of potential impacts to listed plants. As such, additional detailed descriptions of listed plant species within the corridor are not included in this document.

The presence of listed species influenced the analysis for the ROGG through evaluations of routing alternatives that could affect Florida panther habitat within the Panther Focus Area and Critical Habitat for other listed wildlife species, opportunities to incorporate design elements that could minimize impacts to Florida panthers such as enhancement to the Roadside Animal Detection System (RADS), accommodations to minimize wildlife use of shared-use path facilities that would be adverse for wildlife or shared-use path users, and permitting requirements for future ROGG facilities relative to listed species.

Definitions

Exotic invasive species are often described with a variety of terms, such as exotic, nuisance, noxious, invasive, or non-indigenous. For the purposes of this report, the following definitions are used for exotic invasive species.

Native Species – Those plant or animal species that were found within south Florida prior to the advent of Europeans.

Nonnative Species - Those plant or animal species that were introduced or expanded into the south Florida region as a result of human-related activities and are not native to Florida.

Exotic Invasive Species – Plant or animal species that are not native to south Florida and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Brazilian pepper

Burmese pythons; Photo Credit: EDDMaps (http://www.eddmaps.org/report/images/25565.06.jpg)

- **Bald Eagle** – Construction activities inside of a 660 feet zone adjacent to a bald eagle nest tree will require a permit from the FFWCC and USFWS. This permit will include requirements for monitoring and timeframes for construction within the buffer zone.
- **Osprey** – Currently, a federal permit is required to take an active osprey nest, and state permits are required to take both active and inactive nests. Any nests observed within the project area would be avoided or removed after the appropriate permits are secured.
- **Florida Sandhill Crane** - Impacts to this species are minimized by complying with the provisions set forth in guidelines provided by the FFWCC, which include survey requirements and management considerations for a requisite 400-foot buffer around sandhill crane nest sites to prevent disturbance or take of this species during nesting.

Exotic Invasive Species

Exotic invasive species are the cause of extensive environmental damage to natural systems throughout south Florida. Due to the lack of natural enemies and frequently robust survival rates, exotic invasive species can displace or alter the composition of natural vegetation communities, change physical or ecological processes and nutrient availability, cause the death of native plant or animal species, or change conditions for the growth and reproduction of native plant or animal species. Exotic invasive species can also reduce recreational opportunities through clogging waterways used for boating or swimming, encroaching on trails and camp facilities, or reducing the aesthetics of facilities. Hundreds of thousands of acres of land in south Florida have been affected by exotic invasive species, although management activities including the exotic invasive management efforts for national and state parks in the area provide some measure of control. While desirable for ecosystem management, management efforts can be both costly to implement and can cause unintended negative local effects on cultural resources or non-target species.

Although exotic invasive plants occur throughout the ROGG Study Area, the amount and density of exotic invasive plants varies based on disturbance and management history. Monocultures of exotic invasive plants such as melaleuca, Brazilian pepper, or cogongrass occur on some vacant parcels that were filled many years ago, along the banks of the Old Tamiami Trail, and in areas with significant hydrological alteration. These monocultures have displaced native plant communities or exclude the natural re-establishment of native vegetation due to the density of the exotic plant population. In other locations, scattered individuals of exotic invasive plants intermingle with native shrub species along linear disturbed areas such as the edge of the U.S. 41 road shoulder, but do not extend into adjacent natural vegetation communities. Exotic invasive plants such as water hyacinth and hydrilla occur in a number of waterways within the ROGG Study Area, ranging from small floating clumps of plants to dense stands that clog the surface of the water body.

Exotic invasive animals also occur within the ROGG Study Area. Some species, such as Burmese pythons, occur as solitary individuals that range through the region, and are anticipated to have a regional effect on other native wildlife populations. These solitary species are difficult to control since finding individuals within the region can be problematic. Other species, such as fire ants, can occur in large groups where the species occurs. These species can have significant effects on sedentary individuals such as nestling birds, but may not range throughout the region to gather prey. Other exotic species carry diseases that can significantly effect or eradicate important vegetation or wildlife species. A notable example is the ambrosia beetle that carries a fungus that kills members of the laurel family, including redbay and swamp bay. Exotic animals also displace native populations of similar species or directly prey on desirable native species. A notable example of the former is the island apple snail that can displace the native apple snail, the historical prey for the Everglade snail kite, while a notable example of the latter is the bromeliad weevil that attacks and kills bromeliads, including many of the air plants characteristic to the region. Feral pigs and armadillos alter vegetation communities through rooting in search of tubers and other underground plant materials, digging burrows, or depredating on ground nesting birds and reptiles. Secondary effects from rooting can include disturbing soils sufficiently for exotic plants to be established and changes to micro-topography that effect sheetflow characteristics. Although negative effects are significant, feral pigs and armadillos also provide food sources for Florida panthers.

Management activities to control exotic invasive species are ongoing within the ROGG Study Area. Big Cypress National Preserve, EVER, Fakahatchee Strand Preserve State Park, and the Picayune Strand State Forest have developed management programs aimed at reducing exotic invasive species from native natural communities, which has greatly reduced the occurrences of exotic invasive species. Restoration of areas that were historically disturbed such as the removal of fill piles or filling of excavated water bodies also has reduced the substrate available for exotic plant infestation. Management activities vary depending on the target species, but typically include mechanical removal, herbicide application, prescribed fire, hunts for exotic animals, or introduction of biological control methods.

Exotic Species Summary

Exotic invasive species are a cause of extensive environmental damage to natural systems throughout south Florida. Exotic invasive species can displace or alter the composition of natural vegetation communities, change physical or ecological processes and nutrient availability, cause the death of native plant or animal species, and change conditions for the growth and reproduction of native plant or animal species. Management efforts can be both costly to implement and can cause unintended negative local effects on cultural resources or non-target species. The amount and density of exotic invasive plants varies based on disturbance and management history, with the larger monocultures occurring on vacant parcels, along the banks of the Old Tamiami Trail, and in areas with significant hydrological alteration.

Exotic invasive animals also occur within the ROGG Study Area, which can prey on native wildlife species, carry diseases that affect native species, displace native species, or alter vegetation communities through rooting or other soil disturbances. Some exotic invasive animals, including feral pigs and armadillos, serve as prey for Florida panthers. Management activities to control exotic invasive species are ongoing within the ROGG Study Area. Management activities vary depending on the target species, but typically include mechanical removal, herbicide application, prescribed fire, hunts for exotic animals, or introduction of biological control methods. Exotic invasive species influenced the analysis for the ROGG through evaluations of opportunities to route the shared-use path through exotic invasive vegetation areas to remove those species and limit impacts to higher quality natural systems, the use of exotic species removal to mitigation for other natural resource impacts, and design options to minimize the introduction of exotic species as a result of ROGG through design, implementation, and long-term operations.

Exotic Species - Relevance to ROGG: The presence of exotic invasive species within the ROGG Study Area affected feasibility assessments for routing options, design of shared-use path and trailhead facilities, and post-construction operation options. Specific influences on analysis for the ROGG included:

- **Path Location** – Monocultures of exotic invasive plants occur on both previously filled areas and highly altered areas, such as the melaleuca stands south of U.S 41 near Krome Avenue. The presence of these monocultures does not limit shared-use path routes for ROGG. In fact, shared-use path routes that are extended through monocultures of exotic invasive plants may serve as a catalyst for removal and long-term management. Shared-use path locations near high quality landscape features such as a bird rookery can serve as a corridor for exotic invasive animals to obtain access to those features. The feasibility study for ROGG incorporated a review of potential effects on desirable landscape features for use by exotic invasive species.
- **Mitigation** – The management plans for parks along the corridor place exotic invasive species control as a goal, which is often limited by sufficient funding to fully address the exotic invasive species. Exotic invasive plants occurring within road ROWs, other disturbed lands, or wetlands are a seed source for exotic plant invasion into adjacent natural areas. Control of exotic invasive plants in areas adjacent to high quality natural systems would remove seed sources. Similarly, control of exotic invasive plants within wetlands and/or other disturbed lands, especially when done in conjunction with a restoration plan to restore native biodiversity, would both enhance the function of the target systems as well as remove seed sources for adjacent lands. Both of these actions may serve as mitigation for natural resource impacts resulting from ROGG.
- **Facility Design and Implementation** – Disturbances in the landscape that result in exposed soils or new or expanded fill provide a substrate vulnerable to exotic plant invasion. Design options that minimize the establishment of these conditions during or after construction can limit the establishment of exotic invasive plants on the new trail facility. Boardwalks or other elevated structures that minimize ground disturbance or lessen the need for filled causeways limit the area available for exotic plant establishment. The use of appropriate landscape material, including native species, as a strategy for reducing the potential impacts from exotic invasive species was evaluated as elements affecting feasibility of the ROGG. Landscape materials of non-native plants will not be acceptable for ROGG. Similarly, species used in the landscape palette susceptible to exotic animals in the region such as plants in the laurel family should not be incorporated into the palette until issues associated with laurel wilt can be better understood and controlled. Incorporation of design elements that limit the effects from the use by exotic invasive animals were considered as part of the feasibility assessment.
- **Operations** – Exotic invasive plant species occur throughout the landscape and can invade areas that are disturbed for construction projects, such as a future ROGG segment. Maintenance activities to treat populations of exotic invasive species that arise within the ROGG corridor will be required for long-term operation of the system. Costs for this maintenance have been considered as part of the feasibility assessment. Management activities to control exotic invasive animal species will depend on actions in the adjacent natural lands and was not considered as a contributing factor for the feasibility of operation of the ROGG.

Ecological Processes

Natural ecological processes interact with the physical environment to shape the landscape and the ecology of the species within that landscape. Processes such as the seasonal variation in freshwater inundation or tidal fluctuations cycle every year and may periodically drastically exceed normal conditions such as during a flood or storm surge. These periodic events can result in vegetation community alterations. Other processes such as tropical storms occur infrequently or irregularly and can have significant effects on ecosystem composition and function based on a one-time event. Others occur regularly such as fire, but may vary in intensity based on the conditions present (i.e. drought, high moisture levels). The process of succession interacts with each of these to modify the condition and composition of vegetation and wildlife communities over time. In south Florida, ecological processes with the strongest influences on the ecology of the region include fire, hydrology, wind, tidal influences, sea level rise, and succession.

Fire

Fire is a defining ecological process for the composition and structure of vegetation communities of south Florida. Many of the vegetation communities within south Florida depend on frequent, generally low-intensity fires to sustain a diverse native herbaceous community, convert plant material to nutrients, or to stimulate renewed growth or reproduction. Other vegetation communities such as rockland hammock persist because of the preclusion of fire by natural or constructed barriers. Conversely, infrequent fires may affect the nature of the habitat because they allow the build-up of high fuel loads that can be vulnerable to a devastating fire, particularly during drought conditions. Periodic fires also prevent the encroachment of hardwoods into open systems. This encroachment can adversely affect habitat for a variety of wildlife species, including listed species such as the red-cockaded woodpecker and Cape Sable seaside sparrow.

Like other ecological processes affecting south Florida such as hydrology, the characteristics and patterns of fires have changed since drainage and development activities in the region expanded in the 20th century. Prior to the 1900s, fires ignited by lightning strikes or indigenous peoples burned across the wide areas of the landscape until the fires ran into natural barriers such as rivers, large near-permanently inundated strands or swamp forests, or areas with fuel loads insufficient to carry another fire.

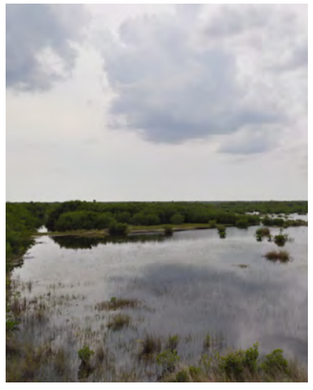
Typically occurring during the summers when lightning from frequent thunderstorms was most common, fires would occur when soil moisture was generally high. This prevented fires from burning organic soils and confined fires to above-water vegetation. Fires during this time were generally frequent in marshes, wet prairies, and pinelands and low in intensity due to limited fuel accumulation, although periodically fires in drought periods could be substantially more intense. The construction of roads, levees, canals, and other structures added firebreaks to the region, lessening the scale at which fires typically burned. Hydrological changes exposed some areas of the Everglades to longer dry periods and/or reduced water levels, which led to increased occurrences of fires that consumed organic soils and damaged or killed the roots of plants.

Management practices in the early part of the century often focused on fire suppression, which resulted in the buildup of fuel loads within pyrogenic vegetation communities. When fire did occur, the additional fuel loads resulted in a more intense fire that killed otherwise fire-adapted plants leading to changes in community structure and

Big Cypress Natural Preserve Fire
Photo Credit: nps.gov

Pinelands after Hurricane Andrew
(NPS photo)

Water flow through an
Old Tamiami Trail breach


Tidally influenced wetlands
in Ten Thousand Islands NWR

Control structure between WCA-3
and the L-29

Successionary growth of shrubs on the
banks of the Old Tamiami Trail

succession. In recent decades, fire management programs have been adopted by the public landowners in the ROGG Study Area that have worked to reduce fuel loads and returned frequent fires to the landscape.

Hydrology

Hydrology as an ecological process is embedded within the description of the region's hydrology noted in Section 2.4 – Hydrology. This section provides both a history of hydrological alterations and a projection of the expected results of proposed restoration. The historical boundaries of vegetation communities were defined by the dynamic, but consistent sheetflow of water across the landscape. On a regional scale, this sheetflow of freshwater interacting with tidal pulses of saltwater or brackish water defined the boundary of coastal marshes and mangrove swamps. Locally, the boundaries of vegetation communities were strongly influenced by water depth, hydroperiod, and duration of drought. Individual plant species adapted to variation in water levels through a variety of mechanisms, including morphological adaptions such as cypress knees or mangrove prop roots, and reproduction cycles tied to seasonal water level fluctuations.

Similarly, native wildlife species adapted to the dynamic nature of hydrology in the region. For example, white ibis are highly nomadic and will fly en masse dozens of miles to take advantage of available prey exposed to precise conditions of inundation or saturation. The foraging behavior of white ibis and of all the other wading birds in south Florida are tied to the dynamic patterns of drought and inundation that drive community assemblages including invertebrate and vertebrate prey.

Although normal variation in hydrology was a primary influence on vegetation and wildlife of the region prior to regional alterations, extreme events such as floods or droughts also shaped the distribution of vegetation communities and wildlife behavior. While the wetland systems within south Florida generally accommodate freshwater flooding events where water levels exceed normal seasonal high levels, upland systems can experience modifications to understory vegetation composition and/or canopy tree survival depending on the length of time the flooding occurs. Flooding events that result from storm surges bring a combination of high water levels, exposure to salinity, and/or debris deposition that can kill species intolerant to those effects, including freshwater wetland species otherwise tolerant of high water levels alone. On the other end of the hydrological spectrum, drought conditions increase the potential for fires to burn through standing vegetation, leaf litter, and/or organic soils. Long-term drought conditions can result in transitions from wetter to drier vegetation communities as well as changes in plant physiology that make vegetation more susceptible to negative impacts of higher water levels when the water levels return.

The magnitude of alterations to hydrology in south Florida resulting from the extensive civil works program summarized in Sections 2.1 and 2.4 have changed unmistakably the patterns of flood and drought across the region, particularly in EVER. Regional hydrological alterations resulted in drought-like conditions in some portions of south Florida and longer, deeper inundation in others. These conditions became the new baseline condition upon which hydrologic processes affected the ecology of the region. Inundation levels continue to affect vegetative communities, prey availability, salinity levels and patterns of fire. Alterations to flow direction, duration and depth have substantially altered the juxtaposition and structure of natural communities across south Florida.

In some instances, hydrologic alterations have been exacerbated by other ecosystem drivers, such as concentration of nutrients. Increased inundation combined with elevated nutrient levels have changed vegetation and wildlife communities across the southern extent of the Everglades through modifications to periphyton and vascular plant composition across thousands of acres (e.g. sawgrass to cattail monocultures). Restoration activities to return water levels and inundation duration to conditions more consistent with historical hydrology are intended to redress much of the vegetation and wildlife changes that resulted from the regional hydrological alterations of the 20th century.

Wind

While coastal breezes are common on a daily basis in south Florida, the effect of wind as a process affecting ecological resources is primarily from irregular events associated with tropical storms. Daily coastal breezes generally are mild in intensity, although these breezes can carry salt spray a short distance inland, thereby affecting growth forms and species composition for vegetation communities near brackish or salt waters. However, most south Florida systems are adapted to these periodic breezes. Strong winds associated with tropical storms occur over a relatively short period of time with high intensity. These strong winds have little effect on wet prairies and marshes, but can topple trees and shrubs within forested upland and wetland systems. Loss of canopy trees removes surfaces on which the abundant epiphytes of the region occur and/or as creates openings that can be occupied by exotic invasive species.

Downed material from tropical storm winds can also serve as fuel for more intensive fires, which can ultimately result in changes to community composition. The effects of strong winds can be magnified within linear corridors where the narrow openings in the canopy to accommodate the corridor channel wind energy into an area that exposes canopy trees in the central portions of forest stands to destructive winds that would have historically passed over a non-fragmented forest stand.

Tidal Fluctuations

Daily tidal fluctuations coupled with levels of salinity are significant drivers in the type of coastal systems occurring within south Florida. The distinct zonation found within tidal marsh vegetation communities depends on the length and depth of daily tides and salinity levels. Mangroves occur on the margins of creeks and other open water bodies, including canals, within the ROGG Study Area. Historically, the broad sheetflow of water through the Everglades and Big Cypress intergraded with the tidal waters of bays of south Florida and established a wide area of brackish conditions. Channelization of this sheetflow into canals allowed more saline tidal waters to extend farther inland. Mangroves began to migrate up the margins of the canals subject to tidal influences to take up residence in areas that were generally freshwater systems prior to channelization. The construction of U.S. 41 changed the connection of tidal marshes north and south of U.S. 41 by limiting tidal waters to a few limited canals.

Sea Level Rise

Due to flat topography, sea level rise has the potential to significantly affect the composition and distribution of many of the vegetation communities of south Florida. Since the formation of the Everglades more than 5,000 years ago, vegetation communities of south Florida have experienced rising sea levels, although the pace of the rise has varied over time. Slowly rising sea levels introduce tidal influences farther inland, which translates to broad areas in the flat topography of south Florida. As the tidal influences increase, transitions from freshwater systems to coastal systems to open estuarine systems occur. Slow increases in sea level historically allowed for vegetation communities to gradually shift across the landscape. The predicted rapid changes in sea level rise will likely devastate established communities as a result of alterations to tidal influences that occur more quickly than vegetation systems can adapt.

In recent years, the rate of sea level rise has increased. In December 2010, the Florida Oceans and Coastal Council produced a report entitled Climate Change and Sea-Level Rise in Florida. The opening paragraph of the Executive Summary states:

> "Sea level has risen slowly during the period of Florida's modern settlement. Over the course of centuries when sea level was stable by geologic standards, natural systems developed an intimate relationship with the land–sea boundary. Marshes and mangroves expanded to the very limit of their abilities; intertidal oyster reefs became closely calibrated to tides, and seagrass beds grew as deeply as light penetration allowed."

Based upon the most recent literature at the time of publication, the report documents the accelerated rate of sea-level rise in the past 20 years, and the ecological consequences of increased saltwater intrusion, higher storm surges, and vegetative community changes. Data from the Intergovernmental Panel on Climate Change (IPCC) were cited in the Report that project sea-level rise by 2100 to range from 1.5 feet to more than 3 feet. Under either scenario, the projections of heightened storm activity are pervasive. Various sources predict landward expansion of tidal communities, establishment of new areas of mangrove forests, and replacement of coastal communities with open water. These variations in the responses to sea-level rise depend on the physical conditions, tidal fluctuations and existing vegetative communities at particular locations along the south Florida coast.

Succession

Ecological succession is an ongoing process whereby vegetation and wildlife communities change over time in response to both the presence and lack of disturbances. Ecological processes such as fire, hydrology, and tropical storm winds disturb the growth of or kill some or all of the species within a community, leaving open spaces or altered conditions favorable for species tolerant of those disturbances to occur. The lack of those disturbances allows more disturbance-intolerant species to grow and thrive, potentially displacing the disturbance-tolerant species over time. Some communities, such as the rockland hammock, are intolerant of fire and/or tropical storm wind events and revert to pine rocklands or other early successional communities when the rare disturbance occurs. Others, like hydric pine flatwoods or wet prairies, are maintained through frequent disturbance that allows the characteristic diversity of the system to be maintained.

Disturbances caused by human action such as timber removal, agricultural conversion of land, or fill placement also cause changes to communities, although the resulting successional trajectories may differ from those of the native community that was displaced. These may result from introduction of exotic invasive species or through changes in the natural ecological processes. For example, fill of a roadway creates both a fire break and drier conditions that allow shrubs to grow more densely than in the adjacent communities.

Ecological Processes - Relevance to ROGG: The ecological processes along the ROGG Study Area affected feasibility assessments for routing options, configuration and materials for trail and trailhead facilities, and long-term maintenance requirements. Specific influences on analysis for the ROGG included:

- **Fire** – Fire management within the ROGG Study Area consists primarily of the application of prescribed fire and wildfire control. Prescribed fire is planned to occur in certain appropriate weather and moisture conditions, to minimize effects on structures, and with control personnel and equipment able to access the areas to be burned. Similar to prescribed fire, wildfire control efforts require access to the areas that are being burned, but that access may require additional or different types of equipment due to more variable fire and fuel conditions. Shared-use path routes for ROGG through fire dependent habitats needed to limit or avoid the fragmentation of habitat that removed capacity to apply prescribed fire or control wildfire with typical fire control equipment. The materials for the path also must be fire resistant when occurring within or adjacent to fire dependent habitats. To accommodate fire control efforts, the design of paths that occur within natural areas should provide suitable clearance or non-railed sections to allow for fire crews to access or evacuate over or under the path. Shared-use path maintenance should be conducted to limit the growth of shrubs or other aggregations of fuels that could burn over the path facility.

- **Hydrology** – Extensive efforts to restore the hydrology of the Everglades and Big Cypress systems are underway. As part of the feasibility assessment, the effects of ROGG shared-use path locations and design on regional efforts to restore hydrology was evaluated. All route locations and path designs for ROGG that would compromise ongoing programs and projects to restore hydrology were determined to be infeasible. Post-restoration path locations identified for CERP, CEPP, or other projects were identified as potential ROGG options, while options to use the design of ROGG to restore sheetflow downstream of U.S. 41 were also considered for feasibility. The design for the path and trailhead facilities included provisions to address flooding from rainfall events and storm surge. The likelihood of water levels from higher elevation flood events covering the path was assessed, although this option would require maintenance of the path to remove mud or other flood debris following a flood event and/or access control measures during the flood event.

- **Wind** – Although shared-use path locations under canopy trees are desirable for path user comfort, the removal of trees to accommodate a path corridor can cause gaps in the canopy that then become even more susceptible to tropical storm wind events. Locating the path under canopy that does not require canopy tree removal was considered as part of the ROGG feasibility study. The future design of path structures and trailhead facilities must meet appropriate codes for hurricane wind loads. Additional anchoring of boardwalks or other path features that occur adjacent to canals was considered as part of the study to limit potential impacts to the loss of the structure control structures.

- **Sea Level Rise** – In addition to accommodating current and post-restoration hydrology, the design of shared-use path facilities incorporated evaluations for the inundation levels, flood elevations, and tidal influences associated with the sea level under anticipated sea level rise models. This included evaluations for path and trailhead base elevations, requirements to maintain positive drainage for stormwater systems, and higher storm surge and flood elevations.

- **Succession** – Elements to address management for succession included a management program to mow grassed banks and/or control shrub growth along fill sections following construction of the path, use of previously altered sites that could benefit from planting to reset the succession trajectory and accommodation of fire management for adjacent fire dependent communities.

Ecological Process Summary

Natural ecological processes interact with the physical environment to shape the landscape and the ecology of the species within that landscape. Processes such as the seasonal variation in freshwater inundation or tidal fluctuations cycle every year and may periodically drastically exceed normal conditions such as during a flood or storm surge. These periodic events can result in vegetation community alterations. Other processes such as tropical storms occur infrequently or irregularly, but can have significant effects on ecosystem composition and function as a result of catastrophic one-time events. Others occur regularly such as fire, but may vary in intensity based on the conditions present (i.e. drought, high moisture levels). The process of succession interacts with each of these to modify the condition and composition of vegetation and wildlife communities over time. In south Florida, ecological processes with the strongest influences on the ecology of the region include fire, hydrology, wind, tidal influences, sea level rise, and succession.

Specific influences on analysis for the ROGG relative to ecological processes included accommodating fire management through incorporation of fire-resistant materials and maintenance of access by appropriate trail design, reviewing ROGG compatibility with regional hydrological restoration projects, incorporating design options to address wind effects, assessing effects of sea level rise, and managing succession.

Ecology Summary

The ecological resources of the ROGG Study Area provide both the impetus for establishing a regional greenway and the challenge of managing human access. These resources are uniquely adapted to the region's subtropical climate, geology and soils, and the overriding influence of water, but also extremely sensitive to perturbations caused by the presence and activity of humans who live, recreate, or visit within the systems. While the regional ecosystem provides a uniquely recognizable setting, a full appreciation for the ecological setting for the ROGG Study Area requires a more detailed review of specific elements, including vegetation communities, listed wildlife species, exotic species, wetlands, and ecological processes.

The ecological resources of the Everglades have experienced significant changes over the last century, yet are proving resilient after implementation of restoration efforts. Much of the Everglades is a near monotonous expanse of wet prairies dominated by sawgrass and dotted with tree islands, although ridge and slough landscapes add subtle diversity to the system. Regional drainage alterations have led to habitat changes and exotic/ invasive species encroachment, but restoration efforts targeted to restore appropriate hydrology promise possibilities of improved ecological function over time. Comprising the western 2/3 of the ROGG Study Area, the Big Cypress watershed exhibits similar ecological processes as the Everglades, but contrasts in ecological character and relative degree of alterations. The forested strands, sloughs, and prairies of the Big Cypress comprise one of the largest stands of interconnected cypress wetlands in Florida, and provide a home for rare and endangered species unique to North America. Although alterations in the hydrology of the Big Cypress occurred, the degree and intensity of these changes across the watershed were less concentrated than the levee and canal system through the Everglades.

Natural Resource Regulatory Context

Impacts to natural resources in the study area would require authorization from several agencies having jurisdiction over wetlands and water bodies and protected wildlife and plant species. The review and authorization for proposed impacts would be coordinated through a variety of regulatory mechanisms, ranging from NEPA coordination to application and approval of various environmental permits. Construction of the ROGG may require coordination with the USACE, USFWS, EPA, SHPO, SFWMD, FDEP, FFWCC and MDRER among others to address natural resource issues.

2.1.6 Public/Tribal Ownership

Landowners with large land holdings along the ROGG Study Area include the NPS, State of Florida through the Trustees of the Internal Improvement Trust Fund, SFWMD, Miccosukee Tribe of Indians of Florida, and USFWS. NPS owns and manages the EVER along the eastern end of the ROGG Study Area and the Big Cypress National Preserve in the central portion of the ROGG Study Area. The State of Florida ownership includes the Collier-Seminole State Park, Picayune Strand State Forest, and Fakahatchee Strand Preserve State Park that are managed through the FDEP Division of State Lands as well as the ROW for U.S. 41 that is managed through the FDOT. The SFWMD owns portions of WCA-3 located on the eastern end of the alignment and the FFWCC manages portions of the WCA-3 as the Frances S. Taylor Wildlife Management Area. The Miccosukee Tribe of Florida has a number of landholdings throughout the corridor. These holdings include trust lands such as the lands comprising the Miccosukee Indian Village as well as fee simple lands owned by the tribe, but not part of trust lands. The USFWS owns and manages the Ten Thousand Islands NWR located south of Fakahatchee Strand in the western portion of the ROGG Study Area as well as the Florida Panther NWR, which is located north of Fakahatchee Strand outside of the ROGG Study Area.

Public/Tribal Ownership - Relevance to ROGG: Public landholdings and their associated managing agencies within the ROGG Study Area maintain natural lands that could be accessible from ROGG, and they could serve as potential partners for the implementation of ROGG. On the other hand, routing ROGG through these landholdings will require extensive regulatory and public review. The lands held in public and tribal ownership within the ROGG Study Area affected feasibility assessments for routing options and regulatory review as well as opportunities for long-term partnerships for operation and maintenance. Specific influences on analyses for the ROGG included:

- **Potential Partnerships** – The public landholdings in the ROGG Study Area provide the landscapes, vistas, and facilities that are the reason for extensive visitation in the region. ROGG may serve as alternative facilities for the public to interact with the resources of the public landholdings, including potential pedestrian transportation corridors to reduce trips on U.S. 41. Public agencies are potential partners for the construction and maintenance of trail segments. These public agencies currently operate facilities such as the Shark Valley Visitor Center, Oasis Visitor Center, or the Collier-Seminole campground that could be incorporated into the trailhead and/or destination locations for the ROGG. Other facilities, such as the ORV trailheads for the Big Cypress National Preserve or the Fakahatchee Strand Preserve State Park visitor center, are planned for the corridor and these facilities would provide additional opportunities for shared amenities or trailheads at destinations for ROGG.

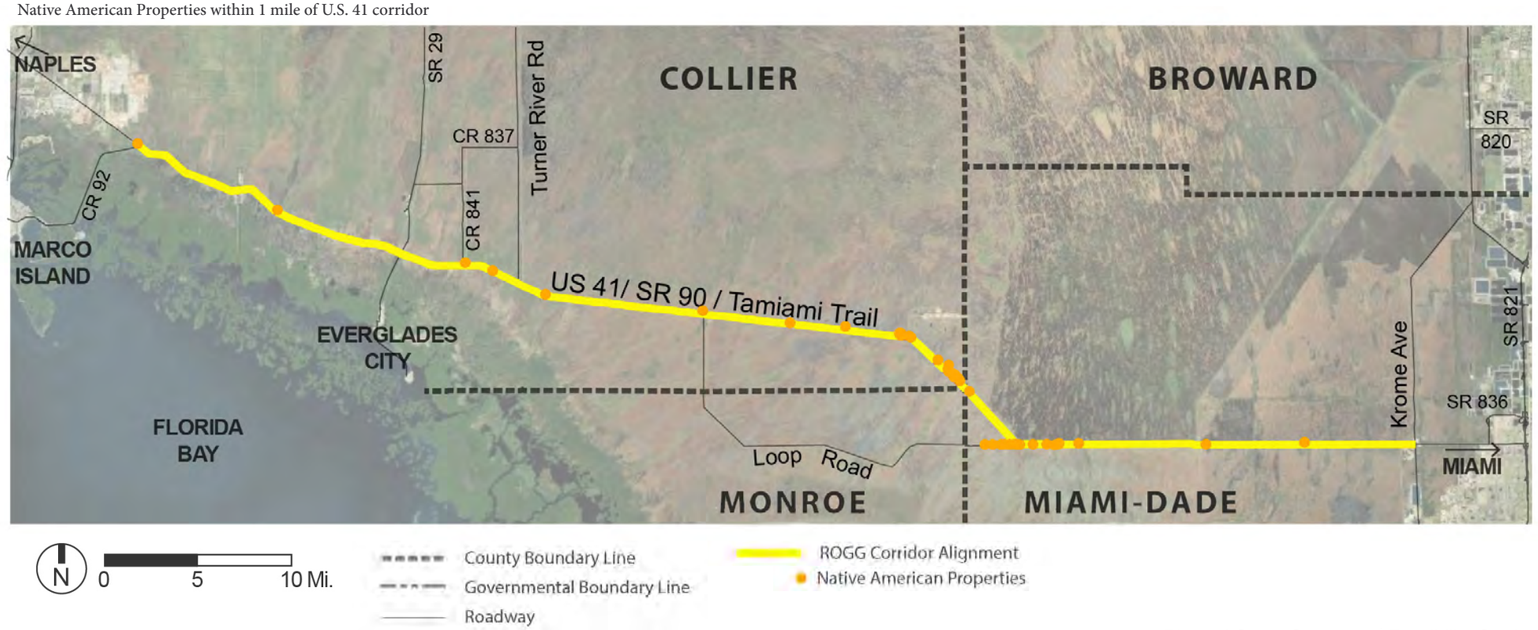
- **Regulatory Review** - Natural and cultural resources within public lands are both the attraction for visitors to the region and the primary responsibility of public landowners. Potential impacts to these resources will be subject to extensive public scrutiny due both to the aesthetic and natural resource values for which the land was initially acquired. In addition, potential impacts to these resources will be subject to extensive regulatory review, including NEPA coordination and permitting with local, state, and federal agencies for stormwater, wetlands, and listed species. These regulatory reviews will include extensive public involvement and comment on proposed activities, especially within federally owned lands. Proposed ROGG activities will also need to be incorporated into management plans for each of the public tracts as allowed uses over the management period covered by the plans.

- **Tribal Landholdings** – Tribal landholdings within the ROGG Study Area include trust lands and fee-simple (or similar) non-trust landholdings by the Miccosukee Tribe of Indians of Florida and Seminole Tribe of Florida. Trust lands that are part of the reservation lands for the Miccosukee Tribe of Indians of Florida include: an approximately 33 acre area around the Miccosukee Indian Village, parcels on the north side of U.S. 41 used for commercial purposes, and parcels at Krome Avenue and U.S. 41 associated with the casino and tobacco shop. As part of their self-government powers as a sovereign nation, the tribe licenses and regulates activities within their trust lands. This includes the capacity to exclude persons from tribal lands. The Tribe and/or members of the Tribe own other non-trust landholdings through fee-simple title within the ROGG Study Area. These lands are similar to other privately owned property in the corridor as they are subject to state and local regulations, codes, and taxation. The location of any part of ROGG within trust lands would require approval from the Tribe and Bureau of Indian Affairs, and would require additional coordination efforts to implement if considered suitable by the Tribe. The presence of trust lands could provide opportunities for ROGG users to utilize commercial enterprises of the Tribe as well as to learn about the cultural heritage of the Miccosukees in south Florida.

Public/Tribal Ownership Summary

Landowners with large land holdings along the ROGG Study Area include the NPS, State of Florida through the Trustees of the Internal Improvement Trust Fund, SFWMD, Miccosukee Tribe of Indians of Florida, Council of the Original Miccosukee Simanolee Nation of Aboriginal Peoples, and USFWS. Public landholdings and their associated managing agencies within the ROGG Study Area maintain natural lands that could be accessible from ROGG, and they could serve as potential partners for the implementation of ROGG. On the other hand, routing ROGG through these landholdings will require extensive regulatory and public review. The lands held in public and tribal ownership within the ROGG Study Area affected feasibility assessments for routing options and regulatory review as well as opportunities for long-term partnerships for operation and maintenance. Specific influences on analyses for the ROGG included an assessment of potential partnerships, regulatory review from facilities that would occur in these ownerships, and requirements associated with tribal holdings.

Native American Properties within 1 mile of U.S. 41 corridor

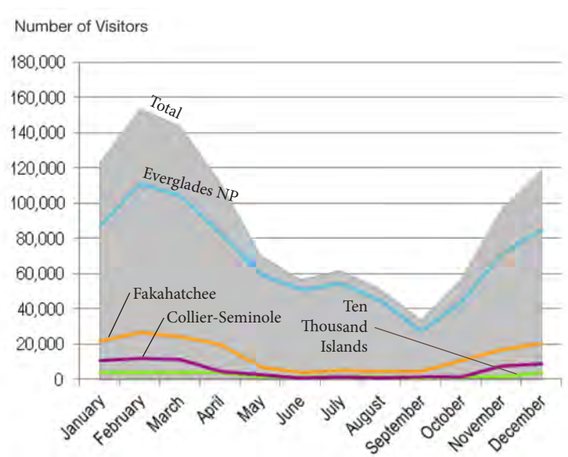


2.1.7 Transportation

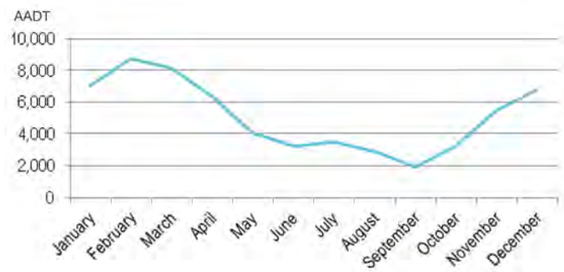
The U.S. 41 corridor is an important connection between the east and west coasts of South Florida. From the time of its initial construction until 1969, U.S. 41 was the only corridor for motorized vehicular traffic traversing the Everglades and Big Cypress. In 1969, I-75 was constructed through the northern portion of the Big Cypress and WCA-3 to provide a limited access road between the east and west coasts of south Florida. While no longer used as the primary travel corridor between the urban areas of Naples and Miami, U.S. 41 is a significant corridor for access and scenic enjoyment of parks, preserves, and other conservation lands of the region as well as access for tribal lands and individual parcel owners along the roadway.

Visitation rates for parks within the corridor vary seasonally, but are a significant component of the motorized vehicular traffic trips on U.S. 41. Four of the parks within the ROGG Study Area (EVER, Ten Thousand Islands NWR, Fakahatchee Strand Preserve State Park, and Collier-Seminole State Park) for which monthly visitation data is available. Total visitation per month averages approximately 90,000 per month with visitation to the EVER comprising a significant portion of this visitation **(Graph 1)**. This average varies greatly over the course of the year. Total visitation rates during the peak visitation period in February were more than 150,000 people per month while visitation rates in late summer (September) were fewer than 35,000 visitors per month. Visitation rates for the Big Cypress National Preserve are tracked on an annual basis, but observations from park staff indicates similar seasonal visitation patterns. Traffic counts for U.S. 41 exhibit similar seasonal fluctuations as the visitation rates, although generally the roadway meets a high level of service level under FDOT classifications. Measured by dividing the total annual volume of vehicle traffic by 365, the Annual Average Daily Traffic (AADT) metric is a relatively common measure for estimating how busy a roadway is. Based on data provided by FDOT for traffic in 2012, U.S. 41 within the ROGG Study Area averages approximately 5,000 vehicles per day. However, the utility of this measurement is limited in areas with extreme seasonal fluctuations in traffic.

Graph1 : Estimated Visitors by Month, 2012



Graph 2 : Estimated AADT by Month, 2012



Estimations of AADT on a month-by-month basis indicates that traffic averages approximately 9,000 vehicles per day during peak season, while traffic in the month with the lowest total visitation averages approximately 2,000 vehicles per day **(Graph 2)**. In addition, large motorized vehicle traffic, truck traffic, averages about 11.6% of total AADT which is higher than the 6-8% levels typically found on U.S. 41 each of SW 157th Ave./ Krome Ave. in Miami-Dade County. The average daily volume of vehicles for U.S. 41 is generally below the minimum service capacity of 7,800 vehicles per day for a two lane, undivided rural road facility. This would indicate the road is generally not congested on an average operating basis (Level of Service A). However, vehicle use during seasonal peaks reduces the Level of Service to a B level, indicating a slightly lower satisfaction level for travelers. Roadway Level of Service is a quantitative stratification of quality of service that measures by a scale of user satisfaction from A through F, with A being the best and F being the worst. Under most circumstances, the maximum service volume for Level of Service D equals the roadway's capacity.

In addition to traffic volume, other factors such as parking facilities and speed limits affect motorized vehicular traffic and access along U.S. 41. Defined parking facilities are limited in size at most destinations and non-existent outside of potential destination locations and can overflow into the ROW during heavy visitation periods. For instance, visitors park their cars in long lines along U.S. 41 outside of the access gate to Shark Valley Visitor Use Area in EVER during event days and/or high visitation seasons since the parking lots for the facility can rapidly fill up. Even when lots are not full, many visitors park along the edge of the road so they can access Shark Valley to walk, view wildlife, bicycle or take a tram tour on the 15-mile loop. Similarly, the use of the ROW for temporary parking to access fishing locations, hunting locations, or scenic views is common along U.S. 41 throughout the ROGG Study Area. Finally, the posted daytime speed limit varies through the corridor from 45 mph to 60 mph, with some areas limiting speeds during night-time to 45 mph, though anecdotal evidence indicates that many motorists exceed the posted speed limit throughout the corridor. High posted speed limits coupled with vehicles exceeding speed limits provides potential conflicts between vehicles and non-motorized use of the corridor by pedestrians and bicyclists.

The ROGG Study Area is currently not served by transit, although a new system that is being initiated by the City of Homestead to access EVER may serve as a model for future transit servicing park destinations in the future. The closest current transit routes within Miami-Dade County extend to SW 137th Avenue and U.S. 41, which is approximately four miles east of the eastern terminus of the ROGG Study Area at Krome Avenue. The closest current transit route within Collier County extends to the Big Cypress Flea Market, which is approximately one and half miles from the western terminus of the ROGG Study Area. A new transit service was developed to provide transit access to portions of the EVER outside of the ROGG Study Area. Based on city approvals in August 2013, the City of Homestead initiated a free trolley service that extends from downtown Homestead to the EVER Visitor Center and Anhinga Trail and the Biscayne National Park Visitor Center. The routes were developed in coordination between the City of Homestead, National Parks Conservation Association, national parks staff, and community stakeholders.

Bicycling is an activity that occurs regularly within the ROGG Study Area, primarily as a shared-road facility, although there are some limited facilities to accommodate bicycling separate from the U.S. 41 roadway and vehicular traffic. Residents of communities and/or individual parcels in the ROGG Study Area bicycle along roads for recreation and access to jobs or other daily activities. Typically, this bicycle access occurs on the narrow shoulders of the roadways, although bridge crossings can restrict bicycle access to the roadway lanes due to narrow bridge widths. Separation between bicyclists and vehicles on these roads is limited due to the narrow width of road shoulders, typically 2 to 8 feet, and the lack of bicycle lanes or other separated facilities. Off-road bicycle access is available on the levees on the eastern side of the ROGG Study Area, the tram road within the Shark Valley Visitor Use Area, and other trails within parks and preserves in the corridor. The recently constructed one mile long bridge for U.S. 41 near Shark Valley did not include separated bike lanes but did include a ten foot wide paved curb lane or shoulder that cyclists could use. Long distance cycling through the corridor currently requires the use of the road lanes or shoulder as a shared-road facility where motorized vehicles share the road with cyclists.

Bicycle and pedestrian access within the corridor is common around destination locations, temporary stops for scenic views, and/or daily travel in the corridor. The majority of the ROGG Study Area has limited available facilities to separate bicyclists and pedestrians from motorized vehicular traffic. Destination locations such as Shark Valley Visitor Use Area and Oasis Visitor Center provide boardwalks, trails, or other locations for pedestrians to interact or view natural resources and scenery, but often also serve as origination points for pedestrians to walk along the shoulders of roads by the destination and extends to Lake Okeechobee and points north.

The Florida National Scenic Trail provides a north-south pedestrian trail in the vicinity of the Oasis Visitor Center. When travelers park on the shoulder of the roads, pedestrians move along the roads either on shoulders or on the margin of travel lanes as there are no sidewalks or other separated pedestrian facilities along the roads consistent with the rural nature of the area. Levees in the eastern portion of the ROGG Study Area are open for pedestrian travel, although these areas have limited shade or potable water availability. Long-distance pedestrian routes for hiking or travel from east to west within the ROGG Study Area currently occurs almost exclusively along the U.S. 41 road corridor.

Transportation - Relevance to ROGG: The transportation characteristics and options within the ROGG Study Area provide the context for standards and requirements for future ROGG facilities for safe pedestrian, bicyclist, transit, and motorized vehicular access. They affect feasibility assessments for routing options, design requirements, and coordinated uses that would benefit potential ROGG users. Specific influences on analysis for the ROGG included:

- **Motorized Vehicular Traffic** – Although U.S. 41 generally has a good level of service for vehicles, the speed of vehicles and variable traffic volumes pose

a constraint to use of the existing narrow shoulder and maintained ROW by pedestrians and bicyclists. Generally, routes for ROGG that occur on or adjacent to the shoulder of the road increase potential conflict between ROGG users and motorized vehicular traffic versus routes that are separated from the road. The increased vigilance required by shared-use path users for vehicles for path routes that occur on or adjacent to the maintained ROW may also lessen the experience of path use as opposed to the trail experience for separated facilities. Efforts to enhance compatibility of motorized vehicular traffic with bicycle and pedestrian use in the maintained ROW, such as lowering speed limits, would likely be subject to intense public scrutiny, while other safety features like audible and vibratory pavement markings have already been implemented by FDOT on portions of U.S. 41 and accepted by the general public.

- **ROW Parking** – Parking within the ROW of U.S. 41 throughout the corridor affects potential options for routing as well as the design of future ROGG facilities within the maintained ROW of U.S. 41. Pull-off parking along many stretches of the U.S. 41 corridor have occurred for many years and are part of the cultural appeal for travelers along the corridor. Pull-off parking within the maintained ROW provides potential conflict points with ROGG routes that occur on or adjacent to the road shoulder throughout the corridors. These conflict points include both traffic movements during the parking process that would require vehicles to cross the ROGG shared-use path and potentially interact with pedestrians using ROGG or the physical blocking of the ROGG through the placement of a parked vehicle.

Within areas where the maintained ROW is constrained in size by bridges, guardrails, or other features, the physical impediment of a parked vehicle in the ROW may require bicycle and pedestrian users to go into the road travel lane or require crossing of a guardrail. Accommodations for vehicles crossing the ROGG shared-use path should be incorporated in design of the future path. Options to separate ROGG facilities from parking areas through either spatial or structural separation would decrease conflict points between ROGG and vehicles seeking to park on the U.S. 41 ROW.

- **Bridges** – Existing short bridges for U.S. 41 constrain bicycle and pedestrian use along maintained ROW because of narrow pavement widths requirements leading to and from the bridge. The narrow pavement widths compress the space available for bicyclists and pedestrians to pass by bridges without moving into the travel lane. Solutions to address these constraints were incorporated into the feasibility assessment for ROGG. The recently constructed one-mile long bridge for U.S. 41 east of Shark Valley did not include a designated bike lane, but does include a paved shoulder for bicycle travel consistent with FDOT's Plans Preparation Manual (PPM) Chapter 8 for rural roadways. Options to add lanes or shared-use path facilities to the new bridges would best be accomplished during planning and design of the facilities prior to construction, but could be added after construction of the bridge is complete. The effects of these different options for providing bicycle and pedestrian facilities over new bridges were considered as part of the feasibility assessment for ROGG.

- **Transit** – Although no transit currently occurs within the corridor, connections to points with the potential to be served by transit are important considerations for future ROGG facilities. ROGG facilities may serve as connections to increase access for pedestrians or bicyclists between transit stops and destination locations or as the main transit stop. Design considerations that accommodate transit access to trailheads were considered as part of the feasibility assessment.

  The City of Homestead has initiated trolley service from the City's historic downtown district to EVER and in the future to Biscayne National Park. This service is offered free of charge and operates on weekends during the winter peak tourism season from November to May. Destinations within Everglades National Park include the Ernest Coe Visitor Center and Anhinga Trail. Neither of these destinations are within the ROGG Study Area but could serve as a potential model for the ROGG corridor. The origination point in downtown Homestead will be accessible via Miami-Dade County Public Transportation routes. Funding for this program includes federal grants for four trolleys and the Miami-Dade County People's Transportation Plan half penny sales tax.

- **Design Considerations** - The design of shared-use path systems on or in the vicinity of road ROWs are required to meet a variety of design and regulatory requirements, such as the FDOT Plans and Preparations Manual and the FDOT Design Standards. For ROGG, design of the future path components would need to be consistent with FDOT and FHWA standards, such as the minimum five foot wide separation between the outside edge of a road shoulder and the inside edge of a shared-use path. In addition, ROGG trail components would need to meet the requirements for bike routes set out in the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities.

Transportation Summary

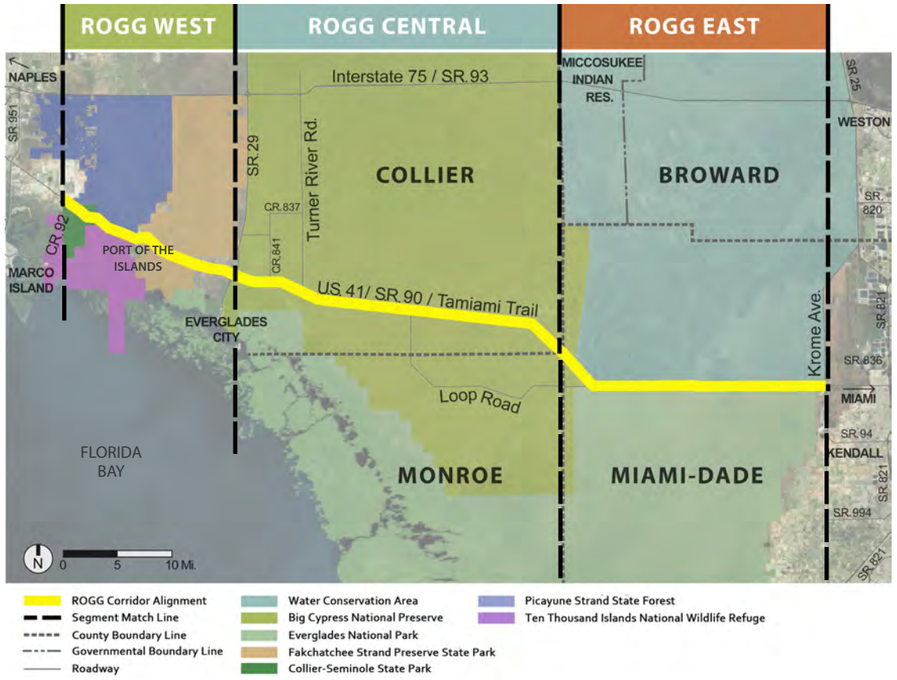
The U.S. 41 corridor is an important connection between the east and west coasts of South Florida. While no longer used as the primary travel corridor between the dense urban areas of Naples and Miami, U.S. 41 is a significant corridor for access and scenic enjoyment of parks, preserves, and other conservation lands of the region as well as access for tribal lands and individual parcel owners along the roadway. Visitation rates for parks within the corridor vary seasonally, but are a significant component of the motorized vehicular traffic trips on U.S. 41. Traffic counts for U.S. 41 exhibit seasonal fluctuations similar to the visitation rates for the parks, although generally the roadway meets a high level of service level under FDOT classifications. Estimations of AADT on a month-by-month basis indicates that traffic averages approximately 9,000 vehicles per day during the busiest visitation month, while traffic in the month with the lowest total visitation averages approximately 2,000 vehicles per day. The average daily volume of vehicles for U.S. 41 is generally below the minimum service capacity of 7,800 vehicles per day for a two lane, undivided rural road facility (Level of Service A), although vehicle use during seasonal peaks meets the Level of Service B level for this type of roadway.

The posted daytime speed limit varies through the corridor, though anecdotal evidence indicates that many motorists exceed the posted speed limit throughout the corridor. Defined parking facilities are limited in size at most destinations and non-existent outside of potential destination locations and can overflow into the ROW during heavy visitation periods. Similarly, the use of the ROW for temporary parking to access fishing locations, hunting locations, or scenic views is common along U.S. 41. Considerations for motorized vehicular traffic relevant to ROGG include the influence of the volume of traffic using U.S. 41 as well as the speed of traffic for shared-use path experience and safety, the potential location of the shared-use path relative to traffic lanes, modifications to road design or speed limits that would be subject to intense public scrutiny, limited availability of defined parking facilities, and accommodations for temporary parking in the ROW on future ROGG uses.

Non-motorized transportation currently occurs along U.S. 41, although defined facilities to accommodate these users are limited to non-existent. The ROGG Study Area is currently not served by transit, although a new system has been initiated by the City of Homestead to serve the EVER may serve as a model for future transit servicing park destinations in the future. The closest current transit routes occur approximately four miles from the eastern terminus of the ROGG Study Area and approximately one and half miles from the western terminus of the ROGG Study Area. Bicycling is an activity that occurs regularly within the ROGG Study Area, although there are limited facilities to accommodate bicycling separate from the U.S. 41 roadway and motorized vehicular traffic, especially for long distance cycling.

Pedestrian access within the corridor is common around destination locations, temporary stops for scenic views, and/or daily travel in the corridor, although the majority of the ROGG Study Area has limited available facilities to separate pedestrians from motorized vehicular traffic. Long-distance pedestrian routes for hiking or travel from east to west within the ROGG Study Area currently occurs almost exclusively along the U.S. 41 road corridor. Considerations for non-motorized vehicular transportation within the ROGG Study Area included evaluations of current and future facilities on existing and proposed bridges for U.S. 41, options for transit connections, and accommodations or facilities to separate motorized vehicular and non-motorized users.

2.2 CORRIDOR EXISTING CONDITIONS



Regional Map defining ROGG West, ROGG Central, and ROGG East segments

Exploring the existing conditions of the ROGG Study Area reveals vast landscapes full of ecological wonders, but also an area full of limitations born from the desire to restore and preserve a landscape that cannot be found anywhere else on earth. Opportunities to explore and sightsee in the Everglades are largely confined to experiences from vehicles or other motorized devises, such as airboats or swamp buggies. A better understanding of the Study Area on a landscape observational level is needed to fully comprehend the complexities of this region as well as the isolation the Everglades provides.

The purpose of this section is to document the conditions and features occurring within the ROGG Study Area and the implications of those conditions and features for the routing, connections, and configuration of the ROGG. To summarize the existing conditions of the Study Area, this section contains five elements:

- **Overview of the ROGG Study Area** – This element summarizes the selection of the Study Area and notes the boundaries of the Study Area's planning segments.
- **Review Methodology** – This element describes the review process utilized by the Project Team to document existing conditions.
- **Existing Conditions** – This element summarizes existing conditions found within each segment of the Study Area.
- **Existing Points of Interest** – This element summarizes the characteristics of existing points of interest and identifies focus areas that present opportunities or challenges.
- **Opportunities and Constraints Summary** - For each Study Area segment, this element summarizes important opportunities and constraints.

2.2.1 Overview of the ROGG Study Area

The portion segment of U.S. 41 identified for the ROGG feasibility study and master plan was selected because it is the southern-most east to west transportation corridor connecting both sides of the Florida peninsula and is the main visitor travel corridor for access to six federal and state public lands including:

- Everglades National Park (EVER),
- Big Cypress National Preserve (BICY),
- Ten Thousand Islands National Wildlife Refuge (NWR),
- Fakahatchee Strand Preserve State Park,
- Collier-Seminole State Park,
- Picayune Strand State Forest.

General Geographic Description

Located at the southern tip of peninsular Florida, the proposed ROGG would run for approximately 76.47 miles, from Krome Avenue (SW 177th Ave.) in Miami-Dade County on Florida's southeast coast to C.R. 92 near Naples, Florida. In addition to the large number of parks and preserves, the ROGG Study Area also occurs within the jurisdictions of at least six different governing bodies including:

- United States Federal Government,
- State of Florida,
- Miami-Dade County,
- Collier County,
- Miccosukee Tribe of Indians of Florida,
- Seminole Tribe of Florida.

The ROGG Study Area closely aligns with that of U.S. 41; a two-lane, two-way historic highway linking Miami on the east coast to Naples on the west coast of the state. Although the majority of the motorized vehicular transportation burden was relieved by the construction of I-75 (Alligator Alley) in 1969, U.S. 41 is still the only paved road linking the eastern and western coasts of South Florida that is available for use by cyclists, pedestrians, and hikers. ROGG would serve as a critical pedestrian linkage between the municipalities of Miami, Naples, Everglades City, and the Miccosukee Indian Village.

The primary conflict between U.S. 41 and ROGG is not the volume of traffic on the roadway, but rather the rate of speed and constrained ROW in that traffic is traveling. For the majority of its length, U.S. 41 has a ROW that is approximately 100 feet to 200 feet wide. However, only a small portion actually comprises the maintained U.S. 41 ROW, typically 50 feet. Much of the remaining ROW is relatively undisturbed wetlands or natural areas. The U.S. 41 ROW is significantly more constrained east of the Miami-Dade County line due to limited shoulder widths, continuous guardrails on both sides of the road, and nearby canal banks. The potential for a continuous shared-use path along the western portions of the Study Area would not be without a challenge as well; the western 15.73 miles contains 36 bridges that the path that would need to traverse.

There are numerous potential destinations along the ROGG Study Area that range from local eateries to large National Parks. Because of its adjacency to numerous parks and natural areas, ROGG would provide shared-use path users with vital access to a wide variety of natural sites and unique ecosystems. Path users will have access to natural environments, such as those seen in the Everglades National Park and Big Cypress National Preserve.

Pristine natural environments are habitats for native flora and fauna which together provide users a prime destination for bird watching, photography, fishing, and unique opportunities for environmental education and outreach. Furthermore, many of the natural areas within the Study Area are conducive for active-recreation activities, such as hiking, biking, kayaking, camping at designated areas, or exploring in an ORV.

The shared-use path itself may become a destination, albeit one of varying value for different users. The greenway would provide local residents with new opportunities for active recreation and alternative transportation near their homes. It would also serve as a regional draw for distance cyclists or endurance runners who want to be able to travel for long, uninterrupted distances and by tourists seeking a day-trip to explore the Everglades.

Segments

Over the span of 76.47 miles, the ROGG Study Area provides a diverse collection of landscape types and conditions offering variation in experiences. In addition, man-made barriers helped define segments that were studied and documented in further detail. For this study, three distinct segments were defined using geographical borders and man-made features. Following are descriptions of each of the segments:

ROGG West

Beginning at C.R. 92/ San Marco Rd., east of the city of Naples, the western portion of the ROGG Study Area extends for 15.73 miles to S.R. 29/ C.R. 29. U.S. 41 in this portion of the Study Area crosses 12 roadway intersections and 37 waterways with associated bridges. Potential connections include six adjacent private attractions, four local and state parks and three existing trailheads. Major road interchanges include: S.R./C.R. 29 and C.R. 92 / San Marco Road. Traveling east, the width of the ROW of U.S. 41 within the Study Area is fairly uniform.

Unique ecological systems of the ROGG West segment include the Picayune and Fakahatchee Strands, which are comprised of cypress strands, wet prairie, and pine flatwoods in lowland areas and subtropical hardwood hammock in upland areas. Florida panther habitat exists in the area, including public lands that connect to the Panther NWR located immediately north of the ROGG Study Area.

ROGG Central

ROGG Central spans from S.R. 29/ C.R. 29 to the Miami-Dade County Line, covering a total distance of 32.20 miles. U.S. 41 within this portion of the Study Area includes at least ten roadway intersections and 28 bridges. Three private attractions, two housing communities, seven parks and six trailheads facilities are located along or adjacent to U.S. 41. Major road intersections in ROGG Central include C.R. 84 / Birdon Road, C.R. 839 / Turner River Road and C.R. 94.

The ROGG Central segment of the Study Area is dominated by one large ecologically significant area: Big Cypress National Preserve. The primary ecological communities consists of wet prairie and cypress forest, while areas of mangrove are present near the coast.

ROGG East

Traveling east, the ROGG East segment spans a distance of 28.54 miles, from the Miami-Dade County Line to Krome Avenue (SW 177th Ave.). U.S. 41 exhibits 27 roadway intersections or driveways and five waterways with associated bridges in this portion of the Study Area. Connections include nine private attractions, private residences, one park and one trailhead. Krome Avenue and Loop Road are the two primary road intersections within the ROGG East segment.

Bordered primarily by EVER to the south, the ROGG East segment contains vast swaths of sawgrass and marsh ecological communities with scattered tree islands. Viewsheds are typically wide and far reaching, while views within the U.S. 41 corridor are largely contained by invasive vegetation or levees. Extensive restoration projects associated with (CERP) are proposed throughout this segment of the ROGG Study Area.

2.2.2 Review Methodology

The Project Team began to research and analyze each segment of the ROGG Study Area by compiling extensive GIS databases for physical conditions, landscape features, recreation elements, transportation features, and other aspects to prepare base maps. In November 2012, the Project Team performed a three-day long analysis of the Study Area, beginning at the western end at C.R. 92 and working east to Trail Glades Sports Shooting Range on U.S. 41 in Miami-Dade County. The analysis of the Study Area conducted during the site review included high-level observations of existing facilities, maintained ROW, natural resources, and potential opportunities, constraints and impacts to the feasibility of constructing the ROGG.

The results of this analysis included the identification of focus areas representing points of interest within the ROGG Study Area that may pose opportunities or constraints for the feasibility assessment and master plan. Most of the identified focus areas either consisted of areas with typical conditions found in the segment or unique conditions requiring innovative solutions for the feasibility assessment. General categories of focus areas were identified as part of this analysis, including ROW characteristics, existing trailheads and trails, cultural resources, environmentally sensitive resources, and bridges. Descriptions of existing conditions for specific focus areas identified in each ROGG segment are provided in the segment descriptions later in this chapter, but the following provides a general description of these focus areas and the characteristics comprising the definition of the focus area.

1. **Right-of-Way (ROW)**
   This category of focus areas consists of exceptionally narrow or wide portions of two aspects of ROW: Maintained ROW and Designated ROW. Maintained ROW is the area consisting of U.S. 41 that is owned by FDOT, is grassed or routinely cleared of vegetation, and maintained by FDOT District 1 or FDOT District 6, while Designated ROW is defined as the entire roadway property owned by the FDOT. Focus areas with narrow Maintained ROW exhibit ROW widths of 40 feet or less as a width less than 40 feet would not accommodate the existing 28 foot wide highway and an additional 12 feet for an implemented pathway. Focus areas with wide Maintained ROW exhibit ROW widths greater than 75 feet, which would allow for the trail and additional parking or amenities. Designated ROW within ROGG Study Area varies in width from 34 feet to over 200 feet. Designated ROW less than 50 feet in width would pose a challenge for the addition of a trail. The following characteristics summarize focus areas for ROW:

   Characteristics:
   - Maintained ROW less than 40 feet,
   - Maintained ROW greater than 75 feet,
   - Designated ROW less than 50 feet.

2. **Existing Trailheads and Trails**
   This category of focus areas consists of trails and trailheads that exist within the ROGG Study Area and provide opportunities to connect ROGG to other regional trail systems. Focus areas includes existing trailheads and trails that begin or cross U.S. 41.

   Characteristics
   - Any trails or trailheads that begin or cross the U.S. 41.

3. **Cultural Resource Features**
   Designated Historic Structures
   This category of focus areas consists of historic structures and the facilities adjacent to those structures that occur within the Study Area. These structures were taken into account during the planning and design of the Study Area, as they should not be negatively impacted by ROGG activities.

   Characteristics
   - Any structures within a one mile radius of the corridor that have been designated as historic.

   Culturally Significant Lands
   This category of focus areas include significant lands within tribal ownership, cultural resource sites, or other features used in the daily and/or ceremonial life of tribal members within the Study Area. Potential impacts from ROGG facilities will need to be avoided unless otherwise approved by the tribes.

   Characteristics:
   - Residential or commercial sites within tribal ownership within the Study Area used for daily and/or ceremonial uses,
   - Portions of the Study Area located within 1/2 mile of a ceremonial site.

4. **Environmentally Sensitive Resource Features**
   Although wetlands, listed species habitat, hydrological system components, and other environmental resources occur throughout the Study Area, this category of focus areas addresses specific landscape features, specific identified improvements for regional hydrological restoration, and/or Critical Habitat locations within the Study Area. The implementation of ROGG at these locations may require unique or additional permitting requirements or designs for a shared-use path to accommodate specific operating conditions, future hydrological restoration activities, or listed species requirements. In addition to these focus areas, improvements for ROGG will be required to address potential effects on all of the environmental resources within the Study Area. Characteristics of Environmental Resource Feature focus areas include any designated Critical Habitat, structures required for implementing CERP or other restoration projects, or unique landscape features.

   Characteristics:
   - Areas within one mile radius of the U.S. 41 corridor of any designated Critical Habitat, structures for CERP related projects or unique landscape features.

5. **Primary Hubs**
   For the purposes of the focus area analysis, primary hubs are defined as existing activity centers that provide, or could potentially provide, access to path-related activities, food, water, restrooms, lodging and/or multi-modal transportation. Primary hub focus areas may include parking, restrooms, multi-modal transportation access, and/or facilities for food and water.

   Characteristics:
   - Private and publicly owned sites with existing or potential future parking, restrooms, multi-modal transportation access and/or facilities for food and water.

6. **Bridges**
   This focus area category consists of bridges on U.S. 41. Many of these bridges are narrow with limited shoulders between travel lanes and bridge guard walls. Narrow bridges pose a challenge for the feasibility of the shared-use path, as additional construction or modification of existing structures would be required to accommodate a path facility on the bridge or the construction of separate facilities would be required.

Boardwalk trail at Kirby S. Storter Park (Big Cypress National Preserve)

2.2.3 ROGG West Existing Conditions

Overview

The ROGG West segment is 15.73 miles long, beginning at C.R. 92/ San Marco Rd. in southeast Naples and terminating at S.R. 29/C.R.29. The western most segment running from 6L's Road to C.R. 92 was contained in the FDOT NEPA Study (415621-1-22-01) entitled U.S. 41 PD&E Study from C.R. 951 to C.R. 92 and is not included in further analysis or documentation as part of this Feasibility Study and Master Plan process.

Although the shortest of the three segments, the ROGG West segment is home to several significant state and federal park facilities, including the Fakahatchee Strand Preserve State Park, Ten Thousand Islands NWR, Collier-Seminole State Park, and Picayune Strand State Forest. The large amount of natural lands within and adjacent to these facilities has made this segment a prime destination for fishing and airboating, resulting in the presence of several commercial providers and rental companies.

Two principal route opportunities exist for ROGG West and both are parallel to U.S. 41. Direct proximity to the U.S. 41 ROW is the main alignment alternative for this segment of ROGG. Two Old Tamiami Trail segments totaling less than one mile in length provide two short additional alignment alternatives. Following are summaries for each alternative alignment option:

Route Alignment Options Observed

U.S. 41 - Primary Alignment

Summary of Existing Condition

Opportunities for alternative alignments are limited in ROGG West due to the proximity of the Tamiami Canal on the north side with a guardrail barrier and extensive wetlands south of the maintained U.S. 41 ROW. Maintained ROW dimensions average between 50 feet and 60 feet in width. The southern shoulder averages between 15 and 18 feet in width while the paved portions vary from four to eight feet in width. The grassed shoulder extends an additional 10 to 14 feet in width. The southern shoulder slopes at an average 1:5 slope to the south and is abutted by wetlands for the majority of the segment's length. The width of the northern shoulder is constrained to an average of six to seven feet by the presence of a guardrail barrier adjacent to the Tamiami Canal.

A key feature to the U.S. 41 roadway in the ROGG West segment is the presence of 36 bridges. At many of the existing bridges, the roadway shoulders narrow to three feet to accommodate the bridge widths that typically provide 30 to 32 feet of total clearance. Additionally, U.S. 41 briefly becomes a divided, four-lane highway for approximately 0.5 mile at its intersection with the Port of the Islands residential community.

Vegetation along U.S. 41 in ROGG West is composed largely of cypress swamp, wet prairie and mangrove wetlands. The majority of the wet prairies occur on the north side of U.S. 41, with the highest concentration being located between Collier-Seminole State Park and the entrance to the Fakahatchee Strand Preserve State Park. In this same area, mangrove wetlands become more prevalent, predominantly on the south side of U.S. 41, with the highest concentration occurring to the east-southeast of Collier-Seminole State Park. The lower height and decreased density of vegetation within wet prairies allow for long views and vistas from the roadway, especially in the western portions of the alignment.

Critical Nodes

1. **U.S. 41 and C.R. 92/San Marco Road:** C.R. 92/San Marco Road connects U.S. 41 with Marco Island to the southwest. This intersection forms the western terminus of the ROGG West segment and the overall ROGG Study Area.

2. **U.S. 41 and Newport Drive/Peacock Lane:** Located approximately six miles east of C.R. 92, Newport Drive and Peacock Drive are the primary motorized vehicular connections into the Port of the Islands residential developments.

3. **U.S. 41 and Old Tamiami Trail** (near the Fakahatchee Strand Preserve State Park): Approximately 9.3 miles east of C.R. 92, U.S. 41 intersects with two spurs of Old Tamiami Trail roadbed.

4. **U.S. 41 and S.R. 29/ C.R. 29:** The intersection of U.S. 41 and S.R. 29 is the eastern terminus of the ROGG West segment. S.R. 29 serves as a linkage both north to I-75 and south to Everglades City and EVER Gulf Coast Visitor Center at Chokoloskee.

Old Tamiami Trail Spurs - Alternative

Summary of Existing Condition

The current alignment of U.S. 41 bisects an "S" curve that was present in the historical alignment of Old Tamiami Trail, resulting in two bifurcated roadbed segments to the north and south of U.S. 41 near the entrance to the Fakahatchee Strand Preserve State Park. The roadbed is composed of severely degraded asphalt, and is surrounded by overgrown, dense vegetation on both sides. There is motorized vehicular access to this spur at its westernmost terminus via an access roadway. The northeastern spur of Old Tamiami Trail has a canal running along its northern edge, which has pulled the Tamiami Canal away from the current U.S. 41 alignment in the vicinity of the Old Tamiami Trail spur. The eastern terminus of this spur is separated from U.S. 41 and is the future location of a new visitor center and parking area for Fakahatchee Strand Preserve State Park.

The planned Fakahatchee Strand Preserve State Park visitor center will be located on the north side of U.S. 41, immediately east of the current location of the Big Cypress Bend Boardwalk. The visitor center will utilize the northeastern Old Tamiami Trail spur for the center and parking facilities. Planned amenities include parking for 50 vehicles, a drop-off area, restrooms and information kiosk. Park staff would prefer that any ROGG facilities are located within this development area. A targeted completion date has not be set.

The southwestern spur of Old Tamiami Trail does not have an adjacent canal. The roadbed is of a similar construction to that of its northern counterpart; however, it is in better physical condition. The southern spur is accessible from U.S. 41, by traveling through land owned by the Miccosukee Tribe of Indians, via two paved access roads located approximately 400 feet apart at the eastern terminus of the spur. This spur dead-ends approximately 100 feet from its western intersection with the U.S. 41 roadway.

Critical Nodes

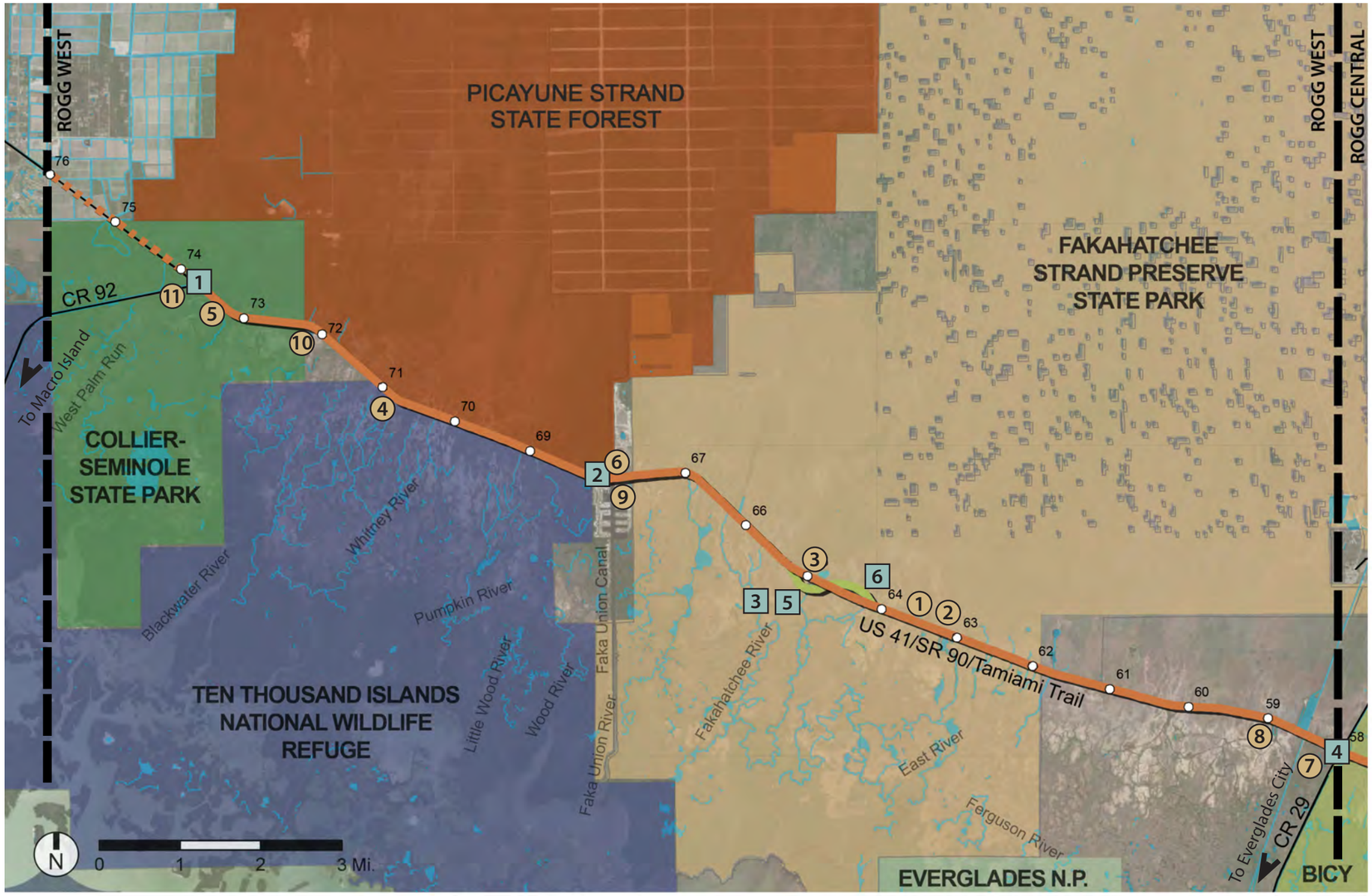
5. **U.S. 41 and Old Tamiami Trail (southern spur):** The southern spur only has access from U.S. 41 at its eastern terminus via two paved access roads.

6. **U.S. 41 and Old Tamiami Trail (northern spur):** In contrast, the northern spur has access only at its western terminus via a roughly paved access road, but is currently blocked by a locked motorized vehicular gate.

The Bay City Walking Dredge at Collier-Seminole State Park

Looking west along U.S. 41 in the ROGG West vicinity showing existing guardrail and overhead utility lines on the northern side of the roadway and maintained ROW to the south side of the roadway.

ROGG West - Existing Conditions Base Map



ROGG West

Location: C.R. 92/San Marco Road to S.R. 29

Length: 15.73 miles

Critical Nodes

1. U.S. 41 and C.R. 92/ San Marco Road
2. U.S. 41 and Newport Drive/Peacock Lane
3. U.S. 41 and Old Tamiami Trail (near the Fakahatchee Strand Preserve)
4. U.S. 41 and S.R. 29
5. U.S. 41 and Old Tamiami Trail (southern spur)
6. U.S. 41 and Old Tamiami Trail (northern spur)

Points of Interest

1. Wayside Park
2. Small Roadside Park and Canoe Launch
3. Fakahatchee Strand Preserve State Park
4. Ten Thousand Islands National Wildlife Refuge and Marsh Trail
5. Collier-Seminole State Park
6. Picayune Strand State Forest
7. Intersection of S.R. 29 and U.S. 41
8. Swampland Airboat Tours
9. Port of the Islands Everglades Adventure Resort
10. Corey Billie's Airboat Rides
11. Intersection of C.R. 92 and U.S. 41

Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- 61 Mile Marker (from Krome Ave.)
- U.S. 41 Alignment
- U.S. 41 Aligment (within FDOT NEPA Study 415621-1-22-01)
- Old Tamiami Trail Alignment
- Waterway
- Big Cypress National Preserve (BICY)
- Fakahatchee Strand Preserve State Park
- Everglades National Park (EVER)
- Collier-Seminole State Park
- Ten Thousand Islands National Wildlife Refuge
- Picayune Strand State Forest
- # Point of Interest
- # Critical Node

See page 44 and 46 for description of # items.

2.2.4 ROGG West Points of Interest

A key attribute of the ROGG West segment is the ecological diversity and varied natural setting that is readily observable from U.S. 41. The ROGG West segment is home to three state preserves, parks, or forests, and one national wildlife refuge. Additionally, ROGG West is also home to one of the few populated residential developments found along the entire ROGG Study Area: Port of the Islands Resort.

Public Points of Interest

Parks and Preserves

1. **Wayside Park:** Located on the south side of U.S. 41 approximately 16.3 miles east of C.R. 92, Wayside Park provides paved parking and several shaded picnic tables The parking area provides approximately 15 unlined parking spaces. This area has the potential to become a trailhead parking area for ROGG.

2. **Small Roadside Park and Canoe Launch:** Approximately 0.3 mile east of Wayside Park along the south side of U.S. 41 is a gravel road that leads to open water where a canoe launch is located. There is limited, unpaved parking at the launch, the majority of which occurs at the southern terminus of the gravel roadway.

3. **Fakahatchee Strand Preserve State Park:** Also referred to as "the Amazon of North America," the Fakahatchee Strand Preserve State Park entrance is located approximately 9.3 miles east of C.R. 92 along the north side of U.S. 41. The Park is an approximately 80,000-acre, freshwater swamp stretching from U.S. 41 to I-75, and is unique in part because it is the only place in the world where cypress and royal palm both occur in the canopy of an old growth swamp. Available recreation activities at the Preserve are passive in nature, including walking, hiking, and wildlife viewing. The primary attraction is the 0.6 mile Big Cypress Bend Boardwalk.

4. **Ten Thousand Islands National Wildlife Refuge and Marsh Trail:** Located 3 miles east of C.R. 92 and south of U.S. 41, the 35,000-acre Ten Thousand Islands NWR contains one of the largest expanses of mangrove forest in North America, covering approximately 23,000 acres. These mangroves provide habitat for more than 200 species of fish and almost 200 species of birds. The remaining 12,000 acres in the Refuge occur along its northern border and consist primarily of brackish marsh and ponds, coastal oak hammocks, and tropical hardwoods.

5. **Collier-Seminole State Park:** The primary entrance to the Collier-Seminole State Park is located along the south side of U.S. 41, approximately 0.4 miles east of C.R. 92. The 7,271 acre park offers users a wide range of recreational activities, including kayaking, cycling, hiking, fishing, birding, and picnicking. For a fee, the park rents canoes and camp sites (including primitive, youth, and full-facility sites). Collier-Seminole State Park is located within the vast mangrove forests of southwest Florida and is the home to one of the few remaining royal palm stands in Florida. In addition, the park is also a National Historic Mechanical Engineering Landmark as it maintains the last remaining "walking dredge" originally used to build U.S. 41 in the late 1920's.

6. **Picayune Strand State Forest:** The 78,000-acre Picayune Strand State Forest is located between 1-75 and U.S. 41, with primary entrances at Everglades Boulevard to the north end and Sabal Palm Road to the west. Picayune Strand is a hydric forest comprised of cypress swamp, wet prairie, and pine flatwoods in the lowlands and subtropical hardwood hammocks in the uplands. Access to Picayune Strand State Forest consists of a recreation site on the north side of U.S. 41 immediately west of the Faka Union Canal.

Private/Commercial Points of Interest

7. **Intersection of S.R. 29 and U.S. 41:** There is a small commercial core at the intersection of S.R. 29/ C.R. 29 and U.S. 41 that consists of the Collier County Sheriff's Station and the Everglades Chamber of Commerce (both in the ROGG Central segment), as well as a gas station and Subway restaurant in the ROGG West segment portion of the intersection.

8. **Swampland Airboat Tours:** Located approximately one mile west of S.R. 29 on the south side of U.S. 41, Swampland Airboat Tours is a private company that provides guided airboat tours. The site includes a paved parking area, private water access, and a small outbuilding to the rear of the parking lot, which contains a gift shop.

9. **Port of the Islands Everglades Adventure Resort:** The Port of the Islands Everglades Adventure Resort is a private, adventure-themed resort that is located within the Port of the Islands residential development that is six miles east of C.R. 92 on the south side of U.S. 41. The resort offers a variety of lodging accommodations as well as outdoor adventure activities such as rifle marksmanship, hiking adventures, eco-excursions, bicycling, and hunting expeditions as well as tennis and swimming. In addition, the resort offers more passive activities, including birding, photography and chartered fishing. There is also a full-service marina owned by the Collier County Parks and Recreation Department providing direct access to the backwaters of the Everglades and the Gulf of Mexico.

10. **Corey Billie's Airboat Rides:** Located 1.6 miles east of C.R. 92 along U.S. 41, Corey Billie's Airboat Rides is the closest private airboat tour provider to the greater Naples area. In addition to guided tours, the site provides a gift shop with restroom facilities, a paved parking lot, and water access via a boardwalk.

11. **Intersection of C.R. 92 and U.S. 41:** Located at the intersection of U.S. 41 and C.R. 92/ San Marco Rd., this area is a small commercial node that consists of a gas station and a restaurant (Lagoona Grille). All facilities are in separate structures on the south side of U.S. 41; although they share a linear parking lot.

Canoe and boat launch at Collier-Seminole State Park

Entrance to the Ten Thousand Islands National Wildlife Refuge

The Big Cypress Bend Boardwalk at Fakahatchee Strand Preserve State Park

Typical Existing Conditions

Roadway (ROW)

Typical ROW along the ROGG West segment averages a maintained width of 65 feet wide, and ranges from 45 to 95 feet. This portion of the corridor is typically uniform in scale and construction. Travel lanes vary from 11-12 feet in width, while shoulders for the highway are typically five feet wide on the south side and range from five to 12 feet on the north side. Images of the typical roadway cross-section are shown below.

Bridges

With the exception of the bridge just west of Port of the Islands, most bridges in the corridor are identical in scale and construction. The typical bridge is approximately 32 feet wide overall with two 12-foot wide travel lanes and four foot wide shoulders on both sides of the road. Bridges within the corridor pose difficulty for the implementation of the trail due to their narrow width.

Landscape (habitat)

Typical habitat of the western portion of the ROGG Study Area includes oak hammock, marsh, wet prairie and mangrove forest. Scattered pinelands occur, especially on the western portion of the ROGG West segment. Cattail dominated marshes occur within areas historically used for agriculture.

Typical U.S. 41 paved ROW with narrow paved shoulder on north side

Port of the Islands bridge for U.S. 41, view from west-bound lanes looking west

Freshwater marsh and wet prairie

Typical U.S. 41 roadway section with wider shoulder between travel lane and guardrail

Typical narrow bridge crossing for U.S. 41

Mangrove and stream crossings

Focus Areas

1. **Right-of-Way**
   Narrow:
   - None Observed

   Wide:
   - San Marco Road (C.R. 92) to Collier Seminole State Park
   - Ten Thousand Islands NWR Marsh Trail
   - Port of the Islands
   - Fakahatchee Strand Preserve State Park

2. **Existing Trails and Trailheads**
   - Big Cypress Bend Boardwalk at Fakahatchee Strand Preserve State Park
   - Collier-Seminole State Park
   - Ten Thousand Islands NWR Marsh Trail

3. **Designated Historic Structure**
   - Weaver's Station within the Fakahatchee Strand Preserve State Park
   - Bay City walking dredge within Collier-Seminole State Park
   - Royal Palm Hammock Station at the corner of C.R. 92 and U.S. 41

4. **Environmentally Sensitive Resources Features**
   - Area east of C.R. 92 (Critical Habitat)
   - Port of the Islands (Critical Habitat)
   - U.S. 41 Culvert Enhancements for Picayune Strand Restoration Project
   - Florida Panther Focus Area

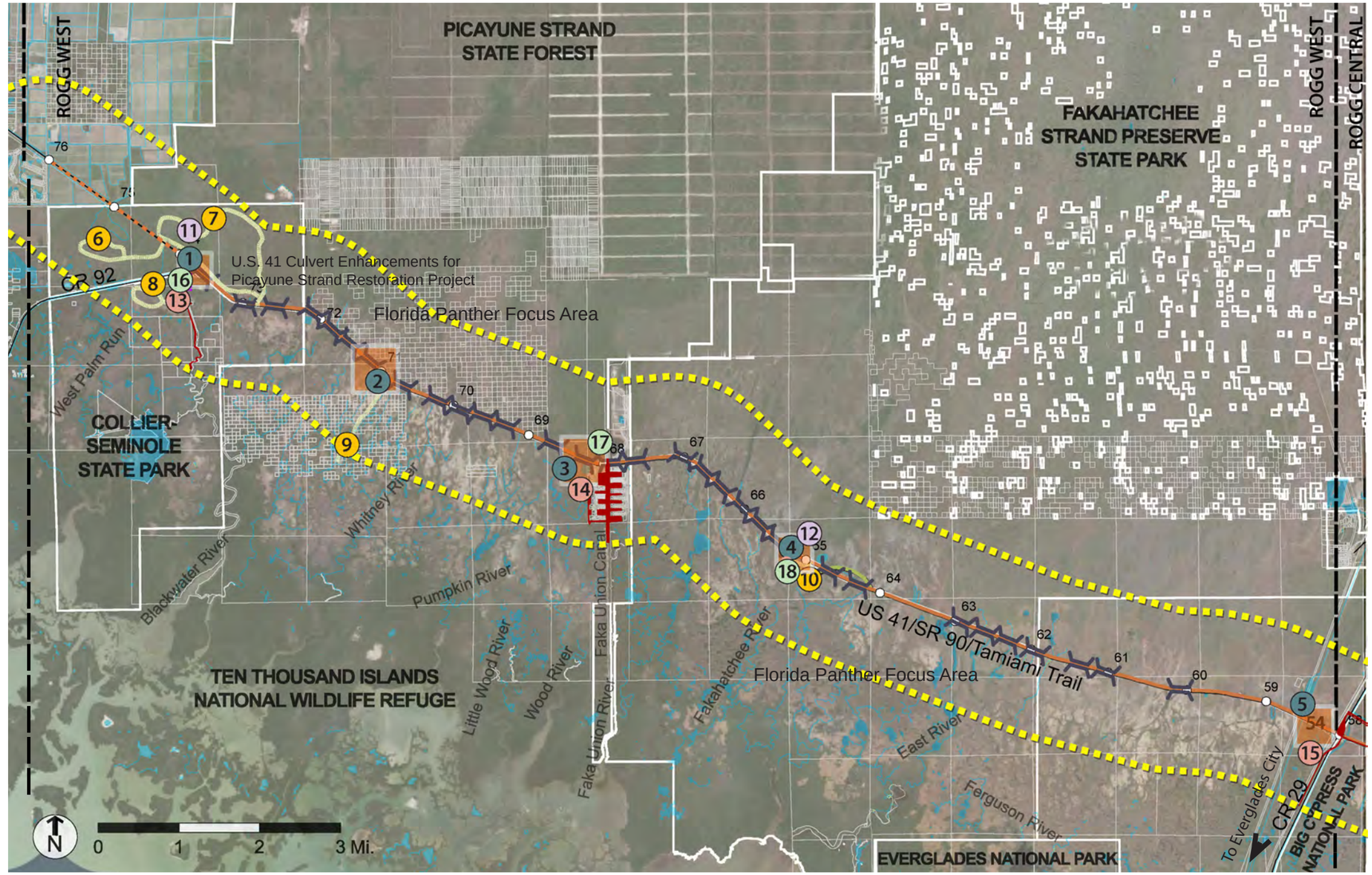
5. **Primary Hubs**
   - Collier-Seminole State Park
   - Port of the Islands Marina
   - Fakahatchee Strand Preserve State Park
   - Everglades City

6. **Bridges**
   - 36 bridges overall

Old Tamiami Trail Spur Entrance to Weaver's Station
Fakahatchee Strand Preserve State Park

City Hall in Everglades City

ROGG West Focus Areas Map



Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- 59 Mile Marker (from Krome Ave.)
- U.S. 41 Alignment
- U.S. 41 Alignment (within FDOT NEPA Study 415621-1-22-01)
- Old Taimiami Trail Alignment
- 1 Mile Study Area
- Existing Trail
- Waterway
- Bridge
- ROW Focus Area
- Critical Habitat
- # Right-of-Way (ROW)
- # Existing Trailheads and Trails
- # Cultural Resources Feature
- # Environmentally Sensitive Resources Feature
- # Primary Hub

See page 49 for identification of # items.

Right-of-Way (ROW)

Wide ROW includes any maintained ROW greater than 70 feet. Wide ROW allows for ample space for any proposed shared-use path and room for potential parking spaces.

Five portions of U.S. 41 have a wide ROW within the ROGG West segment:

1. San Marco road throughout the Collier-Seminole State Park entrances
2. Ten Thousand Islands NWR Marsh Trail
3. Port of the Islands
4. Fakahatchee Strand Preserve State Park
5. S.R. 29/ C.R. 29 intersection

Existing Trailheads and Trails

Existing trails and trailheads that occur on or along the Study Area may be an opportunity to connect to a proposed trail.

Five trails currently exist within the ROGG West segment:

6. Collier-Seminole 3.5 Mile Bike Trail
7. Collier-Seminole Hiking Trail
8. Royal Palm Hammock Trail
9. Ten Thousand Islands NWR Marsh Trail
10. Big Cypress Bend Trail

Environmentally Sensitive Resources Features

Critical Habitat for the West Indian Manatee is found in several locations within the ROGG West segment. Critical Habitat spans portions of:

13. Collier-Seminole State Park
14. Port of the Islands Marina
15. S.R. 29 intersection

The entire segment is within the Florida Panther Focus Area, which is part of the core habitat for Florida panthers in Florida. The Picayune Strand Restoration CERP project includes the installation of culverts under U.S. 41 for hydrological improvements in the area.

Primary Hubs

Four existing primary hubs are present in the ROGG West segment:

16. Collier-Seminole State Park
17. Port of the Islands
18. Fakahatchee Strand Preserve State Park
- Everglades City (not shown)

Restrooms, parking and access to paths are available at three locations. Private parking, restrooms and access to food and drink are available in Everglades City

Cultural Resource Features

There are two designated historic sites or landmarks within the ROGG West segment. Weaver's Station is within the Fakahatchee Strand Preserve State Park and is used to host one of U.S. 41's original way stations built by Barron Collier in 1928.

The Bay City Walking Dredge is located in Collier-Seminole State Park and is a National Historic Mechanical Engineering Landmark.

11. Bay City Walking Dredge
12. Weaver's Station

Bridges

36 bridges occur along U.S. 41 within the ROGG West segment and are shown on the adjacent map.

Typical Bridge

ROGG West Opportunities and Constraints Summary

The ROGG West segment of the Study Area enjoys an abundance of existing destinations and activities for future shared-use path users to enjoy. Existing conditions are favorable for the implementation of an alternative mode of transportation, which would allow for large influxes of visitors to access destinations while also enjoying the natural wonders of the landscape between the destinations.

The biggest opportunity observed for ROGG West is an abundance of existing facilities that could serve as trailheads with minimum improvements needed. Most existing destinations provide parking, while some provide nearby restrooms and access to food and water, both of which are commonly needed amenities for trailheads. An additional planned facility is the new visitor center for Fakahatchee Strand Preserve State Park, which will include parking, restrooms and information for visitors. Each of the existing four separate state and federal lands entities immediately adjacent to U.S. 41 provide either parking and/or restrooms for trail users.

An opportunity to provide connections into three communities, including Naples, San Marco and Everglades City, also makes this portion of the Study Area unique. With needed hotels and restaurants already in place, these communities stand to benefit economically from an increased number of visitors using the shared-use path. Connections to existing trails and boardwalks at Collier-Seminole State Park, Ten Thousand Islands NWR and Fakahatchee Strand Preserve State Park offer additional opportunities for various user types that may seek hiking, kayaking, canoeing, back-packing, mountain biking, and other types of outdoor recreation.

Constraints along the ROGG West segment consist primarily of four items: bridges, wetlands, Florida panther habitat, and EFH. In total, 36 bridges exist along the ROGG West segment with many having been constructed using a pile and slab technique that prevents the use of cantilever design for expansion to the bridge when routing the shared-use path. In addition, most bridges are 32 feet in width which does not allow for an appropriate bike lane of five feet per FDOT standards for roadway with posted speed limits of 45 mph. This results in a need to evaluate separate path bridges at many locations, which will increase potential impacts to surrounding areas and costs for construction.

The second major constraint is existing wetlands. Though the designated ROW for U.S. 41 ranges from 150 to 200 feet in width, the maintained ROW is much smaller with widths typically ranging between 45 and 65 feet. The north side of the ROW contains several constraints due to the proximity of the Tamiami Canal, existing utility lines, and a vehicle guardrail. The south side of the ROW contains most of the remaining designated ROW that the existing U.S. 41 roadbed and fill currently do not occupy. However, eight feet of stabilized shoulder is needed for emergency pull-offs, resulting in approximately seven to twelve feet of remaining maintained ROW which the shared-use path could utilize.

The third major constraint is the location of the corridor within the Panther Focus Area. While not considered Critical Habitat under the terms of the ESA, the USFWS has designated the Panther Focus Area as part of the core habitat for Florida panthers within the state. Construction within the Panther Focus Area is allowed, but mitigation is required for impacts to habitats identified in guidelines by the USFWS. This mitigation can add substantial costs to the implementation of any project requiring impacts to both uplands and wetlands within the area. The fourth major constraint is the occurrence of EFH. Construction of projects within EFH require consultation with the NMFS, but mitigation is required for impacts that are permitted by the NFMS as part of the consultation. Mitigation for EFH impacts is limited in availability and may require a project specific mitigation project. Though these constraints present a number of challenging situations, the ROGG has the ability to remain flexible in routing and design with a number of innovative solutions.

Beginning of ROGG Central at the Collier County-line along U.S. 41

Big Cypress National Preserve Oasis Visitor Center

Unpaved portion of Loop Road, approximately 5.3 miles west of the Collier County-line

2.2.5 ROGG Central Existing Conditions

Overview

Spanning a distance of approximately 32.20 miles between the Collier County/Miami-Dade County line and S.R. 29/ C.R. 29, the ROGG Central segment is the longest of the three trail segments. It traverses one of the corridor's most significant assets: Big Cypress National Preserve. Access to natural resources via Florida National Scenic Trail, ORV trailheads, campgrounds, and the Big Cypress National Preserve Oasis Visitor Center is available. In addition, ROGG Central includes several roadside parks and the Ochopee Post Office, described at the smallest post office in the United States. At the western terminus of the Study Area, S.R. 29 provides access to Everglades City.

Two principal route opportunities exist within the ROGG Central segment. The primary route alternative consists of the U.S. 41 ROW. A separate route alternative consists of Loop Road. Following are summaries of each alternative alignment option:

Route Alignment Options Observed

U.S. 41 - Primary Alignment

Summary of Existing Condition

The U.S. 41 potential alignment consists of maintained ROW and natural systems in the remainder of the ROW. Maintained ROW averages between 50 feet and 60 feet in width, which is wider than the average width found in the ROGG West segment. The additional width in maintained ROW in ROGG Central provides a sense of openness in this segment. Guardrails typically occur on the north side of the roadway as a barrier between U.S. 41 and the Tamiami Canal. The canal along U.S. 41 in this segment is narrower (approximately 20 feet) than the L-29 canal found in the ROGG East segment.

Roadway shoulders are typically structured turf, which contrasts with the pavement seen in many portions of the ROGG West segment. The shoulders on the north side of the roadway typically are level and average approximately six to eight feet in width as measured from the travel lanes. The widths of the northern shoulders are constrained by the presence of a guardrail adjacent to the canal bank. The southern shoulder averages between eight to ten feet in width and typically slopes for an additional five to ten feet to the edge of the adjacent wetlands. The paved shoulders have recently been expanded to four feet from S.R. 29/ C.R. 29 to the Miami-Dade County line. Vegetation consists primarily of cypress strands and wet prairies common to the Big Cypress National Preserve. Long views and vistas from the roadway are available.

Critical Nodes

4 **U.S. 41 and S.R. 29/ C.R. 29:** The intersection of U.S. 41 and S.R. 29/ C.R. 29 is the western terminus of the ROGG Central Study Area. S.R. 29 serves as a linkage north to I-75 and C.R. 29 connects south to Everglades City and Chokoloskee.

7 **U.S. 41 and Loop Road (Monroe Station):** Approximately 4.3 miles west of the Big Cypress National Preserve Oasis Visitor Center is Monroe Station; an historic U.S. 41 station and the western terminus of Loop Road. From Monroe Station, Loop Road continues south, eventually turning to the east and reconnecting with U.S. 41 in the ROGG East segment.

8 **U.S. 41 and Collier County /Miami-Dade County Line:** Located approximately 28.54 miles west of Krome Avenue, the intersection of U.S. 41 and the Collier County / Miami-Dade County line is the eastern terminus of the ROGG Central segment. At this location, there is an existing gravel lot and pull-off area on the south side of U.S. 41.

Loop Road- Alternative

Summary of Existing Condition

Although the eastern terminus of Loop Road is in the ROGG East segment, 20.7 miles of Loop Road's 23.5 mile alignment is within the ROGG Central segment. The majority of Loop Road is a narrow, gravel road with limited or no shoulders. The exception is the first several miles (in the ROGG East segment) where the road surface is asphalt. The gravel portion of Loop Road is approximately 24 to 30 feet in width, with three foot wide unpaved shoulders on either side. The designated ROW width of Loop Road is 50 feet. Although unpaved, the gravel road has been recently improved by the addition of new drainage culverts, and a re-graded surface within Monroe County.

The shoulders of the roadway are immediately abutted by dense vegetation, although the majority of the landscape beyond the shoulders of the roadway is composed of cypress swamps and isolated pockets of wet prairie. Views from the road into the surrounding landscape are limited, due largely to the density of the vegetation that includes invasive species.

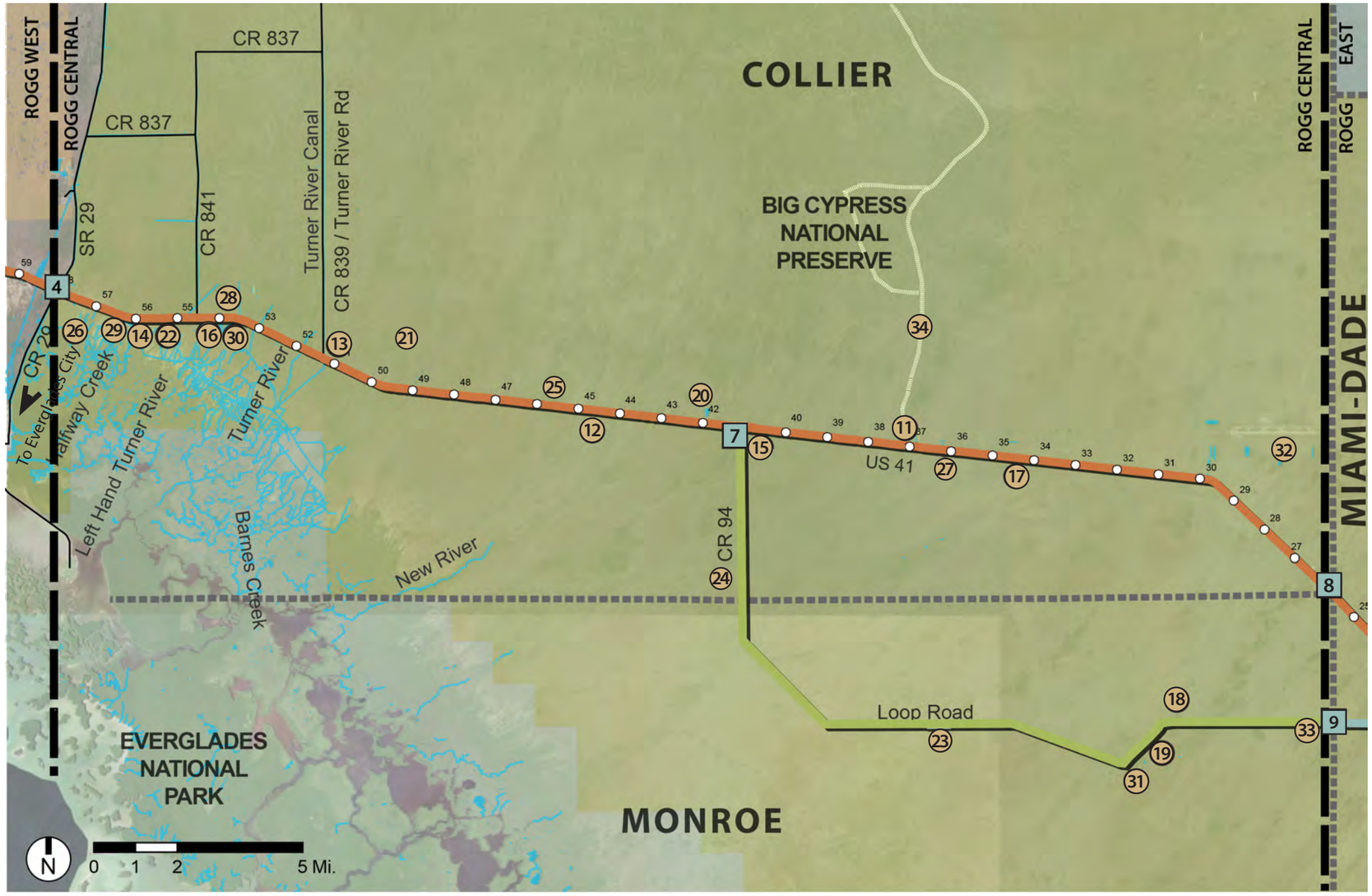
There are few structures or destinations along Loop Road. Several existing primitive campgrounds and four ORV trailheads accessible from the road: Monroe South and Paces Dike, which have been recently expanded and improved, Mitchell's Landing, and Boundary Line, which will be improved pending availability of funds. These trailheads could provide better access and parking along Loop Road, although most will have limited amenities. There are private residences along Loop Road within the ROGG Central segment, although the overwhelming majority of these occur within the first several miles south of Monroe Station, on the eastern portions of Loop Road.

Critical Nodes

7 **U.S. 41 and Loop Road (Monroe Station):** Approximately 4.3 miles west of the Big Cypress National Preserve Oasis Visitor Center is the site of the former Monroe Station; a historic U.S. 41 station which was destroyed by fire on April 10th, 2016, and the western terminus of Loop Road. From the former site of Monroe Station, Loop Road continues south, eventually turning to the east and reconnecting with U.S.41 in the ROGG East segment.

9 **Loop Road (ROGG Central) and Loop Road (ROGG East):** Approximately 2.8 miles west of the Loop Road, Old Tamiami Trail, and U.S. 41 junction is the boundary line between the ROGG East and ROGG Central segment along the Loop Road alignment. There is no development or significant features at this location. The condition of the Monroe County Portion of the road is greatly improved since road rehabilitation was completed in 2011. The Collier County portion is also regularly maintained.

ROGG Central - Existing Conditions Map



Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- Mile Marker (from Krome Ave.)
- U.S. 41 Alignment
- Loop Road Alignment
- Waterway
- Existing Trail
- Big Cypress National Preserve (BICY)
- Fakahatchee Strand Preserve State Park
- Everglades National Park (EVER)
- Point of Interest
- Critical Node

See page 50, 52 and 53 for description of # items.

ROGG Central

Location: S.R. 29/C.R. 29 to Collier County/Miami-Dade County Line

Length: 32.20 miles

Critical Nodes

- 4 U.S. 41 and S.R. 29
- 7 U.S. 41 and Loop Road (Monroe Station)
- 8 U.S. 41 and Collier County Line
- 9 Loop Road (ROGG Central) and Loop Road (ROGG East)

Points of Interest

- 11 Big Cypress National Preserve Oasis Visitor Center
- 12 Kirby S. Storter Roadside Park
- 13 H.P. Williams Roadside Park
- 14 Big Cypress Swamp Welcome Center and Big Cypress National Preserve Headquarters
- 15 Monroe Station (Former Site)
- 16 Ochopee Post Office
- 17 Midway Campground
- 18 Pinecrest Campground
- 19 Mitchell's Landing Campground
- 20 Monument Lake Campground
- 21 Burns Lake Campground
- 22 Dona Drive Campground (NPS Volunteers Only)
- 23 Pace's Dike ORV Trailhead
- 24 Sig Walker ORV Trailhead
- 25 Skillet Strand North and South ORV Trailheads
- 26 Collier County Sheriff's Station and the Everglades Area Chamber of Commerce Welcome Center
- 27 Clyde Butcher's Big Cypress Gallery
- 28 Joanie's Blue Crab Café
- 29 Wooten's Everglades Airboat Tours
- 30 Trail Lakes Campgrounds and Everglades Adventure Tours
- 31 Loop Road Environmental Education Center
- 32 Dade-Collier Training and Transitional Airport
- 33 Boundary Line ORV Trailhead
- 34 Florida National Scenic Trail

2.2.6 ROGG Central Points of Interest

ROGG Central's location within the Big Cypress National Preserve makes it a very desirable location for natural or environmental experiences along the entire corridor. Established in 1974, Big Cypress National Preserve consists of 729,000 acres of mostly freshwater swamp and is home to a diverse variety of native flora and fauna including over 180 species of birds and several endangered species such as the Florida panther. In addition, Big Cypress serves to protect and facilitate the traditional use of the land by the Seminole and Miccosukee Indian Tribes of Florida, Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples, Independent Seminoles and Gladesmen.

As part of Big Cypress National Preserve, there are several smaller roadside parks, seven campgrounds, and three recently completed ORV trailheads providing access to over 424 miles of off-road trails. The ROGG Central segment is also the location of several cultural and historical resources, such as the Big Cypress Gallery of the renowned south Florida nature photographer Clyde Butcher, and the Ochopee Post Office. These facilities could be integrated into ROGG as trailheads or destinations for ROGG users.

Public Points of Interest

Parks and Preserves

11 **Big Cypress National Preserve Oasis Visitor Center:** The Oasis Visitor Center is located in the eastern third of the Big Cypress National Preserve, approximately 21 miles east of S.R. 29. The center provides a base for seasonal ranger-led programs, the Preserve's ORV permits office, and numerous exhibits related to the natural and cultural history of the Preserve. In addition, the facility offers a paved parking lot (33 car spaces, two ADA accessible spaces, and 12 RV/bus spaces), educational kiosk, canoe launch, boardwalk trail, Everglades Association bookstore, and public restrooms. Immediately north of this site is the Oasis Ranger Station U.S. Government Airport. The Visitor Center provides access to the Florida Scenic Trail as well.

12 **Kirby S. Storter Roadside Park:** Located approximately 13.5 miles east of S.R. 29 on the south side of U.S. 41, Kirby Storter is a small roadside park that offers a paved parking lot (29 spaces, one ADA accessible), restroom facilities, five picnic pavilions, an informational kiosk, and an elevated accessible boardwalk that is more than 2,100 feet long leading into a cypress strand.

13 **H.P. Williams Roadside Park:** H.P. Williams Park is a small, triangle-shaped park immediately east of the intersection of Turner River Road and U.S. 41, approximately 6.7 miles east of S.R. 29. This park offers users picnic benches, an accessible boardwalk, an educational kiosk, restroom facilities, and a paved parking lot with approximately 40 spaces (two ADA accessible spaces).

14 **Big Cypress Swamp Welcome Center and Big Cypress National Preserve Headquarters:** Located 2.5 miles east of S.R. 29, the Big Cypress Swamp Welcome Center serves as a home base for the agencies, hosts seasonal, ranger-led programs, and offers both indoor and outdoor interactive exhibits that provide education materials for visitors concerning the history and importance of the Big Cypress Swamp and its ecosystems. The Center provides indoor public restrooms, a swamp-buggy display, bookstore, gift shop, public meeting room, and an elevated boardwalk overlooking a wetland and canal. Approximately 1,500 feet east of the Welcome Center is the Preserve Headquarters complex. This facility houses staff and volunteers associated with the day to day management of the Big Cypress National Preserve.

Historic and Cultural Sites

15 **Site of former Monroe Station:** After the development of the original U.S. 41 in the late 1920s, six service stations were constructed along the remote portions of the trail to provide travelers with resting points and facilities. Located at the southeast corner of Loop Road and U.S. 41 is the site of the former Monroe Station. In April of 2000, Monroe Station was added into the National Register of Historic Places with a period of historical significance listed from 1928 to 1934, during which time the site helped foster transportation, exploration, and settlement. The station was destroyed by fire on April 10th, 2016. Future plans may be developed by BICY to include information kiosks about the history of the building.

16 **Ochopee Post Office:** The Ochopee Post Office is located approximately 4.3 miles east of S.R. 29 on the south side of U.S. 41. At a total of 61.3 square feet, it is the smallest, active post office in the United States and is a Collier County designated historic site. The structure is surrounded by a gravel and asphalt parking lot. The building used to be a storage facility for irrigation pipes of an adjacent tomato farm and was converted into a post office in 1953 after a fire destroyed Ochopee's previous post office and general store.

Everglades City and Chokoloskee have several other Collier County designated historic sites that could potentially be accessible from ROGG.

Campgrounds at BICY

17 **Midway Campground:** Located approximately 24 miles east of S.R. 29, Midway Campground surrounds a small lake and offers restrooms, potable water, 26 RV sites (with electric hookups), and ten tent camping sites.

18 **Pinecrest Campground:** Located 5.8 miles west of U.S. 41 on the north side of Loop Road, Pinecrest offers ten primitive camping sites (no water or restroom facilities).

19 **Mitchell's Landing Campground:** Mitchell's Landing is a primitive campground located along Loop Road, approximately seven miles west of the eastern terminus of Loop Road at U.S. 41. This site has 15 tent sites, but no water access or restroom facilities. Access is provided via a secondary gravel road.

20 **Monument Lake Campground:** Located 0.8 mile west of Monroe Station, Monument Lake Campground offers restrooms, potable water, lake access, 26 RV sites, and ten tent camping sites. There are no existing RV hook-ups for water, sewer, or electrical at this site.

21 **Burns Lake Campground:** Burns Lake is a primitive campground surrounding a small lake. The campground does not provide running water, although there is a vault toilet near the day use area. This camp site is located 8.1 miles west of Monroe Station, and approximately one mile north of U.S. 41 on Burns Lake Road. As of December 2012, there were 14 tent sites available due to construction.

Former Historic Monroe Station

View north of Big Cypress National Preserve from U.S. 41

Joanie's Blue Crab Café restaurant

Example of a narrow shoulder at one of the U.S. 41 bridge crossings in ROGG Central

22 **Dona Drive Campground:** The Dona Drive Campground is located approximately one mile east of the Big Cypress National Preserve Welcome Center. This site is used primarily by Preserve volunteers and contains a large fill area, lake, and individual campsites, each with a concrete pad, picnic table, and an electrical hook-up.

ORV Trailheads at BICY

15 **Monroe Station at BICY:** (see Historical and Cultural Sites)

23 **Pace's Dike ORV Trailhead:** The Pace's Dike trailhead is located on the southern side of Loop Road, approximately ten miles southwest of Monroe Station. Pace's Dike provides five to ten spaces for both passenger and ORV vehicles, a picnic area, an information kiosk, and future restrooms.

24 **Sig Walker ORV Trailhead:** Located approximately three miles south of Monroe Station, on the west side of Loop Road, the Sig Walker trailhead will provide trail access, vault toilets, picnic shelters, and gravel ORV parking areas.

25 **Skillet Strand North and South ORV Trailheads:** The Skillet Strand ORV Trailhead consists of two components: Skillet Strand North and Skillet Strand South. Located on the north side of U.S. 41 approximately 4.7 miles west of Monroe Station, Skillet Strand North trailhead is a recently improved site that offers trail access. Skillet Strand South will be on the south side of U.S. 41 across from Skillet Strand North. This trailhead is planned as a new facility that would provide passenger vehicle and ORV parking, a picnic area, restroom facilities, and information kiosk.

Municipal or Governmental

26 **Collier County Sheriff's Station and the Everglades Area Chamber of Commerce Welcome Center:** The Collier County Sheriff's station and the Everglades Area Chamber of Commerce Welcome Center are located at the southeast corner of the intersection of U.S. 41 and S.R. 29/ C.R. 29. The Welcome Center has restroom facilities, multiple parking spaces, and a shop for sundries.

Private/Commercial Points of Interest

27 **Clyde Butcher's Big Cypress Gallery:** Clyde Butcher is an internationally renowned black-and-white photographer whose primary subject matter is natural landscapes. Butcher was honored by the state of Florida with the highest award given to an artist: the Artist Hall of Fame Award. Many of Butcher's most famous works are representative of the Big Cypress and Everglades landscapes. His gallery is located approximately five miles east of Monroe Station, on U.S. 41. This site offers a gift shop, art gallery, nature trails, and a rentable cottage at the rear of the property.

28 **Joanie's Blue Crab Café:** Located 4.4 miles east of S.R. 29/ C.R. 29 on the north side of U.S. 41, Joanie's Blue Crab Café is a locally-owned restaurant that specializes in local seafood and traditional Everglades fare. In addition to the indoor restaurant, this site also provides outdoor picnic seating areas and a paved parking lot. The restaurant building is also a Collier County designated historic site.

29 **Wooten's Everglades Airboat Tours:** Located two miles east of S.R. 29/ C.R. 29 on the south side of U.S. 41, Wooten's Everglades Airboat Tours is a private company that provides guided airboat tours and swamp buggy rides. In addition, the site offers live alligator shows, an animal sanctuary, a gift shop, and a large gravel parking lot.

30 **Trail Lakes Campgrounds and Everglades Adventure Tours:** The Trail Lakes Campground is a 30-acre, private camping facility located approximately four miles east of S.R. 29/ C.R. 29 on the south side of U.S. 41. Campground amenities include 150 campsites, restroom and shower facilities, laundry, pet areas, a scenic lake view, picnic shelters, trash stations, and electrical hook-ups for RVs. In addition to providing campsites, Trail Lakes Campground also rents/sells camping supplies, provides guided adventure tours, and is home to a wildlife exhibit and the "Skunk Ape Research Center."
the ROGG West segment.

31 **Loop Road Environmental Education Center:** Located 12 miles west of Shark Valley along Old Loop Road, this education center offers overnight group camping programs available to elementary and middle school-aged children and a variety of amenities, including a chickee hut, picnic areas, five platform tents, grills, restrooms, a pond, nature trails, and a butterfly garden.

32 **Dade-Collier Training and Transition Airport:** Located 28 miles east of S.R. 29/ C.R. 29, the Dade-Collier Training and Transition Airport is a secure facility managed by Miami-Dade Aviation Department. An approximately three mile entrance road contains grass parking opportunities near U.S. 41.

33 **Boundary Line ORV Trailhead:** Located near the Miami-Dade/Collier County Boundary, the trailhead provides 5-15 spaces for both passenger and ORV motorized vehicles, a picnic area, information kiosk, boat ramp and future restrooms.

34 **Florida National Scenic Trail (FNST):** With a trailhead at the Oasis Visitor Center at Big Cypress National Preserve, the trail is a federally-designated, non-motorized recreational trail that extends for approximately 1,000 miles.

Typical Existing Conditions

Roadway (ROW)

Roadway ROW in the ROGG Central segment averages an overall maintained ROW of 58 feet wide with a range from 40 to 71 feet. This portion of the corridor is typically uniform in scale and construction. The Tamiami Canal typically lies adjacent to, and north of U.S. 41. Shoulders are generally narrow on the north side of the road as there is a guardrail between the travel lane and canal. The south shoulder is typically wider with a two to four-foot wide paved shoulder and grassed bank to the adjacent wetland edges. Portions of the ROW exhibit guardrails on both sides of the road. Loop Road is typically 24 to 30 feet wide with three foot wide unpaved shoulders on either side of the road.

Typical paved U.S. 41 ROW with guardrails on the north and grassed shoulder to south

Typical ROW conditions along Loop Road

Bridges

Bridges in the ROGG Central segment are typically nearly identical in scale and construction. The typical bridge measures approximately 32 feet wide overall. Bridges within the corridor pose difficulty for the implementation of the ROGG as the narrow width provides little additional space between the travel lanes and the guardrail barriers of the bridge edges.

Conditions found on typical U.S. 41 bridge with narrow shoulders and barrier

Typical canal bridge

Landscape (habitat)

Typical habitat of the western portion of the ROGG Study Area ranges from cypress strand, marsh, wet prairie and pinelands.

Typical cypress habitat

Typical wet prairie habitat

Focus Areas

1. **Right-of-Way**
   Narrow:
   - None Observed

   Wide:
   - Joanie's Blue Crab Café

2. **Existing Trails and Trailheads**
   - Oasis Visitor Center boardwalk
   - Fire Prairie Trail at Turner River Road
   - The Florida Trail terminus at the Oasis Visitor Center
   - Kirby Storter Boardwalk
   - Loop Road at site of former Monroe Station
   - Big Cypress Swamp Welcome Center
   - ORV trailheads (Skillet Strand North and South, Sig Walker, Pace's Dike)

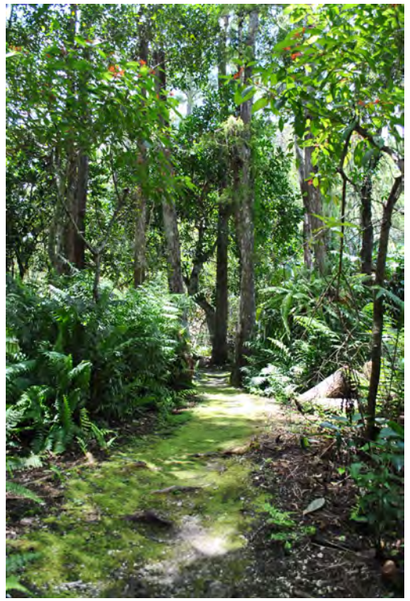
3. **Cultural Resources Features**
   - Ochopee Post Office
   - Monroe Station
   - Corn Dance ceremonial sites
   - Battle of Turner River battlefield
   - 1936 Meeting Monument

4. **Environmentally Sensitive Resources Features**
   - Critical Habitat for manatee in waterways from S.R. 29, east to Birdon Road
   - Florida Panther Focus Area
   - FDOT RADS System
   - Turner River

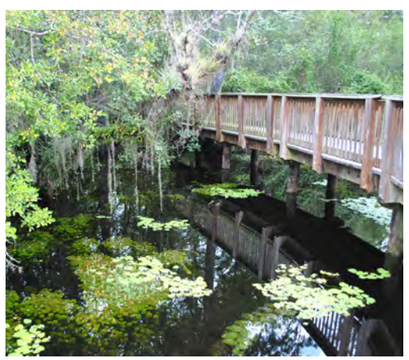
5. **Primary Hubs**
   - Big Cypress Swamp Welcome Center
   - Oasis Visitor Center
   - H.P. Williams Roadside Park
   - Everglades Area Chamber of Commerce Welcome Center

6. **Bridges**
   - 28 total

Boardwalk trail at Kirby S. Storter Park at Big Cypress National Preserve

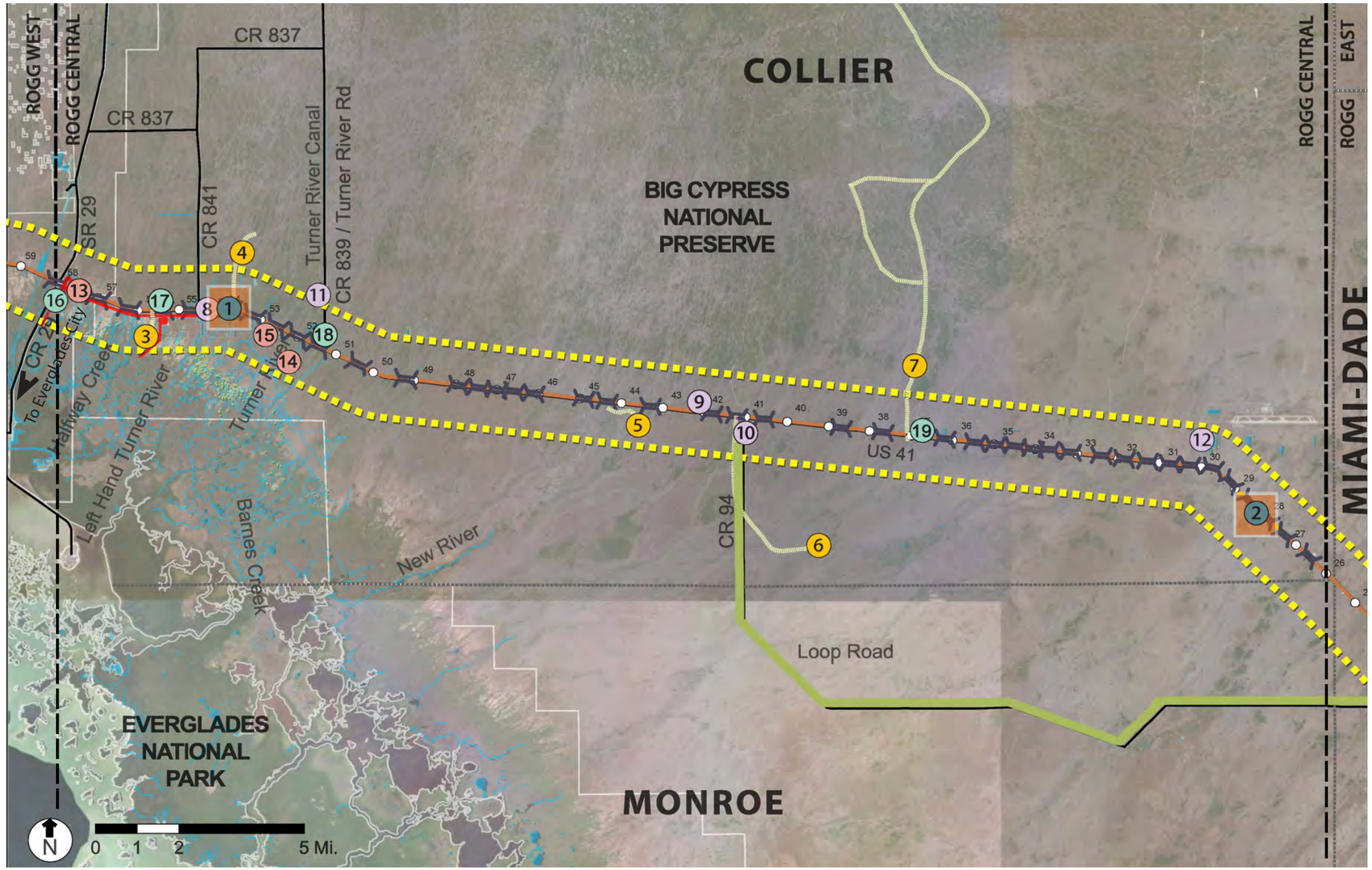


Walking trail at Clyde Butcher's Big Cypress Gallery



Boardwalk at Kirby S. Storter Park in Big Cypress National Preserve

ROGG Central - Focus Areas Map



Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- 26 Mile Marker (from Krome Ave.)
- U.S. 41 Alignment
- Loop Road Alignment
- 1 Mile Study Area
- Existing Trail
- Waterway
- Bridge
- ROW Focus Area
- Critical Habitat
- # Right-of-Way (ROW)
- # Existing Trailheads and Trails
- # Cultural Resources Feature
- # Environmentally Sensitive Resources Feature
- # Primary Hub

See page 57 for identification of # items.

Right-of-Way (ROW)

Wide ROW includes any maintained ROW greater than 70 feet. Wide ROW allows for ample space for a proposed shared-use path and the potential of parking. Two portions of U.S. 41 have a wide ROW:

1. Joanie's Blue Crab Restaurant
2. A private driveway at mile marker 28.2

Cultural Resource Features

Three structures have been designated as historic places by the U.S. National Register of Historic Places or Collier County

8. The Ochopee Post Office (Collier County historic site)
9. 1936 Seminole Conference at Monument Lake Campground (not a U.S. National Registered historic place)
10. Site of the former Monroe Station

Two culturally significant locations exist in the corridor:

11. Battle of Turner River Battlefield
12. Near cultural site

Environmentally Sensitive Resource Features

Critical Habitat for the West Indian manatee is found in the very western portion of the ROGG Central segment . The entire segment is within the Florida Panther Focus Area, which is part of the core habitat for Florida panthers in Florida. The FDOT has installed a RADS system in portions of this segment, including an area near Turner River.

13. West Indian Manatee Critical Habitat
14. Turner River
15. RADS location

Existing Trailheads and Trails

Existing trails and trailheads that occur on or along the Study Area may be an opportunity to connect to a proposed trail. Five trails currently exist along the ROGG Central segment:

3. Big Cypress Swamp Welcome Center (boardwalk only)
4. Burns Lake Trail (ORV trailhead)
5. The Kirby Storter Boardwalk
6. The Gatorhook Trail on Loop Road
7. The Florida National Scenic Trail (FNST)

The Florida Trail, which is accessible at the Big Cypress Oasis Visitor Center, spans over 1400 miles throughout the state of Florida. Future amenities at Skillet Strand (North and South), Pace's Dike, and Sig Walker ORV trailheads

Primary Hubs

Three existing primary hubs are located within the ROGG Central segment that provide restrooms, parking and access to path:

16. Everglades Area Chamber of Commerce Swamp Welcome Center
17. Big Cypress Swamp Welcome Center
18. H.P. Williams Park
19. Big Cypress National Preserve Oasis Visitor Center

Bridges

Twenty-eight bridges occur along U.S. 41 within the ROGG Central segment and are shown on the adjacent map.

Typical Bridge

ROGG Central Opportunities and Constraints Summary

Spanning the longest length of the three segments, ROGG Central offers a number of opportunities and constraints which makes this area unique. This portion of the Study Area is dominated by the presence of the Big Cypress National Preserve, which offers eight existing and proposed destinations that can serve as trailheads. Two primary destinations are the Big Cypress Swamp Welcome Center and the Oasis Visitor Center, both managed by the NPS. These destinations contain existing parking, restrooms, boardwalks and educational opportunities for trail users and are directly linked to U.S. 41.

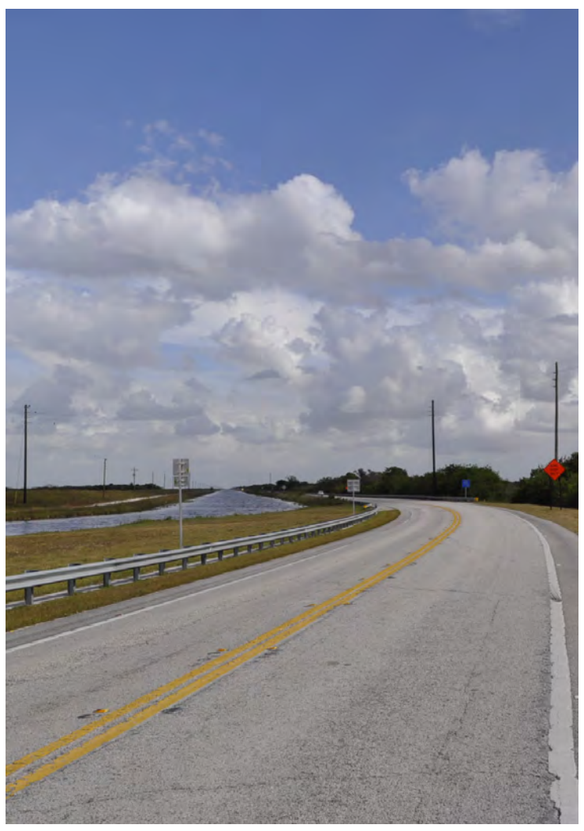
Other existing destinations include campgrounds and historic structures, including Monroe Station which is currently being expanded with new parking and restroom facilities. Shared-use path connectivity to the Fire Prairie Trail at Turner River Road and the Florida National Scenic Trail at the Oasis Visitor Center provide opportunities for visitors to experience the landscape away from U.S. 41, including backcountry camping allowed by the NPS with appropriate permits. Access to canoeing and kayaking is also available via launches at the Big Cypress Swamp Welcome Center, Dona Drive Campground, and the Turner River Canoe Launch. Loop Road also offers opportunities for path users to explore deep within the Big Cypress National Preserve. However, limitations such as a narrow ROW and gravel surface may provide challenges to the feasibility of ROGG within this alternative.

Constraints for ROGG Central are similar to those of ROGG West. Although there are fewer existing bridges within this segment, the design of the bridges are similar to bridges in ROGG West and will not support cantilevering. Although a slightly wider maintained ROW in this segment reduces some of the challenges around impacts to the nearby wetlands for an alignment along U.S. 41. However, the occurrence of a number of federally or state listed species may impact overall opportunities. One of the most significant listed species issues is the location of the corridor within the Panther Focus Area. While not considered Critical Habitat under the terms of the ESA, the USFWS has designated the Panther Focus Area as part of the core habitat for Florida panthers within the state. Construction within the Panther Focus Area is allowed, but mitigation is required for impacts to habitats identified in guidelines by the USFWS. This mitigation can add substantial costs to the implementation of any project requiring impacts to both uplands and wetlands within the area. Additional constraints include the presence of Critical Habitat for manatees shown on the ROGG Central Focus Areas Map.

The presence of a Roadside Animal Detection System (RADS) in the Turner River area presents a constraint that the development of ROGG itself may actually benefit. RADS are currently being tested in this area to increase awareness of wildlife activity along U.S. 41. However, due to the proximity of detection devices to the highway's shoulders, many of the system components suffer from errors caused by vehicles parking along the roadway or from vandalism. By locating the devices on the outside of the shared-use path, the devices could be located further from vehicle traffic and in a manner which limits opportunities for errors.

This segment also includes cultural resource features that would need to be accommodated by future ROGG facilities. These include Native American ceremonial sites and historic places designated on the U.S. National Register of Historic Places. A Cultural Resource Assessment Survey (CRAS) will most likely be needed to identify properties and assess effects. Prior to an archaeological survey an Archaeological Research Permit will need to be obtained from the Department of Interior for any portion of the project with in federal lands. A State of Florida Archaeological Permit will most likely be required prior to surveys within state lands.

Segment of Old Tamiami Trail South of U.S. 41 in Everglades National Park



U.S. 41 corridor looking east near the ValuJet Flight 592 Memorial

2.2.7 ROGG East Existing Conditions

Overview

The ROGG East Study Area is approximately 28.54 miles long, stretching from Krome Avenue (SW 177th Ave.) in western Miami-Dade County to the Collier County / Miami-Dade County line. This segment is severely constrained for trail use due to the limited shoulder width and continuous guardrails on both sides of the road and hydrological features as well as by the improvements associated with CERP/CEPP and related projects. Significant destinations include the Miccosukee Indian Village, the ValuJet Flight 592 Memorial, Francis S. Taylor WMA, and EVER. In addition, the easternmost access to Loop Road, a potential trail connection, can be found just west of the Miccosukee Indian Village.

Route Alignment Options Observed

Within the ROGG East segment of the Study Area, five possible alignment routes have been identified that will be evaluated as part of this feasibility study, including:

1. U.S. 41
2. Old Tamiami Trail
3. L-28 Levee
4. Loop Road
5. L-29 Levee

The following are descriptions of existing conditions of each.

U.S. 41 - Primary Alternative

Summary of Existing Condition

Although U.S. 41 spans the entire length of the ROGG Study Area, the segment stretching from Krome Avenue west to the Collier County-line is one of the most physically constrained portions of the roadway. This is largely due to the limited amount of maintained ROW, narrow paved shoulders, and the presence of vehicular guardrails on both sides of the roadway in certain portions. In addition, the adjacency of the L-29 canal to the road constrains shared-use path options on the north side of the road. The most challenging elements of the segment are four hydrological control structures (S12s) which consist of narrow shoulders of two feet, ingress and egress traffic and CEPP proposed projects which include several additional bridges as part of the Tamiami Trail Modifications: Next Steps.

A one mile long bridge recently opened on the eastern end of the ROGG East segment to replace the existing U.S. 41 roadbed and allow for better sheetflow under the roadway consistent with recommendations from CERP and related studies. Several additional bridge improvements to U.S. 41 totaling 5.5 miles in length are planned as part of the Tamiami Trail Modifications: Next Steps Environmental Impact Statement. These range from a 0.4 mile long bridge near the existing Frog City site to a 2.6 mile long bridge extending over the Blue Shanty Canal and past several existing airboat ride operations. It is anticipated that adding a shared-use path to the existing bridge design would increase construction costs and is not planned at this time.

The northern side of U.S. 41 is paralleled by canals for its entire length in the ROGG East segment, with the largest canals occurring in the first 24 miles west of Krome Avenue. The L-29 Canal, as referred to west of Krome Avenue has associated hydrological control structures as well as gravel maintenance roads running along the northern levee for the first 12 miles west of Krome Avenue and again 21.5 to 24 miles west before joining the L-28 levee. The last two miles of the ROGG East segment are bordered by the L-29 Canal, although the canal is narrower in width (15 to 20 feet wide) than the 75 to 100 foot width of the L-29 canal on eastern portions of this segment. Four hydrological control structures (S12s) are located U.S. 41 in ROGG East and would require retrofitting in order for a path to cross. These control structures are managed by USACE.

The majority of the viewshed along U.S. 41 in the ROGG East segment is bordered by dense vegetation for most of the length of the road that limits long views over the marshes and prairies of the Everglades. This is especially true in the western portion of the ROGG East segment where a dense canopy of cypress and various shrub species are present on both sides of the roadway. Along the L-29 Canal in the eastern portion of the segment, the only significant vegetation is located on the southern side of the road due to the presence of the canal to the north. Views north from U.S. 41 are generally impeded by the L-29 levee located along the L-29 Canal. The recently completed one-mile bridge on U.S. 41 provides improved views to the South into Everglades National Park.

Critical Nodes

8 **Collier County/Miami-Dade County line:** This occurs approximately 28.54 miles west of Krome Avenue (See ROGG Central).

10 **U.S. 41 and Loop Road:** This occurs at the eastern terminus of Loop Road, located approximately two miles east of the Collier County /Miami-Dade County line.

11 **U.S. 41 and Krome Avenue (SW 177th Ave.):** Krome Avenue runs north to the U.S. 27/ Okeechobee Road area and connects to Kendall Drive and Homestead/ Florida City. It is considered the eastern terminus of the ROGG Study Area. Krome Avenue to the south is programmed for improvements by FDOT that include the addition of designated bike lanes and shared-use path from SW 296th St. to SW 8th St. Krome Avenue provides connectivity to several Greenways Master Plan corridors including Black Creek Trail. In addition, FDOT has recently constructed designated bike lanes on several sections of U.S. 41 east of Krome Avenue.

Old Tamiami Trail - Alternative

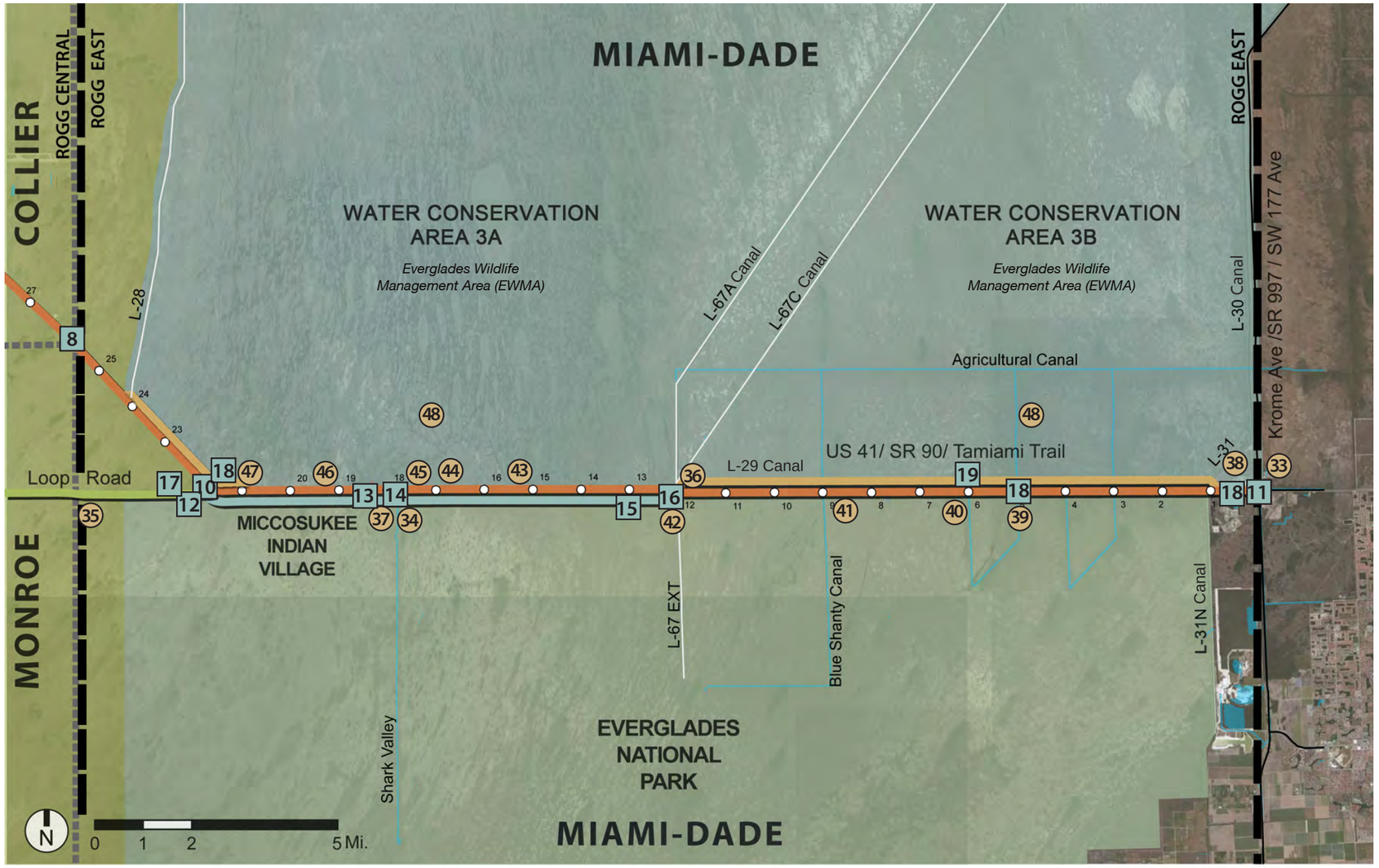
Summary of Existing Condition

Old Tamiami Trail is the historical, but now abandoned, alignment of U.S. 41. CEPP proposed improvements that include the removal of the Old Tamiami Trail roadbed and embankment, however, no time line has been proposed. The primary functioning infrastructure along the Old Tamiami Trail serves as an overhead utility corridor with utility lines located on the south edge of the roadbed. This alignment is approximately 9.5 miles in length and runs parallel to, and approximately 100 to 150 feet south of, U.S. 41. The roadbed surface is comprised of deteriorated asphalt. The banks of the roadbed have become overgrown with vegetation, including areas that are effectively blocked by overhanging vegetation. This vegetation limits visibility both into and out of the alignment. The roadbed is bordered for its entire length on the north by a canal originally used to provide fill for the roadbed.

There are four primary access points linking U.S. 41 to the Old Tamiami Trail alignment, three of which are gravel access roads. The fourth connection location is at the Miccosukee Indian Village where the last three miles of Old Tamiami Trail is still an active roadway serving the village residents. In the Miccosukee Indian Village portion of the Old Tamiami Trail, the roadbed is bordered by residential, commercial, and natural land uses, the majority of which occur on the south side of the roadway.

There are several significant breaks in the roadbed where segments up to 600 feet in length have been removed to allow for water from the L-29 Canal to flow south. This effectively renders these portions of the Old Tamiami Trail alignment impassible without a bridge or culvert.

ROGG East - Existing Conditions Map



Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- Mile Marker (from Krome Ave.)
- U.S. 41 Alignment
- Loop Road Alignment
- Old Tamiami Trail Alignment
- L-29/L-28 Levee Alignment
- Waterway
- Water Conservation Area (WCA)
- Big Cypresss National Preserve (BICY)
- Everglades National Park (EVER)
- Point of Interest
- Critical Node

See page 58, 60 and 61 for description of # items.

ROGG East

Location: Collier County/Miami-Dade County Line to Krome Avenue (SW 177th Ave)

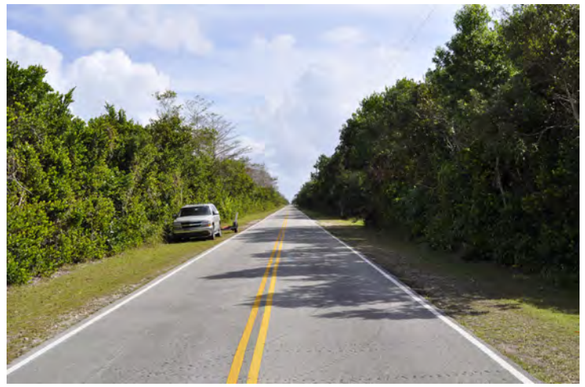
Length: 28.54 miles

Critical Nodes

- 8 Collier County/Miami-Dade County Line
- 10 U.S. 41 and Loop Road
- 11 U.S. 41 and Krome Avenue (SW 177th Ave.)
- 12 Old Tamiami Trail and Loop Road
- 13 Miccosukee Indian Village
- 14 Everglades National Park / Shark Valley Entrance
- 15 U.S. 41 and gravel road
- 16 U.S. 41 and Old Tamiami Trail
- 17 U.S. 41 and Loop Road
- 18 Levee Access Points
- 19 Tigertail Residential Community

Points of Interest

- 33 Miami-Dade County Trail Glades Sports Shooting Range
- 34 Everglades National Park / Shark Valley Entrance
- 35 Boundary Line ORV Trailhead
- 36 ValuJet Flight 592 Memorial
- 37 Miccosukee Indian Village
- 38 Miccosukee Resort and Gaming Center
- 39 The Original Coopertown Air Boats
- 40 Gator Park
- 41 Everglades Safari Park
- 42 Buffalo Tiger Airboat Rides
- 43 Osceola Gift Shop
- 44 Tigertail Airboat Rides
- 45 Miccosukee Restaurant
- 46 Chief Osceola Airboat Rides
- 47 Tippy's Everglades Outpost
- 48 Everglades Wildlife Management Area (EWMA)



Loop Road as seen near U.S. 41

ValuJet Flight 592 Memorial north of U.S. 41

Entrance to the Miccosukee Indian Village from U.S. 41

Critical Nodes

12 **Old Tamiami Trail and Loop Road:** The western terminus of Old Tamiami Trail occurs at the intersection with Loop Road, which is approximately four miles east of the Collier County/Miami-Dade County line.

13 **Miccosukee Indian Village:** Old Tamiami Trail serves as a main street for the Miccosukee Indian Village, linking many of its residences to the village center. There are three paved access roads linking U.S. 41 to Old Tamiami Trail within the village, all of which are also referred to as Old Tamiami Trail.

14 **Everglades National Park / Shark Valley Visitor Use Area:** The entrance road to the Shark Valley Visitor Use Area from U.S. 41 intersects with the Old Tamiami Trail alignment.

15 **U.S. 41 and gravel road:** This single-purpose gravel roadway links U.S. 41 and the Old Tamiami Trail alignment, located approximately two miles from the eastern terminus of Old Tamiami Trail.

16 **U.S. 41 and Old Tamiami Trail:** The first access point to the Old Tamiami Trail alignment occurs at a gravel intersection just south of the ValuJet Flight 592 Memorial, approximately 12 miles west of Krome Avenue.

Loop Road - Alternative

Summary of Existing Condition

Loop Road (C.R. 94) connects to Old Tamiami Trail and U.S. 41 approximately four miles east of the Collier County/Miami-Dade County line. Loop Road initially traverses due west from U.S. 41 and then turns north to reconnect with U.S. 41, thus forming a "loop."

The first 2.8 miles of Loop Road's approximately 23.5-mile length are located within the boundary of the ROGG East segment and Miami-Dade County. This portion of Loop Road is unique in that it is one of the few places along its length where there are concentrated residential areas. Similar to western portions of Old Tamiami Trail, this segment of Loop Road is a paved roadway, which is bordered by a vegetated canal to the north and either residential or natural areas to the south. Beyond the residential areas, the roadway is bordered on both sides by vegetation, which becomes significantly denser towards the west. Additionally, there are overhead power lines running on the southern edge of the roadbed within the ROGG East segment.

Critical Nodes

17 **U.S. 41 and Loop Road:** A paved access road located approximately four miles east of the Collier County/Miami-Dade County line creates the eastern terminus of Loop Road. This location also serves as the western terminus of the Old Tamiami Trail alignment.

L-29 Levee - Alternative

Summary of Existing Condition

The L-29 levee runs parallel to the northern side of U.S. 41 within the eastern portion of the ROGG East segment for 12 miles west of Krome Avenue.

The levee has two parallel access roads with one at the top of the levee and one at the bench on the southern side of the levee. These access roads are surfaced with gravel and vary in width from nine to 15 feet. These levees provide access to boat ramps and are open for vehicles driven by the general public, service personnel, and Tigertail village residents. There are no access control gates or signage along either of the access roads. There are two paved bridges that are approximately 20 feet in width occurring along the levee roads at existing water control structures.

There are only two locations along U.S. 41 where motorized vehicular bridges provide access from U.S. 41 to the levee road. The first occurs near the eastern terminus of the ROGG East segment, while the second occurs near the ValuJet Flight 592 Memorial. These bridges are located at water control structures to provide for ingress and egress of authorized service vehicles and personnel.

Proposed plans for CEPP would remove approximately 3 miles of the levee eastward of the ValuJet Memorial towards Tigertail. Access to the L-29 levee from U.S. 41 would be immediately available on east and west ends of the portion of the levee removed. A new north-south levee (Blue Shanty) would allow continuous bicycle/pedestrian access east to west via this northbound 14 mile route through WCA-3B around the gap without use of U.S. 41 or alternatively, U.S. 41 could be used for three miles.

Additionally, the L-28 Levee may be used for bicycle/pedestrian access from mile 21.5 to 24 west of Krome Avenue. At mile 24 the L-28 Levee turns north, away from U.S. 41. Connection across the canal to U.S. 41 may be needed at this location.

Critical Nodes

18 **Levee Access Points:** There are several locations along U.S. 41 where there are motorized vehicular bridges that provide access to the canal levee access roads. At this time, these locations are primarily for the ingress and egress of authorized service vehicles and personnel. Examples of these access points can be found at the following locations:

- L-29 Access bridge (motorized vehicular),
- Bridge at Cooper Town Airboats (pedestrian only),
- L-28 Access bridge (motorized vehicular).
- L-28 Access point (non-vehicular).

19 **Tigertail Residential Community:** Approximately six miles west of Krome Avenue, there is a small residential community located on the northern side of the L-29 canal, known as Tigertail. The community is approximately 2.1 acres in size and consists of approximately 21 buildings or structures. There is an existing pedestrian bridge connecting a parking area along U.S. 41 to the community. However, direct motorized vehicular access requires the use of the levee roadways and the parking and bridge are not publicly accessible.

2.2.8 ROGG East Points of Interest

ROGG East offers a variety of stops and destinations that appeal to a wide range of user groups. Publicly accessible points of interest are oriented heavily towards parks and natural areas as well as cultural or historic sites. With the exception of the Miccosukee Restaurant, private or commercial points of interest are largely represented by companies that provide airboat tours and "Everglades experiences," such as fishing and wildlife observation.

Public Points of Interest

Parks and Preserves

33 **Miami-Dade County Trail Glades Sports Shooting Range:** Located 0.3 mile east of Krome Avenue, the Miami-Dade County Trail Glades Sports Shooting Range is actually outside of the project study area. However, it could serve as an auxiliary trailhead or destination due to its location near the eastern terminus of the study area. The park is home to one of Miami-Dade County's public shooting ranges, and is currently managed by MDPROS. Although the shooting range occupies the majority of developed area of the site, there are some underutilized auxiliary open spaces and paved parking areas that may be available for use as trailhead facilities.

34 **Everglades National Park / Shark Valley Visitor Use Area:** Located approximately 18 miles west of Krome Avenue, Shark Valley provides exemplary opportunities for wildlife observation. Shark Valley offers users over 15 miles of trails (both paved and boardwalk), guided tram tours, a nature center and bicycle rentals. A new visitor center and restroom opened in December, 2013 and existing parking capacity is limited, which can be overwhelmed quickly during peak seasons. Alternative parking areas that could service ROGG and Shark Valley may be able to be connected via ROGG.

35 **Boundary Line ORV Trailhead:** The Boundary Line trailhead is located along the south side of Loop Road, approximately 2.3 miles west of U.S. 41 near the Monroe and Miami-Dade County lines. The site is unimproved and offers only trail access. Planned improvements include parking, restroom facilities, and informational kiosks that could be utilized as a trailhead.

Historic and Cultural Sites

36 **ValuJet Flight 592 Memorial:** The ValuJet Flight 592 memorial was constructed in 1999 and dedicated to the remembrance of the 110 people who perished in the crash of ValuJet Flight 592 in 1996. Flight 592 crashed into the Everglades shortly after takeoff north of the current memorial site in the Everglades. The memorial consists of 110 concrete pillars arranged in an arrow that points in the direction of the crash site. The memorial was designed by students at the University of Miami, in conjunction with the American Institute of Architects. The site provides three gravel parking spaces and can be accessed via a gravel access road and bridge at the existing USACE S-333 Water Control Structure.

37 **Miccosukee Indian Village:** Located approximately 18.5 miles west of Krome Avenue, the Miccosukee Indian Village is home to many members of the Miccosukee Indian Tribe. The Miccosukee's core social services, such as police, schools, and governmental buildings, are located in the Village. Additionally, visitors to the Village can find numerous cultural resources in the form of historic artifacts, craft and cooking demonstrations, special events, and a history museum. There is an extensive parking area at the eastern entrance that provides parking for visitors to the village. This parking area is within trust lands for the Miccosukee Indians and would require their approval for any use associated with ROGG.

Private/Commercial Points of Interest

38 **Miccosukee Resort and Gaming Center:** In addition to the aforementioned Miccosukee Indian Village, the Miccosukee Indian Tribe of Florida also owns and operates a resort and gaming center located at northwest corner of the intersection of Krome Avenue and U.S. 41. The resort offers hotel accommodations, various forms of electronic gaming, a salon, teen area, an events center, and several restrooms. In addition to the interior amenities, the site provides a substantial amount of paved parking. Similar to the Miccosukee Indian Village, the site occurs within trust lands for the Miccosukee Indians. Any use of the parking facilities would require the approval of the Miccosukee Indians.

39 **The Original Coopertown Air Boats:** Located on the south side of U.S. 41, approximately five miles west of Krome Avenue, The Original Coopertown Air Boats is a private company that provides air boat rentals and tours into EVER. The site offers 30 paved parking spaces and a restaurant. A pedestrian bridge crossing the L-29 canal is located north of the site.

40 **Gator Park:** Located 1.3 miles west of Coopertown Air Boats (6.3 miles west of Krome Avenue) on the south side of U.S. 41, Gator Park offers airboat tours, wildlife viewing, a restaurant, RV camping, 39 parking spaces, and cultural demonstrations relevant to life in the Everglades.

41 **Everglades Safari Park:** Located 2.8 miles west of Gator Park (9.1 miles west of Krome Avenue), Everglades Safari Park offers services and amenities including airboat tours in EVER, wildlife exhibits, dining area, cultural demonstrations and 50 parking spaces.

42 **Buffalo Tiger Airboat Rides:** Located approximately 3.4 miles west of Everglades Safari Park (12.5 miles west of Krome Avenue) near the ValuJet Flight 592 Memorial, Buffalo Tiger Airboat Rides is a private company that specializes in seasonal airboat rides and tours. The site is located north of U.S. 41 and consists of a small building, parking lot, and a dock with chickee huts.

43 **Osceola Gift Shop:** The Osceola Gift Shop is a small retail store located along the north side of U.S. 41, approximately three miles east of the Miccosukee Indian Village (15.4 miles west of Krome Avenue). In addition to the gift shop's main building, there are several chickee huts, and 22 parking spaces (two ADA accessible).

44 **Tigertail Airboat Rides:** Located 1.4 miles west of the Osceola Gift Shop (16.8 miles west of Krome Avenue), Tigertail Airboat Rides is a private company offering airboat tours and rides. It offers several chickee huts, water access, eight paved parking spaces (one ADA accessible), and portable toilets.

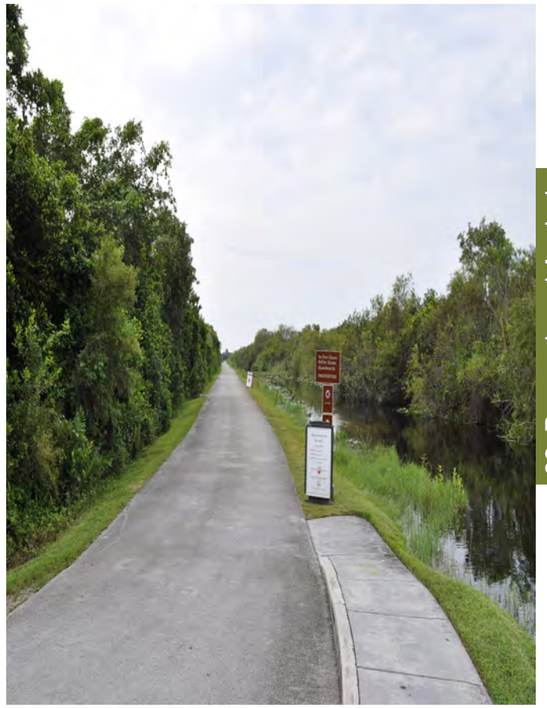
45 **Miccosukee Restaurant:** Located approximately 1.7 miles east of the Miccosukee Indian Village along the north side of U.S. 41, the Miccosukee Restaurant specializes in traditional Native American cuisine as well as contemporary fare. Although the restaurant is the primary function of the site, there is also a Miccosukee Indians Information Center, an airboat dock, several chickee huts, and 35 paved parking spaces (two ADA accessible).

46 **Chief Osceola Airboat Rides:** Chief Osceola Airboat Rides is a small private company located in the central portion of the Miccosukee Indian Village (19 miles west of Krome Avenue), which provides airboat rides and tours. Amenities on site include a boat ramp, several chickee huts, a small outbuilding, and 20 paved parking spaces (two ADA accessible).

47 **Tippy's Everglades Outpost:** Described as a "one-stop-shop for everything outdoors," Tippy's Everglades Outpost is a private retail business that also provides airboat tours, a multi-level dock and gazebo, wildlife and history exhibits, and a restaurant.

48 **Everglades Wildlife Management Area (EWMA):** Unique habitat managed to balance the needs of wildlife with those of the human population.

View of WCA-3B in ROGG East segment



Entrance to the bike/tram trail at Shark Valley in Everglades National Park

Typical Existing Conditions

Roadway (ROW)

Typical ROW along the ROGG East segment averages an overall maintained ROW of 76 feet wide, but ranges from 38 to 168 feet. This roadway surface of U.S. 41 varies in its design in this portion of the ROGG Study Area. However, the L-29 canal is located to the immediate north of the road and is present throughout the eastern portion of the Study Area. A recent one-mile long bridge has been completed as part of the hydrological restoration projects ongoing in the region. The goal of this project is to allow water flow and restore aquatic habitat connectivity through an area currently separated by levees. Images of the typical roadways cross-section are shown below.

Bridges

The typical bridge is approximately 32 feet wide with two 12 foot travel lanes. The new one-mile bridge is wider than the other existing bridges with ten foot paved shoulders on the outside travel lanes. Bridges within this area of the Study Area pose difficulty for the implementation of the trail due to their narrow width.

Landscape (habitat)

Typical habitat of the eastern portion of the ROGG Study Area ranges from wet prairie, marsh and shrub wetland, to maleleuca-dominated marsh.

Typical U.S. 41 roadway section lacking guardrails

U.S. 41 water control structure crossing with no shoulders

View from top of L-29 levee looking out to the WCA

Everglades National Park-Shark Valley entrance; visitors parking and walking within U.S. 41 ROW

U.S. 41 one-mile bridge, looking west

Old Tamiami Trail existing roadbed and vegetation south of existing U.S. 41

Focus Areas

1. **Right-of-Way**
   Narrow:
   - L-28 Access Canal
   - Cooperstown Air Boats
   - Everglades Safari Park
   - One-Mile Bridge

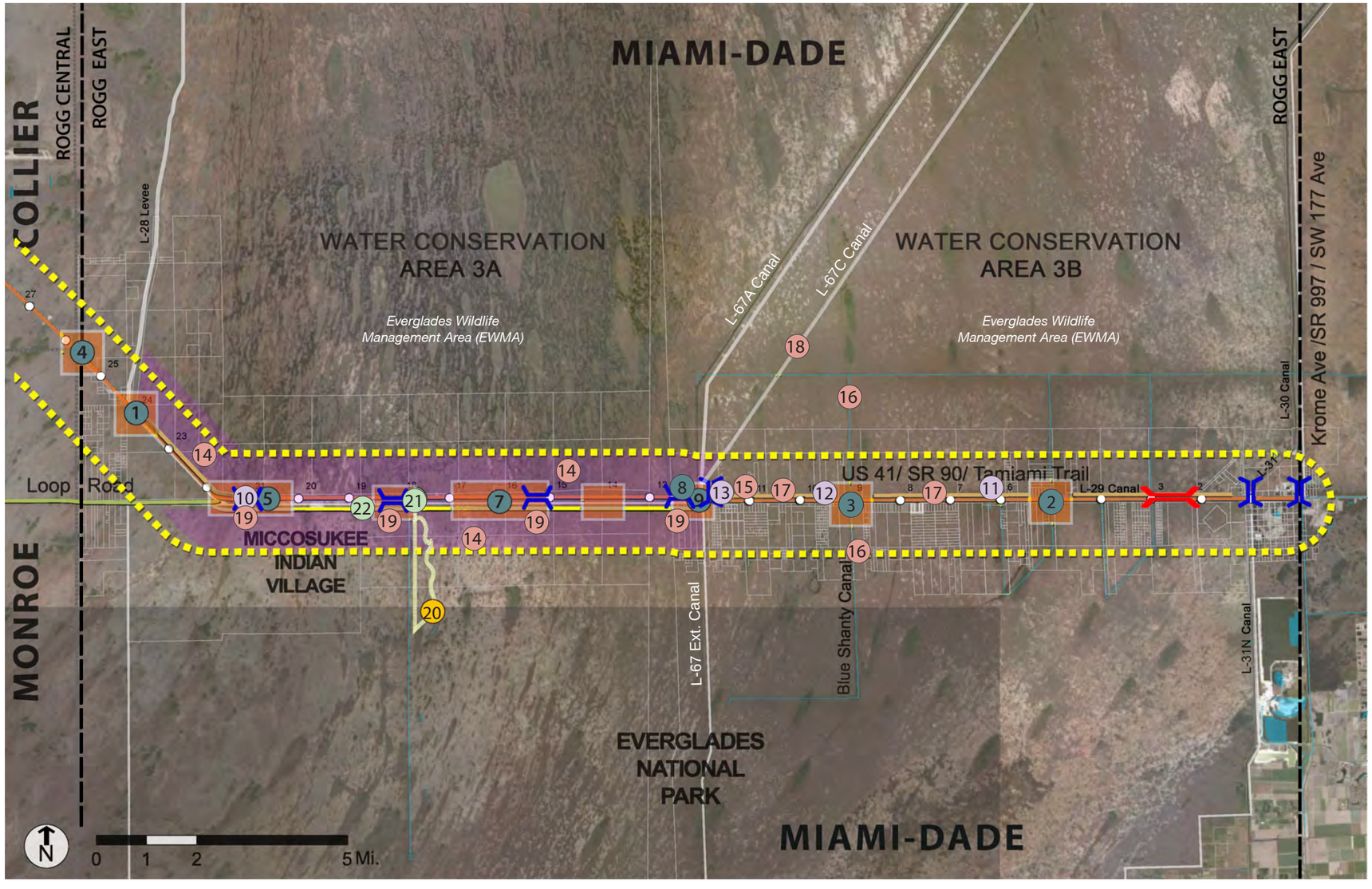
   Wide:
   - Collier/Dade County Line
   - Loop Road, East Terminus
   - Miccosukee Indian Village
   - Tigertail Airboat Rides
   - Osceola Gift Shop
   - Old Tamiami Trail
   - Buffalo Tiger Airboat Rides/L-29 Levee
2. **Existing Trails and Trailheads**
   - The Bobcat Boardwalk
   - Otter Cave Hammock Trail
   - Tram Road
3. **Cultural Resource Features**
   - Miccosukee Indian Village
   - Tigertail Residential Community
   - Osceola Residential Community
   - ValuJet Flight 592 Memorial
4. **Environmentally Sensitive Resource Features**
   - Snail Kite Critical Habitat spans U.S. 41 for 12.4 miles
   - L-28 Canal and Levee
   - L-67C Levee
   - Blue Shanty Canal
   - Old Tamiami Trail Breaches
   - CEPP Projects
5. **Primary Hubs**
   - EVER Shark Valley Visitor Use Area
6. **Bridges**
   - Six total

Looking west from atop the L-29 Levee in the ROGG East Study Area

Entrance to Shark Valley, Everglades National Park

Western portion of ROGG East Study Area

ROGG East - Focus Areas Map



Legend

- Segment Match Line
- County Boundary Line
- Governmental Boundary Line
- Roadway
- Mile Marker (from Krome Ave.)
- U.S 41 Alignment
- Loop Road Alignment
- Old Tamiami Trail Alignment
- L-29 Levee / L-28 Levee Alignment
- 1 Mile Study Area
- Waterway
- Bridge
- ROW Focus Area
- Critical Habitat
- Existing Trail
- Right-of-Way (ROW)
- Existing Trailheads and Trails
- Designated Historic Structure/ Landmark
- Environmentally Sensitive Resource
- Primary Hub

See page 65 for identification of # items.

- One-Mile Bridge
- Water Control Structure

Right-of-Way (ROW)

There are three areas found in the Study Area with a narrow ROW. Those areas with a ROW less than 40 feet wide within the ROGG East segment include:

1. L-28 Access Canal
2. Coopertown Air Boats
3. Everglades Safari Park

Wide ROW includes any maintained ROW greater than 70 feet. Wide ROW may allow for ample space for a shared-use or multi-use path but is dependent upon design elements of the roadway with the ROW such as lateral positions of roadbed, presence of guardrails, and other elements. Six portions of U.S. 41 have a wide ROW:

4. Collier/Miami-Dade County Line
5. Loop Road East Terminus
6. Miccosukee Indian Village/Tigertail Airboat Rides/ Osceola Gift Shop
7. Old Tamiami Trail
8. Buffalo Tiger Airboat Rides/L-29 Levee
9. L-29/ValuJet Flight 592 Memorial

Existing Trailheads and Trails

Trails and trailheads that already occur on or along the Study Area could act as an opportunity to connect to a proposed shared-use path.

The only trails currently existing along ROGG East are the Shark Valley trails within EVER. Trails within the park include:

20. The Bobcat Boardwalk
20. Otter Cave Hammock Trail
20. Tram Road

Tram Road extends over 15 miles round trip and is used for tram rides, bicycling and walking. Otter Cave Trail is 0.25 mile long and provides access through a tropical hardwood forest. The Bobcat Boardwalk Trail is 0.5 in length and travels through saw grass slough and tropical hardwood forests.

Connectivity to future Miami-Dade County trail routes shall be considered when planning ROGG.

Cultural Resource Features

Four culturally significant locations exist in the corridor:

10. Miccosukee Indian Village
11. Tigertail Residential Community
12. Osceola Residential Community
13. ValuJet Flight 592 Memorial

The Airboat Association of Florida site and Mack's Fish Camp are both eligible for the National Register of Historical Places as Traditional Cultural Properties, however, neither are listed at this time.

Primary Hubs

Everglades National Park-Shark Valley Entrance and the Miccosukee Indian Village are the two existing primary hub areas within the ROGG East segment that provide parking, access to existing trails, restrooms and concessions.

21. Everglades National Park-Shark Valley Entrance
22. Miccosukee Indian Village

Environmentally Sensitive Resource Features

Snail Kite Critical Habitat exists throughout the entire western half of the ROGG East segment.

14. Snail Kite Critical Habitat
15. L-29 Levee removal (proposed)
16. Blue Shanty Canal
17. L-29 Levee and Canal
18. L-67C Levee
19. Old Tamiami Trail Breaches

Bridges

Five bridges occur along U.S. 41 in the ROGG East segment. The one-mile bridge has been completed and is highlighted in red on the adjacent map.

- One-mile long bridge
- Typical Bridge
- Water Control Structure

ROGG East Opportunities and Constraints Summary

Contained entirely within Miami-Dade County, the ROGG East segment may experience the highest volume of visitors of all the segments due to the proximity of the Shark Valley entrance to EVER, Miccosukee Indian Village, and nine private attractions near the Miami metropolitan area. Miami-Dade also has the largest existing transit network which can be connected directly to the ROGG, providing options for residents to take transit to the eastern terminus of ROGG or potentially farther west to Shark Valley and the Miccosukee Indian Village.

Shark Valley is currently one of the fastest growing visitor use areas in terms total number of visitors for all of EVER entrance points, while it is also one of the most constrained for expanding to meet these increased needs. A new visitor center and restroom facility has been completed at Shark Valley. The park facility frequently experiences parking lot capacity issues during the peak visitation season. Development of the ROGG and coordination of transit could help relieve some of the vehicle traffic congestion issues at Shark Valley, while the addition of other opportunities along the ROGG East segment could provide additional opportunities for visitors to experience the Everglades could offset the growth in total number of visitors and their impacts at Shark Valley.

Existing facilities at a number of locations such as Shark Valley, Miccosukee Indian Village and ValuJet Flight 592 Memorial offer potential trailhead amenities, such as parking, restrooms and educational elements. ROGG East also includes the greatest number of possible alignments, including one within the U.S. 41 maintained ROW on new or proposed bridges, within existing levee ROWs along the L-29, within the Old Tamiami Trail corridor, or Loop Road. Each potential alignment should be studied in greater detail in order to determine all options in the feasibility of constructing the ROGG.

Environmental and cultural opportunities include a focused effort to remove exotic species to improve both habitat and viewsheds. Culturally significant lands include Native American lands in the western areas of ROGG East segment, which includes the Miccosukee Indian village area.

This segment also has the greatest amount of proposed changes to the landscape as part of the recommended restoration efforts of the CEPP and related projects. These proposed improvements remove barriers to south bound hydrological sheet flow and will include the addition of several new bridges along U.S. 41. Additional proposed projects include the removal of the existing roadbed, partial and complete removal of some levees, removal of the Old Tamiami Trail roadbed and fill, and the addition or upgrades to several water control structures. A critical constraint for ROGG is to use existing features or find cross-section alternatives that do not diminish south bound sheet flow. The immediate time-lines for these restoration efforts are not known and ultimately could take decades to implement. As such, the addition of the ROGG to the existing levee network, within the Old Tamiami Trail corridor, or as part of the proposed bridges could still proceed in coordination with these efforts and ultimately could be constructed as a temporary route until the time of removal, although these uses would need to not inhibit future restoration activities.

2.3 LITERATURE REVIEW

"Floridians have spent most of the 20th Century trying to destroy the Everglades, and much of it trying to save the Everglades, often at the same time."

– Governor Chiles, 1991

Influencing Document Samples

Introduction

The purpose of this section is to document the extensive literature base that exists as a result of years of evaluations and studies in the region, provide a summary of a portion of this literature for reports and studies particularly relevant to ROGG, and assess the planning implications for the feasibility and master plan of the ROGG stemming from this literature base. This section begins with an overview of the various types of documents that are potentially relevant to the current conditions, proposed restored conditions, and/or regulatory setting for the ROGG. The remainder of this section consists of brief summaries of the contents of representative documents and an assessment of the relevance for the regulatory requirements, design considerations, physical setting, or other factors relevant to the feasibility assessment and master plan for ROGG. Each document summary provides the timeframe of issuance, responsible agency, the purpose of the document, and items identified in the document that would need to be addressed through design considerations and ends with an assessment of potential implications for planning efforts.

2.3.1 Guiding Documents

The ROGG occurs within an area that has been the subject of a number of planning and implementation studies associated with the roadway corridor or the greater Everglades systems. In an effort to build upon the works of previous adopted plans and studies and to ensure coordination with other official documents that could influence the development of ROGG, multiple sources of information were reviewed. These sources identify designated improvements, regional studies, and regulations that could influence the development of or feasibility assessment for ROGG. They can be classified into five broad categories:

Guiding Document Categories:

- Governing Codes and Ordinances,
- Master Plans and Management Plans,
- Transportation Studies and Plans,
- Environmental and Cultural Recourse Documents,
- Design Guidelines and Methodologies.

An overview of each of these categories is provided:

Governing Codes and Ordinances

Future improvements required for ROGG are subject to regulations consisting of statutes, codes, and ordinances promulgated and enforced by local, state, and federal agencies. These regulations identify requirements that need to be met for projects to be implemented. They also identify activities or actions that are prohibited from occurring for a spectrum of issues, including potential impacts to natural or cultural resources, incompatible land uses, and unauthorized construction activities. Federal codes and ordinances include acts passed by the U.S. Congress, such as the ESA and the National Historic Preservation Act, as well as Executive Orders and regulatory guidance criteria established by federal agencies. State codes and ordinances consist primarily of the Florida Statutes and FAC. Guidance documents of state regulatory agencies, such as the Environmental Resource Permitting Manual for ERPs, also provide insight on implementation for the codes. Local regulations such as the Miami-Dade County Land Development Regulations and the Collier County Land Development Code provide the requirements for planning, constructing, and operating systems within the respective counties. Regulatory agencies typically review projects as part of the permit application process for each of these different categories of codes and ordinances. Future improvements for ROGG will be required to comply with these regulations and with the permit processes associated with the regulations.

Master Plans and Management Plans

This category of influencing documents consists of master plans and management plans that guide the use of public lands and/or recreational open space within the ROGG Study Area. The NPS has established master plans and/or management plans for the EVER and Big Cypress National Preserve that guide resource management and long-term improvements for these parks. Supplemental plans such as the Big Cypress National Preserve Long-Range Interpretive Plan and/or NPS EVER Superintendent's Compendium provide additional details and guidance on implementation for specific components of the overall master/management plans. Similarly, the state of Florida requires management plans for all public lands owned by the state to guide resource management and long-term improvements. Required to be updated every 10 years or when substantial changes are anticipated to occur to the subject property, these management plans address a variety of components associated with the management of the public land. These include documentation of existing conditions and uses, master plans for proposed improvements, and management requirements. Management plans are in place for all state-owned lands within the ROGG Study Area.

Miami-Dade County and Collier County have also prepared master plans for the system of parks, recreation and open space within each county. These plans identify parks and recreation needs as well as proposed system improvements for each county. All of these plans provide guidance on existing and future destinations for ROGG as well as management requirements for the properties that need to be addressed or maintained by future ROGG facilities. Improvements for ROGG that are determined to be feasible may require updates to the management plans for some or all of the facilities, which requires an extensive public review process for each plan.

Transportation Studies

The transportation system within the ROGG Study Area includes pedestrian, bicycle, and motorized vehicular modes that have been subject to planning and evaluation studies since the Tamiami Trail was originally established. The FHWA and FTA are federal agencies that provide funding, planning support, and review of transportation projects and have jointly assessed needs for transportation requirements for federal lands in recent years. FDOT owns and manages the U.S. 41 ROW, including monitoring traffic conditions and use of the roadway, and is the lead agency for conducting reviews for most improvements occurring within the ROW. FDOT has conducted several NEPA-compliant Project Development and Environment (PD&E) studies in recent years for improvements to portions of U.S. 41 within the ROGG Study Area for lane and shoulder improvements. FDOT also administers the ETDM process to review potential environmental effects during the planning phase of qualifying transportation projects and has conducted several ETDM screenings for the ROGG in recent years.

Miami-Dade County and Collier County have developed non-motorized bicycle/ pedestrian plans that include assessments for pathways, greenways, and bicycle and pedestrian use within the counties. Transportation studies provide design criteria, assessment and review of environmental issues, and other considerations for the design and construction of facilities on and adjacent to U.S. 41 as well as regional systems to connect with and/or enhance as part of the ROGG.

Environmental and Cultural Resource Documents

The natural and cultural resources of the ROGG Study Area are some of the most intensively studied in the region and subject to extensive regulatory requirements, all of which have resulted in a diverse array of completed documents. The USACE together with the SFWMD and other partners are implementing the restoration of the Everglades system consistent with plans and projects identified in CERP/CEPP and through more detailed PIRs. The NPS has prepared EA/EIS documents for various improvements within the EVER and Big Cypress National Preserve as well as the EIS for the bridging improvements on U.S. 41 in the eastern portion of the ROGG Study Area. As part of the EA/EIS/PIR

Governing Codes and Ordinances

- Clean Air Act of 1970, as amended,
- Clean Water Act of 1972, as amended,
- Coastal Zone Management Act of 1972, as amended,
- Collier County Growth Management Plan,
- Collier County Land Development Code,
- Endangered Species Act of 1973,
- Energy Independence and Security Act of 2007,
- EO 11593: Protection and Enhancement of the Cultural Environment,
- EO 11988: Floodplain Management,
- EO 11990: Protection of Wetlands,
- EO 13443: Facilitation of Hunting Heritage and Wildlife Conservation,
- Florida Administrative Code,
- Florida Coastal Management Zone,
- Florida Statutes,
- Miami-Dade County Comprehensive Development Master Plan,
- Magnuson-Stevens Fishery and Conservation Management Act
- Miami-Dade County Land Development Regulations,
- Miami-Dade County Zoning Codes and Ordinance,
- National Environmental Policy Act of 1969, as amended,
- National Historic Preservation Act of 1966, as amended,
- National Parks Omnibus Management Act of 1998,
- Noise Control Act of 1972,
- NPS Organic Act,
- Section 106 of the National Historic Preservation Act of 1966,
- SFWMD Basis of Review for Environmental Resource Permit Applications,
- SFWMD Public Use Rule,
- Water Resources Development Act of 1992.

Master Plans and Management Plans

- Everglades National Park / Master Plan (1979),
- NPS Everglades National Park – East Everglades Addition Land Protection Plan (1991),
- NPS Big Cypress National Preserve General Management Plan and Final Environmental Impact Statement (1991),
- NPS Big Cypress National Preserve Water Resources Management Plan (1996),
- FDEP Fakahatchee Strand Preserve State Park Unit Management Plan (2000),
- NPS Big Cypress National Preserve Long-Range Interpretive Plan (2002),
- FFWCC – A Conceptual Management Plan for The Everglades Complex of Wildlife Management Areas (Everglades/Francis S. Taylor, Holey Land and Rotenberger Wildlife Management Areas) (2002),
- FDEP Collier – Seminole State Park Unit Management Plan (2004),
- Miami-Dade County Aesthetics Master Plan (2008),
- Miami-Dade County Parks and Open Space System Master Plan (2008),
- NPS Everglades National Park Visitor Study (2008),
- USACE Regional Draft Report for the Conceptual Recreation Plans for the Master Plan of the Comprehensive Everglades Restoration Program (2008),
- Florida Division of Forestry Ten-Year Resource Management Plan for the Picayune Strand State Forest (2008),
- NPS Big Cypress National Preserve Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement (2010),
- SFWMD Recreation Management and Partnership Plan: Land Stewardship Division (2011),
- Collier County Parks and Recreation Master Plan (2011),
- NPS Everglades National Park Superintendent's Compendium (2012),
- NPS Big Cypress National Preserve Superintendent's Compendium (2012),
- NPS Everglades National Park Final General Management Plan / East Everglades Wilderness Study / Environmental Impact Statement (GMP) (2015).
- Wilderness Eligibility Assessment - Big Cypress National Preserve, Florida (2015).

reviews, cultural resource assessments for significant areas and/or cultures within the corridor have been completed. The USFWS has issued Biological Opinions that address potential impacts, mitigation, and protection measures for listed species for a number of projects within the ROGG Study Area. These documents provide information about design criteria, future improvements within the ROGG Study Area that need to be accommodated by ROGG facilities, environmental and cultural resource conditions and issues, and the regulatory considerations that would influence the feasibility assessment and master plan for ROGG.

Design Guidelines and Methodologies

Federal, state, and local regulatory and resource management agencies have prepared design guidelines and project evaluation methodologies for planning and design, environmental assessments, and operation of new facilities, including greenways like ROGG. Implementation guidelines and manuals have been developed by regulatory agencies for implementing national, state, or local standards in the development of an improvement, such as the Americans with Disabilities Act Accessible Guidelines. Other design guidelines provide best practices for planning, design, and development of facilities like those that would be needed for ROGG. These documents identify minimum standards and/or evaluation criteria for planning or design elements for the feasibility assessment and master plan for ROGG.

A second set of documents in this category consist of evaluation methodologies for potential impacts to natural and cultural resources that would result from a proposed improvement, such as the USFWS Panther Habitat Assessment Methodology. These methodologies typically include minimum requirements for maintaining the resource, thresholds for determining permit requirements, documentation and survey requirements to provide to reviewing agencies, and/or criteria that establish the degree of impact and/or mitigation that would be required for a given improvement.

Transportation Studies

- North Dade Greenways Master Plan (1997),
- Miami-Dade MPO Bicycle Facilities Plan (2001),
- FHWA / FTA Federal Lands Alternative Transportation Systems Study (2001),
- FDOT US 41 PD&E Study from CR 951 to CR 92 (2008)
- Miami-Dade MPO Bicycle and Pedestrian Plan Update (2009),
- Florida Scenic Highways Project Evaluation Report (2009)
- FDOT De-Designation of the Tamiami Trail National Scenic Byway (2009),
- ETDM Summary Report for Project #12596 – River of Grass Greenway; Programming Screen (Published January 2010, April 2010, March 2011),
- Automated Bicycle Rental System and Parking Plan Study (2011),
- FDOT Environmental Determination for Tamiami Trail PD&E (2011),
- FDOT AADT Report (2011 and 2012),
- Collier MPO Comprehensive Pathways Plan (2012).

Environmental and Cultural Resource Documents

- Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (1999),
- USFWS Biological Opinion for the Modified Water Deliveries to Everglades National Park Project, Experimental Water Deliveries Program, and the C-111 Project (1999),
- USFWS Biological Opinion for the Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement for the Big Cypress National Preserve (2000),
- NPS Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement for Big Cypress National Preserve (2000),
- NPS Scenic Corridor Visitor Safety Highway Improvements Environmental Assessment (2001),
- Big Cypress ,
- USFWS Biological Opinion for the Tamiami Trail Portion of the Modified Water Deliveries to Everglades National Park Project (2006, 2008 modification, 2010 modification),
- URS Corporation (for FDOT) Cultural Resource Assessment Study for US-41 PD&E from Collier Boulevard to San Marco Drive (2007),
- NPS Pilot Spreader Swale Project Environmental Assessment (2008),
- Tamiami Trail Modifications Final Integrated Limited Reevaluation Report and Environmental Assessment (2008),
- Documentation and Evaluation of Coopertown (8DA6767) and the Airboat Association of Florida (8DA6768) and an Assessment of Effects of Modifications to Tamiami Trail (2009),
- NPS Big Cypress National Preserve Commercial Services Plan & Environmental Assessment (2009),
- USFWS Final Fish and Wildlife Coordination Act Report for the Decompartmentalization Physical Model Project (2009),
- USFWS Biological Opinion for the Picayune Strand Restoration Project (2009) ,
- USFWS Final Fish and Wildlife Coordination Act Report for the L-30 Seepage Management Pilot Project (2009),
- Collier County Guide to Historic Sites in Collier county (2010) ,
- NPS Environmental Assessment for the Loop Road Improvements, Big Cypress National Preserve (2010),
- USFWS Biological Opinion for the Draft Final General Management Plan for the Big Cypress National Preserve – Addition (2010),
- USFWS Biological Opinion for the Everglades Restoration Transition Plan, Phase 1 (2010, 2012 modification),
- USFWS Biological Opinion for the Tamiami Trail Modifications: Next Steps Project (2010),
- USFWS Coordination Letter for the Roadside Animal Detection System (RADS) Project at US Highway 41 – Turner River (2010),
- NPS Tamiami Trail Modifications: Next Steps / Final Environmental Impact Statement (2011),
- USACE Ethnographic Study and Evaluation of Traditional Cultural Properties of the Modern Gladesmen Culture (2011),
- USFWS Biological Opinion for the Krome Avenue Widening from US 27 to US 41 (2011),
- USACE / SFWMD Central Everglades Planning Project Proposed Final Array (2012),
- NPS Environmental Assessment for the Designated ORV Trail Heads and Turn Lanes, Big Cypress National Preserve (2012),
- Comprehensive Everglades Planning Project (CEPP): Proposed Final Array (PDT #18) (2012),
- USFWS Biological Opinion for the Big Cypress National Preserve ORV Trail Heads and US 41 Turn Lanes Construction (2012),
- Central Everglades Planning (CEPP) Project Draft Integrated Project Implementation Report (PIR) and Environmental Impact Statement (EIS) (2013),
- Copeland Prairie Mitigation Plan (2013).

Design Guidelines and Methodologies

- DO 87A: NPS Transportation Guidebook and Park Road Standards (1984),
- USFWS Habitat Management Guidelines for Wood Stork in the Southeast Region (1990),
- NPS Guidelines for Evaluating and Documenting Rural Historic Landscapes (1999),
- AASHTO Guide for the Development of Bicycle Facilities (1999),
- Florida Department of Transportation: Bicycle Facilities Planning and Design Handbook (2000),
- USFWS Cape Sable Seaside Sparrow Species Conservation Guidelines (2003),
- Manual on Uniform Traffic Control Devices for Streets and Highways (2003 ed. And 2009 ed.),
- AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities (2004),
- Americans with Disabilities Act Accessible Guidelines (2004 ed. and 2009 ed.),
- USACE / SFWMD Central and Southern Florida Project Comprehensive Everglades Restoration Plan Program Management Plan Master Recreation Plan (2004),
- USFWS Draft Species Conservation Guidelines for American Crocodile (2004),
- USFWS Draft Snail Kite Management Guidelines (2006),
- USFWS National Bald Eagle Management Guidelines (2007),
- USFWS Florida Panther (Puma concolor coryi) Recovery Plan (2008),
- Miami-Dade County Trail Design Guidelines and Standards: Ludlam Trail Case Study (2011),
- USFWS Wood Stork Core Foraging Analysis Methodology (2010),
- Miami-Dade County Trail Benefits Study: Ludlam Trail Case Study (2011),
- AASHTO Guide for the Development of Bicycle Facilities (2012),
- USFWS Panther Habitat Assessment Methodology (2012),
- FDOT Project Traffic Forecasting Handbook (2012),
- FDOT Plans Preparation Manual (PPM) and Standard Indexes (2013).

2.3.2 Significant Guiding Document Summaries

As part of the feasibility study and master plan for ROGG, the project team reviewed 110 guiding documents across the five categories identified above. Although all have some relevance to the planning, design, and future operation of ROGG, several documents have particular relevance to specific aspects of ROGG. This section provides a summary of the 26 of the most relevant documents, the vast majority of which are from the categories of master/management plans, transportation studies, and environmental and cultural resource documents. These documents are summarized and arranged chronologically by category with the oldest articles summarized first to provide the foundation upon which later reports and studies were based. Although the governing codes and ordinances and design guidelines and methodologies are significant for the project, the studies summarized below have particular relevance to specific components or segments of ROGG. Some of the governing codes and ordinances for environmental issues are addressed in Section 2.1 – Context. These summaries are comprised of the name and date of publication of the document, a brief overview of the content and key elements, and an assessment of the relevance of the document to the feasibility assessment and master plan for ROGG.

Governing Codes and Ordinances

South Florida Water Management District (SFWMD) Public Use Rule; 2006

SFWMD has established regulations governing public access to certain District lands with permitted outdoor recreation uses, including those of the WCAs in the ROGG Study Area. The intent of the regulations is to protect water resources, native plant communities, fish and wildlife populations and other natural features along with any historic and cultural improvements. As part of the original C&SF Project, these WCAs included vast swaths of wet prairie, marsh, and tree island landscapes. Adjacent to approximately 20 miles of the ROGG Study Area is the Francis S. Taylor Wildlife Management Area (WCA-3A and WCA-3B). Ownership is a mix of easements and fee by the State of Florida, SFWMD and private ownership, while the FFWCC provides public use management of the area. The following rules pertinent to the feasibility assessment and master plan for ROGG regulate the public use of this area:

40E-7.520 Scope and Applicability
(4) Consistent with the environmental sensitivity of these areas and the purposes for which the lands were acquired, and all rights, privileges, and protections afforded by the provisions of Section 373.1395, F.S., all District lands are hereby deemed open and available to the public for outdoor recreational purposes and access unless otherwise limited, restricted, or prohibited by special provision in this rule. Nothing in this rule shall prevent other federal, state, or local agencies, including but not limited to those with management contracts with the District, from requiring compliance with their own rules, permits, regulations, ordinances, or laws to the fullest extent of their lawful authority.

40E-7.521 Definitions
(16) "Outdoor recreational purposes" means natural resource based outdoor recreational activities including, but not limited to, fishing, hunting, horseback riding, bicycling, swimming, camping, hiking, canoeing, boating, airboating, scuba diving, birding, sailing, jogging, picnicking, nature study, water skiing, and visiting historical, archaeological, scenic or scientific sites.

(23) "Recreational trail" means saddle animal riding, hiking, canoeing, bicycling, or jogging trails for use by the public.

40E-7.528 Bicycling
Bicycling is allowed on vacant undesignated lands and on Right-of-Way on existing canal maintenance berms and levee tops. On all other District lands, bicycling is allowed on designated trails and established roads except where restricted by signs. Lands requiring a Specific Use License for bicycling are identified in Rules 40E-7.538, 40E-7.5381, 40E-7.5382, 40E-7.5383 and 40E-7.5384, F.A.C.

40E-7.532 Operating Hours
District lands shall be open to public use twenty-four (24) hours a day seven (7) days a week except during authorized closures as set forth in subsection 40E-7.523(3), F.A.C., above or unless otherwise specified in Rules 40E-7.538, 40E-7.5381, 40E-7.5382, 40E-7.5383 and 40E-7.5384, F.A.C.

40E-7.5381 Special Provisions for Right-of-Way of the District
The following shall be prohibited on all Right-of-Way of the District; which include rights-of-way, canals, levees, maintenance berms, and spoil mounds:

(9) Pets, with the exception of service animals, leashed animals and animals otherwise under the effective control of the owner.

Relevance to ROGG: Elements of this Public Use Rule with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Public Access** – SFWMD allows for public access and use of many lands adjacent to the ROGG Study Area for outdoor recreation activities. Regulations defined by SFWMD include use of bicycles within levee right-of-ways, along maintenance berms and on levee tops. Direct implications for ROGG include the potential use of SFWMD levees, levee berms and/or levee right-of-ways for the use of hiking, biking or other outdoor recreation uses. In addition, the pedestrian and bicycle access that could occur on levees would also connect to blueway connections for the canals in the system. These canals may be used for canoeing, kayaking or other water related outdoor recreation activities. Coordination with the SFWMD and other regulatory agencies in the region is needed to address public access on private lands with SFWMD easements as well as potential issues associated with using the levees relative to regional hydrological restoration goals. The feasibility assessment and master plan for ROGG included evaluations for the use of the levees and other infrastructure for use as permanent or temporary facilities as well as for potential connection points to other regional greenway systems.

Master/Management Plans

Everglades National Park/Master Plan; 1979

The current Master Plan, approved in 1979, has been used to guide management decisions for the EVER for more than 30 years. The plan established the highest priority of the EVER to protect the wilderness habitats and wildlife species within the park. It emphasized the regional context as it was recognized that planning solely for management inside the park would not take into consideration major external forces such as changes in hydrology, natural environment, and population growth. This regional focus included a call for pursuing partnerships with other similar interests as well as the need to develop a regional master plan for land and water use. The EVER Master Plan identified a general development plan to guide improvements to balance the need to address increasing numbers of visitors with the protection of the park's resources.

The EVER Master Plan included an assessment of critical issues and the identification of management goals and objectives for long-term management of the park. Critical issues identified in the plan included the sustainability of water quality and volume of water entering the park from the north; the encroachment of continued urban, suburban, and agricultural sprawl; the accommodation of an increasing number of visitors; the control of boat access and commercial and sport fishing; adequate environmental research and education; and regional planning and monitoring. Management goals identified in an appendix to the plan included a variety of measures, including the preservation of water flow and the natural environment within the park, collaboration with federal, state, and local agencies to protect park resources; and enhanced measures for visitor access control and environmental education.

Relevance to ROGG: Aspects of the EVER Master Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Regional Cooperation** – The EVER Master Plan provides a clarion call for participation on regional solutions to resource management issues, which has been built upon for the formation and implementation of CERP and other regional restoration activities. The park relies on regional solutions for hydrological inputs to sustain the environmental quality that is part of the aesthetic and character visitors to the park experience. The plan was a catalyst for regional cooperation efforts now being realized through the bridge construction for U.S. 41, CEPP improvements, and other hydrological restoration activities. For ROGG, this regional cooperation provides both an example of methods to successfully address problems and opportunities between human use and resource protection and a setting of public engagement and long-term changes in infrastructure that require accommodation for any potential ROGG facilities.
- **Destination** – The Shark Valley Visitor Use Area of the EVER is a primary destination within the eastern portion of the ROGG Study Area. The EVER Master Plan confirmed this area as a significant visitor contact point in the northern portion of the park due to access from U.S. 41 and called for the continuation of uses still in place today. These include protection of the natural setting, hiking and biking on the Shark Valley Loop Road, concessions for bicycles, and the guided tram service. The recent construction and improvements to the visitor center at Shark Valley were also identified as a need and future improvement within the Master Plan. The feasibility assessment and master plan for ROGG included evaluations for connection points to this destination to both provide additional pedestrian access to the site and a secondary outlet and experience for park visitors. Options to provide or connect to trailhead

amenities including restrooms at the visitor center at the existing facilities were also evaluated.

- **Parking** – The EVER Master Plan identified the need for additional parking facilities at the Shark Valley Visitor Use Area to meet the needs of the increasing visitor base, which is an issue that continues to affect visitor use and resource management at this entrance to the park. However, management objectives to minimize impacts on natural areas and the limited upland areas available at the facility limit the options for additional on-site parking facilities. For ROGG, this limits potential options for establishing Shark Valley as a primary trailhead facility with available parking for ROGG users. However, for those able to park at Shark Valley, the existing bicycle rental concession provides options for future expansion to use ROGG facilities as long as visitors can use the Shark Valley parking areas as a starting location. Opportunities to provide alternative parking facilities either as part of future ROGG facilities or to connect additional parking facilities outside of Shark Valley to the visitor use area using ROGG were evaluated as part of the feasibility assessment and master plan.

- **Resource Protection** – The EVER Master Plan provides a strong management mandate for protection of the park's natural and cultural resources. Expansion of existing facilities or construction of new facilities in or near the EVER that would require impacts to natural resources in the area are subject to extensive public scrutiny and regulatory review. Any new or expanded facilities within the EVER would require NPS approval and would need to address both local impacts to resources as well as potential effects on regional restoration efforts. Opportunities to use existing infrastructure and/or provide additional suitable connections to EVER facilities while being consistent with the resource protection requirements of the plan were evaluated as part of the feasibility assessment and master plan for ROGG.

Entrance drive to EVER Shark Valley Visitor Use Area, looking north towards U.S.41

General Management Plan (GMP) and Final Environmental Impact Statement (FEIS); Big Cypress National Preserve; Collier, Monroe, and Dade Counties, Florida; 1991

The NPS prepared the 1991 GMP/FEIS to guide management activities and decisions for managing natural and cultural resources, guiding visitor use, and development of new or enhanced improvements within the Preserve. The GMP/EIS covers the original boundaries of the Preserve, which comprises the majority of the acreage of the current Preserve. The GMP/FEIS compared four alternatives to determine the best approach for the general management of the Big Cypress National Preserve for a period of 10 to 15 years. The GMP/FEIS identified specific actions for establishing an interpretive program for the Preserve, the types and extent of hunting regulations, ORV access, natural and cultural resource management activities, coordination with native Americans residing in and using the Preserve, and oil and gas exploration. Except for some relatively small privately held in-holdings especially around Ochopee, the central portion of the ROGG Study Area is almost wholly contained within the Big Cypress National Preserve.

Within the ROGG Study Area, the preferred alternative included the enhancements to visitor use and education, requirements for hunting access, establishment of ORV access points and trails, improvements for other recreational activities, restrictions for oil and gas exploration, natural and cultural resource management, and general development improvements. Visitor use benefits of the management plan included a new interpretive program that incorporates expanded educational and visitor orientation materials at trails and wayside parks along U.S. 41, a defined canoe trail at Turner River, improvements and formalization of campgrounds and backcountry shelters, and concessionaire visitor services. Hunting regulations for different management units were established, although hunting was maintained throughout most of the Preserve, including walk-in hunting in the vicinity of U.S. 41. The GMP identified 37 ORV access points throughout the Preserve as well as general ORV regulations, but identified the need for a separate ORV management plan.

Natural resource benefits included hydrologic restoration of wetlands, the specified use of prescribed fire, and special listed species management actions. Prehistoric and archaeological sites were mandated to be protected if found to be eligible for listing on the National Register of Historic Places, while NPS would work closely with resident Miccosukee, Seminole and Independents tribes to address historical and current cultural uses of the Preserve. The GMP restricted oil and gas exploration to 10 percent of the Preserve at any one time. General development activities within the ROGG Study Area included enhancements for the headquarters facilities at Ochopee, improvements to the Oasis Visitor Center, and improvements to Loop Road.

Relevance to ROGG: Aspects of the Big Cypress National Preserve GMP with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Resource Protection** – The Preserve GMP provides a strong management mandate for protection of natural and cultural resources as a primary component of Preserve operation. The GMP provides objectives to minimize impacts to natural and cultural resources as part of the expansion to existing facilities or new facilities in or near the Preserve. As such, potential impacts to these resources for improvement projects are subject to extensive public scrutiny and regulatory review. Any new or expanded facilities within the Preserve for ROGG would require NPS approval and would need to address local impacts to resources, including wetlands, hydrology, and listed species. For future ROGG facilities determined to be feasible that would require impacts to wetlands or listed species within or near the Preserve, mitigation options that enhance hydrological or habitat management goals specified in the GMP and other Preserve documents could support initiatives undertaken in the Preserve. The GMP identifies the need for restrictions on human use of portions of the Preserve used extensively by Florida panthers, which could further limit the types and opportunities for improvements in those areas. Opportunities to use existing infrastructure and/or provide additional suitable connections to Preserve facilities consistent with the resource protection requirements of the GMP were evaluated as part of the feasibility assessment and master plan for ROGG.

- **Destinations** – Facilities identified in the GMP, including the Ochopee Headquarters and visitor center facilities and the Oasis Visitor Center, would provide significant destination locations for ROGG users. Additional facilities such as Kirby Storter Roadside Park and other wayside parks would provide additional rest stops or minor destinations for ROGG users. The majority of these areas include parking facilities sufficient for supporting new trailhead facilities for ROGG users. These facilities also provide interpretive and orientation materials and information for Preserve visitors. These materials could be incorporated into ROGG interpretive and wayfinding requirements or be expanded upon by the interpretive program for ROGG. Segments of ROGG would also assist in appropriately distributing visitor use around the destination locations.

- **Cultural Uses** – The GMP includes management criteria for cultural uses within the Preserve, including protection measures for culturally significant sites and the usual and customary uses for Miccosukee and Seminole Tribes of Florida. Two ceremonial sites are noted as occurring within the Preserve: Corn Dance site 216 and Corn Dance Island 116. The NPS is working with the tribes to protect the privacy and sanctity of these areas. As part of the Superintendent's Compendium that provides specific regulations within the Preserve, a ½-mile buffer around the two is required. These buffers are closed to the public and no new uses will be allowed. In addition, the NPS also coordinates with members of the tribes to allow usual and customary uses such as hunting, fishing and trapping, as well as to accommodate residences for tribal members within the Preserve. Routing options for ROGG included assessments for consistency with the ceremonial site buffers. Future ROGG facilities would need to incorporate design criteria that maintain access for cultural uses as well as access control for shared-use path users in and near cultural use and/or tribal member residences.

- **Hunting and ORV Access** – Hunting is a continuing use within the Preserve with active public participation. The GMP recognized ORV use as a transportation and recreation activity appropriate for the Preserve subject to certain regulations and controls that are more fully evaluated in the ORV Management Plan (see summary on next page). The GMP identified the ORV access points that occurred or would be developed within the ROGG Study Area; pedestrian access by hunters is more widely distributed. Within the ROGG Study Area, hunters and ORV users often park on the shoulders of roads in the Preserve and then walk in to hunting zones or drive their ORVs onto established trails. Future ROGG facilities would need to accommodate the parking needs for hunters and ORV users as well as design considerations for allowing access to the Preserve across ROGG. Portions of the ROGG that can feasibly occur outside of existing roadway ROWs within habitats used for hunting may require seasonal closure during hunting season or require coordination

and/or changes to hunting permit regulations within the vicinity of the facility to limit potential conflicts between hunters and trail users. Portions of ROGG that cross ORV trails will require design considerations to allow for continued ORV access as well as notification for users of the overlapping uses. Design options or alignments of ROGG that limit hunting or ORV access will likely receive extensive public scrutiny.

- **Trail and Campgrounds Connections** – A number of hiking trails, a canoe trail, and campgrounds are identified within the GMP and provide potential connection opportunities and/or minor destinations for ROGG. The approximately 1,300 mile long Florida National Scenic Trail begins in the Preserve at an intersection with U.S. 41 near the Oasis Visitor Center and provides hiking access within the Preserve. Other variably sized trails, including ORV trails, extend from wayside parks, the Oasis and Headquarters properties, and other locations and would provide additional experiences for ROGG users. The Turner River canoe trail can be accessed from a small park on U.S. 41 within the ROGG Study Area. This park provides a limited number of parking spaces and restroom that could be incorporated into a minor trail facility for ROGG users. The GMP formalized several campgrounds, including the Midway, Monument Lake, and Burns Lake campgrounds that occur along U.S. 41 in the ROGG Study Area. All three of these campgrounds include open, previously altered lands that could be used for trailhead facilities for ROGG as well as locations that could be a beginning point for users to access ROGG. The feasibility assessment of ROGG included evaluations of potential connections to existing trail and campground facilities.

- **Oil and Gas Exploration** – Oil and gas exploration and extraction are ongoing activities within the Preserve, but subject to requirements of the GMP. The GMP places limitations on the amount of the Preserve that would be subject to mineral exploration at any one time as well as limitations on exploration in important resource areas. Operations for oil and gas exploration include large truck use on U.S. 41 and north/south roads in the Preserve to well fields. If a future ROGG facility crosses an access road used for production sites, design criteria would be necessary to minimize potential conflicts between users and truck traffic.

- **Fire Management** – The GMP specifies fire management as a significant management tool for vegetation communities, including those in the ROGG Study Area. Prescribed fires would be used to reduce fuel loads and manage wildlife habitat, while wildfire protection measures would be used for non-prescribed fires. Options to incorporate structural fire resistant materials in the design for ROGG facilities as well as design and routing options that accommodate access for Preserve managers to conduct prescribed fires and fight wildfires was considered as part of the ROGG feasibility assessment and master plan.

Big Cypress National Preserve – Addition: Final General Management Plan (FGMP)/ Wilderness Study/ Offroad Vehicle (ORV) Management Plan/ Environmental Impact Statement (EIS); 2010

The NPS added the 147,000 acre "Addition" to the Preserve in 1988, but the Addition was not included in the planning process for the 1991 General Management Plan. The NPS began the development of the GMP for the Addition in 1999 and gathered extensive public input over the planning period for the GMP. The Final GMP for the Addition established a preferred alternative that incorporated the extensive civic engagement to protect natural and cultural resources while providing a diversity of recreational opportunities consistent with the intent of the enabling legislation for the Preserve. In addition to general management guidance, the GMP included an assessment of areas within the Addition that would qualify for wilderness status and an ORV management plan for the Addition. The GMP provides a framework for decisions by the NPS relative to the protection of Addition resources, visitor access and facilities, and long-term management of the Preserve. The ROGG Study Area includes a portion of the Addition, including areas that were subject to management recommendations in the GMP along U.S. 41 and S.R. 29.

The preferred alternative for management of the Addition included a diverse array of front and back country recreational opportunities, interpretive opportunities along road corridors, ORV access opportunities, and passive recreational facilities and opportunities, although most of these were to occur outside of the ROGG Study Area. The majority of the planned facilities, including ORV trails, wilderness areas, and primitive backcountry options were designated near I-75 in the northeast portion of the Preserve. Within the ROGG Study Area, no additional ORV trails or access points were identified in the preferred alternative. The GMP identified the need to amend the Preserve's Commercial Services Plan to include the Addition, including options to provide a range of commercial services, including boat tours south of U.S. 41, within portions of the Addition in the ROGG Study Area. Existing facilities within the Addition at the intersection of U.S. 41 and S.R. 29 would continue to support commercial services and/or partner organizations such as the Sheriff's Office that would operate at this location, including enhancements that would support visitor service needs. The NPS Fire Operations Center would be maintained at the Copeland (S.R. 29) location and expanded as necessary for other NPS operational needs.

Relevance to ROGG: Aspects of the Big Cypress National Preserve Addition Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Commercial Facilities** – The commercial facilities at the intersection of U.S. 41 and S.R./C.R. 29 provide a destination for future ROGG users as well as developed lands potentially suitable for trailhead facilities. The commercial facilities include the Everglades Area Chamber of Commerce Welcome Center that has a small store and restrooms open to the public as well as parking areas for visitors to the Welcome Center. Coupled with the availability of potable water and parking facilities, the broad lawn between the building and U.S. 41 provides an opportunity for a future ROGG trailhead as it occurs on a filled area with limited to no wetlands or other natural or cultural resource restrictions. This area also provides opportunities for future trail connections along C.R. 29 south to Everglades City. Opportunities to utilize the developed parcel in the Addition at this intersection for a trailhead, connections to potential future ROGG facilities along S.R./C.R. 29, and the previously altered conditions of the area were considered as part of the feasibility assessment and master plan for ROGG.

- **Security** – The commercial facilities include a station for the Collier County Sheriff. This station provides an enhanced security presence at the intersection as well as a response area for security along nearby future portions of ROGG. Facilities for ROGG that would be determined to be feasible within the parcel would need to allow access for the Sheriff to the station.

Miami-Dade County Parks and Open Space System Master Plan – A 50-Year, Unifying Vision for A Livable, Sustainable Miami-Dade County; 2007

The Miami-Dade County Parks and Open Space System Master Plan is a 50-year unifying vision for a livable, sustainable Miami-Dade County. An integral part of that vision is the development of a seamless system of greenways, shared-use trails and water trails or blueways. This vision builds upon the corridors described in the North Dade Greenways Master Plan and South Dade Greenway Network Master Plan and further links these into a holistic, seamless system. The identified system weaves through new parks, ties into bike lanes, and channels people into natural resource areas. The Master Plan envisions an interconnected system that provides transportation alternatives and reduces traffic congestion; creates new recreational opportunities; increases property values; protects natural resources; encourages tourism and business development; and strengthens connections to adjacent counties.

Significant elements of the "Great Greenways, Trails and Water Trails Vision" include:

- Consistent, upgraded trail connections throughout the entire System
- Water Access points that are conducive to small craft launching with parking and neighborhood access
- A Greenways and Water Trails wayfinding system that includes Signage/Graphics/Marker System that establishes an identity for the System; informs users and passers-by about trail names, access points, locations and distances; and reduces conflicts by informing both trail users and motorists about trail crossings
- Providing opportunities for users to have shelter from the sun
- Safe, well-marked roadway crossings throughout the System to ensure connectivity across major roads
- Picnic shelters, rest areas, drinking water stations, map kiosks and other amenities throughout the System to enhance the quality of users' experiences
- Increased levels of trail maintenance and law enforcement to help ensure the quality of the greenways and water trails user experience
- Increased user participation and volunteerism in trail improvements and maintenance and security through citizen courtesy patrols or Friends of the Trail groups.

Relevance to ROGG: Aspects of the Miami-Dade County Parks and Open Space System Master Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Greenway Vision** – This Master Plan establishes a vision for connections between and among parks, natural areas, and open spaces to enhance public access, user experience, and educational opportunities for the resources and recreation system within the County. This vision includes goals to establish seamless integration of a network of shared-use path systems to connect neighborhoods, parks and destinations as well as to incorporate multi-modal connections ranging from transit to bicycle trails to pedestrian walking trails in the County greenway system. This vision included a potential path within the general ROGG Study Area as well as connections from this trail along U.S. 41 to the Western Greenway at Krome Avenue. The feasibility assessment and master plan for ROGG included considerations for consistency with the vision outlined in the plan as well as potential connection points to facilitate the envisioned County-wide network.

South Florida Water Management District (SFWMD) Recreation Management And Partnership Plan: Land Stewardship Division; 2011

SFWMD's Recreation Management Partnership Plan provides guidance for managing lands in the 16 county region that extends from Orlando to Key West, FL under its jurisdiction. The plan highlights state statues that mandate SFWMD to provide compatible public access and use of SFWMD lands, which is directly supported by the SFWMD's Public Recreation Access and Use Policy. Florida Statues Section 373.1391(1)(a), states that lands titled to the water management districts shall be managed and maintained to the extent practicable to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition. SFWMD policy allows for compatible nature-based recreation activities, including hiking, birding, wildlife viewing, biking, canoeing, hunting, fishing, equestrian use, boating, and camping. Most of the 1,800 miles of canals, levees and right-of-ways with the jurisdiction of the SFWMD are available for public recreational use consistent with the description above. The Recreation Management and Partnership Plan establishes a series of objectives for SFWMD, including working with the state Office of Greenways and Trails on regional shared-use paths designated by that office.

Relevance to ROGG: Aspects of the SFWMD Recreation Management and Partnership Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Recreation Access** – Recreation management of SFWMD lands seeks to balance access to consumptive and non-consumptive activities as well as provide connectivity to other public lands through greenway partnerships. Since the Office of Greenway and Trails has identified ROGG as a priority greenway route since 2004, options to facilitate ROGG through coordination with and use of lands managed by the SFWMD may provide opportunities to enhance regional greenway networks through the implementation of ROGG. Direct implications for ROGG includes the use of ROGG facilities to meet the plan objectives for SFWMD to provide outdoor recreation activities for both hiking and biking (non-consumptive use) and fishing and hunting (consumptive uses).

Everglades National Park – Final General Management Plan (DGMP) / East Everglades Wilderness Study / Environmental Impact Statement (EIS); 2015

The last comprehensive planning effort for EVER consisted of a GMP completed in 1979, but the NPS is now in the process of preparing a new GMP for the EVER. Since the time of the original GMP, the context for the use and protection of the EVER has changed due to the initiation of regional restoration efforts associated with the CERP, the approval and acquisition of the East Everglades Addition that expanded the park boundary by more than 109,600 acres, and changes in the recreation needs of surrounding populations and visitors to the parks. In addition, the Final GMP identifies management activities to address projected sea level rise of one to two feet over the next 50 years. The Final GMP presents and analyzes four alternatives plans to managing EVER for the next twenty years and beyond. The NPS Preferred Alternative proposes consolidation of commercial airboat concessions in the park and designates approximately 90,000 acres of the East Everglades Addition as either wilderness or potential wilderness.

The Final GMP documents that annual visitor numbers to the EVER have averaged slightly more than one million for the last twenty years with an unreported use in the range of 300,000 to 450,000 annually. Annually, more than 85,000 visitors come for backcountry camping within the EVER. Shark Valley and the Royal Palm entrances have exhibited the fastest increases in the number of visitors, while other entrances have seen declines in the number of visitors. There are large fluctuations in the number of visitors on a monthly basis with as many as 150,000 in February and March and only 30,000 in September. Visits have declined by about 25% in the aftermath of tropical storms Katrina and Wilma. Seventy-five percent of visitors are from outside Florida or the United States (20% international) or are seasonal residents. Canadians, Germans, French, Dutch and British nationals account for approximately 80% of the international visitors to EVER. Twenty-five percent of visitors stay a day or longer in the EVER area, while 11% stay three days or longer. Twenty percent of visitors said visiting EVER was their primary reason for their trip to south Florida.

The standards identified by the EVER for recreational experiences include encountering no more than four groups per day (when more than one mile from a trailhead) in the backcountry of the park during peak season (winter months). At Shark Valley, the standard identified by the EVER is 400 to 500 people within the facility at one time at peak times, including those along the loop road and in the parking/restroom areas. Strategies outlined by the GMP to achieve these standards and goals include:

- Establish new trail opportunities to better distribute use,
- Provide alternative recreation opportunities and direct visitors to those locations,
- Initiate alternative transit and/or shuttle to Shark Valley option (at least during peak season),
- Implement slower speed zone near roosts,
- Educate about low impact practices,
- Add appropriate education/regulations signs,
- Provide real-time parking and access opportunities information.

Relevance to ROGG: Details of the NPS Preferred Alternative in the Final GMP with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Destination** – The Shark Valley Visitor Use Area is a destination for potential ROGG users for environmental education and outdoor passive recreation opportunities. Currently, most visitors access this area by car via U.S. 41 as alternative access options are limited. The GMP identifies establishing new shared-use path opportunities and alternative access options, such as transit or shuttles, to better distribute visitor use and accommodate seasonal visitation rates and assist in meeting the strategies outlined in the GMP for new path opportunities to better distribute visitor use in non-wilderness areas. Although outside of the main ROGG Study Area, the Draft GMP identifies improvements at the Everglades City entrance to the EVER, including a new modest-sized visitor center (Marjory Stoneman Douglas Visitor Center) and canoe/kayak ramp and launch, which would potentially be a long-term destination for a spur from ROGG. Opportunities to use ROGG facilities to expand the trail options and provide more distributed access to the facility were evaluated as part of the feasibility assessment and master plan study. Similarly, options for transit service accommodated or facilitated by ROGG facilities were evaluated.

- **Seasonal Visitation Rates** - Visitation for the park is significantly variable over the course of each year. During peak periods, the high traffic loads and parking requirements can overwhelm the existing parking facilities, resulting in parking in non-designated areas and limited access for later arriving visitors, especially at the Shark Valley Visitor Use Area. Crowded facilities and limited access can compromise visitor experience and decrease opportunities for environmental education for those wishing to attend the park. Shared-use path facilities for ROGG may enhance pedestrian access to the EVER. Opportunities to spread out visitor use and provide additional access options, albeit from longer distances, are options evaluated for ROGG.

- **Airboat Facility Consolidation** – The plan includes the potential for consolidation of commercial airboat operations in the eastern portion of U.S. 41 to one location and the closure of other facilities to public access. This consolidated facility would become a destination location for ROGG, although access to the facility would need to occur consistent with regional hydrological restoration objectives and improvements. As such, access to the facility was considered as part of the ROGG feasibility assessment and master plan study.

- **Environmental Education Improvements** – The plan identifies objectives to expand education and recreation opportunities (hiking, bicycling, wildlife viewing and learning about Everglades restoration and history) along U.S. 41 and the eastern boundary of the EVER in cooperation with public and private entities involved in the Tamiami Trail Next Steps modification projects. This could include a series of visitor information kiosks and turnouts provided along U.S. 41 and an overview of natural and cultural resources and restoration. The visitor orientation and environmental education

components were evaluated as activities that could be incorporated into and/or facilitated by ROGG facilities, including as part of trailheads and as part of an overall wayfinding program within ROGG.

- **Water Access** – The EVER Draft GMP includes a proposal to provide canoe and kayak launches along U.S. 41 at either the L-67 levee extension access at the western edge of the East Addition or at Gator Park. These facilities would provide additional destination stops for ROGG and enhance the types of recreation activities that could be accessed from ROGG. Opportunities to connect to future canoe/kayak launches and establish compatible trail stops at the facilities were evaluated as part of the feasibility assessment and master plan for ROGG.

- **Wilderness Designations** - An east-west strip (1,320 ft. wide) along the boundary of EVER along U.S. 41 is excluded from wilderness consideration. Although primarily to allow for modifications to U.S. 41 for improved water delivery to Shark River Slough, the lack of a wilderness designation provides more flexibility for improvements necessary to address visitor use issues consistent with the GMP as well. Options to use ROGG to address access issues consistent with the GMP requirements for both wilderness and non-wilderness areas within the EVER were evaluated as part of the feasibility assessment and master plan study.

- **Agency / Tribal Coordination** – The draft GMP calls for continued coordination with other agencies and the Miccosukee Tribe to determine feasibility of sharing resources and facilities to meet park and tribe goals. The Miccosukee Village facilities occur west of the Shark Valley Visitor Area and include extensive parking areas for visitors to the Village. Options to accommodate potential connections between the Miccosukee Village and the Shark Valley Visitor Use area were evaluated for ROGG.

Wilderness Eligibility Assessment - Big Cypress National Preserve, Florida (2015)

The BICY wilderness eligibility assessment (WEA) was completed in January, 2015 in accordance with legislative and policy mandates requiring an assessment of wilderness eligibility of all NPS lands. The assessment itself does not define or propose wilderness designation of lands, however, it assessment the eligibility of lands in accordance with the Wilderness Act of 1964 (Public Law 88-577) and NPS Management Policies 2006 (6.2.1). This assessment also is in accordance with the Big Cypress National Preserve Backcountry Access Plan/EIS

Relevance to ROGG: Per the WEA, non-wilderness corridors were defined as a width of 1/2 mile (1/4 mile from the centerline of all established roads, ORV trails, canals) and 1/4 mile from either side of the ROW for road and highways (US 41, SR 29, and I-75). The ROGG Study Area is roughly parallel to US 41 within FDOT ROW. Per the WEA, the ROW of US 41 and 1/4 mile south and north of the ROW limits is not eligible for wilderness designation.

Transportation Studies

Federal Lands Alternative Transportation Systems Study; 2001

The FHWA and FTA undertook an assessment of the transportation needs for all federal lands, including those of the NPS, the Bureau of Land Management, and the USFWS. At the time the document was completed in 2001, the study estimated that approximately $678 million would be needed for alternative transportation systems, defined as transit, on federal lands by 2010. The study outlined TEA-21 and the Transit in Parks Act and justified investment in transit on federal lands as a mitigation measure against traffic, noise, and pollution that severely compromise the visitor experience.

The study listed existing systems in parks and put forth recommendations and estimated costs for transit systems for each. In EVER, visitation is listed as 1,000,000 visitors per year with tram and boat tours documented as the alternative transportation options available. The study recommended improvements to the existing options available but did not recommend a new type of system or additional specific options for alternative transportation for EVER. This study is very broad and provides no specifics on the needs in EVER, nor does it document needs in Big Cypress National Preserve or the state parks in the ROGG Study Area.

Relevance to ROGG: Details of the Federal Lands Alternative Transportation Systems Study with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Transit Planning Guidelines** – The document includes no specific recommendations about alternative transportation options for the federal parks within the ROGG Study Area, but does provide a framework for calculating costs for conceptual transit facilities within public lands. This important framework is captured in Appendix C of the report and provides a list of parameters that impact costs for transit, including assumed transit operating speed, service headway, hours of operation, operating costs for vehicles, capital cost for vehicles and associated facilities, and requirements for vehicle maintenance facilities for the study. For each parameter, it provides potential assumptions that were used in calculating costs. Although these were assumptions for the study, they provide a potential framework for evaluating potential transit services that would be part of or supplement ROGG.

- **Transit Importance** – The document highlights issues such as traffic, noise, and pollution that can compromise visitor experience and opportunities transit presents for addressing these issues for park operations. As visitation has increased in general for federal parks, the desire for the public to experience the parks has also grown. This has led to compromised experiences due significantly to the number of vehicles that need to be accommodated as well as to the number of visitors in total. The results of this study do establish the importance of investment in transit for park lands to mitigate issues on visitor experience and potential impacts to natural and cultural resources. This condition is consistent with the operation at Shark Valley during the peak season, as lines of cars can wait for long periods of time for available parking spaces resulting in people parking their vehicles outside the park iwth U.S. 41 road right-of-way. Options to incorporate transit in ROGG, including existing destinations and locations throughout the length of the ROGG, were evaluated as part of the feasibility assessment and master plan.

Miami-Dade MPO Bicycle Facilities Plan; 2001

This Bicycle Facilities Plan pre-dates the current Bicycle and Pedestrian Plan from 2009 as the guiding document for bicycle facilities in the County. The plan builds on the 1997 Bicycle Plan through a re-assessment of bicycle facility needs, identification and prioritization of bicycle facility projects, and development of a funding plan. The MPO used a quantitative bicycle level of service analysis coupled with a needs analysis to prioritize areas for improved bicycle facilities. All references to facilities along U.S. 41 in the recommendations section are categorized as unfunded and some are also listed as a low priority due to right-of-way constraints.

Relevance to ROGG: Details of the Miami-Dade MPO Bicycle Facilities Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Plan Consistency** – This plan includes a route identified as part of the Bicycle Network along U.S. 41/ SW 8th Ave. extending from downtown Miami to two miles east of Krome Ave. (SW 157th Ave.) with an E or F Level of Service and a Low Latent Demand Score for the segment west from SW 122th Ave.

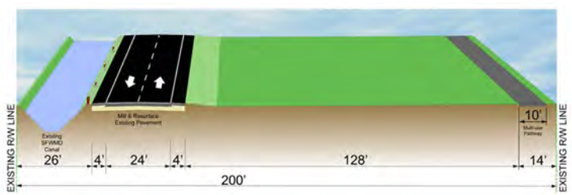
U.S. 41 PD&E Study: Project Development Summary Report; 2008

The Project Development Summary Report for the U.S. 41 PD&E Study documents FDOT's Project Development and Environment Study to assess the widening and reconstruction of U.S. 41 between Collier Boulevard (C.R. 951) and San Marco Drive (C.R. 92). This portion of U.S. 41 connects the urbanized setting of Naples to Collier-Seminole State Park. The report provides recommendations to widen U.S. 41 to a six-lane divided suburban road east to Joseph Lane, convert to a four-lane suburban road from Joseph Lane to 6 L's Road, and to remain as a two-lane road from 6 L's Road to San Marco Road. The report includes a recommendation to resurface the portion of the road that would remain as a two-lane facility. The study also recommends traffic signals at four currently un-signalized intersections.

Relevance to ROGG: Details of the U.S. 41 PD&E Study Project Development Summary Report with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Off-Road Facilities** - Segment 4 (from 6 L's Road to C.R. 92/ San Marco Road), Alternative 4C is the recommended plan and includes a ten foot shared-use path on the south side of the roadway and adjacent to the existing ROW. This includes a separation of 128 feet from the edge of pavement of U.S. 41. The pathway is recommended to extend to Collier-Seminole State Park

at U.S. 41/ C.R. 92 intersection and connect to existing trails within the park. This facility could be incorporated into the ROGG.



Two-lane Typical Section From 6 L's Road to C.R. 92 (San Marco Road), Alternative 4C

Miami-Dade MPO Bicycle and Pedestrian Plan Update; 2009

The Miami-Dade MPO prepared the Bicycle and Pedestrian Plan Update to provide a framework for making Miami-Dade County a model region for cycling and pedestrian activity where the activity is convenient and useful transportation and recreation for a variety of user groups. The purpose of the plan included a variety of elements, including defining goals and objectives for bicycle and pedestrian development in the County, incorporation of planning efforts for pedestrian and bicycling in the County Long-Range Transportation Plan, and guidance for various agencies for bicycle/pedestrian facilities. The Plan includes an existing conditions analysis, needs assessment, and recommendations for the region.

The Plan does not mention U.S. 41 or ROGG in the text, but several maps denote the portion of the highway near Krome Avenue. U.S. 41 is listed as a road with a paved shoulder along some segments that are appropriate for cycling. The document does not include references to ROGG. Several maps accompany the Plan. First, the existing On-Road Bicycle Facilities Map categorizes U.S. 41 as having a paved shoulder and counts it among the total 96 miles of paved shoulders in the region's bicycle facilities inventory. In the Off-Road Bicycle Facilities Map, U.S. 41 is also designated as having an unpaved trail. Despite these designations, the bicycle level of service along U.S. 41 is categorized as very poor. The Plan categorizes each road in the region according to level of need for bicycle infrastructure. U.S. 41 is categorized as having "Very Low Need" for on-road bicycle facilities and "Moderate Need" for off-road.

Relevance to ROGG: Details of the Miami-Dade MPO Bicycle and Pedestrian Plan Update with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Transit / Bicycle Access Integration** - Recommendations for connections between transit facilities and bicycle/pedestrian facilities were presented in the plan to address tourists and recreational cyclists who may prefer exploration via bicycle rather than automobile as well as to provide additional options for residents to access new areas with a bicycle. These recommendations included amenity components, such as providing lockers at transit facilities, as well as programmatic components for transit authorities such as improve access in transit vehicles for bicycles. The feasibility assessment and master plan for ROGG included evaluations of these recommendations for areas where shared-use path facilities and transit overlapped.

- **Evaluation Criteria** – The plan provides evaluation criteria for prioritizing projects within Miami-Dade County consistent with goals established in the plan. These criteria range from safety and level of service provided by a project to measures for connectivity and cost feasibility. The report includes a calculation assessment similar to roadway Level of Service calculations for bicycle use, which is a contributing factor for the evaluation criteria. Although several of the criteria are more urban in focus, the methodology used provides a potential model for evaluation criteria for ROGG segments, including using stakeholder groups to identify and weight the criteria.

- **Funding Sources** – The plan provides an overview of funding sources that were available at the time of publication for bicycle and pedestrian improvements, including traditional and non-traditional sources as well as grant funding. Traditional sources identified include the Transportation Equity Act for the 21st Century (TEA-21) and the Recreational Trail Program (RTP) funds, while non-traditional funding sources identified included Adopt-a-Trail programs, land trusts, and State Water management funds. Grant funding options included REI Environmental Grants and private foundations. The funding sources identified in the plan provide a foundation for additional research for funding sources for the feasibility assessment and master plan for ROGG.

- **Design Options** – The plan identifies design components for a variety of categories that are pertinent to the feasibility assessment and master plan for ROGG, including safety and security, engineering improvements, and education and enforcement strategies. The section for safety and security includes recommendations for addressing the physical design of the facilities for elements such as lane widths and ADA accessible pathways as well as the safety and security principles that assist in behavioral uses of the shared-use paths. Engineering improvement recommendations include physical measures and/or traffic control devices that improve the function of proposed facilities. Education and enforcement strategies include enforcement of traffic rules for both motorized vehicular and bicycling/pedestrian users, police patrols on bicycles for increased safety and security, and Variable Message Signs along roadways to educate motorists.

De-Designation Of The Tamiami Trail National Scenic Byway; 2009

This document summarizes the events leading up to the de-designation of the Tamiami Trail (U.S. 41) as a National Scenic Byway and outlining lessons learned. The original National Scenic Byway designation was applied for in 1998 and received in 2000. Collier MPO voted for de-designation in 2005, although the FDOT advocated for keeping the designation. The roadway was de-designated in 2008. The document also noted that in 2008-2009, Florida had the highest National Scenic Byways funding of any state. The de-designation of the roadway was the first de-designation in Florida and for the National Scenic Byways Program.

Relevance to ROGG: Details of the De-Designation of the Tamiami Trail National Scenic Byway with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Public Support** – This document noted a lack of grassroots support for the ongoing operations of the facility as a designated Scenic Byway as well as misconceptions concerning the federal requirements for designation as leading causes for the de-designation of the corridor as a National Scenic Byway. Perceptions were that the designation would limit access for hunters, require lowered speed limits, and increased level of traffic into Everglades City.

ETDM Summary Report; Project #12596 – River Of Grass Greenway; Planning Screen – Published On 01/29/2010

ETDM Summary Report; Project #12596 – River Of Grass Greenway; Planning Screen – Published On 04/19/2010

ETDM Summary Report; Project #12596 – River Of Grass Greenway; Programming Screen – Published On 03/11/2011

The Efficient Transportation Decision Making (ETDM) Process and the Environmental Screening Tool (EST) facilitate collaboration among regulatory and resource agencies, transportation planners, and affected communities within Florida so that these groups may review and comment on major transportation projects. An Environmental Technical Advisory Team (ETAT) comprised of representatives from planning, regulatory, and resource agencies review the projects in the Planning and Programming Phases to identify potential adverse effects and provide recommendations for mitigating or avoiding those effects. The three phases in the ETDM process include Planning, Programming, and Project Development. The Planning Screen document summarizes the initial screening of the ROGG project completed by the ETAT, provides details concerning agency comments, and provides additional documentation of activities related to the planning phase for the project. The Programming Screen initiates the State Environmental Impact Report (SEIR) for state-funded projects or the NEPA process for federally-funded projects. A portion of the western side of the ROGG Study Area has undergone several EST screenings. These documents review the Phase I of ROGG that extends from San Marco Road (mile marker 28.4) to S.R. 29 (mile marker 44.2).

1. Planning Screen – Published On 01/29/2010

The Planning Screen provided an overview of the proposed project, a summary of ETAT's review of potential effects from the proposed project, and detailed explanations for the effect determinations provided by the reviewing agencies for each category reviewed. Agency responses were received from the EPA, National Marine Fisheries Service (NMFS), FDEP, Natural Resources Conservation Service (NRCS), USACE, USFWS, FFWCC, and the FHWA. Agency comments noted that mobility and social features would be enhanced by the ROGG as the ROGG was identified in several planning documents in Collier County. The agencies determined that there would not be an effect on three categories: farmlands, infrastructure and navigation. The agencies also determined

that effects on air quality, contaminated sites, aesthetics, economic, land use, and relocation elements would be minimal, while effects on floodplains would be moderate. The agencies determined that substantial effects would occur to eight categories: coastal and marine, special designations, water quality and quantity, wetlands, wildlife and habitat, historical and archaeological sites, recreation areas, and Section 4(f) potential. The FHWA determined that secondary and cumulative effects would be moderate due to the potential for road widening activities resulting from potential additional traffic associated with ROGG trail users.

2. Planning Screen – Published On 04/19/2010

The updated Planning Screen provided an update for the proposed project including the participation of the NPS in the planning phase, a summary of ETAT's review of potential effects from the proposed project, and detailed explanations for the effect determinations provided by the reviewing agencies for each category reviewed. Agency responses were received from EPA, NMFS, FDEP, NRCS, USACE, USFWS, FHWA, FFWCC, Florida Department of State SHPO, FDOT District 1, and the Florida Department of Community Affairs. The evaluation of effects on various categories resulted in the same categorization as the initial planning screen, except for the reclassification of the land use category from minimal to moderate. The agencies maintained the determination that substantial effects would occur to eight categories: coastal and marine, special designations, water quality and quantity, wetlands, wildlife and habitat, historical and archaeological sites, recreation areas, and Section 4(f) potential.

3. Programming Screen – Published On 03/11/2011

The Programming Screen contains additional clarification about the anticipated cost of the project and additional funding sources for the planning and design of the system, including through an NPS grant. Transportation plan consistency is addressed and this report updates the Screening with information about how ROGG is consistent with Collier County's 2020 Growth Management Plan and was included in the Collier MPO 2035 LRTP. Agency responses were received from NMFS, FDEP, NRCS, USACE, USFWS, FFWCC, FHWA, Florida Department of State SHPO, FDOT District 1, the Florida Department of Community Affairs, the Miccosukee Tribe of Indians of Florida, and the Seminole Tribe of Florida. The status of six features was reclassified during the Programming Screening. Effects to farmlands, infrastructure, and navigation changed from none to minimal. Effects on water quality and quantity changed from substantial to moderate, and effects on historical and archaeological sites changed from substantial to a potential dispute (programming). Economic effects changed from minimal to enhanced.

Relevance to ROGG: Details of the three ETDM screens for Phase 1 of the ROGG with particular relevance to the feasibility assessment and master plan for the overall ROGG include:

- **Recognized Greenway** – These reports document that the reviewed portion of the ROGG is included on pathways planning maps for the State of Florida Office of Greenways and Trails (highest priority level), North Dade Greenways Master Plan, the CERP Master Recreation Plan, Collier County Comprehensive Pathways Plan, and has been incorporated into the Collier MPO 2035 Long Range Transportation Plan. The reports (including the 03/11/11 Programming Screen) also noted that the FDEP Office of Greenways and Trails "supports the proposed project and has determined that the trail can be built to minimize environmental impacts while maintaining consistency with regional restoration efforts." The inclusion of ROGG on these plans provides avenues of future potential funding for improvements as well as an acknowledgment of the need and purpose for the ROGG.

- **Potential Impacts** – The agencies noted that the project would likely result in impacts to natural resources, including Essential Fish Habitat (EFH) habitats, wetlands, and listed species. The NMFS reviewer noted that there were 26 estuarine creek crossings and that bridging and/or fill activities would affect NMFS resources. Agencies noted that the site occurred in an area with extensive wetlands and would likely result in wetland impacts, although the USACE reviewer did note that the focus should be on minimizing wetland impacts as avoidance of all impacts would be problematic. The USACE did note that the installation of culverts and/or additional bridges under U.S. 41 would likely be effective in mitigating potential impacts. Where wetlands were required, agencies noted that impacts to low-quality wetlands would be more appropriate than to high quality wetland systems. Agencies noted that several listed species were known to occur within the vicinity of the ROGG and that potential impacts to these species would need to be addressed through permitting and mitigation, especially potential impacts to the Florida panther as the proposed alignment extended through the Florida panther Primary Zone. The screens noted that future PD&E studies would require a Biological Assessment to address potential impacts to listed species from the ROGG. Scaling these comments to the entire length of ROGG, potential impacts to EFH, wetlands, and listed species resulting from proposed improvements will require consultation and/or coordination with the NMFS, USACE, USFWS, and other state or federal regulatory agencies through various permitting processes. Evaluations of resource impact minimization options, potential mitigation activities, and the costs and timeframes for permitting processes was included in the feasibility assessment for ROGG.

- **Design Recommendations** – Agencies provided design recommendations to minimize potential impacts to resources, including recommendations for proposed route alternatives, compatibility with regional restoration efforts, and stormwater treatment. Recommendations for route alternatives included placing ROGG on existing filled areas such as the road shoulder or disturbed maintained ROW edges of U.S. 41 to minimize impacts, and minimizing or eliminating improvements within public park lands outside of the U.S. 41 ROW. The FHWA noted that route alternatives that included shared-use path that funneled to existing narrow bridges without additional separation from traffic would likely not be feasible due to safety considerations. Recommendations for compatibility with regional restoration efforts included designing path facilities to aid sheetflow from the Picayune Strand restoration to pass both the path and U.S. 41.

  Recommendations were provided for stormwater treatment and management including complying with regulations for the Big Cypress Area of Critical State Concern. These regulations require management of surface runoff quantity and quality (consistent with OFW standards), and drainage facilities that do not discharge directly to coastal waters. Scaling these comments to the entire length of the ROGG, opportunities to use existing infrastructure that has previously been filled would minimize impacts to the ROGG, although expansions to existing bridges would likely be needed to provide facilities wide enough for shared-use path passage. The ROGG is required to be compatible with regional restoration efforts and should incorporate features to improve hydrology. Finally, opportunities to use the ROGG facilities to treat stormwater runoff both from the ROGG facilities and other untreated areas would be beneficial.

- **Cultural Requirements** – Agency comments noted that the ROGG could result in potential impacts to traditional cultural properties for the tribes, but would likely not have significant impacts to known archaeological and historical resources. The Miccosukee Tribe of Indians of Florida flagged this segment of ROGG as a potential dispute due to potential impacts to traditional cultural properties, including two camps and tribally owned lands. The tribe required consultation prior to advancing elements of the ROGG. Other comments noted a full Cultural Resource Assessment Survey (CRAS) had not yet been completed for the corridor and would be required prior to implementation of the ROGG. As part of the CRAS, determinations concerning the eligibility for the Tamiami Road and Canal and Collier-Seminole State Park for potential listing with the NRHP would need to be conducted. Considerations for the feasibility assessment and master plan for ROGG include the consultation requirements with both the Miccosukee and Seminole Tribes, completion of a CRAS for the entire length, and Section 106 Consultation if NRHP resources are identified within the corridor.

- **Required Regulatory Documents** – The Programming Screen for ROGG West included a substantial list of documentation that would be required as part of the PD&E process and/or as part of other permitting and consultation coordination for the ROGG West corridor. As part of future PD&E documents, the following reports and technical studies would likely be required as part of the initial scoping meetings: Contamination Screening Evaluation Report; Floodplain Assessment; Navigation Study, Bridge Questionnaire, and USCG Bridge Permit; Water Quality Impact Evaluation and ERP; Wetlands Evaluation Report; Endangered Species Biological Assessment; and Section 4(f) Determination of Applicability. Additional federal, state, or local permits would be required, especially if work is required within adjacent public lands. Considerations for the feasibility assessment and master plan for ROGG include the extensive permitting and regulatory requirements for the site that will be required for any future improvements.

Florida Department of Transportation (FDOT) Average Annual Daily Traffic (AADT) Report; 2012

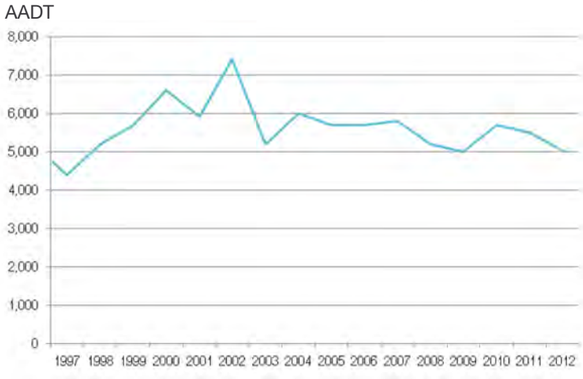
FDOT provides the AADT counts for major corridors in the state on a regular basis, including for U.S. 41. Counts are provided for each year extending back to 1997. Though AADT has fluctuated, the trend in AADT is generally flat over the past 15 years. In 1996, AADT was 5,200, while it was 5,000 in 2012. Though these numbers indicate low traffic volumes overall, they do not account for differences in traffic volumes over the course of the year or during the day. Traffic varies seasonally and is higher in the winter months when more visitors are in the area. Traffic also varies by hour of the day, although the use of U.S. 41 more for recreational traffic than for commuting limits some of the daily variations seen in more urban settings. Peak hour traffic is generally low for rural areas and the percentage of traffic traveling in the peak direction is also different from the typical factors seen in urban areas with a strong commuting pattern. The level of truck traffic as a percent of the total remained generally consistent over the survey period, with some fluctuation.

Relevance to ROGG: Details of the FDOT AADT Report with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Traffic Volumes** – Based on the information in the report, U.S. 41 is a relatively low volume rural roadway with seasonal variations in traffic volumes that vary with visitation rates at the parks in the corridor. Generally, the volumes present on the road would not support widening of the road or other improvements that would warrant the concurrent construction of ROGG. This information also suggests that the configuration and design of the roadway as well as vehicle characteristics such as speed and/or vehicle type have more influence on pedestrians and bicyclists in the corridor than traffic volume.

- **Vehicle Mix** – The AADT includes a relatively high percentage of trucks compared to the total traffic volume at 11.6% in 2012, which is a slight reduction since 2005 when it was at 14.7%. A greater reduction has occurred between 2005 and 2012 in the ROGG West segment at C.R. 92/ San Marco Road where truck traffic of all types has dropped from 15.4% to 8.7%. Large vehicle types such as trucks can affects pedestrian and bicyclist experiences within the corridor and is important to understand the characteristics over time. Opportunities to provide facilities for pedestrians and bicyclists that are separate from the road lanes can assist in mitigating effects of a disproportionate number of large vehicles, which was considered as part of the feasibility assessment and master plan for ROGG.

Figure 2. Historic Average Daily Traffic Counts Along U.S. 41



Collier MPO Comprehensive Pathways Plan; 2012

The Collier MPO created a Comprehensive Pathways Plan in 2012 to provide a framework for a road-based network of bicycle and pedestrian facilities for the County. The Plan also included an assessment of prioritized system needs, and program and policy recommendations to guide project selection. The plan identifies goals, existing conditions analyses, recommendations, and immediate next steps for implementing the system. A detailed table of recommended improvements and cost estimates is included for both bicycle and pedestrian improvements, including projects along U.S. 41 (see **Figure 3**).

The priority needs text and maps note that the paved shoulders available on U.S. 41 east of S.R. 29 are suitable for cycling and no additional bicycle facility need is listed for U.S. 41. Portions of U.S. 41 in Collier County, however, are designated as lacking pedestrian sidewalk or shared-use path improvements. Another recommendation near U.S. 41 is the designation of San Marco Road as an important connector between bicycle facilities, presumably between Marco Island and U.S. 41, which is assumed to have a paved shoulder for cycling. These prioritized needs are listed, but no timeline for implementation is included in the plan.

The Collier MPO Plan specifically discusses the River of Grass Greenway. Following is the Plan's description of ROGG:

"The River of Grass Greenway (ROGG) is proposed to run parallel to Tamiami Trail (US. 41), the ROGG will be a hard-surfaced 12-14 foot wide corridor (separated from the highway) suitable for a range of non-motorized recreation activities such as bicycling, walking, bird-watching, photography, fishing, and general enjoyment of the greater Everglades natural area. ROGG will extend from Krome Avenue (at the eastern edge of Everglades National Park near Miami) to the Naples area, a distance of 76.47 miles. Over 90% of the pathway will go through national and state parks, and will include spurs to nearby historic and cultural centers including Everglades City and the Miccosukee Indian Village. Parks include Everglades National Park, Big Cypress National Preserve, Ten Thousand Islands National Wildlife Refuge, Fakahatchee Strand Preserve State Park, Collier-Seminole State Park, and Picayune Strand State Forest." [sic]

The Plan states that the MPO has typically not prioritized greenways in the past, in favor of making on-road improvements to the network. The Plan recommends consideration of a separate program and funding stream for greenway planning and lists this item as an immediate next step; however, the Plan does not include an implementation plan or specific funding recommendations for this type of program.

Relevance to ROGG: Details of the Collier MPO Comprehensive Pathways Plan with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Identified Needs** – The plan documents a need for improved bicycle and pedestrian facilities within the ROGG Study Area. One need consisted of improvements to add paved shoulders for bicycle use from S.R. 29 to Turner River Road on U.S. 41.

Figure 3. Collier MPO Comprehensive Pathways Plan Prioritized Need; 2012

Segment	Length	Priority	Project	Total Cost	TIP Funding
U.S. 41 East between S.R. 29 and Turner River Road (Completed)	6.67 miles	Low	Paved shoulder, two sides & one side	$753,561	Env 2012/13 DEM $291,593 2013/14 $150,934
U.S. 41 East between Collier Boulevard and Mondago Lane	0.46 miles	High	Paved shoulder, one side	$30,823	CST 2012/2013 CIGP $3,180,888 LFP $8,005,019

Bicycle Priority Needs on U.S. 41

Segment	Length	Priority	Project	Total Cost	TIP Funding
U.S. 41 East between Collier Blvd and Duda Rd	3.62 miles	High	one side and two sides	$771,434	--
U.S. 41 East between Duda Rd and County Boundary	53.13 miles	Low	SW, two sides	$12,182,658	Rural – paved shoulder (most existing) may suffice

Pedestrian Priority Needs on U.S. 41

Bicycle and Pedestrian needs identified in the corridor included paved shoulders on C.R. 29 from U.S. 41 to Everglades City and paved shoulders on U.S. 41 throughout the corridor to the County line. Proposed ROGG facilities would assist in meeting these needs.

- **Regional Connections** – The plan identifies current and needed regional network connections that could become additional access points or potential connections for ROGG. Although needed improvements are not yet funded or programmed, the identification of the needed improvements provides a long-term planning horizon for potential future improvements, which should be considered as part of a long-term implementation plan for ROGG. Future improvements for pedestrian and bicycle use identified in the plan, such as the paved shoulder installation on San Marco Road, provide potential connection points that were considered as part of the ROGG feasibility assessment and master plan.

- **Prioritization Approach** – The plan provides criteria and a scoring approach for prioritizing improvements. The criteria were established by a stakeholder working group as part of the plan development. Although several of the criteria are more urban in focus, the methodology used provides a potential model for evaluation criteria for ROGG segments.

- **Partnerships** – The plan acknowledges ROGG as a promising greenway project for potential implementation and recommends consideration for ROGG for funding. The Collier MPO does not currently have a Greenways and Trails program. However, the plan identifies the need to establish a separate program to focus additional attention on these facilities. The plan notes the ROGG as a need and recommends that it should be considered for funding along with the other described greenways. Continued coordination with the MPO whether through a Greenways and Trails program or other funding program may provide a long-term partner for completion of the ROGG within Collier County.

Environmental Cultural Resource Documents

Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (PEIS); 1999

The C&SF Project is a network of canals, levees, control structures, and water storage areas located in central and south Florida that was established for numerous reasons, including flood control, water reserves for urban and agricultural land uses, recreation, and navigation. Projects completed under the C&SF Project include the construction of levees around Lake Okeechobee, construction of levees to create Water Conservation Areas, the installation of drainage systems in the Everglades Agricultural Area and the lower east coast, and the channelization of the Kissimmee River. The C&SF Project has been in place for over 50 years and has resulted in extensive unforeseen environmental impacts to south Florida ecosystems. Environmental impacts attributed to the C&SF Project include a regional loss in function and resiliency of wetlands, reduced water storage capacity, altered natural marshes that have been impounded or drained, and an increase in the spread of exotic species and polluted water facilitated by the extensive canal and levee system.

The C&SF Comprehensive Review Study, or Restudy, was approved to review the status of the existing C&SF Project and make recommendations on how the C&SF Project could be modified to restore south Florida ecosystems while continuing to meet flood abatement and water supply. The study details the pre-drainage condition for the natural systems that once persisted in the 18,000 square mile study area, the existing conditions, anticipated future conditions in a "without plan" scenario, the recommended plan, and an implementation strategy. The Restudy also provides necessary information on how to comply with environmental requirements and public involvement. The recommended Comprehensive Plan includes an explicit list of construction and operational features, pilot projects, real estate considerations, adaptive assessment and monitoring methodologies, fish and wildlife mitigation, new feasibility studies, future improvements to the plan, and cost estimates and sharing. The USACE approved this document and Congress incorporated it into the Water Resources Development Act of 2000 to provide the framework that guides future modifications to the C&SF Project.

Components of the C&SF Project and/or restoration projects identified in the Restudy occur throughout the ROGG Study Area. The expansive WCA-3 occurs on the north side of U.S. 41 in the eastern portion of the study area. Levees constructed as part of the C&SF Project bound the southern, eastern and western edges of the WCA-3 within the ROGG Study Area, including the L-28, L-29, and L-31. Several canals, including the L-67A and L-67C, occur adjacent to the levees. The Restudy identified the need for modifications to these canals and levees to improve water flow into the Shark Valley Slough. Roads and canals from a failed historical subdivision occur north of the western portion of the ROGG Study Area. CERP identified restoration activities as part of the Picayune Strand Restoration Project to degrade these roads and fill the canals to improve sheetflow and hydrology.

Relevance to ROGG: Details of the CERP with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Regional Hydrological Restoration** – CERP is the primary driver for regional hydrological restoration efforts, which will establish the prevailing physical conditions, improvements and infrastructure that must be accommodated by ROGG. Any aspect of ROGG that would compromise the fundamental objectives or implementation of regional hydrological restoration efforts are considered infeasible for this study. The post-restoration configurations and conditions for infrastructure, water levels, and/or flows underlie the feasibility evaluations of routing alternatives and design options for ROGG. The water levels and flow requirements for post-restoration systems set the baseline for the design of shared-use path surface elevations and stormwater treatment drainage requirements.

- **Infrastructure Availability** – Infrastructure from the C&SF Project, including levees (L-28, L-29, and L-31), canals, and water control structures, occur within the ROGG Study Area and were evaluated for feasibility as alternative routes for the ROGG. However, much or all of several of these levees have been identified for removal as part of the regional hydrological restoration efforts for CERP. CERP states that most or all of the L-28 and L-29 levees are identified for removal, although the near term phasing (next 10+ years) associated with CEPP focuses on the removal of only portions of the L-29 levee between the Blue Shanty flow way to the L-67 canal. As a consequence, the levees may remain in place for some limited period of time until other CERP projects upstream from the levees are completed.

- **Trail Crossings of Structures** – Water control structures are in place in several locations to manage water discharges within canals in the ROGG Study Area. Many of the structures include sufficient space to allow for vehicles to cross the structure, although this space is not always sufficient for both a vehicle and pedestrian to cross at the same time. Where ROGG can feasibly cross structures, potential routing options for ROGG must accommodate operations and security and allow for maintenance vehicle and pedestrian crossings. Modifications to some of these structures are anticipated as part of CEPP and CERP projects, which will provide opportunities to enhance the crossings during structural enhancements. Potential structure crossings were evaluated as part of the feasibility assessment and master plan for ROGG.

Final Recreational Off-Road Vehicle (ORV) Management Plan Supplemental Environmental Impact Statement (SEIS), Big Cypress National Preserve. Collier, Miami-Dade, and Monroe Counties, Florida; 2000

The NPS developed the Recreational ORV Management Plan to provide guidance on the management of ORV use within the 582,000 acres in the original boundaries of the Big Cypress National Preserve. This plan was required by the GMP for the Preserve as well as a 1995 litigation settlement negotiated between the Florida Biodiversity Project and several agencies and bureaus. The preferred alternative considered resource protection mandates of the NPS while providing reasonable recreational access. The document included an analysis of the effects of the preferred alternative on natural resources and visitor experience and found that implementing the preferred alternative would result in substantial beneficial effects to surface water flow, soils, and vegetation, which would limit ORVs to designated trails and reduce the spatial extent of the Preserve affected by ORVs. The visitor experience for ORV users would be affected by limitations on access and by the need to conform with new rules and permit requirements. The document also noted that many visitors who do not use ORVs would perceive a benefit from reduced impacts to the scenic quality of the Preserve.

In the ROGG Study Area, the ORV Management Plan identified trail access points and the need for orientation and education about the ORV trails. The Plan designated four main access points on or near U.S. 41, including the Burns Lake, Skillet Strand (north and south of U.S. 41), Monroe Station (north and south of U.S. 41), and Jetport. In addition, four access points were designated along Loop Road, including Sig Walker, Pace's Dike, Red Bird Lane, and Boundary Line. The Plan identified improvements for these access points primarily consisting of limited parking for ORV users, bulletin boards for information, and backcountry access permit stations, although some facilities would also include bathrooms and trash receptacles. The Plan also included provisions for educating ORV users about access points, permit requirements, and resource requirements of the Preserve.

Relevance to ROGG: Details of the ORV Management Plan Supplemental EIS with particular relevance to the feasibility assessment and master plan for ROGG include:

- **ORV Access** – The use of ORVs has been and is a significant recreational activity within the Preserve. These vehicles allow access to hunting and camping locations, and provide a unique way to experience the natural resources of the Preserve. These vehicles typically move quickly along trails and introduce vehicle noise to surroundings. For portions of ROGG that would occur in the vicinity of ORV trails and access points, educational and informational signs that notify potential ROGG users of the ORV use in vicinity would be needed to reduce potential conflicts. Conversely, notifications would be needed for ORV users and trails for areas where the trails would cross ROGG. In locations where ROGG crosses an ORV trail, the ROGG facilities will need to accommodate the passage of the various ORV vehicles. The development of ROGG highlights potential access to recreation activities consistent with current access provided through use of ORV trails.

- **Trailheads** – The access points designated for ORV use provide opportunities for rest stops and/or trailheads for the ROGG. The improved trailheads at Skillet North, Monroe Station and Paces Dike have separate, gated parking areas for ORV users on a first come / first serve basis. Considerations for the access points that can accommodate ROGG parking as well as ORV parking was considered as part of the feasibility assessment and master plan for ROGG.

- **Public Involvement** – Although ORV users are not the largest group of users within the Preserve, they are very active in advocating for the ORV use in public meetings, through regulatory processes, and other forums. A significant subset of ORV user group have been recreating with ORVs in the lands comprising the Preserve since prior to the formation of the Preserve and were also part of the initial coalition of groups that help get the Preserve established. As such, improvements for ROGG that would result in actual or perceived modifications to ORV access would receive extensive public scrutiny, which may provide limitations on timing, funding, or feasibility of installation of those facilities.

Biological Opinion (BO) For The Final Recreational Off-Road Vehicle Management Plan and Supplemental Environmental Impact Statement (SEIS): Big Cypress National Preserve; Permit No. 4-1-00-F-550; 2000

This Biological Opinion (BO) was issued by the USFWS on July 14, 2000 in conjunction with the ORV Management Plan completed for the Big Cypress National Preserve. Determinations made by the USFWS for the ORV plan included a "no effect" determination for West Indian manatee and eastern indigo snake; a "may affect, but is not likely to adversely affect" determination for the red-cockaded woodpecker, wood stork, Everglade snail kite, Cape Sable seaside sparrow, and bald eagle; and a "may affect, likely to adversely affect" determination for the Florida panther. The BO provided detailed documentation about Florida panthers in the vicinity of the Preserve, including documentation that the Preserve contained the home range for 38% of the known Florida panther population at the time of publication. In addition, documentation of the anticipated effects was provided for the other species for which effect determinations were made. Based on the analyses included in the BO, the USFWS made a determination that the ORV Plan would not likely jeopardize the Florida panther. Consistent with the conditions of this BO, NPS reduced trails in Bear Island and initiated research and monitoring in Bear Island and other areas to assure that ORV use is compatible with panther use.

Relevance to ROGG: Details of the ORV Management Plan Biological Opinion with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Species Involved** – The ORV Plan BO included effect designations for Florida panther, Cape Sable seaside sparrow, eastern indigo snake, West Indian manatee, wood stork, bald eagle, red-cockaded woodpecker, and Everglade snail kite. For all or parts of ROGG determined to be feasible, final design and engineering will more specifically determine the impact to these or other state listed species. Improvements for ROGG would likely require consultation and coordination for all or a subset of these species with the USFWS, even if similar determinations ultimately result in determinations of "may affect, not likely to adversely affect."

- **Florida Panther** – The BO included a summary of the permitting history and mitigation requirements for a variety of projects for which impacts to Florida panthers were anticipated or proposed. The majority of these projects required the acquisition of habitat and/or purchase of panther habitat units from a certified mitigation bank to address potential impacts caused by the project. These mitigation measures were considered as part of the feasibility assessment and master plan for ROGG.

- **Public Involvement** – Potential impacts to listed species resulting from construction projects can be subject to extensive public review and comment as part of coordination and consultation efforts required for various permits and reviews. In the past, regulatory review of potential environmental impacts has resulted in extensive public input. Potential improvements associated with ROGG that will require adverse effects to the populations of listed species in the area will be subject to extensive public scrutiny.

Scenic Corridor Visitor Safety Highway Improvements Environmental Assessment (EA); 2001

The NPS prepared this EA to assess the feasibility of the improvement or establishment of ten interpretive stations (turnouts) along U.S. 41, Turner River Road, and Loop Road within Big Cypress National Preserve. These stations were identified to improve safety, decrease accidents, and improve visitor experience on U.S. 41 that is otherwise compromised by the lack of adequate turnouts, high traffic speeds, and visitor tendencies to pull off the road in undesignated areas. Seven of the identified interpretive stations, including the Preserve headquarters, Dona Drive, HP Williams Picnic Area, Turner River canoe access, Burns Lake campground, Kirby Storter Park, and Monument Lake campground, occur along U.S. 41. Two of the proposed stations occur along Loop Road (Gator Hook and Sweetwater Strand), while the Turner River Trailhead occurs on Turner River Road. Elements such as bulletin cases for safety and interpretive information, deceleration and acceleration lanes at parking areas, controlled parking facilities, stormwater facilities, elevated boardwalks, and restrooms were typically included for each site. The EA noted that wetland impacts would result from site developments including new kiosks, acceleration/deceleration lanes along U.S. 41, parking facilities, restrooms, boardwalks, and viewing platforms. The EA concluded that the Preferred Alternative would provide safer access for visitors to experience the Big Cypress National Preserve due to safer turnouts, improved interpretive opportunities, and a reduced number of traffic accidents.

Relevance to ROGG: Details of the Scenic Corridor Visitor Safety Highway Improvements Environmental Assessment with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Pull-Off Parking** – Current visitor practices include visitation not only to defined parking facilities associated with wayside parks, Oasis Visitor Center, and the Welcome Center, but also opportunistic parking in the maintained ROW of U.S. 41 to view resources of the Preserve. Similarly, hunters and other residents often park on the sides of the road to access hunting or recreational areas in the Preserve. Through years of use, some areas have become informal pullout locations. These informal pullout locations typically are inadequately sized and/or occur in areas with limitations on sight lines. This EA included public comments that noted a continued desire for this practice of engaging in undefined parking along the U.S. 41 maintained ROW. This practice distributes visitors throughout the Preserve, but does expose visitors to potential conflicts with traffic on U.S. 41. In addition, pull-off parking in the maintained ROW has the potential to be restricted or in conflict with shared-use path facilities that would be placed in the maintained ROW as part of ROGG. Facilities for ROGG that would constrain pull-off parking would likely be subject to extensive public scrutiny during public review processes.

- **Turn Lanes** – The EA included alternatives that included turn lanes at the formal wayside parks to improve motorized vehicular access. These turn lanes would provide opportunities for vehicles to be out of the main lane of traffic for deceleration or acceleration and improve safe turns into and out of facilities. ROGG facilities that would be placed on the maintained ROW would need to accommodate the additional width of the turn lanes for the road section.

- **Trail Amenities/Trailheads** – The turnout areas provide opportunities for trailheads and/or shared-use path rest stop amenities that would supplement ROGG. The parking facilities at these turnouts could provide short-term parking for ROGG users, while restrooms and boardwalks at the turnouts could limit their need facilities in other portions of the ROGG. The ROGG could build upon the materials available at the turnouts for an expanded interpretive program.

Historic American Buildings Survey: Monroe Station; 2007

The building at Monroe Station was added to the NRHP in 2000 due to its history as a way station along U.S. 41 and the exploration and visitation patterns that it supported. In 2007, the NPS conducted a building survey that documented the history of the building as well as the historical context in which it occurred. This report summarized the history of construction, original and subsequent occupants, original architecture, alterations and additions, and the historical context that the building served as a police station and stop along the Tamiami Trail. The report notes that the building is a rare example of vernacular roadside architecture from the dawn of American highway construction.

Relevance to ROGG: Details of the Historic American Buildings Survey for Monroe Station with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Historical Cultural Resource** – The Monroe Station building is an example of a cultural resource representative of the historical uses and activities on U.S. 41. As such, it is an opportunity for interpretation as well as a potential constraint to future improvements in the area. The listing of the building on the NRPH requires that modifications to the building undergo Section 106 coordination with SHPO to evaluate potential adverse effects. The survey for Monroe Station serves as an example of the level of detail that may be needed for improvements in and around potential cultural resources along ROGG.

- **Wayside Park** – The wayside park character of the building and adjacent parking facilities provides opportunities for future trailhead and parking connections for ROGG consistent with ORV access trailhead improvements. Opportunities to incorporate the building and/or the setting of the facility in the trailhead plan were evaluated as part of the feasibility assessment and master plan for ROGG.

Documentation and Evaluation of Coopertown (8Da6767) And The Airboat Association of Florida (8Da6768) And An Assessment of Effects of Modifications to Tamiami Trail: Next Steps Draft Environmental Impact Statement (DEIS), Miami-Dade County; 2009

During July 2009, New South Associates conducted a study in Miami-Dade County to support the Tamiami Trail Modifications "Next Steps" EIS and comply with Section 106 of the National Historic Preservation Act. The EIS was related to the construction of additional bridging on the U.S. 41 to increase flow of water between the Everglades north and south of the highway. An architectural history survey was conducted and re-evaluation was performed on two properties previously recorded in the project area: Coopertown Restaurant and Airboat Rides (8DA6767) and the Airboat Association of Florida (8DA6768). Both of these properties have been determined eligible for listing in the National Register of Historic Places. Additionally, the Airboat Association of Florida property was evaluated to determine if remains over 50 years old were present, although no such remains were discovered. A third location, the Miccosukee Osceola Camp, was also proposed for recording and assessment of structures and for evaluation as a possible TCP, but access to the property was not granted.

This report included a discussion of proposed design alternatives and a consideration of their respective effects on the historic resources at Coopertown and at the Airboat Association property as well as on U.S. 41 (8DA6510) and Shark River Slough National Register Archaeological District. Because access to Osceola Camp was denied, it is unknown whether this location contains structures over 50 years old that should be recorded and evaluated. The EIS determined that only Coopertown would experience direct adverse effects from all of the proposed alternatives associated with the U.S. 41 road raising and bridge construction work. The preferred alternative included the construction of a 1.75-mile bridge in front of Coopertown, which would require access ramps and other infrastructure to reach the property.

Relevance to ROGG: Details of the Evaluation of Coopertown and Airboat Association of Florida with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Cultural Resource Assessments** – The Airboat Association and Coopertown Restaurant represent historical complexes for the tourism trade along U.S. 41. Similar to Monroe Station, improvements to properties like these subject to listing on the NRPH would require Section 106 coordination with SHPO to evaluate potential adverse effects. The survey for these facilities serves as an example of the level of detail that may be needed for improvements in and around potential cultural resources that would be required for ROGG.

- **U.S. 41 Historical Designation** – This assessment noted that U.S. 41 was eligible for listing on the NRPH since the facility was constructed more than 50 years ago. The analysis of effects on cultural resources in the document noted that addressing the hydrological impact caused by U.S. 41 through the Tamiami Trail Next Steps project could not be completed without affecting the highway. For ROGG, the designation of U.S. 41 as potentially eligible for listing on the NRPH would need to be addressed through appropriate consultation with SHPO for improvements that may be required on historical road facilities, although some improvements, such as improvements for hydrological conveyance, may be acceptable pending the consultation.

Environmental Assessment (EA) for The Loop Road Improvements, Big Cypress National Preserve, Florida; 2010

The NPS proposed to rehabilitate and repair damage along 16.53 miles of Loop Road to improve safe access for visitors and improve drainage under the roadway. Loop Road is the main scenic drive through Big Cypress National Preserve that provides access to the Loop Road Education Center and is used by thousands of visitors each year. The proposed project included rehabilitation of five miles of paved portions of the road and 11.53 miles of unpaved portions of the road by raising the road surface elevation, replacing old culverts, and installing new culverts to facilitate water flow under the roadbed. This rehabilitation was necessary in part due to damage from Hurricane Wilma in 2005 that resulted in degradation of the roadway. In some locations, road degradation included erosion of the road shoulders and a potential safety hazard for users. Resource topics included in the EA included water quality, hydrology, wetlands, wildlife, special status species, cultural landscape, and visitor use, recreational resources, and transportation. No major impacts were anticipated as a result of the project. NPS found that the preferred alternative would have no adverse effect on the historic character of Loop Road, which was concurred with by SHPO.

Relevance to ROGG: Details of the Loop Road Improvements Environmental Assessment with particular relevance to the feasibility study and master plan for ROGG include:

- **Routing Alternative** – Loop Road serves as an alignment alternative for the ROGG feasibility assessment and master plan as it provides an alternate route separate from U.S. 41. The road ROW is sufficient for the existing facilities, but is not sufficient for additional widening that would be required to provide a separated shared-use path facility next to the road. The use of this route alternative for ROGG would require ROGG path user access control in the residential portions of Loop Road to limit potential impacts to private landholders. If incorporated into ROGG, additional trailheads or rest stops would be required along portions of the road due to the length from Monroe Station at the western terminus to the eastern terminus at U.S. 41 near the Miccosukee Village. The NPS has planned several future ORV access points along the Loop Road that may provide joint facilities for ROGG.

- **Loop Road Surfacing** – Portions of the eastern end of the road that provides access to residential houses has been paved, while the remainder of the facility is surfaced with aggregate. Public comments provided in the EA noted a desire to maintain the historical character of Loop Road, including maintaining the non-paved surface. The proposed improvements for the EA provided stabilized road surface sufficient for some bicycling uses. Additional minor changes that enhance the surface through the removal of larger aggregate chunks would assist in improving the surface for bicycling. The feasibility assessment and master plan for ROGG included an evaluation of potential road surfaces that would sustain bicycle use within the context of the public comments concerning surfacing conditions provided in the EA.

- **Hydrological Restoration** – Similar to U.S. 41, the Loop Road restricts the natural sheetflow of the region. The Preferred Alternative included the installation of culverts distribute water under the roadway. Additional opportunities to add culverts or bridges in areas where sheetflow enhancements are needed may provide mitigation for potential wetland impacts in the ROGG.

Tamiami Trail Modifications (TTM): Next Steps/Environmental Impact Statement (EIS) – Everglades National Park, Florida; 2011

In response to Congressional direction, the NPS prepared the Tamiami Trail Modifications: Next Steps EIS to evaluate additional bridging modifications to U.S. 41 to more fully restore hydrology in the EVER and Northeast Shark River Slough. These evaluations expanded upon the one mile bridge identified in Mod Waters and was required to be compatible with CERP. These evaluations included several assumptions, including providing access to commercial airboat operators and Native American camps located along U.S. 41 and a 0.5 mile buffer between all bridge approaches and Native American Indian camps located within the project area. The NPS determined that an alternative with 5.5 miles of bridging (Alternative 6e) most closely met the objectives of the project, while preserving important historic, cultural, and natural resources within EVER.

Within the ROGG Study Area, the preferred alternative consisted of the construction of six bridges ranging in length from 0.4 mile to 2.6 miles and elevating the remainder of the roadway to allow for higher water elevations in the L-29 canal. This alternative also included bridge down ramps to service the Everglades Safari and Coopertown sites. The primary long-term recreational impact identified within the EIS was the removal of bank fishing in areas with new bridges. The EIS did assess the feasibility for adding a shared-use path to the proposed bridges and elevated roadways. However, the Preferred Alternative did not include a separate path on the bridges or road, due in part to the anticipated costs ($6 million per mile for bridges and $600,000 per mile for the road). The existing TTM bridge did include ten foot wide curb lanes on the bridge. The EIS noted that an analysis of impacts from a path would be required if the path was added to the final design of the project.

Relevance to ROGG: Details of the Tamiami Trail Next Steps EIS with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Section Limitations** – The construction of bridges and elevation of the roadway within the eastern portion of the ROGG Study Area will limit the potential for shared-use path facilities to be placed on existing infrastructure. The elevated roadway sections include two 12-foot wide travel lanes with a five-foot paved shoulder and an additional 6.5 foot wide grassed shoulder on each side of the roadway. The shoulders would be bordered by a guardrail. Sections for the bridges were anticipated to be 44 feet between parapet faces, which includes two 12-foot wide travel lanes and 10-foot shoulders. The design of the bridges included in the EIS did not include a separate bike trail facility. The shoulder widths identified in the EIS as well as the guardrail location would preclude the construction of a separated bike trail facility within the proposed sections. However, the wide shoulders would accommodate an on-street bike lane, although this lane could be interrupted by emergency pull-offs.

  Routing options for ROGG within the improved U.S. 41 resulting from this EIS would require on-street trail configurations or modifications to the existing design to add a separated shared-use path facility. For effectiveness, incorporation of a separate path would need to be included prior to the final design of construction plans for bridges. The feasibility assessment and master plan for ROGG included evaluations of on-street, add-on separated paths, and path facilities that were incorporated into revised designs for the bridges and roadway.

U.S. 41 (S.R. 90) Tamiami Trail Project Development and Environment (PD&E) Study: Environmental Determination; 2011

This Type 2 Categorical Exclusion study evaluated potential impacts for the proposed shoulder widening and guardrail installation along a 32.3 mile portion of U.S. 41 extending from S.R. 29 in Collier County to the Collier County/Miami-Dade County line. The focus of the shoulder work was to extend the paved shoulder on each side by two feet for a total of a four foot paved shoulder. Guardrails would also be replaced on bridge structures and approaches. These improvements were proposed within the existing ROW. The document included an assessment of social, cultural, physical, and environmental impacts. Also included were details from public hearings and other public outreach conducted as part of the assessment. The work authorized under this PD&E was completed in spring and summer of 2013.

Relevance to ROGG: Details of the U.S. 41 Tamiami Trail PD&E Study Environmental Determination with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Cultural Resources** – A CRAS was completed along the 32 mile corridor that found seven previously recorded resources and 46 newly recorded resources within the U.S. 41 ROW. All 46 newly recorded resources were found to be not eligible for listing on the NRHP. A CRAS will likely be required for any additional improvements associated with future ROGG facilities.

Environmental Assessment (EA); Designated ORV Trailheads and Turn Lanes; Big Cypress National Preserve, Florida; 2012

The NPS completed this EA for the Big Cypress National Preserve to assess the feasibility of trailheads and turn lane construction at access points designated in the previous ORV Management Plan. The Preferred Alternative covered improvements at eight of the 15 access points originally identified in the ORV Management Plan, including Skillet Strand (north and south), and Monroe Station South access points on U.S. 41 and Sig Walker, Pace's Dike, and Boundary Line access points on the Loop Road. Except for Skillet Strand South, all of these access points previously existed in at least some rudimentary form. Trailhead improvements included stabilized parking surfaces for automobiles and vehicles with trailers, single vault toilets, trash receptacles, interpretive and orientation signs, and backcountry permit stations.

In addition to the trailheads, the EA addressed the installation of turn lanes for five key intersections with U.S. 41: Turner River Road, Burns Road, Skillet Strand trailheads, Monroe Station South trailhead, and the entrance to the Oasis Visitor Center. These turn lanes were designed to FDOT standards and proposed to address safe access to the facilities. Benefits of the Preferred Alternative included safe vehicle access, improved ORV and passenger parking, improved passive recreation amenities, and improved traffic movement. Adverse impacts addressed for the Preferred Alternative included impacts to wetlands, floodplain, and Florida panther habitat.

This EA included consultation with the USFWS that resulted in a BO for impacts to federally listed species that would result from the proposed project. This BO, included in a memorandum with Service Consultation Code: 2012-I-0139, included a "no effect" determination for West Indian manatee, American crocodile, and eastern indigo snake; a "may affect, not likely to adversely affect" determination for the wood stork; and a "may affect, likely to adversely affect" determination for the Florida panther. As per the Terms and Conditions of this BO, NPS would purchase 258 Panther Habitat Units and 10.62 kg of short-hydroperiod and 7.89 kg of long-hydroperiod wood stork forage biomass from a Service-approved mitigation bank as part of the mitigation to offset impacts to these species.

Relevance to ROGG: Details of the Designated ORV Trailheads and Turn Lanes EA with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Access Point Facilities** – The ORV access points include the construction of parking areas and other amenities that would benefit ROGG users. Opportunities to connect ROGG to these facilities and incorporate them into the trailheads and rest stops for ROGG would limit the need for additional facilities in other areas of the Preserve. In addition, the footprint for new ROGG facilities would be smaller and limited to the path itself for more areas, which would lessen the potential impacts that could result from ROGG for new trailhead facilities. This needs to be balanced with the requirements of parking vehicles with trailers that are using the access points for ORV access, although the parking for ORVs will be separate from motorized vehicular parking at these access points. Still, operational considerations for maintaining ORV trailer parking is a consideration when joint use of the access points between ORVs and ROGG would occur.

- **Road Improvements** – The turn lane improvements would enhance the safety of access for vehicles into several facilities along U.S. 41. Potential alignments for ROGG on the road shoulder would need to accommodate the expanded lane widths of these turn lanes. In addition, the design of the intersection of ROGG with the roadways served by these turn lanes needs to include sight lines and other visual clues for the vehicles in the turn lanes and ROGG users that an intersection is approaching. If ROGG users are required to cross a section of roadway with a turn lane, options to move the intersection away from the turn lane or to cross the turn lane consistent with FDOT standards and guidelines would need to be explored for ROGG.

- **Listed Species Permitting** – The listed species addressed in this EA would likely be similar to those that would need to be addressed for ROGG. The majority of the facilities proposed in the EA occur adjacent to U.S. 41 and/or Loop Road within similar habitat types to the ROGG Study Area. The USFWS determined that mitigation was required for potential impacts to wood storks and Florida panthers for this EA, which would likely be a similar requirement for ROGG. Mitigation for these impacts consisted of the

purchase of credits for Florida panther habitat and wood stork forage biomass. Mitigation for potential impacts resulting from ROGG would likely include purchase of credits from a mitigation bank.

Draft Integrated Project Implementation Report and Environmental Impact Statement (EIS): Central Everglades Planning Project (CEPP); 2013

The purpose of CEPP is to advance restoration efforts in the central portions of the Everglades, including routing more freshwater (approximately two-thirds of the estimated flow estimated to be provided by CERP) into the EVER through improvements to a variety of elements of the C&SF Project as described in Section 2.1 - Context. Components of the CEPP that occur within the ROGG Study Area include removal of a portion of the L-29 levee, removal of portions of the Old Tamiami Trail, levee modifications in the southwest corner of WCA 3B including the construction of the new Blue Shanty levee, and recreation elements. The Draft PIR/EIS provided an implementation timeline of approximately 14 years, although it also noted that this timeline is dependent on the completion of other CERP and non-CERP projects with full implementation likely extending more than 20 years. The Draft PIR/EIS provided a phasing approach for implementing the CEPP components, with the components that occur in the ROGG Study Area generally being shown as later phases. Upon finalization, the PIR/EIS will be submitted to Congress for funding.

Relevance to ROGG: Details of the CEPP PIR/EIS with particular relevance to the feasibility assessment and master plan for ROGG include:

- **Levee Modifications for WCA 3B** – Based on the current draft plan, CEPP includes several modifications to the levee system in the southern portion of WCA-3 to improve sheetflow into the EVER. Approximately 4.3 miles of the L-29 levee along U.S. 41 will be removed to allow sheetflow under the 2.6 mile bridge identified in the Tamiami Trails Next Steps project. A new levee known as the Blue Shanty levee would be installed at the eastern end of the L-29 removal and extend from U.S. 41 to the L-67A levee. The L-67C will be removed between the Blue Shanty levee and U.S. 41. The levee removal for the L-29 removes potential infrastructure that could be available for ROGG. However, the connection of the Blue Shanty levee to the L-67A levee maintains a longer connection of infrastructure that could be connected to potential ROGG facilities. The removal of the 4.3 mile long segment of the L-29 removes a portion of existing infrastructure that could be used for ROGG. Coupled with the bridge design selected in Tamiami Trail Next Steps, the removal of the levee causes a gap in existing infrastructure available and/or programmed improvements other than on-road bicycle lanes or wide curb lanes that would maintain direct access along the U.S. 41 corridor for this 4.3 mile segment.

  The Blue Shanty levee and L-67C provide a potential route separate from U.S. 41 around this gap, but this potential route would be significantly longer than a direct connection. In addition, the use of this longer route for a separate loop route would still be limited by the lack of existing infrastructure or programmed improvements on U.S. 41 between the two levees. The feasibility assessment and master plan for ROGG included evaluations for potential routing alternatives and improvements that would provide direct connections along U.S. 41 and/or provide a potential loop trail connection between the Blue Shanty levee and L-67C levee.

- **Recreation Elements** – The recreation plan for CEPP includes several maintained, enhanced, or new improvements within the ROGG Study Area. On the north side of U.S. 41 at the S-333 structure for the L-67 canal, the plan designates that the existing boat ramp would be relocated to maintain access to WCA-3A and WCA-3B and additional improvements, including a restroom, shelter, and trailhead parking facilities, would be provided for connections to "blueways and greenways". Bicycle and pedestrian access from the L-29 levee will be re-routed along north along the L-67A levee to the new Blue Shanty levee and return to the L-29 levee. The existing parking area at the S-334 site near the eastern terminus of the ROGG Study Area will be maintained and a kayak launch and shelter will be added. The parking and restroom facilities at the S-334 and S-333N sites provide opportunities for trailheads for the ROGG. The removal of the L-29 levee limits a direct east/west trail on a levee within the area, although the recreation plan maintains pedestrian access on the remaining portions of the L-29 levee.

  In addition, the recreation plan identifies an alternative, albeit longer, multi-use or shared-use path connection option that extends along the Blue Shanty flow way and the L-67A levee. This bicycle and pedestrian access provides a connection point for recreation access to the northern portions of the CEPP study area and other regional greenway systems. The recreation plan for CEPP identifies shared-use paths on the new Blue Shanty levee and the portions of the L-29 and L-67A that would remain after the CEPP projects are completed that could be integrated into or connected to ROGG. The parking areas and improvements identified in the plan would potentially be available for trailhead facilities for ROGG.

- **Old Tamiami Trail Removal** – Approximately six miles of the Old Tamiami Trail between the EVER Tram Road near Shark Valley Visitor Center and the L-67 Extension Levee are identified for removal as part of CEPP, which is the majority of the trail east of the Miccosukee Village. The Old Tamiami Trail provides an existing piece of infrastructure with a paved surface that could be available for use by ROGG. The banks of the facility are dominated by shrubs, including exotic invasive species, which limits views into the adjacent habitats, but provides shade for people using the old roadbed. For ROGG, the Old Tamiami Trail provides an existing piece of infrastructure that could be available temporarily for shared-use path use, although this would need to be done consistent with and in a manner that does not compromise hydrological restoration goals.

Literature Review Summary

The Literature Review included the review of a broad set of documents relevant to the planning and design of ROGG. All potential uses would need to be consistent with and in a manner that does not compromise restoration goals. Other significant findings from these guiding documents include:

The **South Florida Water Management District (SFWMD) Public Use Rule** (2006) allows for public access and use of many lands adjacent to the ROGG Study Area for outdoor recreation activities including the use of bicycles within levee right-of-ways, along maintenance berms and on levee tops. Direct implications for ROGG include the potential use of SFWMD levees, levee berms and/or levee right-of-ways with a right-of-way occupancy permit for use of hiking, biking or other outdoor recreation uses.

Recreation management of SFWMD lands by the **SFWMD Recreation Management and Partnership Plan** (2011) seeks to balance access to consumptive and non-consumptive activities as well as provide connectivity to other public lands through greenway partnerships. The ROGG is a priority greenway route by the FDEP's Office of Greenways and Trails (OGT). This designation, in coordination with lands managed by the SFWMD may provide opportunities to enhance regional greenway networks through the implementation of ROGG and meet the plan objectives for SFWMD to provide outdoor recreation activities for both hiking and biking (non-consumptive use) and fishing and hunting (consumptive uses).

The **ETDM Summary Report; Project #12596 – River Of Grass Greenway; Planning Screen & Program Screen** reports document that the reviewed portion of the ROGG (ROGG West) is included on pathways planning maps for the State of Florida OGT (highest priority level), North Dade Greenways Master Plan, the CERP Master Recreation Plan, Collier County Comprehensive Pathways Plan, and has been incorporated into the Collier MPO 2030 Long Range Transportation Plan. The inclusion of ROGG on these plans provides avenues of future potential funding for improvements as well as an acknowledgment of the need and purpose for the ROGG.

The **Draft Integrated Project Implementation Report And Environmental Impact Statement: Central Everglades Planning Project (CEPP)** includes planned improvements for the Blue Shanty levee and L-67C provide a potential route separate from U.S. 41 around an identified gap in direct trail connections along U.S. 41 due to the proposed removed of 4.3 miles of the L-29 Levee. In addition, the recreation plan for CEPP includes several maintained, enhanced, or new improvements within the ROGG Study Area such as enhanced pedestrian connections access along the Blue Shanty and L-67A levee with connections to recreation areas in the northern regions of the CEPP study area. The CEPP proposal also includes the removal of approximately six miles of the Old Tamiami Trail east of the Miccosukee Village area. This represents removal of existing infrastructure that could be available temporarily for shared-use path use.

2.4 COMPARABLES

Photo Credit: Peter Dooling

"A first-rate trails system can only be created by people."

– President's Commission on American Outdoors, 1987

Introduction

The first three sections of the Research and Analysis chapter focused on the context, existing conditions, and review of studies, reports, and regulatory documents for the ROGG Study Area. **This section provides analysis of comparable projects that have successfully addressed similar issues or situations as those identified for ROGG. To that end, the purpose of this section was to review best practices used in the design and implementation of comparable greenway projects and assess lessons learned that can be applied to ROGG**.

Three elements comprise this section: 1) Comparable Descriptions, 2) Best Practices, and 3) Lessons Learned. The Comparable Descriptions element describes successful projects from around the world within seven categories of trails or trail elements similar to conditions found within the Study Area. The Best Practices element identifies principles and criteria for planning, constructing, and operating shared-use path systems as well as best practices for design, construction, and maintenance identified in the project examples. The Lessons Learned element summarizes findings concerning path planning and development relative to the Comparable Descriptions and Best Practices for consideration of the ROGG.

2.4.1 Comparable Descriptions

The ROGG Study Area is an ecologically and culturally unique area of the world. While there is no single greenway project that replicates the exact conditions and constraints of the ROGG Study Area, there are a variety of projects around the world that offer successful solutions to issues relevant to the feasibility study and master plan for the ROGG. Comparable greenway projects within the following categories were reviewed as part of the feasibility study and master plan process because of similarities to conditions observed in the ROGG Study Area. The seven categories referenced below include comparables from projects that represent iconic or inspirational shared-use paths to projects that are exemplary of relatively localized issues such as low impact shared-use paths. The following are the seven categories researched:

1. Inspirational / iconic paths;
2. Paths of significant scale;
3. Paths within two-lane highway right-of-way;
4. Paths located on retrofitted highway bridges (culverts and large length bridges);
5. Paths associated with levee rights-of way, water control structures, and canals;
6. Paths in environmentally sensitive landscapes, including wetlands;
7. Heritage Paths.

For each category, a brief description is provided followed by one to three specific project example summaries. Following the project summaries, descriptions of the anticipated ROGG user groups are provided.

Inspirational / Iconic Paths

While there are many inspirational destinations throughout the world, there are few that are connected or traversed by functioning long distance shared-use paths that cater specifically to the unique travel needs and desires of bicyclists and pedestrians. Some of those locations and countries that have taken advantage of this emerging form of eco-tourism have developed networks of shared-use paths that link users to stunning natural landscapes and significant cultural sites, thereby incorporating the journey into the experience of the sites. Three inspirational and iconic greenways located in the Czech Republic, Canada, and along the Danube River in Central Europe are profiled.

Prague to Vienna Greenway

Within the Czech Republic, a long distance greenway shared-use path known as the Prague to Vienna Greenway links together two of Europe's most celebrated and historic cities: Prague in the Czech Republic and Vienna in Austria. The greenway consists of a 250-mile long network of hiking and biking shared-use paths through the Moravian and Bohemian regions of the republic. Travelers can walk or bike between historic towns and villages, visit castles, medieval churches and monasteries, discover old Jewish settlements, and soak in some of the most picturesque countrysides in all of Europe. The greenway stretches along the Vltava River Valley in Southern Bohemia and the Dyje River Valley in Southern Moravia.

Greenways are valued portions of the civil and social infrastructure within the Czech Republic. They are thought of as routes, shared-use paths or natural corridors used in harmony with their ecological function. Moreover, they foster the preservation of natural and cultural heritage, provide options for safe transportation, recreation and tourism, and encourage a healthier lifestyle.

The Prague to Vienna Greenway is a project of the Greenways-Zelene Stezky organization, which is a member of the Environmental Partnership for Sustainable Development (Nadace Partnerstvi) in Brno, Czech Republic. The objective of the organization is to restore and preserve the natural and cultural heritage of the region and develop sustainable tourism. In 2001, local civic groups, cultural associations, small business owners, and town and village governments joined together to form the Prague-Vienna Greenways Association.

Prague to Vienna Greenway, Europe

Prague to Vienna Greenway, Europe natural trail surface

Trans Canada Trail

More than 30 members now cooperate on local projects, organization of events, and sustainable tourism. Local businesses seek and are conferred "certified" status so that as a visitor travels along the greenway, they encounter certified hotels, pubs, restaurants, bike shops and other businesses that cater to greenway tourists.

The Prague to Vienna Greenway enables visitors to journey along centuries-old salt, silver and amber trade routes to discover interesting off-the-beaten path places, many of which had been closed for 40 years behind the Iron Curtain of the Cold War. Visitors have the capacity to access historic castles and villages and are afforded opportunities to view architectural monuments, some of which have been declared World Heritage Sites by UNESCO. The Greenway provides access to locales where trail users can taste Moravian wines and Czech beer and attend concerts and festivals.

Relevance to ROGG: The opportunity to observe and experience natural beauty, connect to social and tourist opportunities, and experience the unique setting along long distance travel are similar attributes of the Prague to Vienna Greenway and the ROGG. In addition, the Prague to Vienna Greenway provides a unique example of a greenway system that provides infrastructure used more than just for recreation uses.

Trans Canada Trail

The Trans Canada Trail is the world's longest network of recreational trails that, when fully connected, will stretch 14,000 miles from the Atlantic to the Pacific to the Arctic oceans. More than 10,400 miles of trail were usable in 2012, making it approximately 73% complete. Two hundred forty gaps totaling 3,900 miles remain to be connected to achieve a fully integrated and connected trail. The Trans Canada Trail planning team hopes to close these gaps before the trail's 25th anniversary and Canada's 150th anniversary in 2017 to reach this objective.

The concept of the Trans Canada Trail was created during the nation's 125th anniversary celebration in 1992. The network of trails comprised of more than 400 community trails varies significantly, ranging from wilderness routes to urban greenways that extend through the heart of Canada's largest cities. The Trail makes use of footpaths and hiking trails, abandoned rail corridors, levees, utility corridors, and urban pathways. The Trail supports a wide variety of users, including hikers, bicyclists, equestrians, cross country skiers, and other sanctioned users.

Map of Trans Canada Trail (red and blue line indicate route)

Cyclists on the Trans Canada Trail

The Trans Canada Trail is being developed through the support of two oversight organizations: A Charitable Organization and a Foundation. The Charitable Organization is responsible for overseeing the development and construction of the Trans Canada Trail by working in partnership with territorial and provincial trail organizations and more than 400 local trail groups, municipalities, and conservation authorities that manage and maintain local trails. The Charitable Organization also grants funds to partner organizations, making it possible for them to develop trails that showcase distinct features. The Charitable Organization promotes and markets the Trail and communicates progress in construction of the system. The Foundation, which was incorporated as a non-profit corporation in October 2010, is responsible for raising funds to support the advancement of the Trans Canada Trail. The Foundation has launched a national campaign to raise the $150 million needed to complete the Trail by 2017.

Relevance to ROGG: Even short tourist opportunities along segments of the national greenway offer significant access to a wide variety of natural features and cultural landscapes, similar to opportunities present in the ROGG Study Area. The coordination for the Trans Canada Trail between multiple jurisdictions and interest groups provides an example for ROGG of cooperative efforts to complete a unique and inspirational shared-use path system.

Danube River Trail, Europe

What is possibly the most spectacular of all long distance greenways in the world, the Danube River Trail extends through Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria and the Ukraine. Also referred to as the Danube Cycle Path, this trail encompasses a total distance of approximately 1,790 miles, ranging from the Black Forest community of Donaueschingen, Germany to the Black Sea. The cycle path is part of the EuroVelo Route EV6 and winds its way through a diverse landscape, including mountainous terrain, famous towns and cities, nature reserves, monasteries, and unique geologic features. The trail links some of Europe's finest and historic cities, including Budapest, Bratislava and Vienna.

Much of the route for the cycle track follows a system of levees that extend parallel to the river and offer flood protection and water management. There is no formal organization that manages and maintains the cycle path. Each of the nine countries that the trail touches maintains the pathway to a different standard. A non-profit group, Danube-Cycle-Path, provides information about the most developed and accessible stretches of the pathway in Germany, Austria, Slovakia and Hungary. Services offered to tourists include bicycle rentals, lodging and restaurants that cater to cycle tourists.

Relevance to ROGG: Components of the Danube River Trail that are particularly comparable to ROGG include long-distance trail connections, travel through picturesque and/or unique settings, use of levee systems for trail networks, and connections to services for tourism.

Paths of Significant Scale

Trail systems of similar lengths to the ROGG occur in various locations in the world, both as part of larger shared-use path networks and as individual shared-use paths connecting specific locations. These shared-use path systems provide opportunities for an array of cyclists and hikers as well as point-to-point connections between towns and villages. These systems can occur adjacent to roadways or on separate facilities on levees or abandoned rail corridors. Two greenways with lengths similar to ROGG located in the Netherlands and Idaho are profiled.

LF5 Trail – Netherlands

Cycling in the Netherlands is a popular method of transportation with over 38% of all trips in Amsterdam made by bicycles, compared to about 1% in the United States. With over 30 years of bicycle-friendly policies implemented across the country, path development has grown beyond a daily benefit of residents' lives into a major tourism draw for the country. In order to facilitate a path network capable of drawing foreign tourists, unique experiences and a seamless integration of cycling into infrastructure is needed.

Trail Loops within the Netherlands

Map of long-distance trails throughout the Netherlands (http://holland.cyclingaroundtheworld.nl/Wheretogo/WhereToGo-LongDistance.html)

With over 300 posted routes by the Dutch Automobile Association, the Netherlands offers a vast array of user experiences for cyclists and hikers. Most routes connect to form loops, with the upper range of distance between 125 and 250 miles. The LF5 Trail is a segment of the overall trail network that travels 50 miles along the lowlands of the Netherlands, connecting visitors to each town and village's visitor center. The trail travels on dikes and along roadways throughout the lowlands.

Relevance to ROGG: Components of the LF5 Trail relevant to ROGG include successful implementation of shared-use paths on levees and dikes and connections to other regional trail systems for increased user experiences and trail loops. These trail loops provide users unique natural experiences, while also creating a system of tourism and recreation focused opportunities. This approach for recreational tourism based on trails is similar to the efforts of the FDEP Office of Greenways and Trails.

Trail of the Coeur d'Alenes, Idaho

Located in the scenic Silver Valley areas of Idaho, the Trail of the Coeur d'Alenes stretches over 71 miles in length. The Trail of the Coeur d'Alenes is a rail-to-trail project which offers three distinct user experiences; prairie to lake setting (downhill); river to lake setting (flat) and Silver Valley (uphill). These unique experiences divide the trail into manageable sections.

Rich in history of exploration and Native American culture, the Trail of the Coeur d'Alenes builds on what use to be a fur trading route and later a railroad which connected gold and silver boom towns. Over development of mining facilities eventually led to environmental deterioration of the Coeur d'Alene Lake and drainage area by 1990s. A successful lawsuit by the Coeur d'Alene Tribal Council led to the formation of a 21 square mile Superfund site, the nation's second largest, and included a $30 million clean-up fund for the rail corridor. In 2000, rail ties and up to eight feet of contaminated rail-bed was removed from the corridor, with development of the trail to cap the remaining pollutants completed in 2003. Similar to the much of the ROGG corridor, the Trail of the Coeur d'Alenes was born out of one of the largest restoration efforts in the country, and provides a solution for the continued exploration of a scenic landscape.

Managed by the Idaho Department of Parks and Recreation, the Trail of the Coeur d'Alenes requires daily management activities by several jurisdictions with law enforcement provided by both municipal and County jurisdictions. A 14.5-mile segment is managed by the Coeur d'Alene Indians who also represent three of the six seats on the Trail Commission.

Relevance to ROGG: Components of the Trail relevant to ROGG include successful implementation of a shared-use path within a large scale environmental restoration effort, coordination of development, implementation and management of the path with a Native American group, coordination across multiple jurisdictions, and unique experiences in different sections of the path.

Paths within Two-Lane Highway Rights of Way

Along the 75-mile length of the ROGG Study Area, it will be necessary for shared-use path route and alignment to extend parallel to sections of the U.S. 41 corridor. Multiple options for traversing the U.S. 41 corridor are available, ranging from bike lanes to separate facilities within the non-maintained portions of the road ROW. Shared-use paths separated from traffic flow by structural buffers or physical separation can improve safe use of the path and enhance user experience by removing traffic concerns. For portions of the corridor, path route and alignments may require using existing bridges to support path structures. One of the most prominent shared-use paths with a number of segments similar to these conditions is the East Coast Greenway.

East Coast Greenway, United States

Though approximately 29% of the East Coast Greenway (ECG) is now off-road and automobile traffic-free, the majority of this landmark greenway relies upon on-road routes and linkages. Stretching from the U.S. and Canadian border in Calais, ME to Key West, FL, and made up of over 100 independent trails, the East Coast Greenway was launched in 1991 by a group of ten bicycling advocates. The initial route was entirely on-road facilities until 1996 when the first 56 miles of off-road trail opened in multiple areas in the Northeast and Mid-Atlantic areas. A number of the areas with off-road facilities are located within existing highway rights-of-way, as shown with the image of a segment of the ECG in Rhode Island.

The ECG has developed route selection guidelines and interim on-road route guidelines and procedures. Though neither set of guidelines established a distance requirement for facility separation or a minimal standards

Walkers on the Danube River Trail, Europe

Cyclists traveling on the Danube River Trail, Europe

A cyclist on the LF5 Trail located on a dike, Netherlands - Photo Credit : Jane Hudall

Trail of the Coeur d'Alene, ID

Amenities along the Trail of the Coeur d'Alene, ID

East Coast Greenway in Rhode Island with spatial separation from nearby roadway (Photo courtesy of the East Coast Greenway)

for on-road bike lanes, the guidelines do establish the need for directness of the route, safety and comfort of users. The Route Selection Guidelines establish criteria for permanent routes and interim on-road routes to maintain continuous route connections. These criteria include recommendations for surfacing, width, and location. Application of these criteria is intended to facilitate the placement of the shared-use path that is physically or spatially separated from nearby roadways or highways, but still within publicly accessible lands or easements, where possible.

Relevance to ROGG: Elements of the ECG that pertain to the planning and design of ROGG include the establishment of criteria for on-road and off-road shared-use path facilities with the goal to separate the shared-use path facilities from roadways, emphasis on a continuous route, and criteria for directness of route, safety and comfort of users.

Seminole Trail, Florida

The Seminole Tribe of Florida in Hendry County received a $3.7 million Transportation Investment Generating Economic Recovery (TIGER) grant in 2011 to fund a 2.25 mile roadway improvement project on the tribe's Big Cypress Reservation in Hendry County, FL. The existing roadway was a narrow 20 foot route with worn, unpaved shoulders. The project was designed to enhance safety and accessibility for tribe members, improving a designated hurricane evacuation route and enhancing access to commercial and tourist destinations on the reservation.

Relevance to ROGG: The Seminole Trail is intended to increase mobility for pedestrians and bicyclists to the commercial and tourist destinations within the reservation, similar to conditions found along the ROGG Study Area. The project also identifies path widths and surfacing for a south Florida trail project adjacent to an existing roadway, which provides input on path widths that could be used for ROGG.

Paths Located on Retrofitted Highway Bridges

The restoration of the Everglades includes the construction of multiple new bridges ranging in length from 0.38 mile to 2.6 miles to replace the existing U.S. 41 roadway, thereby allowing water to flow more freely under the road. The first bridge constructed as part of this program was 1.0 mile in length and did not include a separate shared-use path facility. Bridges in other parts of the country have been retrofitted to accommodate a

Case Study: St. Georges Bridge, St. Georges, DE

The St. Georges Bridge carries the South Dupont Highway/ U.S. 13 across the Chesapeake and Delaware Canal (C & D), which connects the Chesapeake Bay with the Delaware River. From 1942 until 2008, the bridge was dedicated to four lanes of automobile traffic, which provided two lanes in each direction.

In 2005, the Delaware Department of Transportation and the USACE, commissioned a study to evaluate the feasibility and cost of a number of options for installing a bicycle and pedestrian path that would be cantilevered on the outside of the then-existing four lane road bed. The recommended option would have placed a bidirectional bicycle and pedestrian path on the western side of the bridge, preserving the four lanes of traffic that existed at the time. The plan was not implemented. However, the goal of accommodating cyclists on the St. Georges Bridge was not abandoned.

When the USACE decided the bridge would be repaired, instead of permanently closed, they worked with local bicycle advocacy organizations and the Delaware Department of Transportation to create bike lanes on the bridge. When the bridge reopened, there was one bike lane in each direction, replacing one vehicle travel lane on each side of the bridge. No additional width was added to the bridge, and there is no physical barrier between the bike lanes and the motor vehicle lanes, though there is a wide buffer. The bridge is extremely popular with recreational cyclists, despite its high elevation (133 feet over the C & D at its highest point) and length of 2.5 miles.

Future Canal Trail Connection

The St. Georges Bridge will provide an important link across the canal for the future Michael Castle Trail, a 16-mile trail along the C & D Canal's north bank. The shared-use path will feature facilities for cyclists, pedestrians, and equestrians. Planned amenities include trail markers, restrooms, parking, information kiosks, picnic areas, and repaired piers for fishing. The design also incorporates solar-powered restroom facilities with composting toilets, pervious asphalt, and trail furniture built of recycled materials. After eight years of planning and development, the nine-mile first Phase is currently under construction.

Design

The road bed is paved and striped to create one 8.5-foot bike lane in each direction. The bike lanes are separated from traffic by a four-foot buffer and contained on the outer edge of the bridge by a 54-inch railing on the approach and a taller protective fence on the bridge itself. Bike lane buffers contain orange tubular markers that break away when struck by a vehicle. Since the project was part of a larger resurfacing project, the cost to re-stripe was minimal.

Connections

The St. Georges Bridge is the only bridge across the canal with dedicated bicycle lanes. The Reedy Point Bridge to the east has wide shoulders, but no designated lanes. These two bridges create an ideal recreational loop for cyclists. The bridge also connects to bicycle routes east to Fort Dupont State Park, Augustine Wildlife Area, and the Silver Run Wildlife Area to the southeast. To the west, the bridge provides a link to Lums Pond State Park, the largest freshwater lake in the state. The bridge provides a critical north-south connection for recreational riders traveling south from the cities of Newark and New Castle

St. Georges Bridge, St. Georges, DE with space and physical separator

shared-use path facility parallel to the roadway through various means. These have included: the reconfiguration of the width of the roadway on the bridge, the construction of a separate and adjacent bridge structure for the path, and the addition of a cantilevered path structure on the margin of the bridge. Path alignment options for ROGG considered the use of the new bridges as part of the ROGG system. Two profiles are provided: one of a successful bridge retro-fit project and one set of shared-use path design standards. A case study of a retrofitted bridge in Delaware is also highlighted.

Missouri River Bridge Attachment, Jefferson City, Missouri

The Missouri River Pedestrian/Bike Bridge is a new structure attached to the northbound side of the Highway 54 Missouri River Bridge that is dedicated exclusively for bicycle and pedestrian access. With the attachment, pedestrians and bicyclists are now able to easily and safely cross the Missouri River Bridge.

The new bridge attachment is eight feet wide, fully ADA accessible, and includes two lookout points with a spectacular views of the Missouri State Capitol and the Jefferson City, MO riverfront. The undercarriage of the bridge illustrates its construction methods, using steel ribs to support a steel superstructure. The total cost of the Missouri River Pedestrian Bridge was $6.7 million, $5.6 million of which came from the federal Bicycle/ Pedestrian Enhancements program. The remaining $1.1 million was funded jointly by the Missouri Department of Natural Resources, Jefferson City, and the Missouri State Parks Foundation. A partnership between these entities and the Missouri Department of Transportation allowed this project to become a reality.

Relevance to ROGG: Components of the Missouri River Pedestrian Bridge relevant to ROGG include successful implementation of adding a shared-use path structure to an existing bridge and partnerships for funding the improvement.

Minnesota Department of Transportation – Bikeway Facility Design Manual

The Minnesota Department of Transportation included a chapter about bridges and grade separations in its Bikeway Facility Design Manual. Though many bike facilities are being built in the Twin Cities, the guide is meant for cycling facilities across the state, in urban and rural settings.

The manual discusses three main methods for accommodating bicycles on a bridge:

- A separate, shared-use path on one side of the bridge is best if the bridge path will connect with a shared-use path at both ends, there is sufficient width on the bridge on the side of the path, and the path can be physically separated from motor vehicle traffic
- Paved shoulders or bicycle lanes on the bridge are best when a shared-use path has transitioned into bicycle lanes at one or both ends of the bridge, restriping can create sufficient width, and there is a separate sidewalk to accommodate pedestrians
- An existing sidewalk can be used if it is wide enough for both cyclists and pedestrians (at least eight feet), but it is not usually recommended, especially when the sidewalk is raised and no railing exists

The manual offers a number of best practices, including the following:

- Expansion joints can be made “bicycle-safe” by installing them as close to a 90 degree angle as possible to the direction of movement on the trail
- When assessing bridge conditions for bicycle compatibility, the facility should be considered under wet conditions since many metals used in bridges become dangerously slick when wet
- A minimum cross slope of 1% is necessary for drainage, but no more than 2% is recommended to accommodate path users with mobility impairments
- A separate, off-road facility is best when motorized vehicular traffic on the bridge is high-speed and high-volume
- The width of the bicycle facility on the bridge should be the same width as the on-road facility on the approach, with an additional two feet added to accommodate the shy distance from the bridge’s railing or barrier
- Three types of railings are allowed for use on bicycle facilities: the first is designed for motor vehicles, the second for bicycles and pedestrians, and the third for both. If traffic exceeds 45 mph, a railing designed for motor vehicles is required between the bicycle lane and motor vehicle lane. If less than 40 mph, the railing can be of the type designed for both motor vehicles and bicycles. This railing must be a minimum of 4.5 feet high.

Relevance to ROGG: Components of the Minnesota Bikeway Facility Design Manual relevant to ROGG include application of the three main methods for accommodating bicycles on bridges in addition to the identification of criteria that could be used for establishing railing, slope, width and materials for ROGG.

Case Study: New Orleans Levee-Top Trail, New Orleans, LA

The New Orleans Levee-Top Trail is a shared-use path extending for 25 miles west from Audubon Park in New Orleans to Destrehan Plantation in St. Charles Parish. The path is constructed along the levee of the east bank of the Mississippi River and is part of the larger 3,000 mile Mississippi River Trail. Locally, the Levee-Top Trail is known as the Mississippi Levee Trail. The path is heavily used by a wide range of cyclists, including commuters and college students, as well as both recreational riders and long-distance cyclists out for training rides. Pedestrians, dog walkers, and roller-bladers also use the path.

I The goal for many regional planners and advocates is to pave the levee trail for the entirety of the distance between Baton Rouge and New Orleans. Through the design of the trail, the USACE worked very closely with the Louisiana Department of Transportation and parishes and municipalities that had studied or constructed paved paths on top of the levee. In the early 1990s, the local parishes worked with the USACE to design and construct the path, converting the existing clam shell and crushed limestone paths on top of the levees into a paved bikeway. Many stakeholders anticipated economic benefits from tourism that would result from having a separated bike path over 100 miles long in the region. The USACE continues to work with private companies and landowners along the levee to ensure access.

Design

The levee trail is paved with asphalt and is ten feet wide. Design and construction was conducted in conjunction with the levee districts and the USACE to ensure safety, compliance with levee design standards, and coordination with ongoing levee maintenance as a result of Hurricane Katrina (for new sections of the trail).

The levee path is generally on the top of the levee. One exception is on the New Orleans portion of the path where limitations on access to the levee occurs because the path traverses the USACE headquarters. In this area, the path is bordered by a fence on both sides and runs along the levee bench between the levee and the railroad tracks.

Amenities

The path has sign posts and trash receptacles every few miles, but no major amenities outside of the parks that it intersect. A few benches are available along the path, but the path does not have lighting.

Connections

The shared-use path begins in Audubon Park, which houses the New Orleans Zoo and borders both Tulane University and Loyola University and then travels through residential neighborhoods in East Carrollton and through the western suburb of Metairie. The path passes through numerous parks and open spaces, including Jefferson Park, Colonial Golf Course, and Morgan Playground, before extending past the Louis Armstrong Airport. St. Charles Cemetery and Jefferson Memorial Gardens are two additional open spaces along the path. The Oschner Hospital is located adjacent to the path, and employees often utilize the path for recreation. The path ends at Dehestran Plantation, a 224 year old plantation that is the oldest documented in the lower Mississippi. Along the way, the path passes numerous commercial establishments and small businesses in Orleans Parish as well as in Jefferson and St. Charles parishes.

Crossings

There are approximately 30 maintenance road crossings along the levee trail between Audubon Park and Destrehan Plantation. The at-grade crossings are typically unpaved with minimal traffic since the crossings only lead to single industrial businesses on the river or maintenance facilities.

Cyclists on the New Orleans Levee-Top Trail, New Orleans, LA

Missouri River Bridge, Jefferson City, MO, under construction

Lake Okeechobee Scenic Trail, Trail user and USACE maintenance vehicle

Lake Okeechobee Scenic Trail, FL (on top of USACE-managed levee system)

Paths Associated with Levee Rights-of-Ways, Water Control Structures, and Canals

There are miles of existing earthen levee systems located within the ROGG Study Area that were built many years ago as part of regional drainage and water control alterations and continue to be operated by the SFWMD. Although regional restoration plans for the Everglades have targeted portions or all of these levees for removal, the ones that remain as part of the seepage control, flood control, or other water management activities may provide platforms for shared-use path connections separate from the U.S. 41 roadway. One option for ROGG is to use portions of the existing system of levees to support path development. Throughout the country, there are many examples of shared-use paths that are constructed on top of levee systems.

The ROGG Study Area includes several water control structures in the ROGG East segment that are used to manage water levels in canals and the WCAs, several of which provide public access to the associated levees from U.S. 41. The main purpose for these structures is water management, which requires access by managing agencies to maintain and operate the structure. However, public access is also allowed over several of these structures in the ROGG Study Area, including access from U.S. 41 over the S-333 and S-334 structures in the L-29 Canal. This public access occurs via the existing 12-foot wide maintenance access road. This access can include both pass-through public use to access the adjacent levees and/or site-based access for fishing at or near the structure. Pass-through use includes vehicles, cyclists and hikers that currently cross these structures to gain access to existing boat ramps or passive use along levees.

Site-based access by fisherman often occurs at the structures as the flows passing through the structures provide high quality locations for fishing. These flows can be turbulent and dangerous upstream from the structures during most conditions, while downstream flows can also be significant during high water conditions. Providing public access over water control structures increases the potential vandalism, which can have significant ramifications if equipment is damaged before or during high water conditions. Safety features such as fencing or physical barriers provide some protection against vandalism, but may limit fishing access. For ROGG, crossing water control structures and/or canals is needed to establish a fully connected shared-use path or greenway system. Brief profiles of two trails located on levee systems with passage over or around water control structures located in the Florida and Kentucky are provided as well as a detailed case study of a levee trail in Louisiana.

Lake Okeechobee Scenic Trail, Florida

One does not have to travel very far from the ROGG Study Area in south Florida to find one of the nation's most successful shared-use path projects built on a USACE-managed levee system. The Lake Okeechobee Scenic Trail (LOST) is a 110-mile shared-use path system that was built on top of levees and across USACE-managed water control structures. Originally developed by the U.S. Department of Agricultural and U.S. Forest Service as a segment of the Florida National Scenic Trail (FNST), the trail was a natural surface hiking route atop the 35-foot high Herbert Hoover Dike surrounding Lake Okeechobee. In the mid-1990s, FDOT and representatives of USACE, FDEP and SFWMD, hosted a series of public meetings to discuss improving the trail surface to make it suitable for multiple types of recreation uses and outlined each agencies role in implementation. SFWMD coordinated with FDOT to assure safe circumnavigation of several water control structures and continued access to the dike.

The final trail configuration consisted of a 10 to 12-foot wide, paved and partially gravel levee system trail for walking, hiking, biking, skating and horseback riding adjacent to the paved trail surface. The trail is also used by USACE for maintenance and monitoring of water control structures and the dike. Multiple, simultaneous use of levee trails can be compatible with coordination between agency and user groups.

Relevance to ROGG: Components of the LOST relevant to ROGG includes the successful implementation of a levee shared-use path in Florida with many of the same managing entities involved in the path development as would be needed for ROGG. In addition, it represents an example of the use of paved shared-use path surfaces for a levee path and operations and maintenance that are compatible with a paved trail surface on a levee.

LOST provides examples of ways in which shared-use path access across water control structures can be accommodated. Including both on structure and off-structure crossings, the LOST demonstrates that structure crossings can be completed for structures managed by the USACE that are critical to a regional scale water management projects. This includes path crossings that accommodate operation and maintenance protocol and safety measures for the structures and waterbodies. The LOST provides an example of safety features such as fencing and physical barriers, to separate pedestrian routes from structures.

Ohio River Levee Trail, Louisville, KY, located on top of a USACE levee

Steel bridge crossing of the New River Canal along the Lake Okeechobee Scenic Trail, FL

Water Control Structure S-333 along the L-29 Canal with existing vehicle and pedestrian access, Miami-Dade County, FL

Ohio River Levee Trail, Kentucky

In the late 1990s the USACE began a multi-year effort to redevelop the levee system that protects the city of Louisville and surrounding communities from seasonal flooding from the Ohio River. About a year later, the City launched an initiative to build a 100-mile greenway around the city. These two projects came together as a successful implementation project for both as part of a 12.9-mile greenway, linking the city's Riverwalk to the Ohio Greenway.

The levee greenway was developed as a 10 to 12-foot wide asphalt shared-use path located on top of the redeveloped and strengthened levee. What makes this path unique is the placement of the supporting path amenities, such as seating and lighting along the route at the top of the levee, however, similar to the Lake Okeechobee Scenic Trail, no canopy trees were located on or in the levee right-of-way due to potential damage from roots to the levee itself. The path's asphalt surface has served as an access route for USACE monitoring and maintenance access to the levee.

Relevance to ROGG: Components of the Ohio River Levee Trail relevant to ROGG include successful implementation of a levee trail with paved trail surfaces with minimum user amenities and operations and maintenance compatible with a paved trail surface on a levee.

A number of water control structures occur in the eastern portion of the ROGG Study Area that are used to manage water levels in canals and the WCAs. Access to operational elements of the structures is critical as part of water management operations. Water conditions upstream of the structures can be turbulent and dangerous, although downstream flows can also be significant during high water conditions. These same flows can provide high quality fish habitat, and attract fisherman at or near the structure. Water control structures can also be susceptible to vandalism, which has significant ramifications if equipment is damaged before or during high water conditions. For ROGG, crossing water control structures and/or canals is needed to establish a fully connected path or greenway system. Connections across control structures operated and managed by the USACE have been allowed in numerous places - a brief profile of two comparable examples follow:

Sections of the Bear Creek Trail, CO being installed on-site

Located in an environmentally sensitive area, Bear Creek Trail, CO uses innovative construction techniques

Paths in Environmentally Sensitive Landscapes, Including Wetlands

Shared-use paths are frequently located in areas which provide public access to scenic landscapes and/or areas which have constrained access by other modes of transportation, such as National Parks, wetlands and stream corridors. Though there are thousands of miles of shared-use paths that have been constructed in environmentally-constrained landscapes throughout the US, none employ all the techniques that the ROGG would need as one single comparable. Profiles for five shared-use paths that occur within environmentally sensitive landscapes are provided, including paths in Colorado, the Grand Canyon, a NWR in Washington, a floodplain path in Texas, and a National Seashore trail in Massachusetts.

Bear Creek Trail, Morrison, Colorado

In the town of Morrison, Colorado, innovative design and engineering methods were used to build a 10-foot paved shared-use path in an environmentally sensitive landscape that is characterized by steep slopes, river crossings and narrow route opportunities. There was not enough land between existing roadways and Bear Creek to support full development of a 10 - 12 foot wide path without significant impacts to wetlands. So the design team built cantilevered path segments and portions of the path on concrete piles that enable the creek to flow unimpeded and with minimum impact to the surrounding wetlands. Sections of the path were manufactured off-site and lifted into place as prefabricated twin-tee concrete spans. These spans were later fitted with a surface and railing was added to facilitate safe travel and use.

Relevance to ROGG: Components of the Bear Creek Trail relevant to ROGG include successful implementation of a cantilevered trail to an existing bridge to maintain water flow and construction methods that limited wetland impacts.

Grand Canyon Greenway, Arizona

One of the concerns about shared-use path development in the ROGG Study Area is its potential impact on sensitive landscapes comprised of wetlands and other natural resources. There are examples of shared-use paths being developed within sensitive landscapes to reduce expected human impacts on natural resources and serve as a catalyst for environmental restoration, such as the Grand Canyon Greenway in Arizona.

The 72-mile Grand Canyon Greenway system was planned, designed and constructed to reduce human impact on the high desert landscape of the Canyon South Rim. Annual visitation to the South Rim tops four million and impact to the natural resources was evident. The Greenway provided a paved, 8 to 10-foot wide path, extending for more than 10 miles along the South Rim. The Greenway also spurred environmental restoration of disturbed landscapes, serving to eradicate social trails. The Greenway was part of a multi-modal transportation system that transports millions of visitors throughout the Park.

Relevance to ROGG: The relevance to ROGG includes the extensive use of a path system in a National Park, and the ability to direct visitors to a specific, managed corridor. This path system also connects with a multi-modal transit system that uses mass transit to transport users to and from specified destinations.

Grand Canyon Greenway, AZ

Environmental restoration along the Grand Canyon Greenway, AZ

Multi-modal transportation connectivity along the Grand Canyon Greenway, AZ

Cyclist on the Nisqually Estuary Boardwalk Trail, WA

Nisqually Estuary Boardwalk Trail crossing the Nisqually National Wildlife Refuge, WA

Buffalo Bayou Trail near Addicks Dam for Baker Reservoir, TX (image courtesy of Robert Boyd)

Nisqually Estuary Boardwalk Trail, Washington

The Nisqually NWR in Washington provides an example of an effective boardwalk shared-use path across a long distance of water and wetlands. The ten-foot wide Estuary Boardwalk Path features an observation tower and overlooks specifically designed for wildlife viewing. This has made the Path very popular with tourists anxious to gain access to the unique waters and wetlands of the Refuge.

Relevance to ROGG: The manner in which this path was designed and constructed offers an excellent model for the ROGG. The hallmark of this boardwalk path is the way in which it spans the tidal estuary, providing access while at the same time protecting the environment that visitors want to experience first-hand. Portions of the four mile long boardwalk path also support a variety of uses, including bicycle travel.

Buffalo Bayou Trail, Texas

Buffalo Bayou is a 53-mile long waterway through Houston, Texas that flows east towards the Houston Ship Channel and into Galveston Bay. In 1986, an appointed task force published the Buffalo Bayou Master Plan, redefining a once open-air sewer into a vibrant and valuable park space with opportunities for canoeing, hiking, biking and events. Since the development of the Master Plan, a non-profit partnership named Buffalo Bayou Partnership was formed to champion the vision. The Partnership raised over $45 million from private donors to implement projects such as the $15 million Buffalo Bayou Promenade.

Crossing an area of the bayou that includes a tangled web of freeways and street bridges, the promenade has become a popular attraction and has changed the way citizens see their waterways. Furthermore, the vision includes expanding this promenade and connecting it to a future link of the Buffalo Bayou Greenway stretching over 20 miles.

A significant challenge for the planning and design of the Buffalo Bayou Promenade was the imminent threat from flash flooding, which can cause the Bayou to rise from sea level to over 35 feet in depth in a matter of hours. To counter this threat, the Promenade was designed using amenities and features that can withstand periodic submersion by muddy flood water and impacts from floating debris. Hydrants are located along the Promenade to allow maintenance crews to wash off deposited silt from the hard surfaces and other trail amenities before the debris dries. These or other similar innovative design techniques provide examples of ways to address concerns of periodic flooding within the ROGG.

Relevance to ROGG: Components of the Buffalo Bayou trail relevant to ROGG include successful implementation of methods to address changing water conditions, maintenance of impacts after flooding events, and resilient design for hurricanes in and near wetland and flowing water systems.

Cape Cod National Seashore Trail System, Massachusetts

The Cape Cod National Seashore contains a network of shared-use paths across a variety of environmentally constrained landscapes. There are rail-trails, canal trails, trails through marshland, and trails through sand dunes. A goal for the ROGG to construct hard surface shared-use paths was successfully accomplished at Cape Cod National Seashore.

Relevance to ROGG: The Cape Cod trail system is relevant to ROGG because it makes use of various boardwalks to span wetlands and marshlands. The path system also links tourists to visitor centers and other historic landscapes of the seashore.

Heritage Trails

Shared-use paths offer the opportunity for interpretation of natural and cultural heritage. Heritage trails normally include interpretive signage and programs that are used to celebrate the unique history of a landscape or region.

Delaware and Raritan Canal Greenway, New Jersey

The 77-mile Delaware and Raritan Canal State Park supports a wide variety of recreational corridors for hiking and bicycling as well as canoeing, fishing and wildlife observation. The linear park supports heritage tourism through extensive educational signage and wayfinding systems. The canal shared-use path is a 10 – 12 foot wide unpaved trail that extends for from Trenton to New Frenchtown, New Jersey, a distance of more than 77-miles. The gravel path surface is reminiscent of historic canal towpaths in the region and supports a variety of path users, including cyclists, hikers and equestrians. One of the greatest highlights of this path is a number of interpretive information kiosks and signs that educate path users of the route's historical past and connect users to nearby historic destinations. Several of the interpretative kiosks educate visitors on the functions of the adjacent canals and spillways that acted as an interconnected flood prevention system.

Relevance to ROGG: Elements that are relevant to the ROGG include the incorporation of educational signage about the function of the canal, spillways and towpath. This could be applied to educational opportunities of the CERP and other restoration efforts of the Everglades.

Interpretive kiosk along the Delaware and Raritan Canal Greenway, NJ

Unpaved Delaware and Raritan Canal Greenway, NJ

Cape Cod National Seashore Trail through marshlands, MA

Example of a levee path in Marion County, FL

2.4.2 Best Practices

Overview

One of the objectives of the Comparables section was to identify best practices from selected projects for consideration by the design team and stakeholders involved in the feasibility study and master plan. Best practices were identified for project goals and feasibility criteria; the design, construction and maintenance of several shared-use path types with potential for use on ROGG; path amenities and materials; and criteria for construction phasing.

Best Practices

Inspirational / Iconic Paths

World-class shared-use paths not only serve the needs of the surrounding community, but also act as tourism destinations for entire regions. Combined with the natural scenic landscape and climate of south Florida, the Everglades area currently draws millions of tourists annually. Ultimate success requires looking beyond the ROGG Study Area to ensure that the ROGG is an important piece of an interconnected path system that connects these natural resource oriented destinations.

Paths of Significant Scale

Planning for a 76.47 mile greenway requires a broad understanding of regional ecological and transportation systems as well as implementation strategies that take advantage of landscape-scale amenities and recognizes the magnitude of complexities associated with security, operations and maintenance. This requires cooperation among multiple jurisdictions and shared responsibilities to control costs over the long-term.

Paths Within Two-Lane Highway Right-of-Ways

The ideal shared-use path provides a high level of safety and a strong sense of comfort. In most cases this is difficult to achieve when planning for a path adjacent to a highway. Physical or spatial separation typically can accomplish a higher level of comfort for path users. Planning a path of significant length requires a hierarchical approach that includes numerous on-road scenarios, options adjacent to roadways, and path easements on private lands.

Paths on Retrofitted Highway Bridges

Bridges often prove to be the most complicated to design and expensive to construct portions of shared-use paths. The potential to construct or reconstruct bridges is typically limited since they only undergo renovations every few decades. Some cities have been successful in prioritizing bicycle and pedestrian access during routine maintenance schedules of the bridges or redesigning the existing roadbed of a bridge to incorporate bicycle and pedestrian facilities.

Beyond their often-constrained widths, some bridge features make it difficult to accommodate bikeways. These include bridge widths that are narrower than the approach roadway (especially when combined with steep grades), open grated metal decks, low railings or parapets, and finger-type expansion joints or other joints that cause steering difficulties for cyclists. Width can often be added during reconstruction by filling open grating with lightweight concrete, modifying railings, and installation of steel plates or elastomer filler to solve expansion joint issues.

For federally-funded projects, planners and bicycle advocates can refer to Federal legislation that mandates the inclusion of bicycle and pedestrian facilities on bridges where the on-road facilities already exist. Section 23 USC 237(e) states:

> *"In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations."*

Going further than these stated requirements, a USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations released in 2010 encouraged Departments of Transportations to design and build beyond the minimum standards for bicycle and pedestrian structures. The Policy Statement indicated that when constructing or reconstructing bridges, it is more effective to build beyond the existing demand by anticipating an increase in demand, than to retrofit an old facility to accommodate demand.

Paths Associated with Levee Rights-of-way, Water Control Structures and Canals

Shared-use paths on levees and water control structures have a number of constraints, especially relating to placement of amenities and parking. However, they can also be quick to construct and often become popular community resources. For levee-top path construction, the levee may need to be widened to accommodate the higher runoff from a paved surface. Typically, paved levee paths are made by excavating the existing gravel trail and dirt to a depth of 10 to12-inches. Six inches of stone is then added and five inches of asphalt are placed at the surface to provide a smooth substrate. Construction of a path on a levee typically requires crossings over canals and / or water control structures that require a thoughtful accommodation of all potential users' needs. Of particular concern when designing levee and water control structure/canal crossing paths are the following:

- Maintaining structural integrity of the levee is of primary importance to USACE and SFWMD;
- Placement of bridges over water control structures or canals cannot impede water flow or operations of the structure;
- Minimizing construction impacts on existing levees is essential, requiring the use of lighter and smaller machinery;
- Stormwater runoff from paved surfaces needs to be addressed to minimize erosion of levees;
- Ramps and/or stairs up to the levee path and the path grade need to meet compliance with ADA standards,
- Width of the path may be highly constrained at the top of the levee, but may not be as constrained on benches at the base of the levee slope;
- Implementation of lighting and other amenities may be constrained;
- Parking on / near levee can be limited;
- Proposed culverts must allow for clearance for cyclists, pedestrians and maintenance vehicles;
- Tree placement on the land side near the levee bench may not be feasible due to bank maintenance needs,
- Fencing must allow for mowing and easy access for maintenance crews;
- Access by managing agencies to control structures and other sensitive equipment is essential for safe operation;
- Control structure crossings should be placed downstream of the control structure to minimize dangerous water conditions if someone were to fall in at the crossing; and
- Maintenance access is a critical consideration and may require specialized equipment for paved paths different than that required for non-paved trails on levees.

Paths in Environmentally Sensitive Landscapes, Including Wetlands

Development of shared-use paths and greenways in environmentally sensitive landscapes require careful planning of routes in addition to thoughtful design solutions and context sensitive construction methods. Materials should be comprised of materials that do not affect long-term health of the adjacent resources and preferably assembled off-site prior to being placed into final position. Planning and design should include careful consideration of impacts to the contextual surroundings, and consider sustainable practices or materials, such as the reuse of asphalt or sub-base materials, high performance materials that will last in the harsh climate of south Florida, and the labor, distance and impact that construction activities will have on the surroundings.

Shared-use paths typically have smaller impacts on wetlands than roadways due to their narrower widths. In addition, there can be benefits to allowing the more personal experience of these users in sensitive natural areas. Appropriate access to these sensitive areas can promote stewardship and foster appreciation for their values. Comparable paths investigated for this study provided several guiding principles for evaluating the feasibility of paths in wetlands, including the following elements:

Wetland Paths Planning and Design Best Practices

- Avoid building in wetlands, or use existing structures or pathways where possible.
- Where impacts are required, focus impacts on disturbed wetland systems.
- Seek to provide views from the edges or plan for overlooks for visual access without physical impacts.
- Provide design solutions that protect natural flow of water.

Wetland Paths Construction Best Practices

- Use equipment with smallest footprint possible.
- Build in sections while working from above (if decking/creating boardwalk) or from the boardwalk.
- Limit construction to periods when the least impact is more likely - within the driest portions of the year (October through April), and outside breeding season and migratory season of sensitive wildlife.
- Use pre-cast or prefabricated materials that allow for installation with minimal contact with the wetland.

Heritage / Tourism Paths

Shared-use paths which strive to meet heritage standards or serve as tourist draws for regions typically include a high level of design, though not necessarily a high level of construction costs. Heritage paths can help regions share in the stories and history that make an area unique. In order to achieve this, a comprehensive package of signs and wayfinding, complete with interpretative kiosks, along with connectivity to destinations is important.

Path Features and Amenities

Successful shared-use paths and greenways have amenities and context-sensitive features. Without such amenities as parking, access to water, or air for tires, projected use of a trail may never be achieved. When planning a path the scale of ROGG, identifying the amenities and trail features that a wide array of potential users may need is vital. Following are best practices for path features and amenities.

Trailheads

For a shared-use path corridor 75-miles long, several full service trailheads ideally would be spaced approximately 10 to 12-miles apart. Fortunately, several existing identified destinations along the corridor meet many of the services and amenities needed for a trailhead. Based on comparable trails, typical trailheads provide the following potential services:

- Parking for between 10+ automobiles,
- Drinking fountains (potable water),
- Trash receptacles (recycling if possible),
- Picnic shelters,
- Group and individual seating areas,
- Air station,
- Wayfinding signage system,
- Restrooms,
- Bike Racks (minimum 3),
- Picnic Tables.

Rest Areas

In addition to trailheads, rest areas should also be developed throughout the ROGG Study Area. Rest areas would not need to provide automobile parking, but could include storm shelters or picnic shelters, bench seating, trash receptacles and, potentially, emergency call boxes. At least one rest area should be located between trailheads.

Shelters

The construction of sturdy storm shelters is an important feature for the ROGG, due to the realities of long distance travel in an isolated and exposed corridor. Shelters should be constructed to blend with the native environment, through indigenous architecture and use of local materials, and include adequate lighting for evening use. Shelters should shield users from the intense Florida sunshine, be capable of withstanding hurricane force winds, and include a lightning protection system and picnic tables.

Observation Platforms

The landscape along the length of the ROGG Study Area is very flat, which could make traversing long stretches relatively monotonous. Observation platforms and viewing areas, elevated above the surrounding landscape would provide opportunities to better appreciate the landscape context and view wildlife or scenery.

Signage and Wayfinding

Shared-use path signage is an important element of future ROGG development. There are four sign types that have been considered: regulatory (to meet federal standards), identity (signifying that you are on the ROGG), wayfinding (letting you know where you are and where you want to go) and interpretive (enabling a user to understand something unique about the landscape or attraction).

Low Impact Path Materials

For the ROGG Study Area, concern over the impact of shared-use paths on the environment requires an assessment of the potential for constructing a system that is multi-use, accessible, and capable of supporting transportation travel. Future path development must adhere to AASHTO standards, which defines a minimum width, , which is currently a minimum of ten feet for hard-surface trails and a preferred 12+ feet for shared-use paths. In order to lessen the impact associated with the federally-prescribed trail tread standards, construction of the ROGG must include the use of construction materials that have the least impacts on the environment.

Given the fact that much of the future ROGG system would be constructed within publicly-owned lands dedicated to conservation, pervious surface design would be expected to be evaluated as the standard for all construction. This construction technique could be applied to the construction of levee shared-use paths

Example of a full service trailhead with amenities combined with a facility

Information kiosk example

Image of a typical rest area (Miami-Dade County Trail Design Guidelines and Standards: Ludlam Trail Case Study)

and roadside trails in particular. Elevated trail treads will be necessary at various locations where deep marsh, wetland sloughs, canals and rivers must be traversed. Where shared-use paths are not constructed adjacent to the road or on top of existing levees, they could be constructed as boardwalks or bridges across open water or wetlands. Elevated paths would need railings for trail user safety. The minimum height of the top rail for bicycle travel is 42-inches from the travel surface. Floating trail treads are a third option for consideration and could be a series of trail treads constructed on pontoons or some other system that floats on water. As with boardwalks and bridges, safety railings would be needed for these path types.

Future Path Development

Shared-use path and greenways of similar scale rarely are constructed as a single project. Typically, a phased approach is developed that may take years or even decades to complete after routing alternatives and funding are defined and design and permitting are completed. Similarly, ROGG would likely not be developed as one continuous project along its entire length. Path development for ROGG would likely be constructed in phases, requiring planners, designers and sponsors to plan for path development as a series of segmented projects that may not be initially connected or linked end-to-end. The following criteria have been developed to guide the establishment of a phased approach for future facility development.

Potential Criteria for Defining Path Segments / Phases for Construction

1. Strong end-to-end origin / destination
2. Length of travel meets a specific user's needs and expectations
3. Connects to local, regional, statewide or national trails
4. Connects to local attractions such as parks, employment or tourist destination
5. Meets federal, state and local design criteria for trail development
6. Available ROW for path development
7. Ability to secure permits for path development
8. Cost of path construction

Using this criteria, segments of the future ROGG development can be categorized in one of three classifications:

a) Ready for immediate development,
b) Capable of near term development,
c) Challenging for future development.

As a multi-jurisdictional Study Area, extending across multiple federal, state and local jurisdictions, discussions on operations and management were initiated as part of the feasibility study and master plan process.

Issues for operations and management addressed in Chapter 4 of the feasibility study and master plan include:

- Roles and responsibilities of jurisdictional partners,
- Guiding principles governing operation and management of the path,
- Operation and management functions,
- Description of facilities to be managed and maintained,
- Access and use,
- Anticipated costs and funding for operations and management.

The ROGG User

Users of long distance shared-use paths similar to the ROGG are a unique blend of cyclists and pedestrians. Long distance shared-use paths that are primarily linear in nature with strong end points promote a type of use that is different from local and regional paths. Below is a list of path user types most likely to use ROGG based on research of comparable long distance paths.

Out and Back or Half Back:
Halfbackers are path users that ride linear greenways roughly half the total distance and then retrace their route to their point of origin. For the ROGG, this may be the most popular user of the corridor due to its end points in Miami and Naples. Halfbackers are typically cyclists who are looking for a health and wellness opportunity. For these users, the intent is a vigorous ride as part of a normal fitness routine.

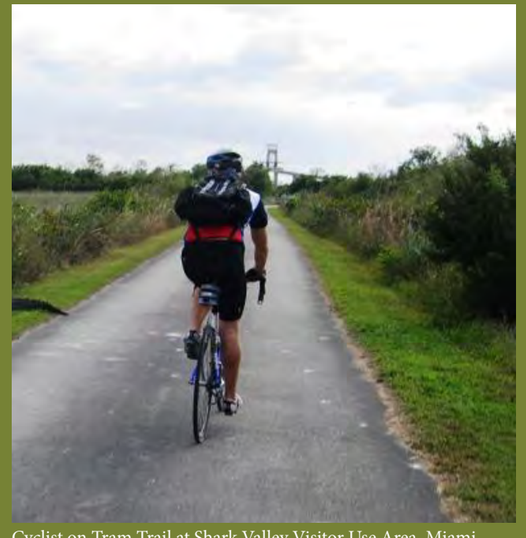
Explorer:
Path users that arrive by car and stop at trailheads or other current destinations, such as visitor centers, along the route are classified as "explorers." This user has typically not made use of a greenway as a primary focus of their travel within the corridor, but will use short segments of the trail system during their brief stay.

Tourist:
It is anticipated that the ROGG would grow in popularity and would attract tour groups to south Florida. A variety of different rides and walks could be established to accommodate these tourists. As one example, a three-day tour could consist of 20 to 30 miles of cycling combined with interpretive stops and lunch breaks. Themed tours could be developed to attract a variety of interested users, from lovers of nature to cycle enthusiasts looking for the next great adventure ride.

Looper:
Loopers are path users that typically reside at the trail end points or at population centers along long distance greenways. Loopers are cyclists and pedestrians that make use of portions of a long distance trail corridor as part of a circuit ride or walk. This means that the greenway is connected to a network of local or regional trails and that the use of the greenway is part of daily or weekly loop rides and walks.

Through User:
Path users that travel from end-to-end on a long distance greenway are called "through users." This user would be expected to be the minority trail user for the ROGG. Nevertheless, the number of these users could be fairly high because a) the project corridor is flat and accessible, b) the south Florida landscape and climate could support 75-80 mile rides and c) the population centers in Miami and Naples could support through users. Relatively fit through users could ride the entire end-to-end route in five to seven hours. Tour hikers could accomplish the walk across the corridor in three to five days.

Internal Users:
The ROGG already has a population of users working and living within the corridor that would make use of the greenway on a daily basis, though this would likely be limited since population centers are located at the terminus of the corridor. The range of use would be strongly associated with existing population centers, popular destinations and employment centers. Internal users could also come from the service and utility sectors, such as employees of the SFWMD, NPS, or USACE whose jobs take them into the corridor.



Cyclist on Tram Trail at Shark Valley Visitor Use Area, Miami County, FL - Photo by Ginny Nadolny

2.4.3 Lessons Learned

From the comparable projects and summary of best practices that are relevant to long distance shared-use paths, the following "lessons learned" were identified as relevant to conditions similar to those found within the ROGG Study Area. As lessons learned, these summaries form recommendations that are to be considered in the planning and design of the ROGG. These lessons learned do not necessarily constitute a criteria for feasibility.

Location of Path Facilities

Shared-use path facilities are best located separated from the street or off-road on existing infrastructure where available, such as levee tops, shared-use or multi-use trails and maintenance roadways, and roadside trails adjacent to U.S. 41. Shared-use or multi-use trails need to preserve natural waterflow. In limited circumstances where other locations are not available, bicycle lanes or other on-road facilities that are not greenway oriented within the existing roadway corridor can be planned in order to ensure full route connections as a substitute for a shared-use or multi-use trail.

Path Corridor Width

The minimum width for the ROGG is determined by the operation and management requirements of the particular trail tread, as well as environmental and cultural constraints present. For ROGG, the recommended width for a hard-surface trail is 10-14 feet with 12 feet as the ideal width. Additional width may be necessary for clearance zones, maintenance areas, trail amenities, and other items based on spatial availability of existing conditions.

Separation of Path and Roadway

Shared-use paths separated from roadways typically provide an improved user experience. Options to separate ROGG from U.S. 41 should be pursued throughout the corridor. The minimum width between the edge of road shoulder and the edge of trail should be five feet consistent with FDOT standards.

Build Loop Paths

To the extent practical, the ROGG system should connect to a series of loop paths built across the corridor. Loop paths are typically of varying length and type, although path crossings over U.S. 41 will need to be considered for safety concerns.

Water Trails

Defined as a hard-surface shared-use path supporting transportation and recreation, the ROGG should also connect to water-based access opportunities in the surface waters of the Everglades, Big Cypress, Fakahatchee and myriad waterways that are found throughout the corridor. Connections to a system of canoe and kayak trails or blueways is recommended to enhance the project. Opportunities to provide connectivity to existing and proposed water trails should be utilized.

Modifications to Existing Roadway Bridges

Modifying the superstructure of existing roadway bridges to facilitate shared-use path development can be difficult to accomplish where the structure of the bridge is not designed to accommodate expansion. Where bridges cannot be expanded, restriping or other alterations within the existing structure may accommodate a path connection, but not maintain the desired separation between vehicles and path users. Though this technique has been utilized throughout the country, consideration for use for the ROGG should be only as an alternative option.

Connectivity to Destinations

Connectivity to destinations is important to consider along the entire route of ROGG. This includes destinations offering experiences with cultural and environmental resources and educations as well as path user amenities such as food, water, transit and lodging. Connectivity is best when it is consistently utilized across multiple jurisdictions, such as various public lands, counties and tribal areas.

Path Tread Width

Trail tread width should be no less than 10 feet, in accordance with AASHTO and FDOT standards. As a shared-use path, ROGG is recommended to have a tread width of at least 12-feet. However, a 14-foot path tread would provide an improved user experience. Path tread width must be balanced with environmental impacts. Given that the trail tread would be a hard surface, a wider trail would create greater natural resource impacts.

Design guidance for the width of a multi-use or shared-use path based on successful comparables that it should range from 10 to 15-feet in width depending on factors such as volume of users and mix of expected use. FHWA and Florida Greenbook standards call for 15-foot wide bike/pedestrian paths or a ten-foot wide bike path if the facility is adjacent to a separate pedestrian facility. Where the path crosses wetland systems, the trail tread should be the minimum width. A clear zone on either side of the path must be maintained in accordance with AASHTO and must be at least two-feet from the edge of the path. A minimum operations and management zone is recommended to extend at least five-feet from the edge of path.

Path Surface Materials

Similar projects across the nation and around the world have employed porous pavement, wood boardwalks, plastic lumber made from recycled waste, geogrid membranes or pre-cast concrete segments stretched across wetlands. The controlling factor is AASHTO standards, available funding and the preference for paved or hardened trail surfaces that are firm, stable and slip resistant to meet ADAAG standards. It should be easily traveled by individuals using canes, walkers, crutches, wheelchairs or other mobility devices.

Path Furnishings

Path furnishings and amenities should be designed and constructed to reflect the south Florida and Everglades landscape context. Hardwoods can be the dominant feature of furnishings and furniture as this material is readily available and typically has a life-span of ten to 20 years. For materials that are planned to withstand fire hazards, concrete products should be considered. Materials selected would need to withstand the hydrological and wind-load forces of south Florida.

Signage and Wayfinding

A comprehensive system of signage and wayfinding is best throughout the corridor. A full complement of signs includes regulatory, directional, interpretive and identity signs, which should all follow the latest update to the Miami-Dade County 2009 Sign Implementation Manual for wayfinding signs, as well as the latest edition of Manual for Unified Traffic Control Devices (MUTCD) standards.

Goals for ROGG Planning and Design

There are four primary goals that should be considered in the future development of the ROGG: safety, connectivity, diversity of experience, and efficiency of travel.

Safety of Users

Safety of shared-use path users is paramount to a successful project. To promote and ensure the safety of future path users, the ROGG should strive to separate path users from motor vehicle travel whenever and wherever possible.

Connectivity

The hallmark of the ROGG is its ability to connect users to the unique landscapes and attractions of the corridor. Supporting end-to-end travel along the entire 75 to 80-mile corridor is certainly a goal, but it is also equally important to provide quality connections to popular destinations throughout the corridor. Additionally, the ROGG should link users to other local, regional, statewide and national trails to promote a choice in travel and experience.

Diversity of Experience

The ROGG would offer users a wealth of travel and visitor experiences. The project should take full advantage of the Everglades landscape and the south Florida climate to allow users a diverse range of experiences including educational experiences of CERP activities. These opportunities should be made available for users who vary in their capabilities and intensity and for the array of landscapes, cultural attractions and duration of visits.

Efficiency of Travel

To the greatest extent practical, the ROGG should follow the U.S. 41 corridor. This serves to promote efficient travel through the corridor and allows trail users to experience the diversity of landscapes and cultural attractions that exist in the corridor. The speed of travel through the corridor may vary for different user groups.

2.5 SUMMARY

"Trails in the 21st Century will be built through creative partnerships, relying heavily on citizen initiation, while combining the resources of nonprofit organizations, public agencies, foundations and private corporations."

– 12th National Trails Symposium, 1994

Introduction

The region being studied as part of the ROGG Study Area is a complex environmental, social and cultural region that has a long history of human use and occupation, including dramatic changes in the last 50 to 100 years. It is this unique environment that over one million visitors come to the region to experience each year. Building on the allure of a long-distance hiking and biking experience for a variety of users, the ROGG is envisioned to bring awareness to the Greater Everglades ecosystem, including the ongoing ecological restoration in the region.

The concept of the ROGG comes at a time when there are growing concerns about the environmental impacts of providing vehicle-only access to our National Parks. Shared-use path and alternative transportation access have proven to be effective means at reducing natural resource impacts, while still encouraging access to sensitive natural areas. Well-planned shared-use paths such as the ROGG allow access to natural areas, promote economic growth, provide pathways for alternative modes of transportation and enhance opportunities for improved fitness.

This review and analysis of context and conditions does not occur in isolation from the extensive array of previous regional guiding documents and other influencing documents, research of existing conditions, and documentation and analysis of other successful greenways across the world. The subsequent chapters of this report document determination of feasibility and implementation strategies for those segments found feasible. The follow is a summary of the research and analysis chapter.

Corridor Context

History, Development and Alterations

Florida's Everglades were one of the final frontiers for European settlers in the United States as the subtropical climate, hydrology, and conflicts with indigenous populations limited extensive settlement until late in the 19th century. Beginning in the 1880s, large-scale drainage projects were implemented to lower natural water levels and drain the vast Central and South Florida wetlands. The populations of Miami and other existing south Florida cities rapidly increased as did nature-based tourism. As populations increased on both coasts, the concept of and need for a roadway connecting the coasts through the Everglades became a regional goal. This was realized in 1928 with the construction of the Tamiami Trail. While an engineering feat, the Tamiami Trail had the effect of damming the flow of water into the Everglades and Florida Bay despite later additions of bridges and culverts to assist in movement of hydrological flow.

Beginning in the 1970s, several initiatives began to address the deterioration of the south Florida ecosystem caused by the C&SF Project. As part of the 1989 federal Everglades Expansion Act, the Mod Waters project was identified to modify the C&SF Project to improve water deliveries to the EVER. In 1992, Congress authorized the Water Resources Development Act that included approval to re-evaluate the C&SF Project performance, provide improvements to restore south Florida ecosystems and provide other water resource needs. In addition, the State of Florida enacted the Everglades Forever Act in 1994 to address water quality issues. Elements of the restoration efforts relevant to the feasibility assessment of ROGG include the removal and / or modification of existing infrastructure that would not be available for future path options, the necessity for ROGG to be consistent with regional restoration efforts, and opportunities to incorporate ROGG elements on future bridges.

Conservation

In the midst of the drainage and development activities, protection and conservation of the natural systems of the Everglades and Big Cypress also occurred. Substantial public conservation lands within the ROGG Study Area affected feasibility assessments for potential alignment selection, considerations for public and regulatory coordination, the identification of destinations and amenities that could be co-located, connections to existing infrastructure, and post-construction operation options.

Native Americans

In addition to conservation and restoration efforts, the ROGG Study Area includes reservation trust lands for the Miccosukee Tribe and several significant cultural sites, including those used for the Corn Dance ceremonies. Relevant elements of the Seminole and Miccosukee historical period considered in the feasibility assessment include considerations for tribal trust lands, the Battle of Turner River battlefield from the Seminole Wars, historical monuments from tribal and government interactions, and avoidance of significant ceremonial sites for the tribe.

Climate

Climate characteristics are an important aspect of evaluating a outdoor facility for use by humans. The ROGG Study Area occurs in south Florida at the interface between subtropical and temperate climate conditions within the climate classification of Tropical Savanna. The region exhibits two distinct seasons based on rainfall and temperatures. Significant elements of climate relevant to the design and operations for ROGG considered for the feasibility assessment include afternoon thunderstorms, tropical storms, and intense sunlight and high summer temperatures.

Hydrology

Hydrology implications are a primary consideration for this study. The ROGG Study Area occurs within the Everglades and Big Cypress Swamp watersheds, both of which have been subjected to extensive hydrological alterations. Regional hydrology is one of the most significant elements affecting the character and ecology of the ROGG Study Area and a primary consideration for the design and implementation of ROGG. Any aspects of ROGG that would compromise the fundamental objectives or implementation of regional hydrological restoration efforts are considered infeasible for this study. The post-restoration future conditions for infrastructure, water levels, and/or flows were considered the baseline condition for feasibility evaluations of routing alternatives and design options for ROGG. Other elements with specific relevance to ROGG include maintaining or enhancing existing sheetflow, incorporating water related recreation opportunities, and opportunities to restore historical patterns of tidal exchange.

Vegetative Communities

The ROGG Study Area contains unique landscapes for the region. A vital component to the preservation of these vegetation communities is to consider potential influences, including routing alternatives in the vicinity of rare vegetation communities and areas requiring intensive management, previously altered sites, and the need for additional shade features due to limited available tree canopy, access to water features, design and management considerations to address shrub management and tidal communities, regulatory requirements for wetlands, and vegetation that could be incorporated into a landscape palette for the ROGG.

Listed and Exotic Species

The presence of listed species influenced the analysis for the ROGG through evaluations of routing alternatives that could affect Florida panther habitat within the Panther Focus Area and Critical Habitat for other listed wildlife species, opportunities to incorporate design elements that could minimize impacts to Florida panthers such as enhancement to the Roadside Animal Detection System (RADS), accommodations to minimize wildlife use of shared-use path facilities that would be adverse for wildlife or path users, and permitting requirements for future ROGG facilities relative to listed species.

Exotic invasive species influenced the analysis for the ROGG through evaluations of opportunities to route the path through exotic invasive vegetation areas to remove those species and limit impacts to higher quality natural systems, the use of exotic species removal to mitigate for other natural resource impacts, and design options to minimize the introduction of exotic species as a result of ROGG through design, implementation, and long-term operations.

Ecological Process

In south Florida, ecological processes with the strongest influences on the ecology of the region include fire, hydrology, wind, tidal influences, sea level rise, and succession. Specific influences on analysis for the ROGG relative to ecological processes included accommodating fire management through incorporation of fire-resistant materials and maintenance of access by appropriate shared-use path design, reviewing ROGG compatibility with regional hydrological restoration projects, incorporating design options to address wind effects, assessing effects of sea level rise, and managing succession.

Natural Resource Regulatory Context

Impacts to natural resources in the ROGG Study Area would require authorization from several agencies having jurisdiction over wetlands and water bodies and protected wildlife and plant species. The review and authorization for proposed impacts would be coordinated through a variety of regulatory mechanisms, ranging from NEPA coordination to application and approval of various environmental permits. Construction of the ROGG may require coordination with the USACE, USFWS, EPA, SHPO, SFWMD, FDEP, FFWCC and MDRER, among others, to address natural resource issues.

Public and Tribal Lands

Lands held in public and tribal ownership within the ROGG Study Area affected feasibility assessments for routing options and regulatory review as well as opportunities for long-term partnerships for operation and maintenance. Specific influences on analyses for the ROGG included an assessment of potential partnerships, regulatory review from facilities that would occur in these ownerships, and requirements associated with tribal holdings.

Transportation

Considerations for motorized vehicular traffic relevant to ROGG include the influence of the volume of traffic using U.S. 41 as well as the speed of traffic for path experience and safety, the potential location of the shared-use path relative to traffic lanes, modifications to road design or speed limits that would be subject to intense public scrutiny, limited availability of defined parking facilities, and accommodations for temporary parking in the ROW on future ROGG uses.

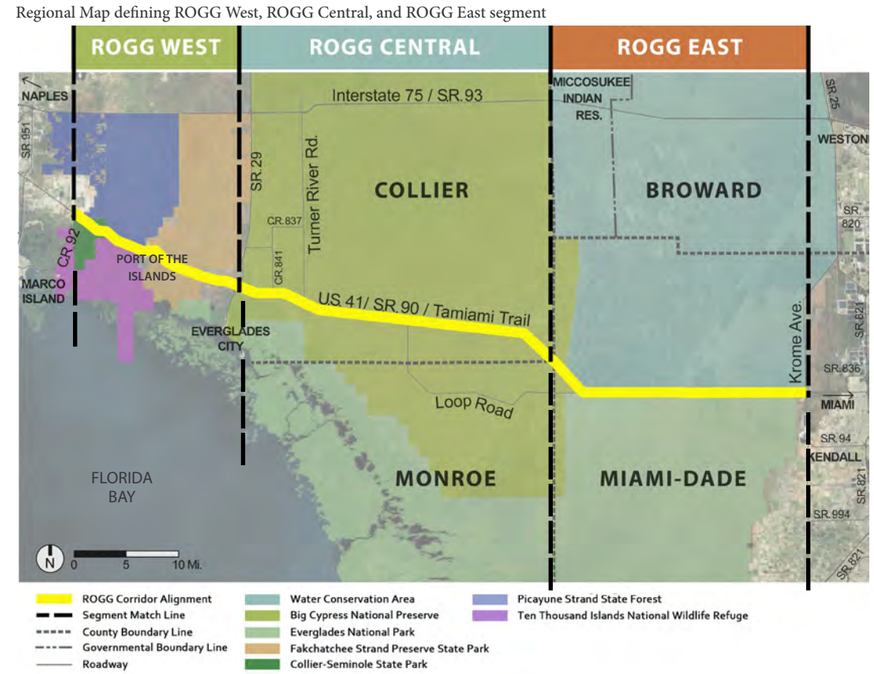
Considerations for non-motorized transportation within the ROGG Study Area included evaluations of current and future facilities on existing and proposed bridges for U.S. 41, options for transit connections, and accommodations or facilities to separate motorized vehicular and non-motorized users.

Corridor Existing Conditions

The Corridor Existing Conditions section documented a snapshot in time for the conditions and features occurring within the ROGG Study Area and the planning implications of those conditions and features for the routing, connections, and configuration of the ROGG.

Selection of this particular segment of U.S. 41 for ROGG was made because it is the southern-most east to west transportation corridor that connects both sides of the Florida

Regional Map defining ROGG West, ROGG Central, and ROGG East segment



peninsula and is the main visitor travel corridor traveling connecting directly to six federal and state public lands.

Over the span of 76.47 miles, the ROGG Study Area provides a diverse collection of landscape types and conditions which offer a variation in experiences. In addition, man-made barriers helped define segments that were studied and documented in further detail. In the case of the ROGG Study Area three distinct segments were defined using geographical borders and man-made features. Following are descriptions of each opportunities and constraints for each segment:

ROGG West

Observation tower along Marsh Trail in Ten Island Islands NWR, Collier County, FL

The ROGG West segment of the Study Area exhibits an abundance of existing destinations and activities for future shared-use path users to enjoy. Existing conditions are favorable for the implementation of an alternate mode of transportation, which would allow for large influxes of visitors to access destinations while also managing access to the natural wonders of the landscape between the destinations.

The biggest opportunity observed for ROGG West was an abundance of existing facilities that could serve as trailheads with minimum improvements needed. Additional opportunities include providing connections into three communities (Naples, San Marco and Everglades City) and connections to existing trails and boardwalks at Collier-Seminole State Park, Ten Thousand Islands NWR and Fakahatchee Strand Preserve State Park.

Constraints along the ROGG West segment consist primarily of three items; bridges, wetlands and Florida panther habitat. A total of 36 bridges exist along the ROGG West segment. These bridges have an average width of 32 feet, which does not allow for an appropriate bike lane of five feet per FDOT standards for roadway with posted speed limits of 45 mph. The second major constraint is existing wetlands. The south side of the ROW contains most of the designated ROW, but the majority of that designated ROW is characterized as wetlands. The third major constraint is the location of the corridor within the Panther Focus Area. While not considered Critical Habitat under the terms of the ESA, the USFWS has designated the Panther Focus Area as part of the core habitat for Florida panthers within the state. Construction within the Panther Focus Area is allowed, but mitigation is required for impacts to habitats identified in guidelines by the USFWS. This mitigation can add substantial costs to the implementation of any project requiring impacts to both uplands and wetlands within the area. Though these constraints present a number of challenging situations, the ROGG has the ability to remain flexible in routing and design with a number of innovative solutions.

ROGG Central

Boardwalk at Kirby S. Storter Roadside Park in the Big Cypress National Preserve, Collier County, FL

Spanning the longest length of the three segments, ROGG Central offers a number of opportunities and constraints which makes this area unique. This portion of the Study Area is dominated by the presence of the Big Cypress National Preserve for the entire length of the segment.

Opportunities within ROGG Central are primarily focused on providing additional access to existing facilities. Within this 32.20-mile segment, eight existing destinations can serve as trailheads and provide existing parking, restrooms, boardwalks and educational opportunities for trail users. Access to existing trails such as the Fire Prairie Trail and the Florida National Scenic Trail provide connectivity to a state-wide network and allows users to experience the landscape away from U.S. 41. Access also includes water routes with launch points at three existing facilities. When connected by ROGG these existing facilities would allow users to explore deep within the Preserve and provide unique opportunities to experience the Everglades region. Many of the constraints for ROGG Central are similar to those of ROGG West and include; bridges, wetlands, Florida panther habitat, Critical Habitat for manatees and the presence of Roadside Animal Detection System (RADS). Although there are fewer existing bridges within this segment, the design of the bridges are similar to those in ROGG West, which do not accommodate bike lanes or separated facilities.

The presence of a Roadside Animal Detection System (RADS) in the Turner River area presents a feature that the development of ROGG itself may actually benefit. RADS are currently being tested in this area to increase awareness of wildlife activity along U.S. 41. However, due to the proximity of detection devices to the highway's shoulders, many of the system components suffer from errors caused by vehicles parking along the roadway or from vandalism. By locating the devices on the outside of the shared-use path, the devices could be located further from vehicle traffic and in a manner which limits opportunities for errors.

This segment also includes cultural resource features that would need to be accommodated by future ROGG facilities. These include Native American ceremonial sites and historic places designated on the U.S. National Register of Historic Places. A CRAS will most likely be needed to identify properties and assess effects.

ROGG East

Gator Park Airboats tourist destination in Everglade National Park, Miami-Dade County, FL

Contained entirely within Miami-Dade County, the ROGG East segment experiences the highest volume of visitors of all the segments due to the proximity of the Shark Valley entrance to EVER, Miccosukee Indian Village, and nine private attractions near the Miami metropolitan area. Miami-Dade also has the largest existing transit network that can be connected directly to the ROGG, providing options for residents to take transit to the eastern terminus of ROGG or potentially farther west to Shark Valley and the Miccosukee Indian Village.

Shark Valley is currently one of the most popular and heavily used areas of all EVER destinations, while it is also the most constrained for expanding to meet these increased needs. A new visitor center and restroom facility is open at Shark Valley, and the facility frequently experiences parking lot capacity issues during the peak visitation season. Development of the ROGG and coordination of transit could help relieve some of the vehicle traffic congestion issues at Shark Valley, while the addition of other opportunities along the ROGG East segment could provide additional opportunities for visitors to experience the Everglades that could offset the growth in total number of visitors and their impacts at Shark Valley.

Existing facilities at a number of locations such as Shark Valley, Miccosukee Indian Village, and ValuJet Flight 592 Memorial offer potential trailhead amenities, such as parking, restrooms and educational elements. ROGG East also includes the greatest number of potential alignments, include one within the U.S. 41 maintained ROW on new or proposed bridges, within existing levee ROWs along the L-29 Levee, within the Old Tamiami Trail corridor, or Loop Road. Each potential alignment was evaluated in greater detail in order to determine all options in the feasibility of constructing the ROGG.

Environmental and cultural opportunities include a focused effort to remove exotic species to improve both habitat and viewsheds. Culturally significant lands include Native American lands in the western areas of ROGG East segment, which includes the Miccosukee Indian village area.

This segment also has the greatest amount of proposed changes to the landscape as part of the recommended restoration efforts of the CEPP and related projects. These proposed improvements include the addition of several new bridges along U.S. 41 and the removal of the existing roadbed, partial and complete removal of some levees, removal of the Old Tamiami Trail roadbed and fill, and the addition or upgrades to several water control structures. The immediate time-lines for these restoration efforts are not known and ultimately could take decades to implement. As such, the addition of the ROGG to the existing levee network, within the Old Tamiami Trail corridor, or as part of the proposed bridges could still proceed in coordination with these efforts and ultimately could be constructed as a temporary route until the time of removal, although these uses would need to not inhibit future restoration activities.

Literature Review

The Literature Review documents the extensive literature base that exists as a result of years of evaluations and studies in the region. This review includes a summary of a portion of this literature of reports and studies particularly relevant to ROGG and assess the planning implications for the feasibility and master plan of the ROGG stemming from this literature base. In an effort to build upon the works of previous adopted plans and studies and to ensure coordination with other official documents that could influence the development of ROGG, multiple sources of information were reviewed. These sources identify designated improvements, regional studies, and regulations that could influence the development of or feasibility assessment for ROGG. They can be classified into five broad categories: governing codes and ordinances, master plans and management plans, transportation studies, environmental and cultural resource documents, and design guidelines and methodologies. Significant findings from guiding documents include:

South Florida Water Management District (SFWMD) Public Use Rule

SFWMD allows for public access and use of many lands adjacent to the ROGG Study Area for outdoor recreation activities. Regulations defined by SFWMD include use of bicycles within levee right-of-ways, along maintenance berms and on levee tops. Direct implications for ROGG include the potential use of SFWMD levees, levee berms and/or levee right-of-ways for the use of hiking, biking or other outdoor recreation uses. In addition, the pedestrian and bicycle access that could occur on levees would also connect to blueway connections for the canals in the system. These canals may be used for canoeing, kayaking or other water related outdoor recreation activities. Coordination with the SFWMD and other regulatory agencies in the region is needed to address public access on private lands with SFWMD easements as well as potential issues associated with using the levees relative to regional hydrological restoration goals.

South Florida Water Management District (SFWMD) Recreation Management And Partnership Plan: Land Stewardship Division

Recreation management of SFWMD lands seeks to balance access to consumptive and non-consumptive activities as well as provide connectivity to other public lands through greenway partnerships. Since the Office of Greenway and Trails has designated ROGG as a priority greenway route since 2004, options to facilitate ROGG through coordination with and use of lands managed by the SFWMD may provide opportunities to enhance regional greenway networks through the implementation of ROGG. Direct implications for ROGG includes the use of ROGG facilities to meet the plan objectives for SFWMD to provide outdoor recreation activities for both hiking and biking (non-consumptive use) and fishing and hunting (consumptive uses).

ETDM Summary Report; Project #12596 – River Of Grass Greenway; Planning Screen & Program Screen

These reports document that the reviewed portion of the ROGG (ROGG West) is included on pathways planning maps for the State of Florida Office of Greenways and Trails (highest priority level), North Dade Greenways Master Plan, the CERP Master Recreation Plan, Collier County Comprehensive Pathways Plan, and has been incorporated into the Collier MPO 2030 Long Range Transportation Plan. The reports (including the 03/11/11 Programming Screen) also noted that the FDEP Office of Greenways and Trails "supports the proposed project and has determined that the trail can be built to minimize environmental impacts while maintaining consistency with regional restoration efforts." The inclusion of ROGG on these plans provides avenues of future potential funding for improvements as well as an acknowledgment of the need and purpose for the ROGG.

Draft Integrated Project Implementation Report and Environmental Impact Statement (EIS): Central Everglades Planning Project (CEPP); 2013

The CEPP proposes the removal of a 4.3 mile long segment of the L-29 Levee, therefore removing a portion of existing infrastructure that could be used for ROGG. Dependent of the bridge design selected in Tamiami Trail Next Steps, the removal of the levee causes a gap in existing infrastructure available and/or programmed improvements other than on-road bicycle lanes that would maintain direct access along the U.S. 41 corridor for this 4.3 mile segment. The proposed Blue Shanty levee and L-67C provide a potential route separate from U.S. 41 around this gap, but this potential route would be significantly longer than a direct connection.

The recreation plan for CEPP includes several maintained, enhanced, or new improvements within the ROGG Study Area. Pedestrian trail connections would extends along the Blue Shanty flow way and the L-67A levee. This pedestrian access provides a connection point for recreation access to the northern portions of the CEPP study area and other regional greenway systems. The recreation plan for CEPP identifies trails on the proposed Blue Shanty levee and the portions of the L-29 and L-67A that would remain after the CEPP projects are completed that could be integrated into or connected to ROGG. The parking areas and improvements identified in the plan would potentially be available for trailhead facilities for ROGG.

Approximately six miles of the Old Tamiami Trail between the EVER Tram Road and the L-67 Extension Levee are identified for removal as part of CEPP, which is the majority of the former roadway east of the Miccosukee Village. The Old Tamiami Trail provides an existing piece of infrastructure with a paved surface that could be available for use by ROGG. The banks of the facility are dominated by shrubs, including exotic invasive species, which limits views into the adjacent habitats, but provides shade for people using the old roadbed. For ROGG, the Old Tamiami Trail provides an existing piece of infrastructure that could be available temporarily for trail use, although this would need to be done consistent with and in a manner that does not compromise hydrological restoration goals.

Comparables

Analysis of comparable projects throughout the world allows for the identification of best practices used in the design and implementation of comparable shared-use path and greenway projects and the assessment of lessons learned that can be applied to ROGG. While there is no single path project that replicates the exact conditions and constraints of the ROGG Study Area, there are a variety of projects around the world that offer successful solutions to issues relevant to the feasibility study and master plan for the ROGG. Comparable greenway projects within the following categories were reviewed because of similarities to conditions observed in the ROGG Study Area. These seven categories include comparables from projects that represent iconic or inspirational paths to projects that are exemplary of relatively localized issues such as low impact paths. The following are the seven categories researched followed by images of some comparable paths:

1. Inspirational / iconic paths;
2. Paths of significant scale;
3. Paths within two-lane highway right-of-way;
4. Paths located on retrofitted highway bridges (culverts and large length bridges);
5. Paths associated with levee rights-of way, water control structures, and canals;
6. Paths in environmentally sensitive landscapes, including wetlands;
7. Heritage Paths.

Lake Okeechobee Scenic Trail, FL (on top of USACE-managed levee system)

Cyclist on the Nisqually Estuary Boardwalk Trail, WA

Cyclists on the New Orleans Levee-Top Trail, LA

Multi-modal transportation connectivity along the Grand Canyon Greenway, AZ

Part 03
CORRIDOR VISION AND FEASIBILITY

"Here is land, tranquil in its quiet beauty, serving not as the source of water, but as the last receiver of it. To its natural abundance we owe the spectacular plant and animal life that distinguishes this place from all others in our country."

– President Harry S. Truman, 1947

Introduction

Through extensive public involvement, a vision has been developed for a world-class shared-use path across the Everglades connecting Collier County to Miami-Dade County. The pathway's vision, established by Steering Committee members and public input, is as follows:

> ***'The River of Grass Greenway is a non-motorized transportation and recreation corridor across the Everglades, connecting Naples and Miami, that promotes enhanced opportunities for education and stewardship of the environmental and cultural assets of this unique area.'***

The planning team hosted a series of workshops, public meetings and online engagement to guide the formation of the ROGG's vision and development of conceptual alternatives. Building upon the research and analysis completed in Part II of the Feasibility Study and Master Plan, the planning team refined and analyzed the feasibility of each publicly developed concept based on a criteria established during the workshops with public and Steering Committee members' input. Alternative routes that furthered the vision of the ROGG were then analyzed for potential impact and benefit to the existing transportation network.

The purpose of this chapter is to provide documentation, refinement and analysis of publicly developed concepts for the ROGG. To accomplish this, the chapter is divided into six sections, including the following:

1. **Public Involvement** – This section documents and summarizes an extensive public involvement process that consisted of three week-long public corridor workshops, a series of three public meetings, three public open houses and two websites; one a public engagement, townhall-style website hosted by the consultant team and a second, information depository style website hosted by MDPROS.

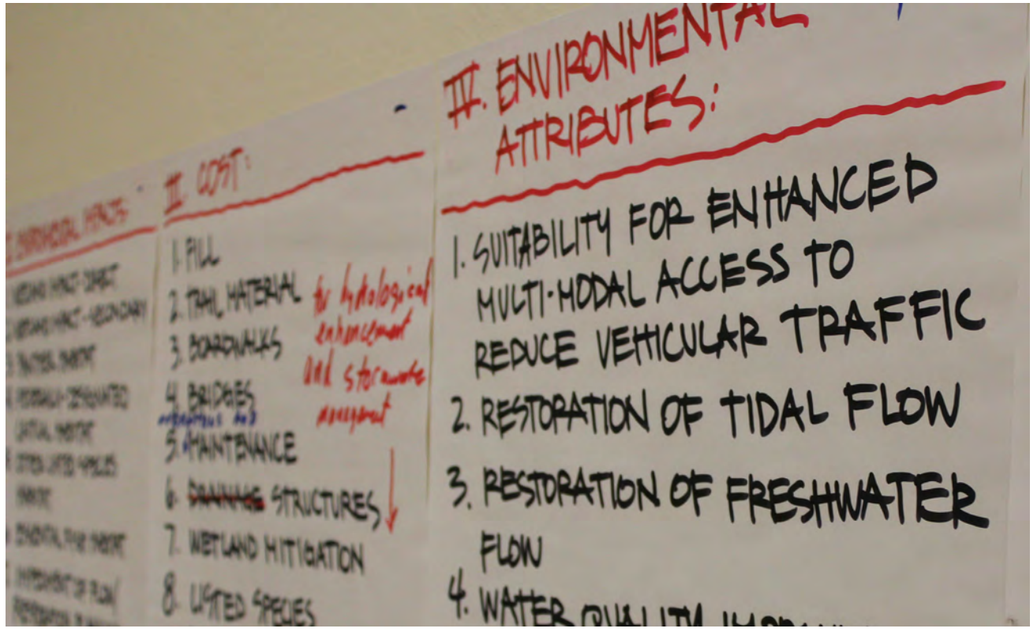
2. **Pathway Components** – This section documents publicly developed concepts for the ROGG and supporting amenities such as crossings, trailheads, and hubs. A series of cross-sections, plans and diagrams form a menu of pathway components that work in unison to form the ROGG.

3. **Feasibility Evaluation** – This section provides a comprehensive evaluation of pathway concepts and alternate routes through an analysis of opportunities, constraints and fatal flaws. Through the application of public meetings and a Steering Committee review input, feasibility criteria were developed and alternative and preferred routes documented.

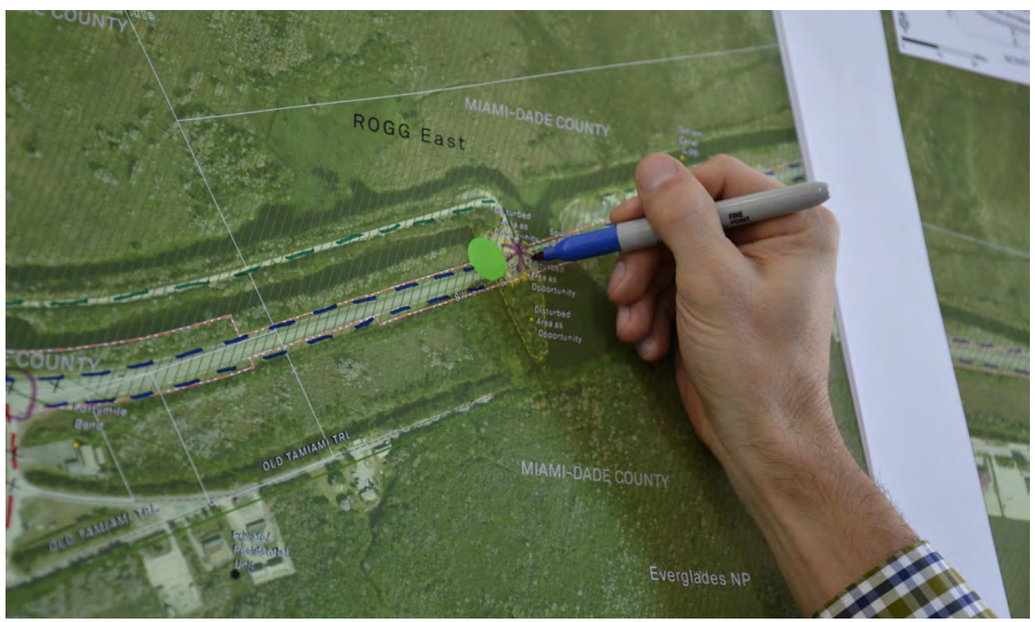
4. **Alternative Transportation Analysis** – This section documents the alternative transportation options and scenarios that are potentially provided by the ROGG or may work in conjunction with the pathway to ensure higher positive environmental, social and economic benefits.

5. **Benefits of Pathway** – This section analyzes benefits that come from a managed approach that the ROGG would provide and strengthens the case for the ROGG as a key component of an integrated visitor experience to the Everglades region. Benefits are based on previous governmental or academic research and assumptions based on best available data.

6. **Summary** – The final section provides a summary of the refinement and analysis process for concepts developed through broad public involvement, as well as, key findings of alternative transportation scenarios and potential pathway benefits.



Public input during ROGG West Public Workshop



Public input on route alternatives during ROGG East Public Workshop

3.1 Public Involvement

The public involvement element of the Feasibility Study and Master Plan assures an effective and efficient process that fairly and equitably maximizes citizen input and support for the planning and development of the ROGG. The NPS, through Director's order #75A, employs a heightened level of public involvement throughout the Service's planning work and was incorporated in this planning process. These initiative utilizes the following activities when engaging the public during the planning process:

- Systematically planning a variety of opportunities for the public to learn about and express their opinions on possible actions and policies, and to know that their diverse views are considered in shaping decisions and become part of the record of the decision-making process;
- Informing and educating the public about the scientific and scholarly information used in making decisions or carrying out management activities;
- Consulting the public to gather valuable and sometimes unexpected sources of information that may substantially contribute to or inform management thinking and options;
- Learning from the public their concerns, values, and preferences as part of an advertised or targeted agenda so that we are better informed;
- Including the public's input when making informed decisions;
- Responding to suggestions and comments from the public in a timely, truthful, and straightforward manner;

Four types of public involvement were utilized and are summarized in this section:

- **Corridor Workshops** - Extensive, week-long public workshops with kick-off presentations, multi-day planning sessions and concluding open houses were conducted in or near each planning segment of the ROGG Study Area.

- **Tribal Community Involvement** - Extensive involvement and outreach efforts to tribal members within the corridor.

- **Websites** – Three project websites were developed in order to effectively engage the public and distribute information:
  1. www.riverofgrassgreenway.org
  2. www.miamidade.gov/rogg/
  3. www.evergladesrogg.org

- **Public Agencies** – This element included individual meetings with multiple public agencies that represent the public on a vast array of public safety, environmental, land and transportation management and stewardship issues.

3.1.1. Corridor Workshops

Public involvement was initiated with a series of advertised public workshops held in various portions of the corridor to provide extended opportunities for public comment and input to the feasibility study and plan. Advertised public workshops were held in Naples, Everglades City, and Miami-Dade County. Regional associations, clubs, and organizations with special interests and other stakeholders in the ROGG Study Area were specifically invited to participate in the workshops. Individuals that attended were offered to be interviewed to document ideas and concerns. Participants were invited to provide input on potential routing alternatives, trailhead and gateway opportunities, and ways to connect to existing destinations along the corridor.

Format

Each Corridor Workshop started with an evening kick-off presentation to summarize findings from the research and analysis portion of work by the consultant team. This was followed by two consecutive days of public planning sessions that progressed through a series of topics, first with broad subjects such as goals, routes and trailheads and then concluded with topics such as trail materials, wayfinding and feasibility criteria input. Public input was followed by one day of closed door time for refinement of concepts and ideas. Each workshop concluded with a half-day public open house in which all work products were displayed for public review and further input. Public notice of each advertised workshop included newspaper, website, press release, emails and in some cases television and public radio.

Location/Dates

Corridor Workshops were held at public facilities in or near each of the ROGG planning regions. This allowed the planning team to readily access the study area for further research and analysis as needed and established a local interest in each segment. The following locations and dates were utilized for each of the three advertised Corridor Workshops:

- **ROGG West** - Edison State College Collier Campus - Bldg. J. (Conference Center), Naples, FL; Dates: January 29th through February 2nd, 2013.

- **ROGG Central** – Everglades City Hall, Everglades City, FL ; Dates: February 26th through March 2nd, 2013

- **ROGG East** – Florida International University (FIU) – School of Architecture and the Arts, Miami-Dade County, FL; Dates: March 12th-16th, 2013.

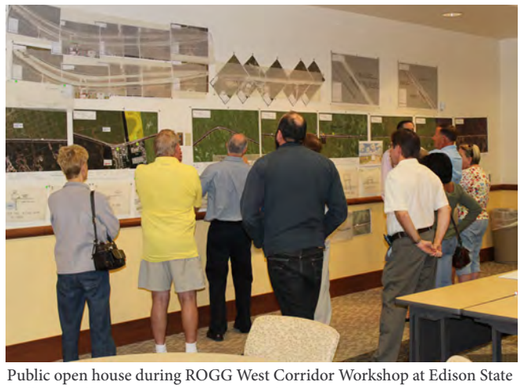
ROGG West Workshop

Edison State College, Collier Campus, Naples, FL

Public Comments:

- About accessibility from populated areas—don't want to have to drive to facility. It should be accessible from urban areas via bicycle/on foot.
- Some of the pictures of the ROW show it is tight. Are you going to try to fit it within the ROW. (Response) Yes, it is tight in some areas and near bridges, but in other cases it is more than 200 feet. We are trying to look at what is achievable within the maintained ROW area.
- Each park has their own environmental education program, but would like children to get out and experience the area in a different way.
- We have lots of different trail systems, and different groups are doing different things within these spaces. We need to provide a comfortable connection.
- We had discussed equestrian before, but the users were not interested.
- Consider private owners along trail as trailheads.
- Picayune trail is being improved north of Port of the Islands.
- Potentials for shuttle tram, transit stops with bigger turn around area.
- Concern that the ROGG will further impact the north to south flow of water, in-turn climate
- Communicate/involve ORV users
- For Fakahatchee Strand, consider taking the alignment through the upland communities as this could reduce wetland impacts, but it might also increase impacts to upland hammocks used by panthers.
- Consider paddling on the Tamiami Trail.
- Accommodate fishermen on bridges used on adjacent canal for the trail.

Note: Comments above are representative. Complete meeting notes are located in the report Appendix



Public open house during ROGG West Corridor Workshop at Edison State College, Collier Campus, Naples, FL, February 2, 2013.

ROGG Central Workshop

Everglades City Hall, Everglades City, FL

Public Comments:

- Indigenous people value what is on earth, not money or modern life. They keep building. First it was I-75. It's okay to look at it, but don't disturb it. Our concern is that over time we are going to continue building.
- When this was first presented to me, it seemed like a little pathway. Now it seems like so much more. You say you would like to protect cultural resources and nature. This looks like you would be doing the opposite of that. Big Cypress is already in much distress. You will be bringing in more people, more impacts. What you are talking about tonight is a violation of nature. Impressed with detail of work and amount that went into it.
- I am a property owner within the Preserve and I think the project is very nice. I think it boils down to how you engineer and impact environment. Everglades is a beautiful place, and it doesn't do any good if you can't experience it.
- Should consider filling in canals on U.S. 41.
- Part of grant is to reduce traffic. A private vendor might come in and provide a shuttle bus service. I think it may have the opposite effect.
- You will have private cars bringing bikes and create more traffic.
- They closed down stores and gas stations on 41, and don't want ORV and buggies, but they support another trail? If you decide to get permitting for bikes, please do it for canoes.
- The whole water flow restoration starts at Kissimmee. It should start with sugar cane farms. Most of the issue is up there and not down here.

Note: Comments above are representative. Complete meeting notes are located in the report Appendix

Public kick-off presentation during ROGG Central Corridor Workshop at Everglades City Hall, Everglades City, FL, February 26, 2013.

ROGG East Workshop

Florida International University, Miami-Dade County, FL

Public Comments:

- Please do not block or inhibit access that we have had for generations.
- Remember traditional cultures (hunting, fishing, frogging, hiking, camping and enjoy).Parking along the roadway is another problem with the safety of the drivers, pedestrians and cyclists.
- The ROGG should connect into Miami. Run a path south from the ROGG on the L-31N levee.
- Consider the bank fishermen when proposing the floating trail option.
- Narrowing the lanes seems dangerous and raises the risk to riders.
- Transit may reduce carbon footprint slightly, but increased tourism might have a net increase in carbon footprint.
- Design the path as a separate pathway is preferred.
- Object to the project because of the environmental impact to the wetlands, vegetation and wildlife and the sheer cost of the roadway seem to make it out of the question. Plus accessibility questioned during some seasons.
- No commercial services or activities.
- The ROGG idea is an exciting idea, and one that connects greenways throughout the region.
- Good job with the methodical process, don't get rushed.
- Accommodate various levels of experienced cyclist.
- The parks along the highway are currently only accessible by automobile, requires parking, etc. There needs to be facilities to accommodate transit, the trail, and shuttle stops to access the area.
- Bike lanes should be on U.S. 41, but they are not for all users along the path. It needs to be an off-road path.

Note: Comments above are representative. Complete meeting notes are located in the report Appendix

Public planning session during ROGG East Corridor Workshop at Florida International University, Miami-Dade County, FL, March 13, 2013.

Corridor Workshops Summary

There are three primary subjects in which public comments aligned. Though these subjects are not comprehensive, participants did note support for ROGG, concerns about potential impacts and desires for expanded uses and benefits.

Support for ROGG:

- Current property owner, 'it doesn't do any good if you can't experience it [Everglades],'
- Everglades should be accessible not only by vehicle but by bike and on-foot,
- Impressive amount of work and detail,
- Methodical process for planning is a good.

Development Concerns:

- Concerns regarding potential environmental impacts if pathway does not utilize design techniques to reduce or create a net positive for the surrounding sensitive environment,
- Too much impact from commercial development if ROGG is successful in attracting users,
- Bike lanes should be on U.S. 41 with a separate shared-use trail (ROGG) adjacent,
- Blocking or inhibiting access along U.S. 41,
- Parking along U.S. 41 is a safety issue,
- Narrowing traffic lanes seems dangerous giving current speed limits and traffic control techniques utilized in corridor,
- Private vendors and visitors will increase traffic on U.S. 41,
- Too much building over time,
- Concerned that the path will impact the north/south flow of water throughout region.

Expand Uses and Extent:

- Connect the ROGG to the Biscayne-Everglades Greenway into Miami via Krome Trail,
- Consider bank and bridge fishing needs,
- Link to the restoration efforts,
- Work with each park to establish a significant education component, especially for children,
- Connect to other trails throughout region,
- Consider private land owners for potential trailheads,
- Plan for shuttles/ transit connectivity,
- Include ORV users in planning and design,
- Consider paddling needs along Tamiami Trail.

3.1.2 Tribal Community Coordination

Outreach efforts to Native American communities along U.S. 41 and in the South Florida region have been extensive. In addition to printed materials, invites for participation on the project's Steering Committee were provided to representatives of the Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida and the Council or the Original Miccosukee Simanolee National Aboriginal People. The following are efforts made by the project team for continued participation and involvement:

- Since January 2010 the ROGG Project Team has been in contact with the Miccosukee Tribe of Indians of Florida. Since the Steering Committee was established in September 2012 a representative of the Tribe has participated in several meetings and emails.
- The Seminole Tribe of Indians has been kept informed regarding ROGG since 2010 with multiple project update letters and phone calls. The ROGG Project Team was invited by the Seminole Tribe in August 2013 to speak before the Tribal Council in Hollywood. Continued updates have been provided to the Tribe per request.
- During 2011 and 2012 ROGG update handouts were distributed to the following places: Osceola Gift Shop, Miccosukee Indian Village, Big Cypress Gallery, as well as other businesses advertising opportunities for participation.
- The ROGG Project Team met with a representative of the Independent Tribe Members on August 9, 2012. An invite to join the Steering Committee was declined by the representative but a request to be provided updates was made.,
- In December 2012 a representative from the Miccosukee Tribe informed the Project Team that a meeting was held with Tribal members of the Tigertail Camp to provide updates on ROGG.
- Project Team Members hand delivered project information handouts in January 2014 regarding upcoming meeting participation opportunities as well as project fact sheets to numerous mailboxes and businesses along U.S. 41.
- The ROGG Project Team met with tribal members for a meeting on March 7, 2014.
- In March 2015 the ROGG Project Team asked the organizers of the "Walk for Mother Earth" to speak to the walking group.

Tribal Coorindation Summary

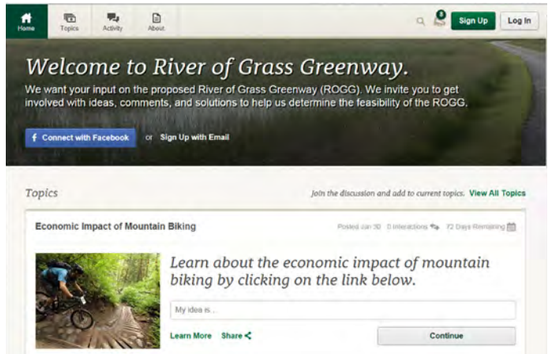
Outreach efforts to the Native American Communities were conducted well before the project kickoff, and have continued extensively through the project process. Tribal members and Independents have been present at most of the Steering Committee meetings, and printed materials have been distributed throughout the corridor on several occasions.

The cultural resources found in the ROGG corridor are extremely important to the planning effort, and outreach and tribal involvement efforts will continue to be a critical part of the ROGG planning process throughout current and future phases of the project.

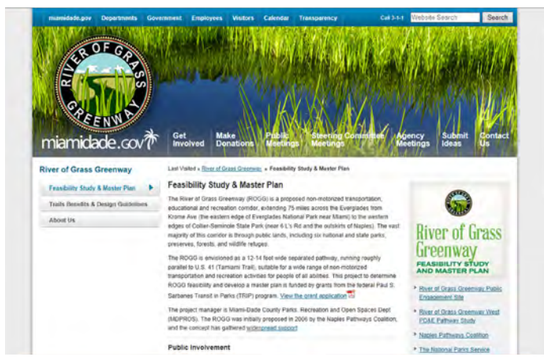
Public planning session during ROGG East Corridor Workshop at Florida International University, March 13, 2013.

ROGG Central Corridor Workshop Kickoff at Everglades City Hall, February 26, 2013.

Steering Committee Update Meeting at Big Cypress National Preserve Oasis Visitor Center, November 21, 2013.



Screen image of the public engagement website (www.RiverofGrassGreenway.org) with informational topics.



Screen image of the public website hosted by Miami-Dade County through the www.miamidade.gov portal.

3.1.3 Websites

A public online engagement site (www.RiverofGrassGreenway.org) was hosted throughout the ROGG planning process. The website was developed to provide opportunities for the public to review documents, see project milestones, identify participation opportunities and schedules, 'How to Participate' descriptions, provide comments on topics and contact information for project team members for questions. The website had two phases; information collection and feedback. An interactive map and comment element was included during the information collection phase, as well as a two-minute introduction video to allow citizens an opportunity to post comments and contribute to the information based on geographical area. During the feedback phase, the website was revamped to focus on public review of the conceptual vision and implementation materials to provide comment. All comments and discussion topics have been archived (Appendix E) and analyzed.

During the course of the planning process over 5,689 participants visited the website a total of 34,300 times to contribute over 908 comments and 239 ideas. The most active zips codes for participation were the ROGG West Study Area zip code 34114; the Kendall area zip codes 33176 and 33183; and the Marco Island zip code 34145.

An additional public project website was hosted by MDPROS during the ROGG planning process (http://www.miamidade.gov/rogg/). The website was developed to provide opportunities for the public to review documents and meeting notes, see project milestones, identify participation opportunities and schedules, and contact information for project team members for questions. The website was hosted within the existing www.miamidade.gov website which includes information on the County's adopted trail design guidelines and benefits.

3.1.4 Public Agency Meetings

The Florida State Clearinghouse recommended after the Joint Projects agency meeting with the ROGG West PD&E Pathway Study team for the ROGG Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG. As a result, the ROGG planning team meet with several public agencies, most represented on the Steering Committee, in an effort to drill down to the opportunities and constraints unique to each agency's mission or operations within the ROGG Study Area. Additional meetings were conducted with the following agencies on the following dates:

- ROGG West Agencies Meeting (Collier Seminole State Park, Ten Thousand Islands National Wildlife Refuge, Picayune Strand State Forest, Fakahatchee Strand Preserve State Park) - November 21, 2013;
- Florida Department of Transportation (District 6) - December 11, 2013;
- National Park Service (Everglades National Park and Big Cypress National Preserve) - January 14, 2014;
- National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service - March 26, 2014;
- South Florida Water Management District - May 9, 2014.
- MDC Departments - September 24, 2014

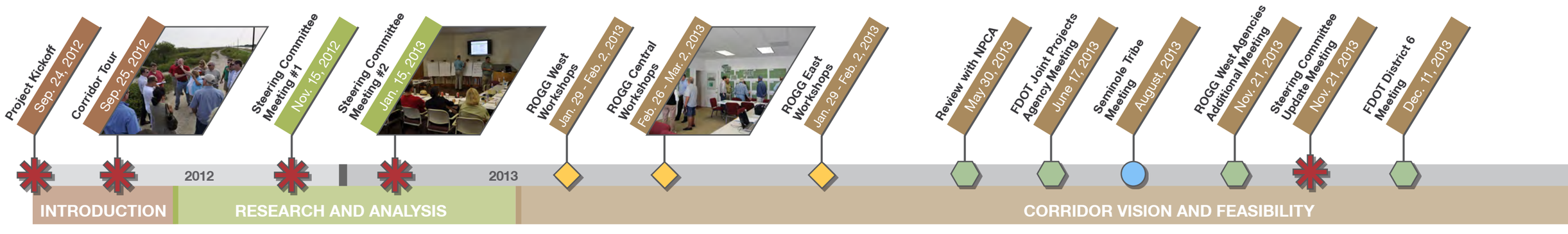
Key Takeaways

Through a series of additional meetings and conference calls with public agencies that hold direct ownership or management of lands within the ROGG Study Area, the following key comments were provided:

- SFWMD supports the use of their system's levees for public uses that are consistent with approved guidelines, however, development of paved, hard-surface paths on top of levees are generally not allowed due to a heightened level of maintenance required to keep the path / trail surface smooth of damage from maintenance equipment;
- SFWMD supports the use of the levee bench as a hard-surface path / trail, however, permitting for levee use is split between ACOE and SFWMD depending on location;
- NPS identified that the ROGG should be consistent with proposed elements of CEPP and enabling legislation for EVER and BICY;
- Potential impacts to tidal creeks are the primary concern for NOAA and it prefers to see bridges or boardwalks rather than extended culverts;
- Essential Fish Habitat (EFH) would likely be considered for entire Study Area length;
- Concerned for any reduction of shoulders, changes in speed limits, and provision of enough parking;
- Culverts or boardwalks would need to be sized for post-restoration water levels and flow;
- Path should be designed to have minimum impact on fire management;
- Restoration efforts in the Picayune Strand area will be an impact on the water levels which may impact the planning of the ROGG;
- The pathway could enhance the viewshed of wildlife within the corridor which may have a positive impact on the number of roadkills;
- Wetland impacts, if required, should be concentrated in lower quality wetlands.

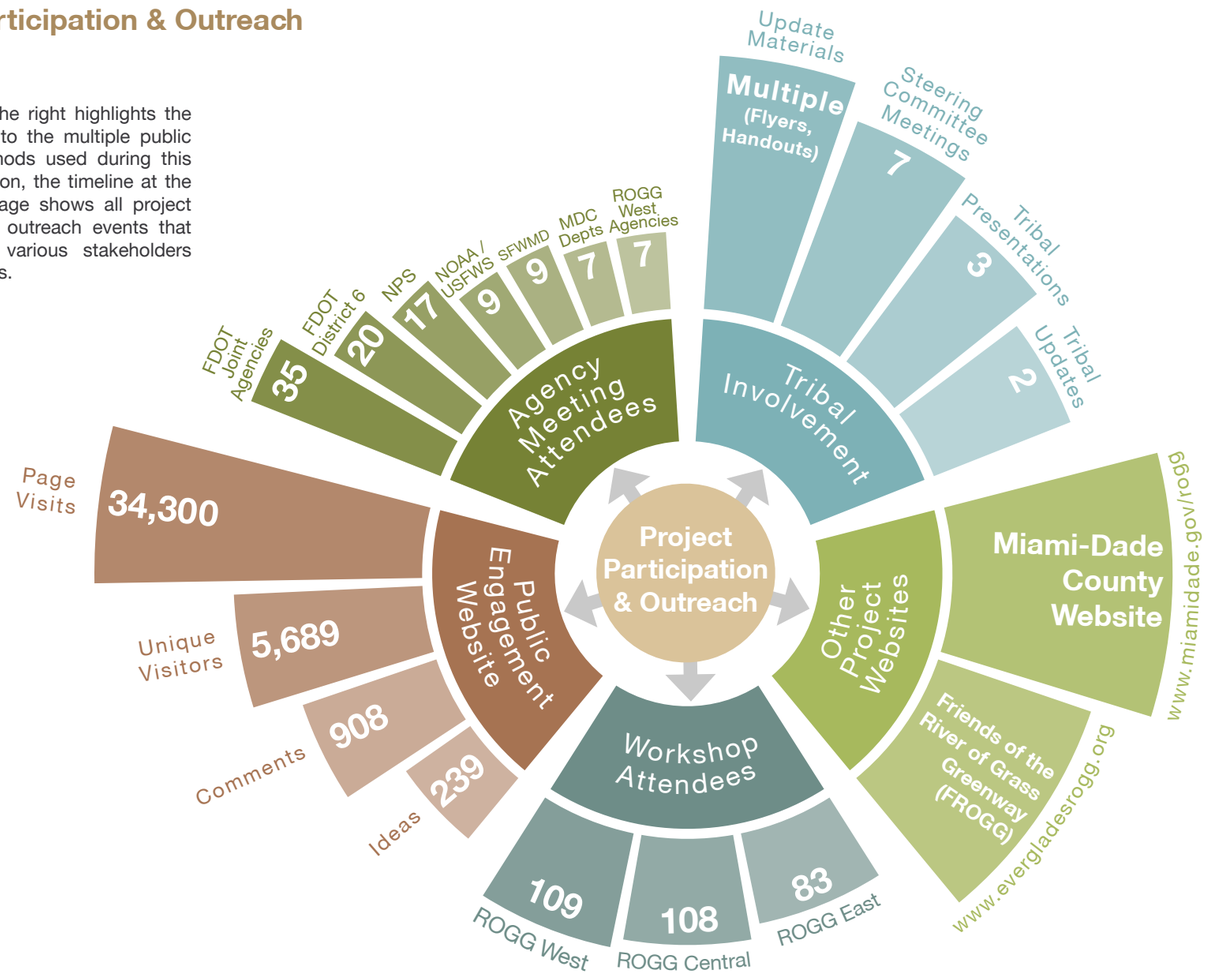
Note: Comments above are representative. Complete notes from each additional agency meeting are located in the report Appendix.

Project Timeline



Project Participation & Outreach Summary

The diagram to the right highlights the numbers related to the multiple public involvement methods used during this process. In addition, the timeline at the bottom of this page shows all project participation and outreach events that were held with various stakeholders during the process.



Project Participation and Outreach Summary

Public involvement during the ROGG Feasibility Study and Master Plan effort included extensive outreach methods and events. Three primary groups where engaged during the planning process:

Public Participants

The planning team conducted three week-long corridor workshops in three geographically unique areas in or near each segment of the ROGG Study Area. Each workshop was well attended and included a public kick-off presentation, multi-day public planning sessions and a final public open house with all work products on display for review and input. Broad levels of input were provided by participants.

Tribal Community Coordination

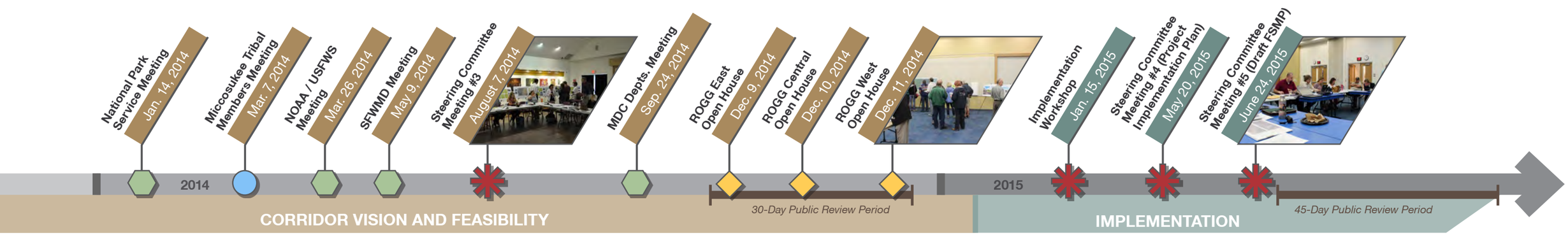
Prior to and throughout the planning process, extensive involvement and outreach efforts have been made to tribal members throughout the corridor. Tribal members have been present at most steering committee meetings, printed informational materials were distributed, and the ROGG Project Team has met with tribal members on two separate occasions.

Websites

Three project websites were hosted throughout the planning process, one a townhall-style public engagement website, another an informational depository of project products, notes and contacts, and one maintained by Friends of the River of Grass Greenway. With over 5,600 visitors viewing the engagement website over 34,000 times and contributing over 1,000 comments and ideas, the website was a success in gathering broad input from throughout south Florida and the country.

Public Agencies

Through a series of additional meetings and conference calls with public agencies with direct ownership and/or management responsibilities of lands within the ROGG Study Area, the Project Team was able to learn and document opportunities and constraints of publicly generated concepts unique to each agency's mission and operations. Information gathered from these meetings had impacts on the feasibility of concepts, routing alternatives and guidance in the identification of alternative transportation options.



3.2 PATHWAY COMPONENTS

"Everglades has no single feature, no prominent point of interest now or ever. It is a mosaic of many things seen, smelled, heard and endured."

– Daniel Beard, first superintendent of Everglades National Park, 1950

Introduction

A path as complex and long as ROGG is made up of hundreds of individual components, each specially designed to meet a need, constraint or opportunity. For this feasibility study and master plan, these components have been developed through broad public involvement and input from public agencies with direct ownership and/or land management responsibilities within the ROGG Study Area.

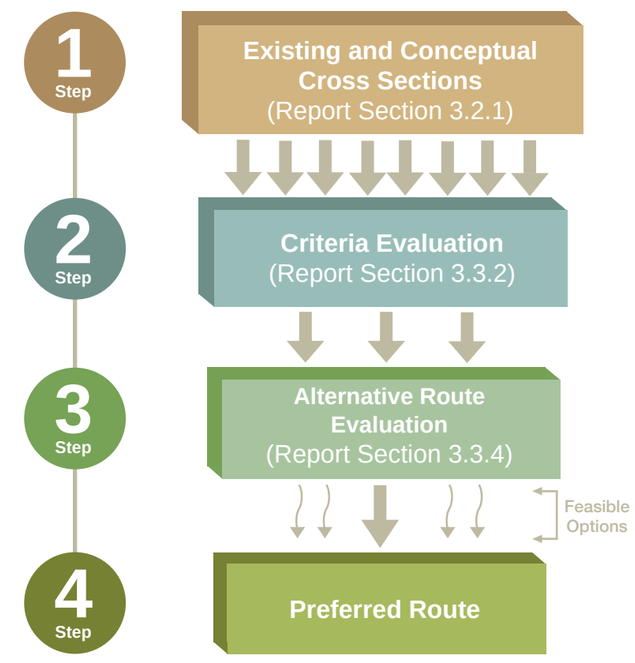
Typical components are grouped by either location within the cross-section of the U.S. 41 ROW or by function of the component, i.e. trailheads, hubs and wayfinding. This section does not evaluate the feasibility of the individual component, however, most concepts were refined based on input provided by stakeholders and public agency review. The follow is a summary of pathway components documented in this section:

- **Conceptual Cross-Sections** – This section includes typical cross-sections of existing conditions found throughout the ROGG Study Area as well as 25 various concepts for locating ROGG within or parallel to U.S. 41 ROW.
- **Typical Crossings** – This section provides typical plans of highway or driveway crossings applicable to conditions throughout the ROGG Study Area.
- **Typical Trailheads** – This section provides typical plans for a hierarchy of trailheads that rely on existing or proposed facilities along U.S. 41.
- **Typical Hubs and Gateways** – This section provides plans for typical hubs, multi-modal hubs and gateways for conditions present along U.S. 41.
- **Wayfinding** – This section provides examples of pathway wayfinding per adopted standards for Miami-Dade County.

Feasibility Determination Process

Determination of feasibility of a path or trail does not have a single nationally accepted standard process. Instead, a comprehensive process can be defined which addresses major elements for the context of the study and determine, based on best available date and research, whether a path or route is feasible.

The diagram below illustrates the four step process utilized by the ROGG FSMP to determine feasibility of each publicly generated path concept. The **first step** begins with identification of possible concepts, which for this study were generated over the course of three weeks of public workshops in the form of conceptual cross-sections and typicals. Once concepts are documented, the **second step** attempts to evaluate each cross-section, in isolation of the physical context of the ROGG corridor, across a spectrum of 18 individual criterion elements. These elements include; compatibility with Everglades restoration or land management goals, level of potential impact to archaeological resources, and constructibility among others. The **third step** is an evaluation of fatal flaws for each concept in the context of the physical constraints and opportunities identified on aerial imagery, GIS data, in-field observations and steering committee input. For this step, a series of maps identify routes which are determined to be absent of defined fatal flaws. In some locations more than one route may be identified. **Step four**, the last step, highlights a feasible preferred route on each map where applicable. A preferred route is determined by reviewing each concept's overall score from Step 2 and identifying the route with the highest score as the concept that meets the highest level of feasibility.



1 Step

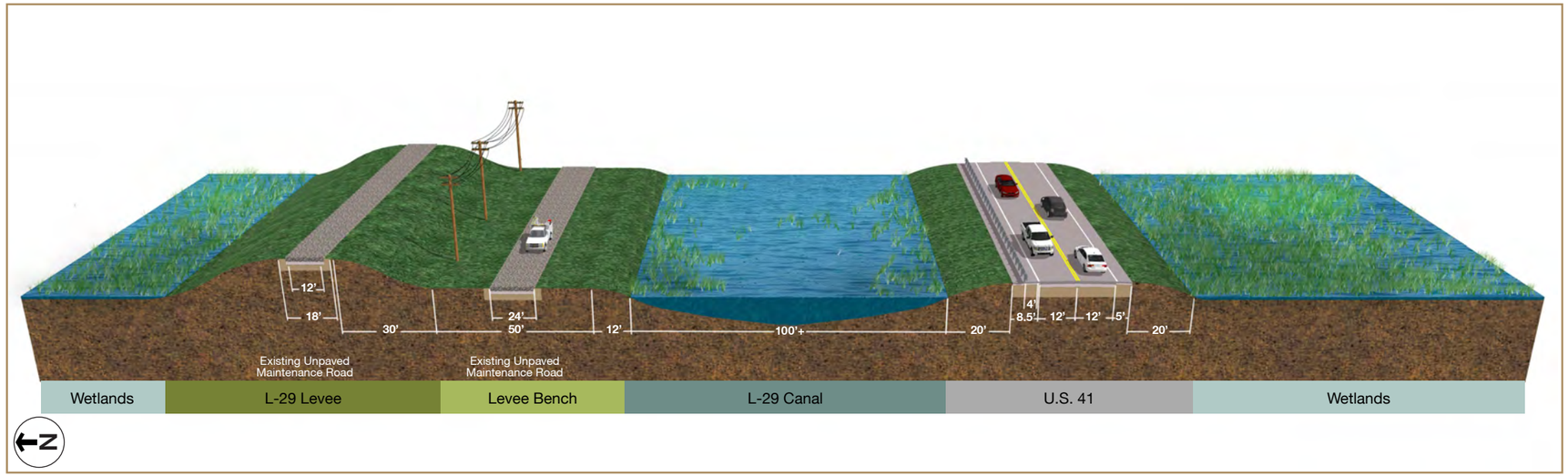
Refer to Section 3.3.1 for feasibility determination process

3.2.1 Existing Cross-Sections

Due to the complexity of the ROGG Study Area, cross-sections are the best tool to illustrate the unique existing conditions found in each segment of the study area with proposed concepts. Two primary categories of cross-sections are identified in this chapter: existing conditions, and conceptual.

Through wide variations of ROW width, existence of canal(s) and water flow restoration efforts, existing conditions throughout the 76.47-mile ROGG Study Area are vast and ever-changing. In order to summarize existing conditions, the planning team identified seven cross-sections that represent typical conditions found through the Study Area.

ROGG East - Existing Levee / Canal Condition

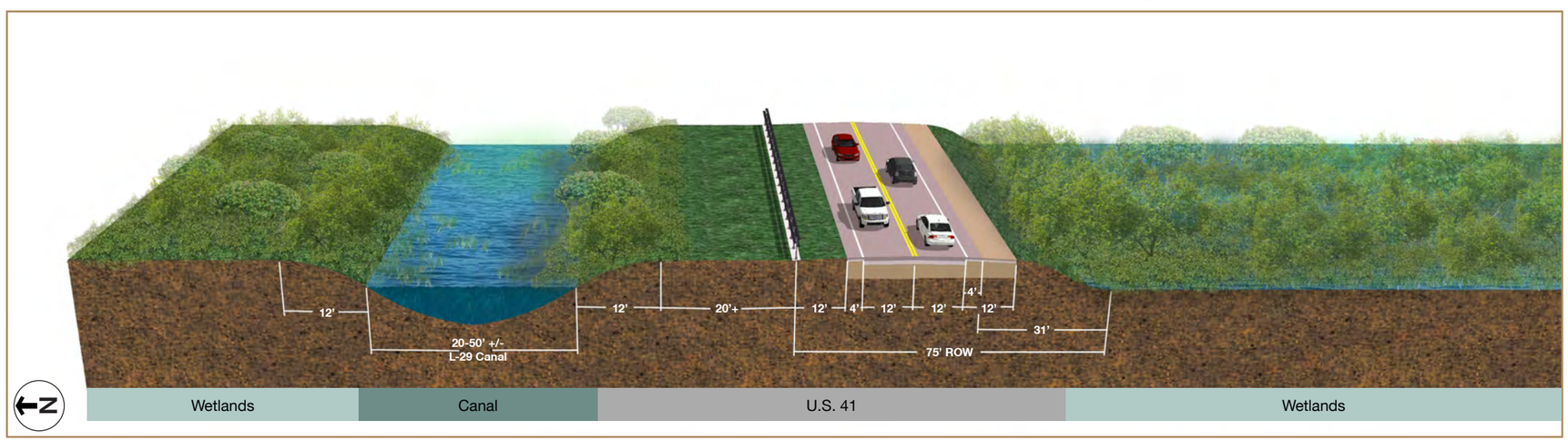


Existing Conditions Description

Represents typical conditions for approximately 11 miles of the eastern end of the ROGG Study Area, between Spillway S333/ ValuJet Flight 592 Memorial and L-30 Canal. The existing Levee/ Canal cross-section identifies the following elements:

- Constrained highway embankment of approximately 78 feet,
- Two 12' travel lanes with 5' shoulder on south side and 8.5' on north side with guardrail barrier,
- Designated wetland directly south of U.S. 41 embankment,
- 100'+ width canal directly north of the highway embankment,
- Levee bench with a width of approximately 60'+ with a 24'+ wide publicly accessible gravel maintenance road and utility line directly south of levee,
- A levee (L-29) is located north of the utility line and has a 12' gravel road on top with public access.

ROGG East - Existing Canal / Cable Barrier Condition



Existing Conditions Description

Represents typical conditions for approximately 6 miles of the ROGG Study Area between Shark Valley Entrance at Everglades National Park and Spillway S333/ ValuJet Flight 592 Memorial. The existing Canal/ Cable Barrier cross-section identifies the following elements:

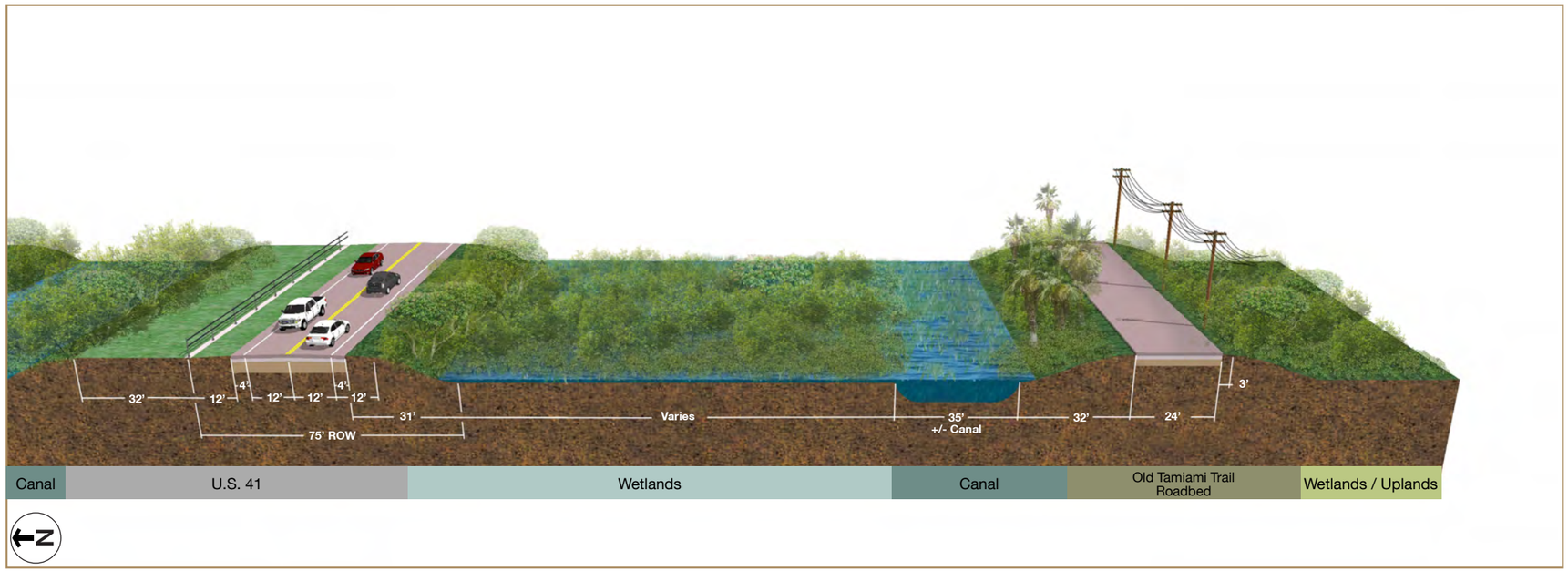
- Constrained U.S. 41 ROW of approximately 75 feet,
- Designated wetland directly south of U.S. 41 embankment,
- Two 12' travel lanes with paved 4' shoulders on north and south side,
- Stabilized gravel shoulder on south side used for informal parking near destinations,
- 50'+ width canal directly north of the highway embankment,
- 20' + wide maintained area between cable barrier and canal bank, north of U.S. 41 ROW.

ROGG East - Old Tamiami Trail Condition

Existing Conditions Description

Represents typical conditions for approximately 6.3 miles of the ROGG Study Area between Spillway S12B and Spillway S333/ ValuJet Flight 592 Memorial. The existing Old Tamiami Trail cross-section identifies the following elements:

- Separation from U.S. 41 and Old Tamiami Trail of approximately 350' with a mix of invasive and vegetative overgrowth,
- 24' + wide unmaintained Old Tamiami Trail roadbed,
- Utility line on south side of Old Tamiami Trail,
- Invasive and vegetative overgrowth along Old Tamiami Trail roadbed,
- 35'+ canal on north side of Old Tamiami Trail.

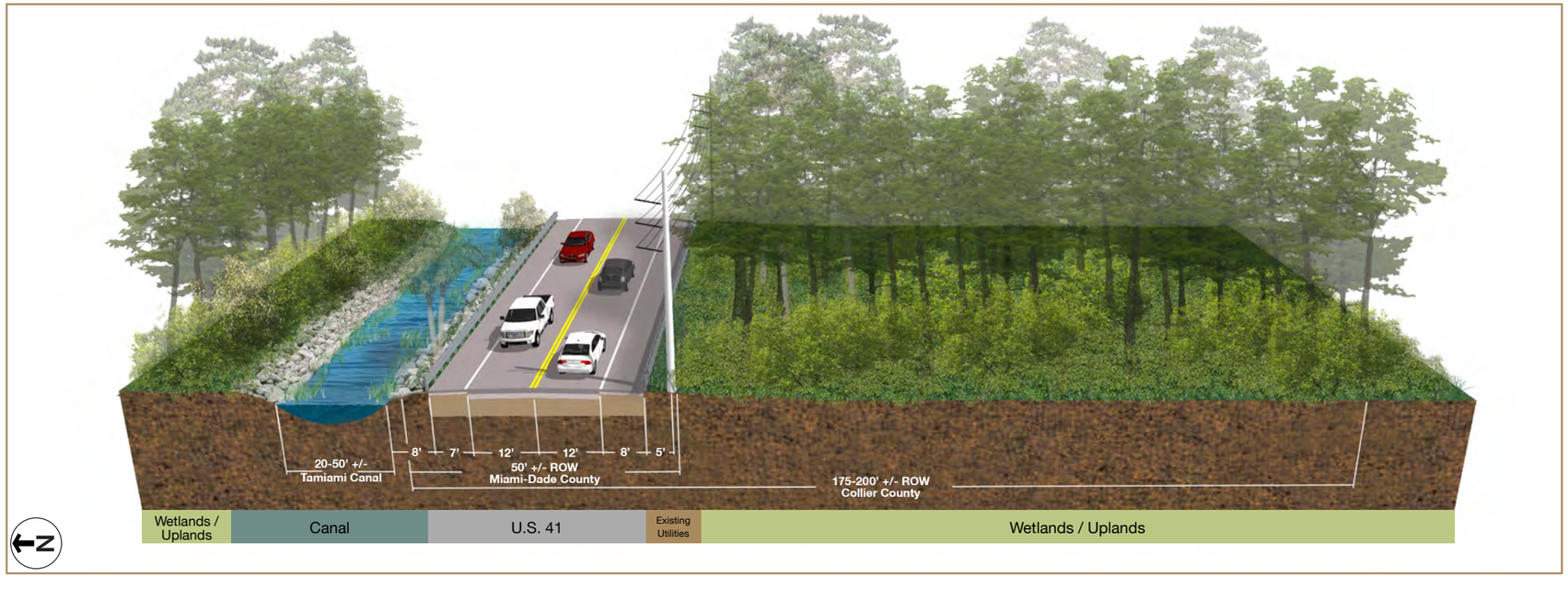


ROGG East and Central - Forty Mile Bend to BICY Oasis Visitor Center Condition

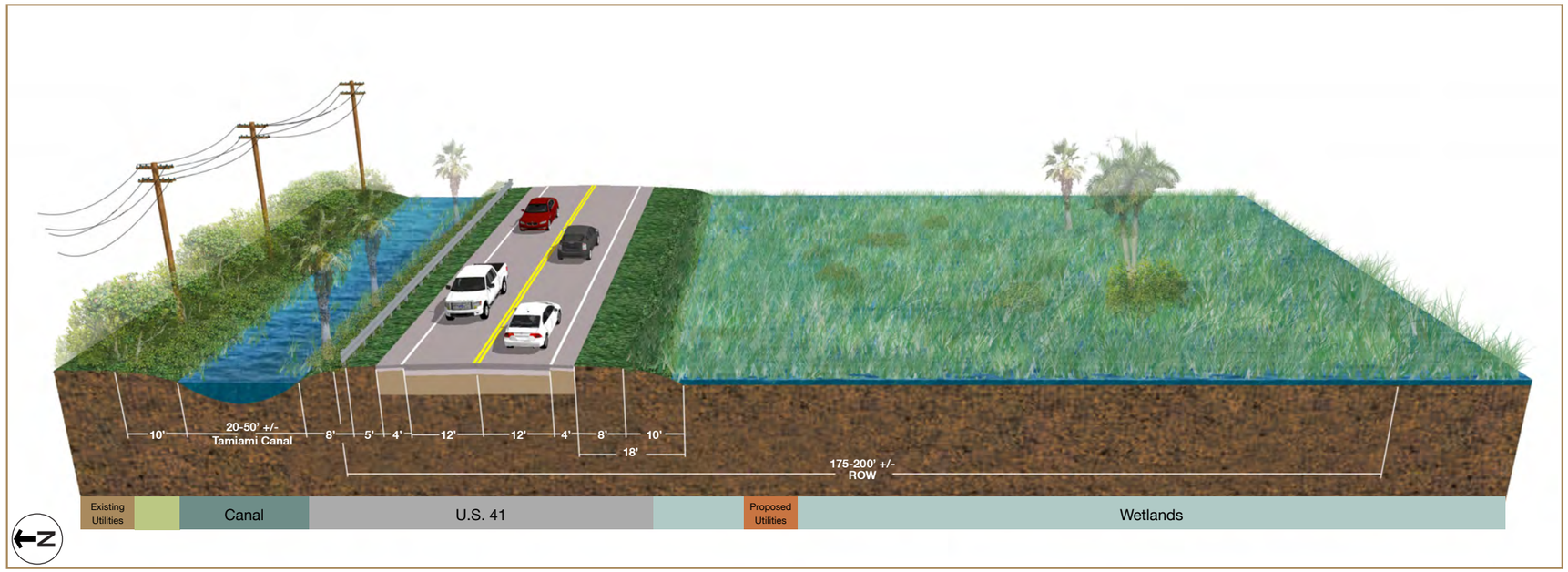
Existing Conditions Description

Represents typical conditions for approximately 15 miles of the ROGG Study Area between Forty Mile Bend and BICY Oasis Visitor Center with some additional conditions through cypress strands in ROGG Central and West. The existing Forty Mile Bend to BICY Oasis Visitor Center cross-section identifies the following elements:

- Constrained U.S. 41 ROW of approximately 50' in Miami-Dade County, expanding to 175'+ in Collier County,
- Two 12' travel lanes with 7-8' paved shoulders and guardrail barriers within Miami-Dade County and four foot shoulders and guardrail on canal side of U.S. 41 in Collier County,
- Utility line on south side of U.S. 41 ROW in Miami-Dade County,
- Approximate 8' foot canal bank between canal side guardrail and Tamiami Canal,
- 20'+ canal on north side of U.S. 41 ROW.



ROGG Central and West - Existing Canal and Marsh Condition

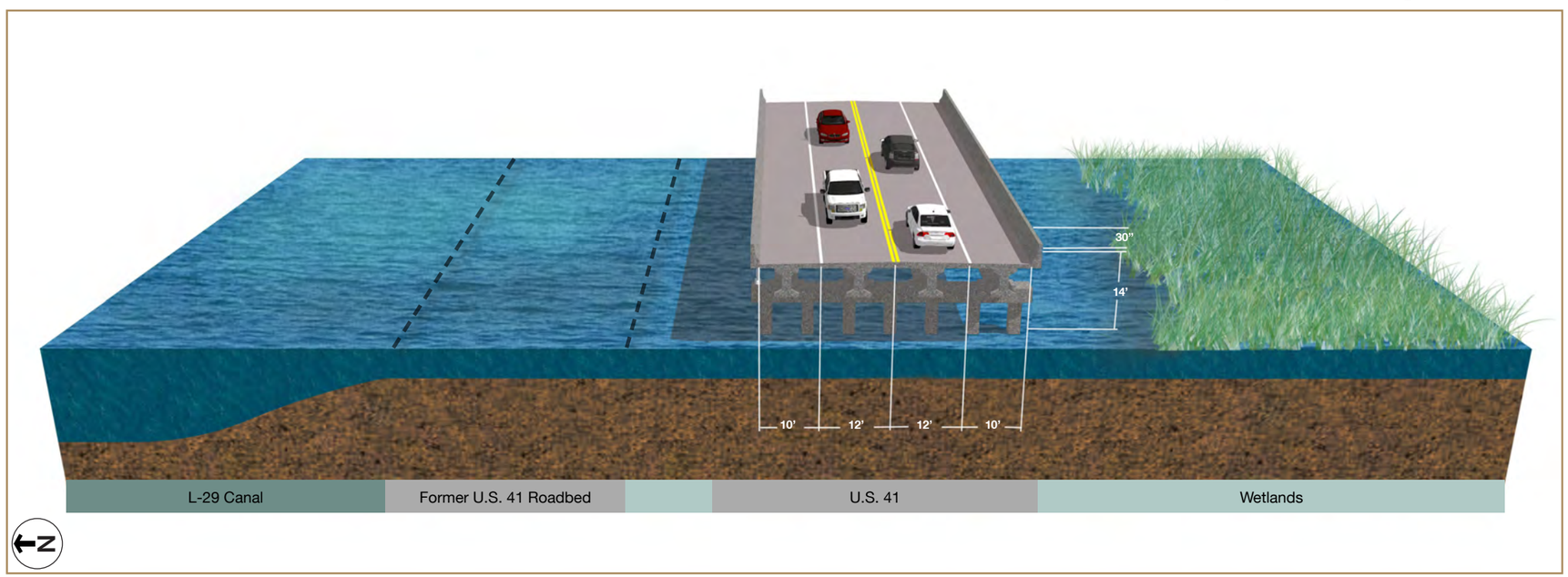


Existing Conditions Description

Represents typical conditions for approximately 35.5 miles of the ROGG Study Area between BICY Oasis Visitor Center to Corey Billie's Airboat Rides in ROGG West. This condition is typical mixed with the Forty Mile Bend to BICY Oasis Visitor Center conditions. The existing Canal and Marsh cross-section identifies the following elements:

- 175-200'+/- U.S. 41 ROW throughout Collier County,
- Two 12' travel lanes with 4' shoulders and guardrail on canal side of U.S. 41,
- Utility line on north side of Tamiami Canal from ROGG West to Eleven Mile Road, proposed to be removed,
- Proposed utility line on south from S.R. 29 to Eleven Mile Road, 32' maximum from edge of U.S. 41,
- Approximate 8' canal bank between canal side guardrail and Tamiami Canal,
- 20'+/- canal on north side of U.S. 41 ROW.

ROGG East - Existing 1.1 Mile Bridge Condition



Existing Conditions Description

Represents typical conditions for approximately 1.1 miles at the location of the existing 1.1 Mile Bridge. The existing 1.1 Mile Bridge cross-section identifies the following elements:

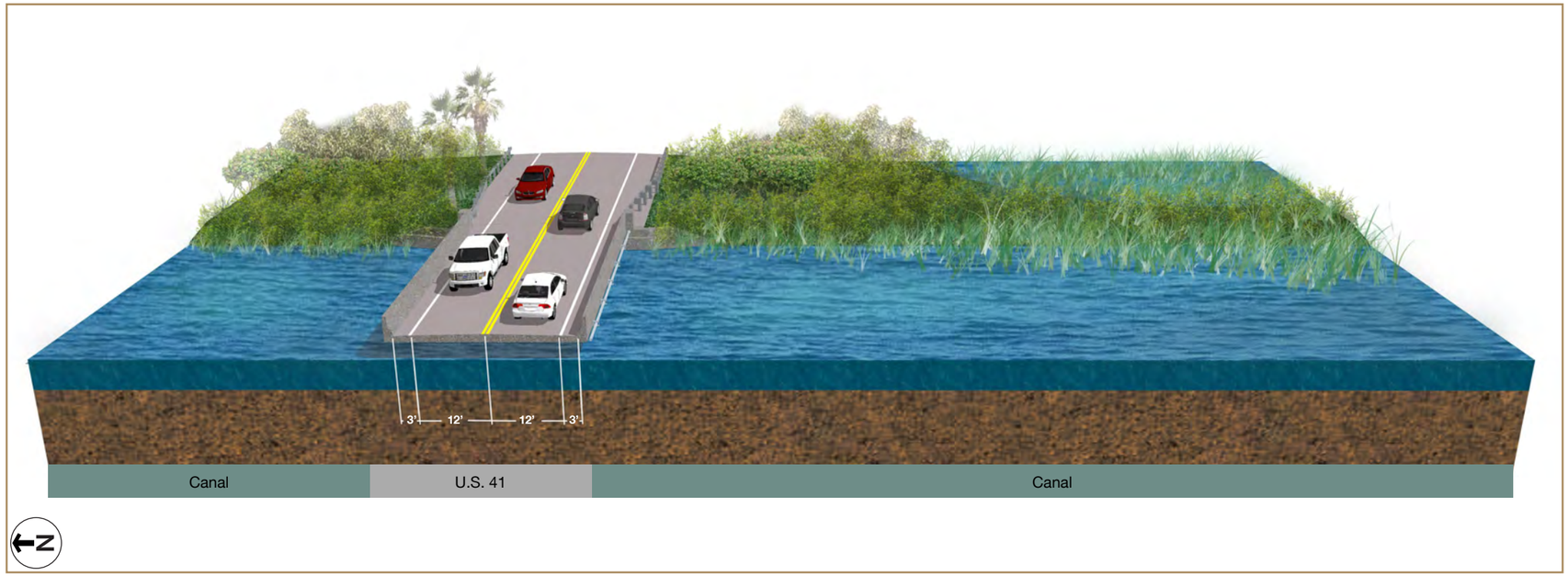
- Current conditions for 1.1 mile bridge of the Mod Waters Project,
- Two 12' travel lanes with ten foot shoulders,
- Located directly south of former U.S. 41 roadbed,
- L-29 Canal adjacent to former U.S. 41 roadbed.

ROGG Central and West - Existing Bridge Condition

Description

Represents typical conditions for approximately 72 bridges and culverts throughout ROGG Central and West as well as similar conditions for 4 water control structures (S12) in the ROGG East area. The existing Bridge cross-section identifies the following elements:

- Narrowest existing conditions for entire Study Area,
- Two 12' travel lanes with three foot shoulders,
- Bridges are typically located in northern 1/4 of U.S. 41 ROW,
- Bridges in ROGG Central recently renovated with new curbs and guardrails on edges,
- Bridges cannot support cantilevered path due to construction type,
- Bridges are typically 50-100' in length.



3.2.2 Conceptual Cross-Sections

As in the existing conditions, the conceptual cross-sections are not intended to be applied as one type of path development across the entire 76.47 miles, but instead applied to a specific condition and location. To this end, the conceptual cross-sections are presented in three categories, shown below; A) L-29 Levee and Canal, B) Highway and Shoulders, C) Separated Path.

All conceptual cross-sections are analyzed for feasibility in Section 3.3 of this study.

General Notes For Cross Sections:

Compatibility with Everglades Restoration:

All designs are to be compatible with existing and proposed elements of the Comprehensive Everglades Restoration Plan (CERP).

Boat Launch Coordination:

Any proposed path development that occurs near an existing boat launch will require coordination with the Florida Fish and Wildlife Conservation Commission.

Preservation of Existing Public Land Access:

Preservation of existing access to public lands shall be a priority and when possible enhanced. Proposed concepts are compliant with approved and required uses within a FDOT right-of-way, and where allowed by existing constraints enhances dispersed recreation access.

Board Walk Materials:

All 14-16' hard-surfaced shared-use boardwalk paths shall be constructed out of non-toxic, fire-proof materials. Conceptual cross sections where this applies includes:

- A4 - "Floating Boardwalk Path"
- B13 - "Path on Separate Boardwalk Facility Next to Existing Bridge"
- B13A - "Path on Separate Boardwalk Facility Adjacent to Existing Bridge"
- B13B - Path on Separate Boardwalk Facility Next to Existing Bridge with 12' Clearance"
- C1 - "Path on Low Boardwalk Facility"
- C2 - "Path on High Boardwalk Facility"

Native Ground Covers:

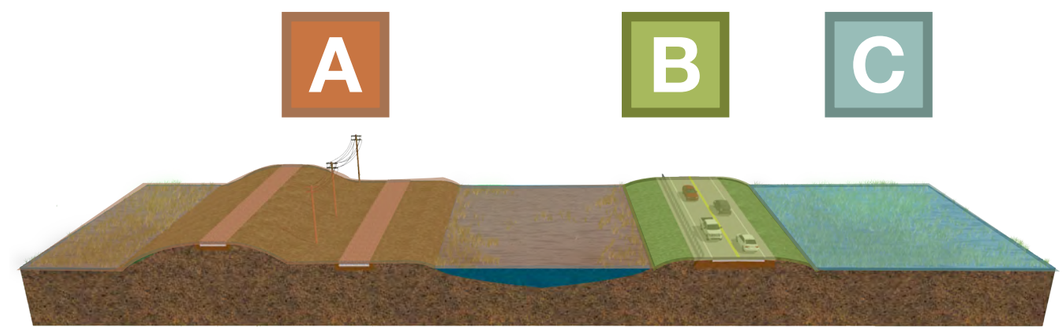
Future design phases of ROGG should strive to apply a native plant pallet consistently with and in coordination with land managers and maintenance standards.

Use of Herbicides:

The use of herbicides along any future developed portion of the ROGG shall be limited to type and application techniques used and approved by adjacent land managers.

Location of Path Alternatives

A. Levee and Canal
B. Highway and Shoulders
C. Separated Path



Existing Conditions with Locations of Path Alternatives

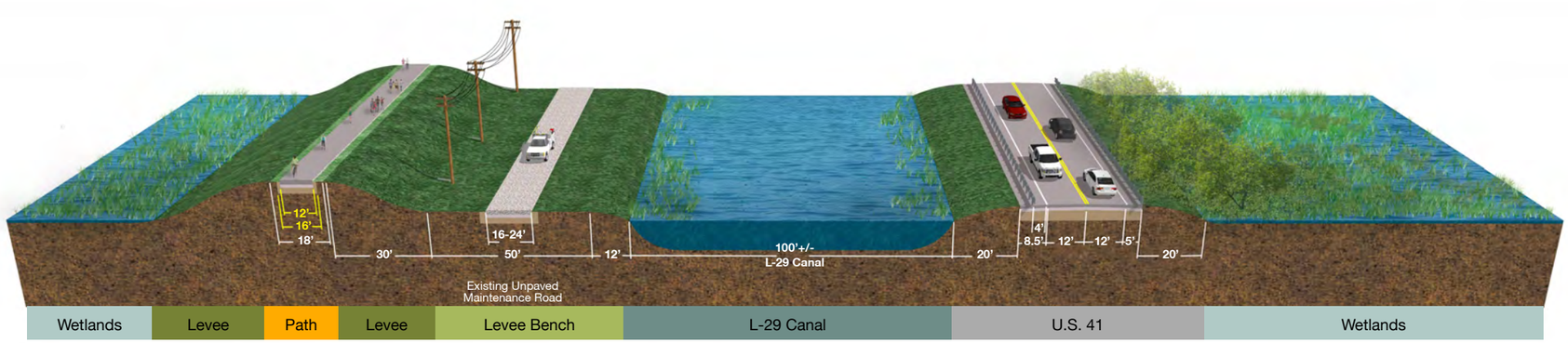
Conceptual Cross-Sections

A Levee and Canal Typical Cross-Sections

Type 'A' typical cross-sections focus on concepts involving the L-29 or Tamiami Canals and areas north of the canal.

Path on Top of Levee

A1



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

The 'Path on Top of Levee' concept is applicable primarily in the ROGG East area and includes the following elements:

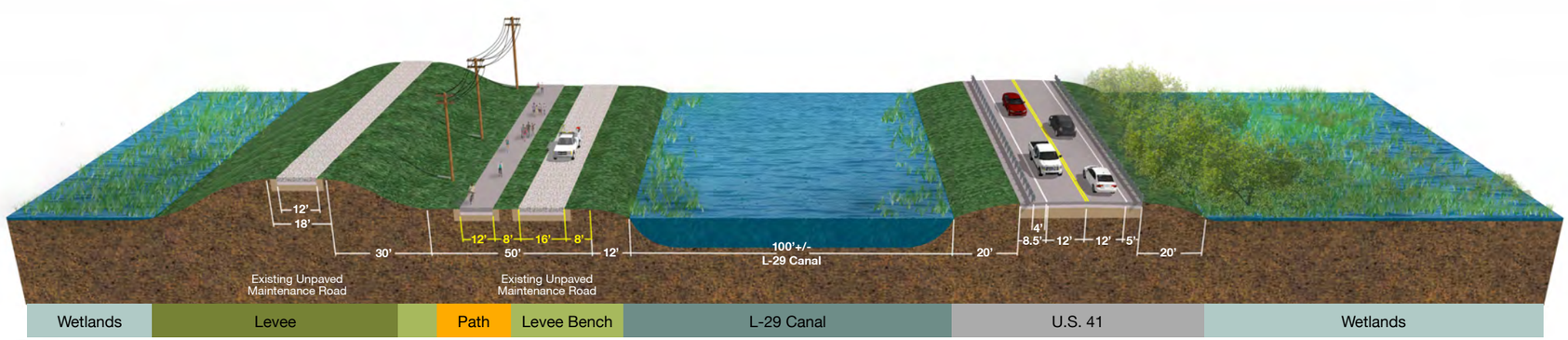
- 12' hard-surfaced non-motorized shared-use path located on top of existing L-29 levee,
- Two foot stabilized shoulders on either side of path,
- Separation of primary public motorized-vehicle traffic to levee bench maintenance road,
- Typically provides unobstructed views of the surrounding landscape and provides maximum separation of pathway users from traffic on U.S. 41.

Feasibility Notes:

- SFWMD generally does not approve hard-surface pavement for levee top paths/trails due to increased maintenance needs,
- Few connection points between L-29 levee and U.S. 41,
- Public motorized vehicles may prefer to drive on path.

Path on Levee Bench

A2



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

The 'Path on Levee Bench' concept is applicable primarily in the ROGG East area and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path located at bench of existing L-29 levee,
- Two foot stabilized shoulders on either side of path,
- Separation of primary public motorized-vehicle traffic to top-of-levee maintenance road and adjacent 16' gravel maintenance road,
- Eight foot spatial separation between path and adjacent maintenance road,
- Provides a high-level of separation from U.S. 41 traffic.

Feasibility Notes:

- Few connection points between L-29 levee and U.S. 41,
- Public motorized vehicles may prefer to drive on path as paved surface is smoother than gravel maintenance road.

Path on North Side of Canal

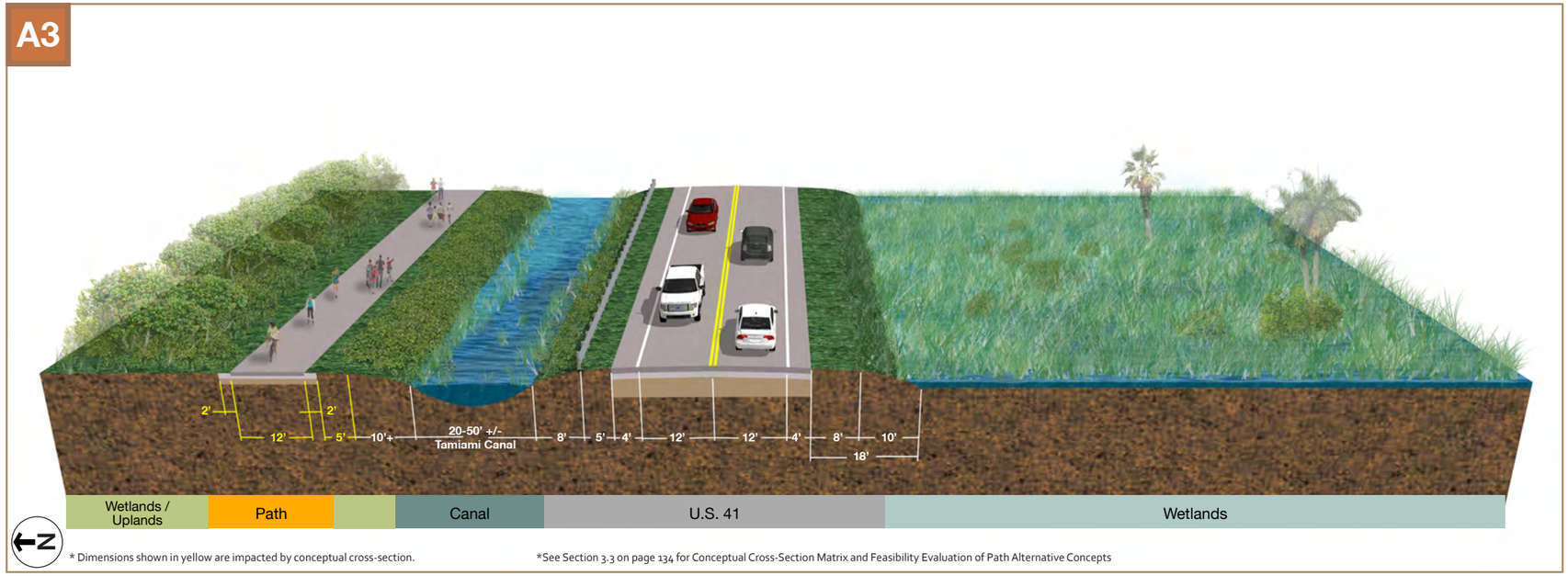
Description

The 'Path on North Side of Canal' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path located on north side of existing Tamiami Canal,
- Two foot' stabilized shoulders on either side of path,
- Minimum 15 foot spatial separation between path and Tamiami Canal,
- Potential for a high-level experience for users due to proximity to Tamiami Canal,
- Provides a high-level of separation from U.S. 41 traffic.

Feasibility Notes:

- Few connection points between path and U.S. 41,
- Existing utility lines run in approximate route,
- Extensive invasive and vegetation overgrowth exists,
- May have significant impact on designated wetlands where new fill or berming is required.



Floating Boardwalk Path

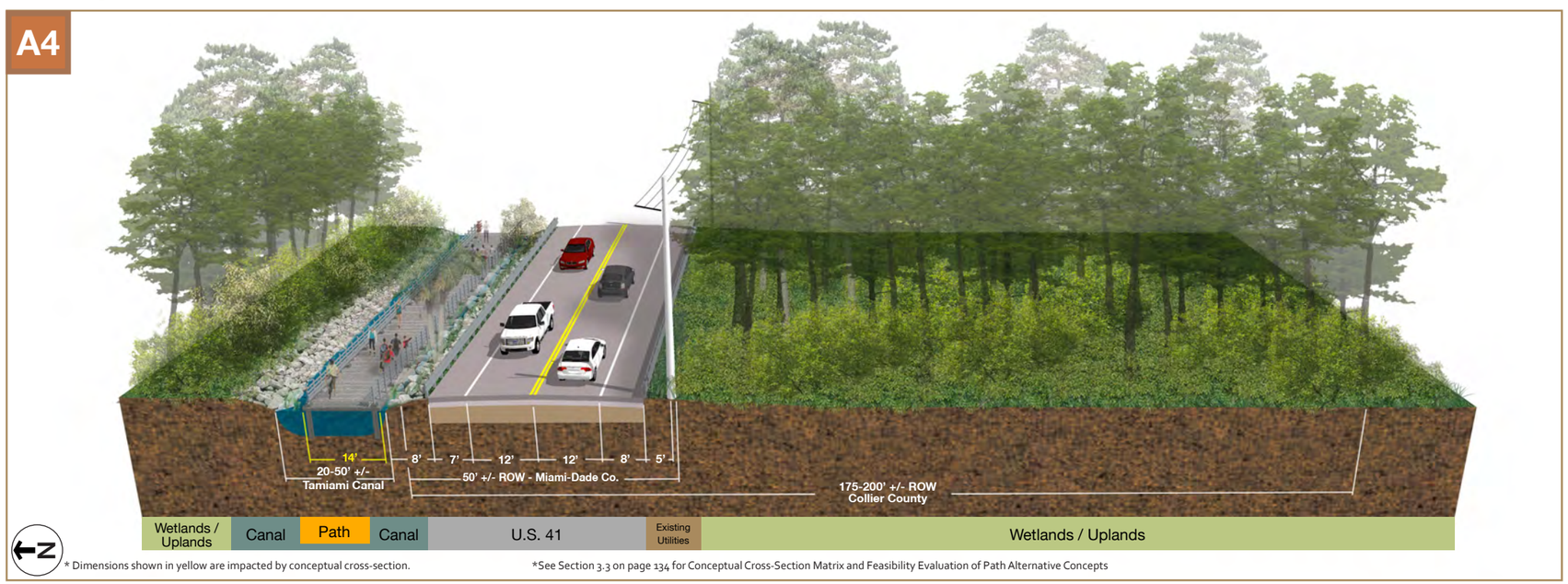
Description

The 'Floating Boardwalk Path' concept is potentially applicable in select areas and includes the following elements:

- 14' hard-surfaced non-motorized shared-use floating path located on existing Tamiami Canal,
- Two foot shy-zone on canal side of path,
- Floating boardwalk would raise and lower depending upon seasonal and tidal flow of Tamiami Canal,
- Provides a high-level of separation from U.S. 41 traffic.

Feasibility Notes:

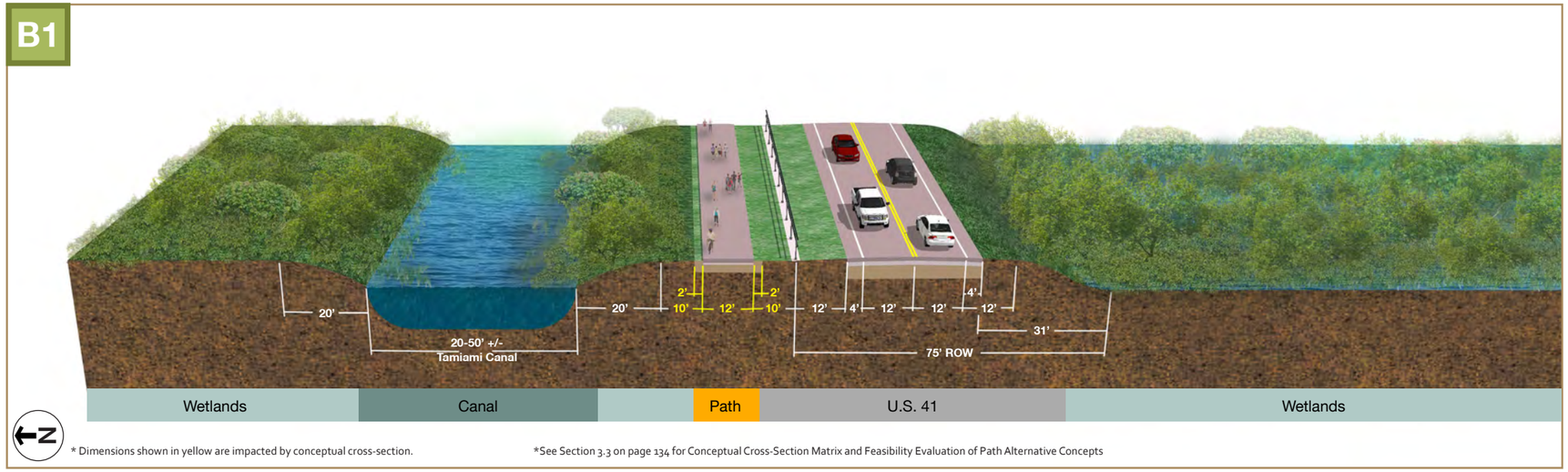
- Few connection points between path and U.S. 41,
- Extensive invasive and vegetation overgrowth exists,
- Seasonal and/or tidal water levels and driveway crossings may present significant design challenges,
- May have significant impact on canal conditions due to shadowing effect of boardwalk,
- Construction, though minimized due to boardwalk design, may have significant impact on canal and would require use of safety railings on both sides of path,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.



B Highway and Shoulder Typical Cross-Sections

Type 'B' typical cross-sections focus on concepts involving the U.S.41 embankment and bridges.

Path Between Cable Barrier and Canal



Description

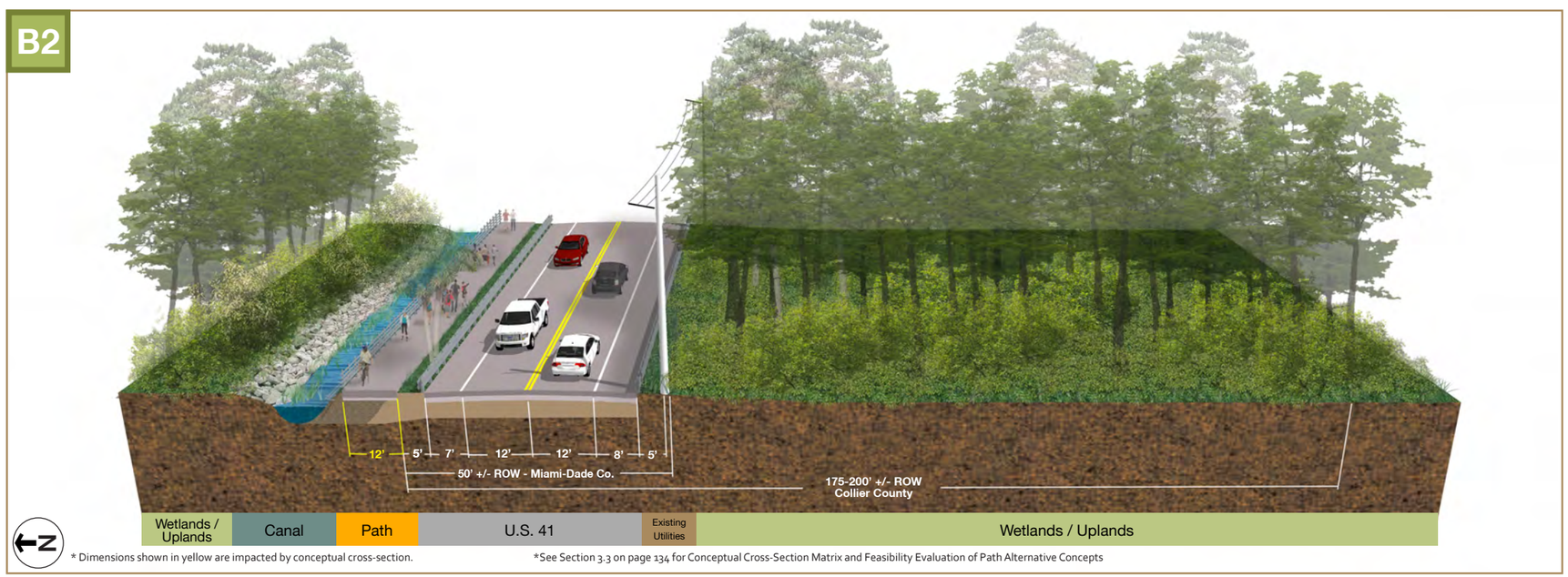
The 'Path Between Cable Barrier and Canal' concept is potentially applicable in ROGG East and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path between existing cable barrier and Tamiami Canal,
- 2' stabilized shoulders on either side of path,
- Spatial allowance for minimum meandering of pathway,
- Provides a medium-level of separation with spatial and physical barrier from U.S. 41 traffic.

Feasibility Notes:

- Few connection points between path and U.S. 41,
- Few opportunities for new trailhead or rest areas/stops without impact to cable barrier,
- Design challenges for private properties, mostly airboat vendors primarily west of the Shark Valley Entrance at Everglades National Park.

Path on Partially Filled Canal



Description

The 'Path on Partially Filled Canal' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path on partial fill within Tamiami Canal,
- Provides a high-level experience for users with opportunities for up-close observation of Tamiami Canal,
- Provides a medium-level of separation with physical barrier from U.S. 41 traffic.

Feasibility Notes:

- Few connection points between path and U.S. 41,
- Few opportunities for new trailhead or rest areas/stops,
- Requires use of safety railing when adjacent to open water or drops greater than 30" in height,
- Potentially high cost of fill, railing and mitigation requirements due to impacts to Tamiami Canal,
- Design challenges for driveway and highway crossings connections.

Path on Sheet Pile Wall Adjacent to Canal

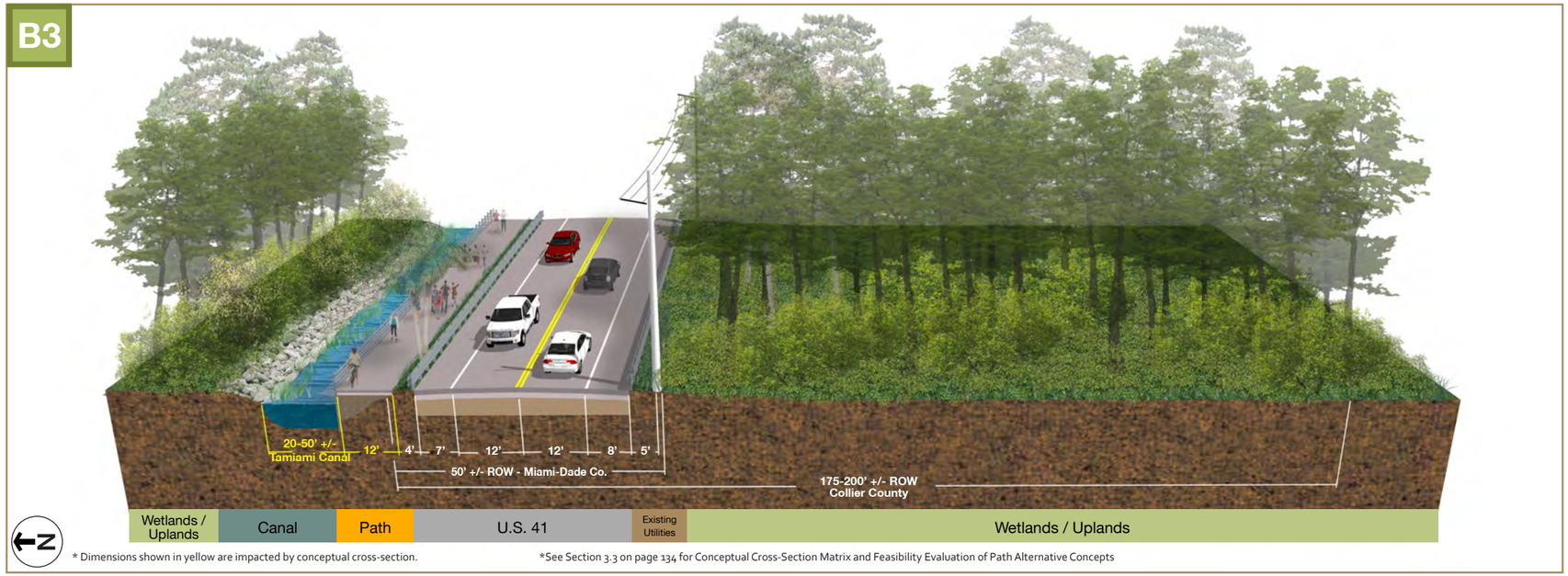
Description

The 'Path on Sheet Pile Wall Adjacent to Canal' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path on partial fill with sheet-pile wall within Tamiami Canal,
- Provides a high-level experience for users with opportunities for up-close observation of Tamiami Canal,
- Provides a medium-level of separation with physical barrier from U.S. 41 traffic.

Feasibility Notes:

- Few connection points between path and U.S. 41,
- Few opportunities for new trailhead or rest areas/stops,
- Requires use of safety railing when adjacent to open water or drops greater than 30" in height,
- Potentially high cost of fill, railing and mitigation requirements due to impacts to Tamiami Canal,
- Design challenges for driveway and highway crossings connections.



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Path Cantilevered on Sheet Pile Wall Adjacent to Canal

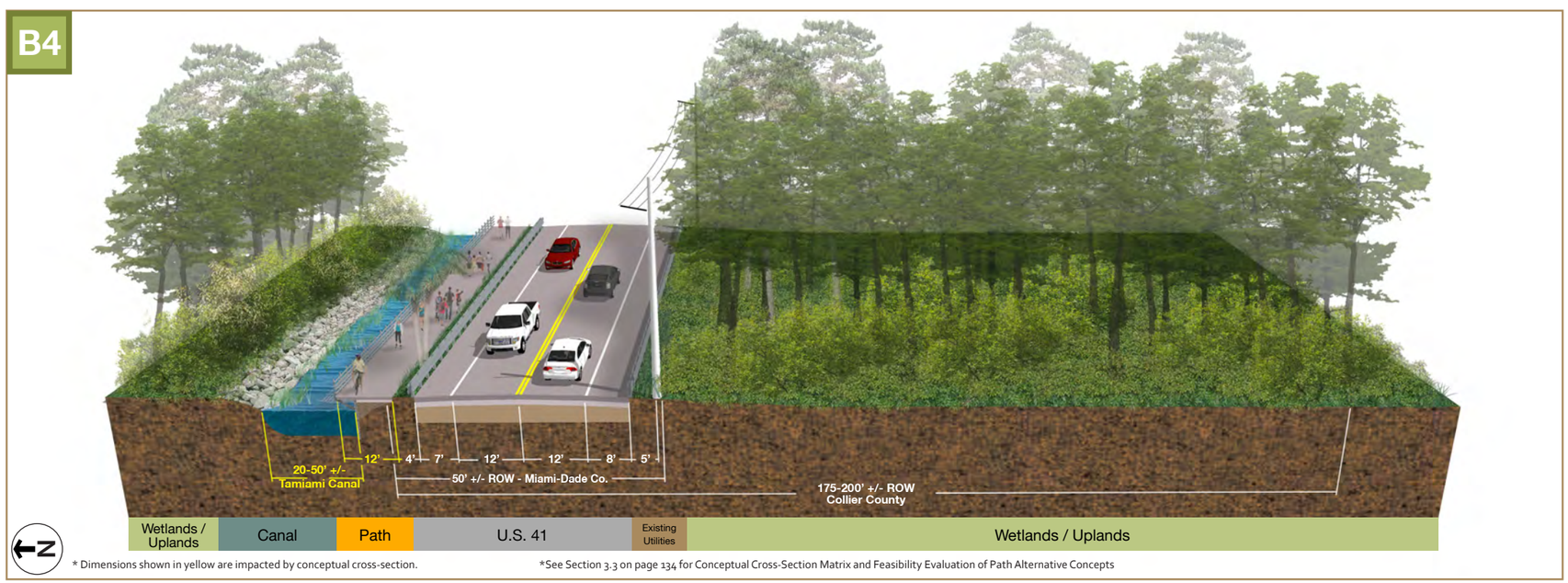
Description

The 'Path Cantilevered on Sheet Pile Wall Adjacent to Canal' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path cantilevered with sheet-pile wall within Tamiami Canal,
- Provides a high-level experience for users with opportunities for up-close observation of Tamiami Canal,
- Provides a medium-level of separation with physical barrier from U.S. 41 traffic.

Feasibility Notes:

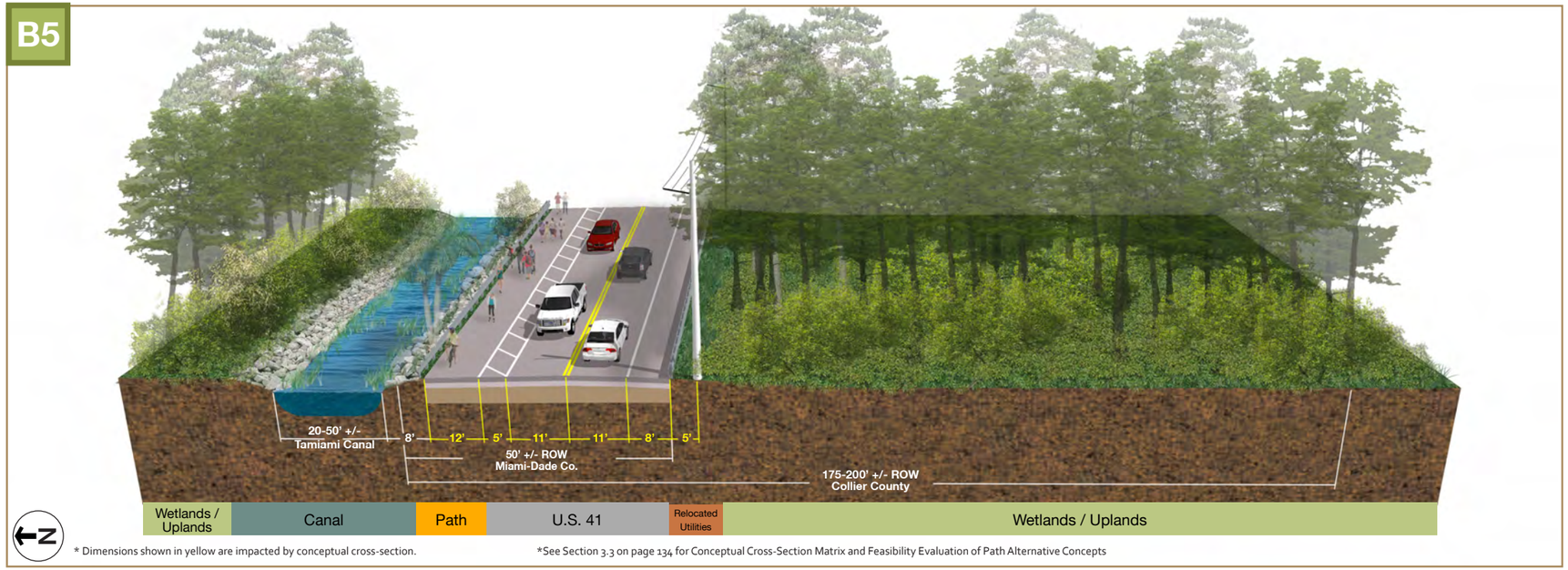
- Few connection points between path and U.S. 41,
- Few opportunities for new trailhead or rest areas/stops,
- Requires use of safety railing when adjacent to open water or drops greater than 30" in height,
- Potentially high cost of sheet pile , cantilevered trail and mitigation requirements due to impacts to Tamiami Canal,
- Design challenges for driveway and highway crossings connections.



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Path on North-side of Highway/ Lanes Shift



Description

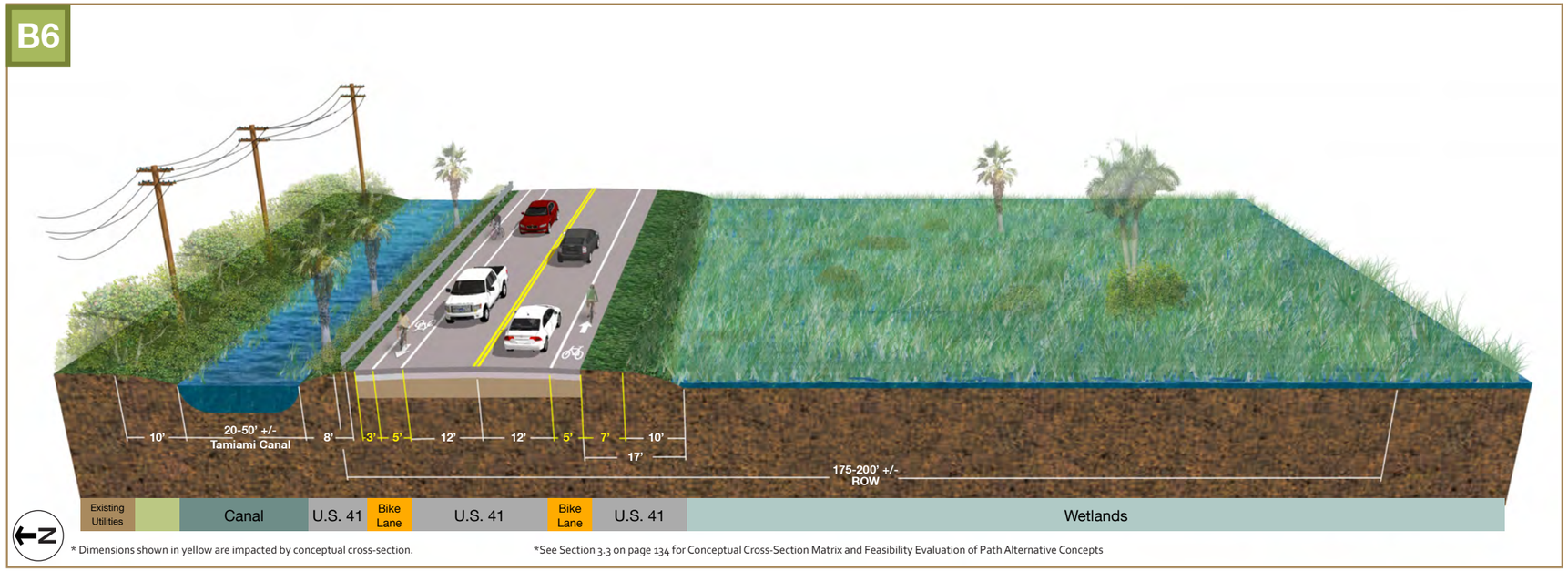
The 'Path on North-side of Highway/ Lanes Shift' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path within U.S. 41 ROW located on north-side of highway,
- Provides a low-level experience for users highlighted by opportunities for close-up observation of the Tamiami Canal,
- Provides a low-level of separation with minimally required spatial separation from U.S. 41 traffic.

Feasibility Notes:

- **Requires variance approval from FDOT of PPM Section 8.6.10,**
- Potentially high cost of expanding U.S. 41 roadbed by eight feet to the south-side and relocating existing utilities,
- Lack of ability to treat stormwater run-off from pathway and highway prior to entry into Tamiami Canal,
- Design challenges for driveway and highway crossings connections,
- Creates additional width for wildlife to cross travel lanes adjacent to guardrail.

On-Road Bike Lanes



Description

The 'On-Road Bike Lanes' concept is potentially applicable in select areas and includes the following elements:

- Minimum bike lanes located within U.S. 41 ROW,
- Provides a low-level experience for cyclist,
- Provides a low-level of separation with minimally required five foot bike lanes.

Feasibility Notes:

- Lacks pedestrian facilities,
- Bike lanes may be blocked by vehicles parking on shoulder of U.S. 41,
- Potential low cost of implementation for vast stretches of ROGG Study Area with one-foot expansion of existing paved shoulders,
- Significant constraints at existing bridges due to three-foot shoulders on bridges with a potentially high-cost of widening bridges.

Path on South-side of Highway/ Lanes Shifted

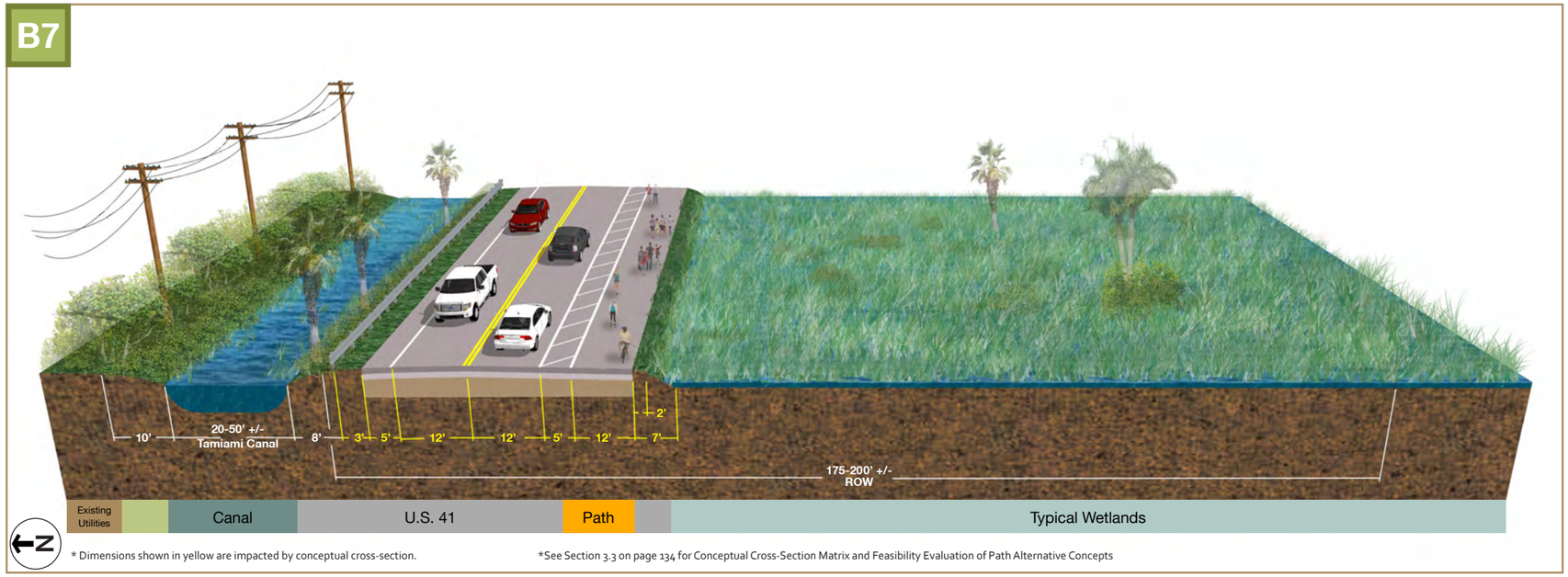
Description

The 'Path on South-side of Highway/ Lanes Shift' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path within U.S. 41 ROW located on south-side of highway,
- Provides a low-level experience for users highlighted by opportunities to observe open views to the south of highway,
- Provides a low-level of separation with minimally required spatial separation from U.S. 41 traffic.

Feasibility Notes:

- **Requires variance approval from FDOT of PPM Section 8.6.10,**
- Path may be partially blocked by vehicles parking on shoulder of U.S. 41, and impacts current practice of parking on shoulder of highway,
- Potentially low to medium cost of expanding U.S. 41 roadbed by eight feet to the south-side and relocating existing utilities,
- Design challenges for driveway and highway crossings connections.



Path on Steep Fill within Maintained ROW

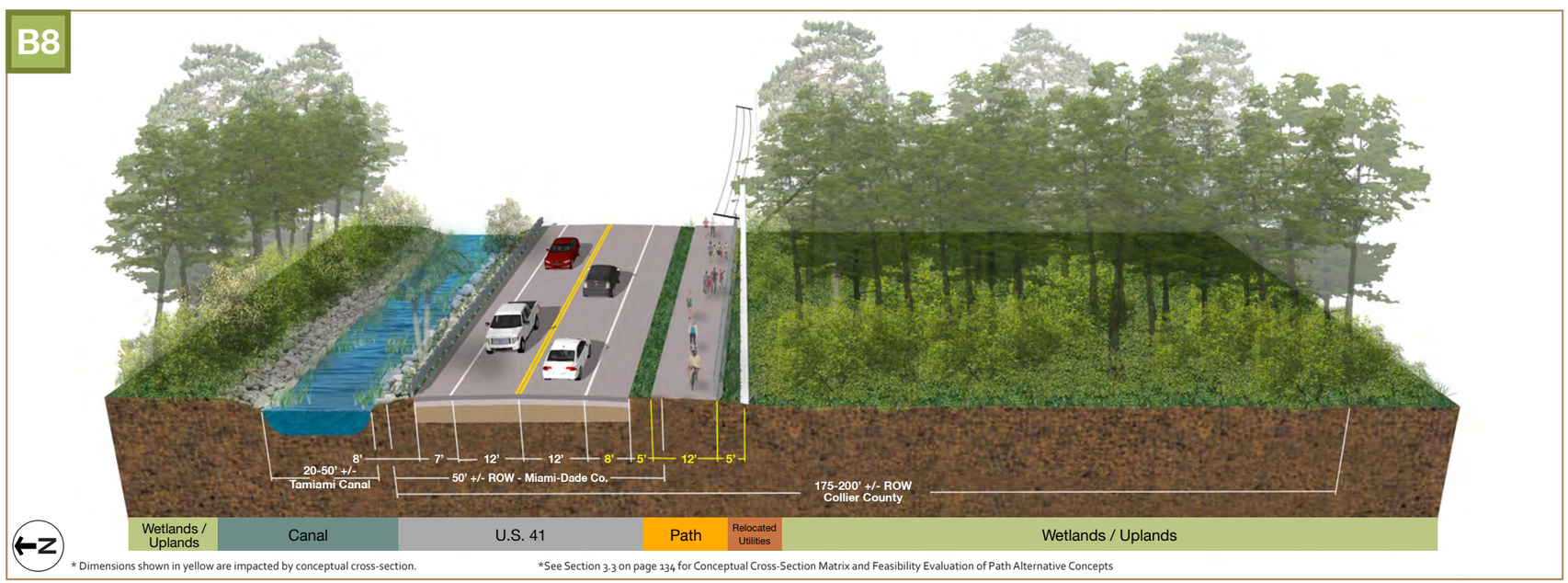
Description

The 'Path on Steep Fill within Maintained ROW' concept is potentially applicable in select areas and includes the following elements:

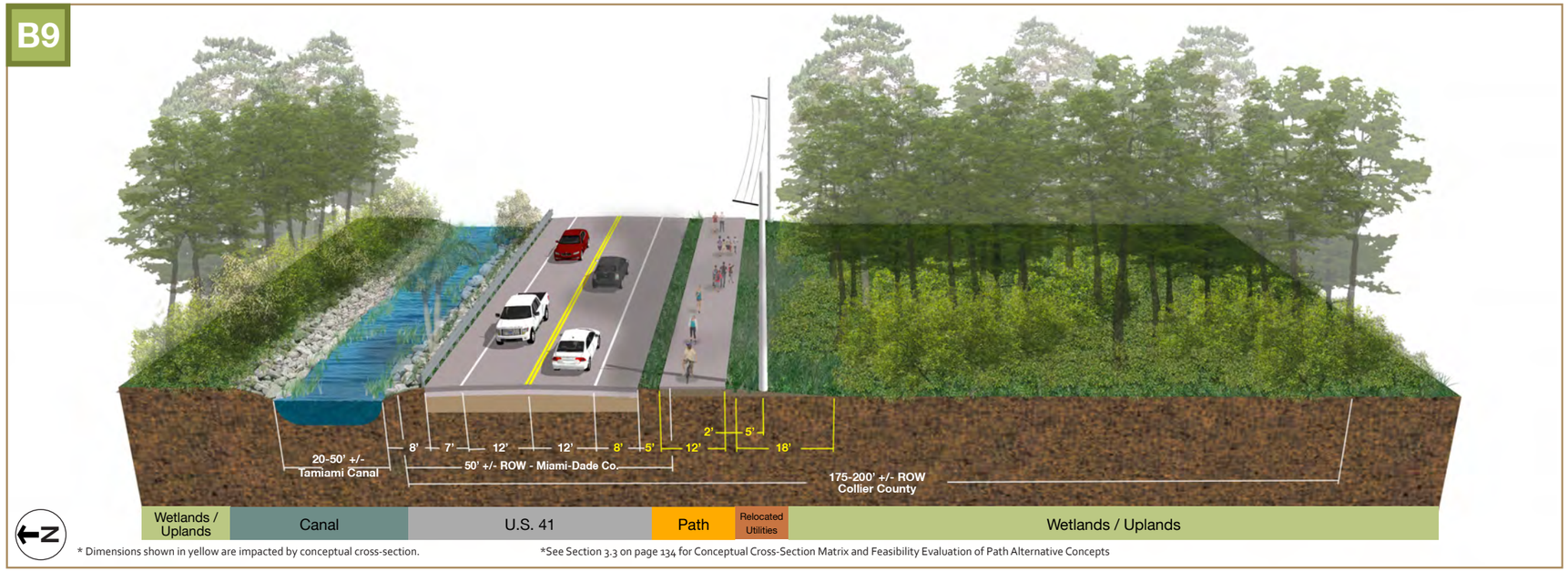
- 12' hard-surfaced non-motorized shared-use path within U.S. 41 ROW located on south-side of highway,
- Provides a low to medium-level experience for users highlighted by opportunities to observe views to the south of highway,
- Provides a medium-level of separation with physical barrier separation from U.S. 41 traffic.

Feasibility Notes:

- Potential medium cost of relocating existing utilities,
- Retaining wall and railing may be required if height from trail surface to existing grade exceed 30",
- Impacts current practice of parking on shoulder of highway,
- Maintenance impact of narrow grass strip,
- Design challenges for driveway and highway crossings connections.



Path on Expanded Shoulder



Description

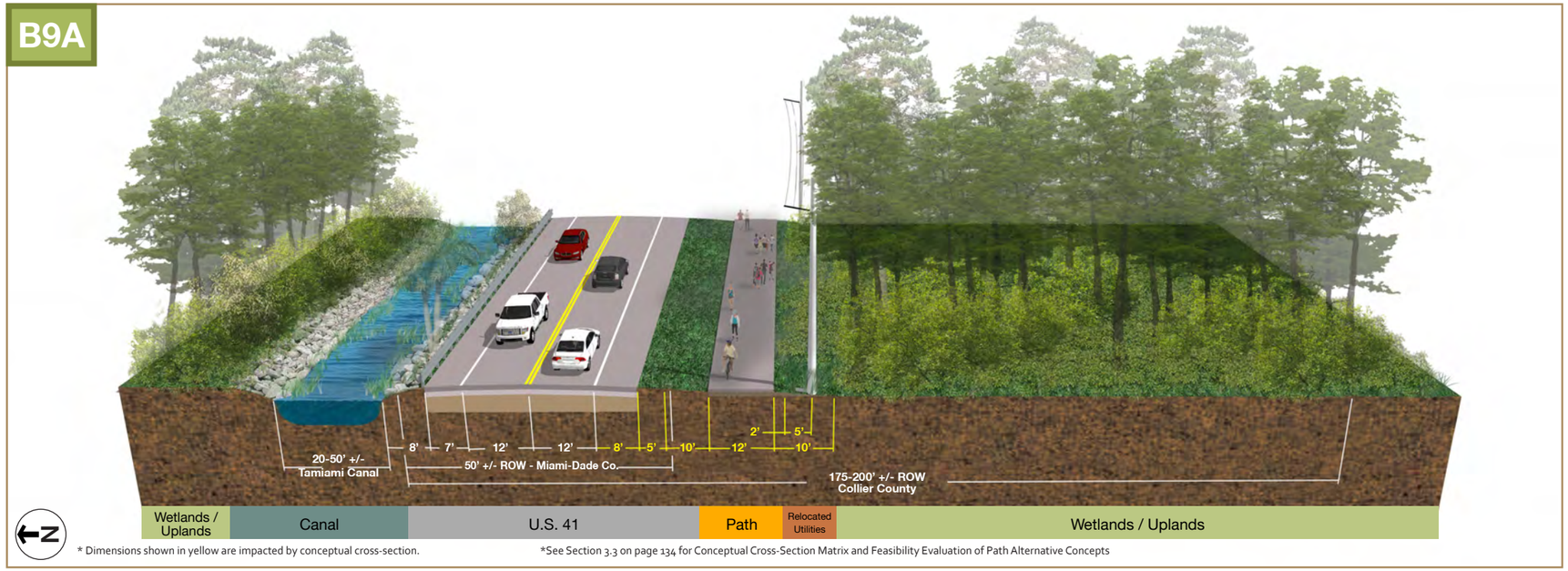
The 'Path on Expanded Shoulder' concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surface pathway within U.S. 41 ROW located on south-side of highway,
- Provides a low to medium-level experience for users highlighted by opportunities to observe open views to the south of highway,
- Provides a medium-level of separation with spatial barrier separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially medium to high cost of relocating existing utilities,
- Impacts current practice of parking on shoulder of U.S. 41,
- Maintenance impact of narrow grass strip,
- Additional fill and grading and mitigation may be needed,
- Railing may be required if height from trail surface to existing grading exceed 30".

Path on Expanded Shoulder with Parking Maintained



Description

The 'Path on Expanded Shoulder with Parking Maintained' is an alternative to B9 for locations where maintenance of existing parking is critical along U.S. 41. This concept is potentially applicable in select areas and includes the following elements:

- 12' hard-surface pathway within U.S. 41 ROW located on south-side of highway,
- Provides a low to medium-level experience for users highlighted by opportunities to observe open views to the south of highway,
- Provides a medium-level of separation with spatial barrier separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially medium to high cost of relocating existing utilities,
- Additional fill and grading and mitigation would be required,
- Railing may be required if height from trail surface to existing grading exceed 30",
- Maintenance opportunities for existing practice of parking on side of highway with provided space outside of clear zones.

Path on Proposed Bridge

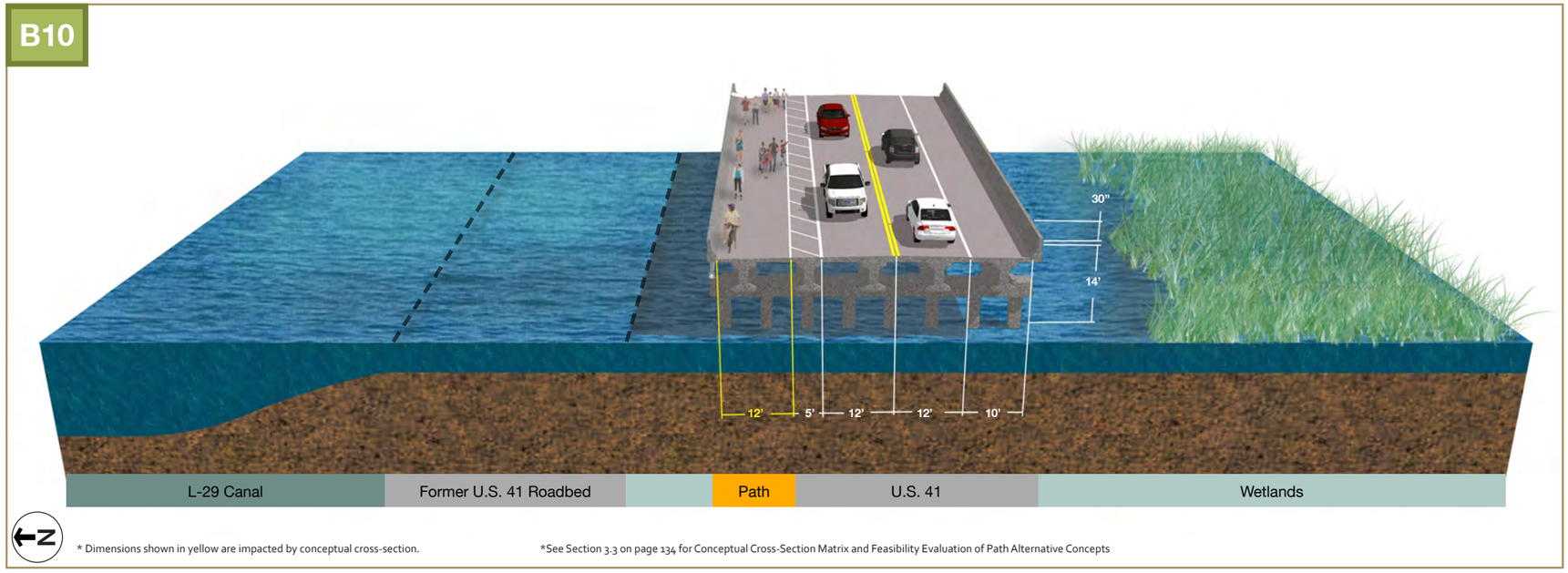
Description

The 'Path on Proposed Bridge' concept is potentially applicable in select areas in ROGG East and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path on proposed U.S. 41 bridges,
- Provides a low to medium-level experience for users highlighted by opportunities to observe views from the bridge to the north,
- Provides a low-level of separation with minimum spatial separation from U.S. 41 traffic.

Feasibility Notes:

- **Requires variance approval from FDOT of PPM Section 8.6.10,**
- Potentially high-level of cost due to construction methods of expanding the highway bridge to accommodate 7' additional width,
- Path may be partially blocked by vehicles parking on shoulder of U.S. 41,
- Additional bridge width may require additional mitigation.



Path Next to Existing or Proposed Bridge/ Separate Facility

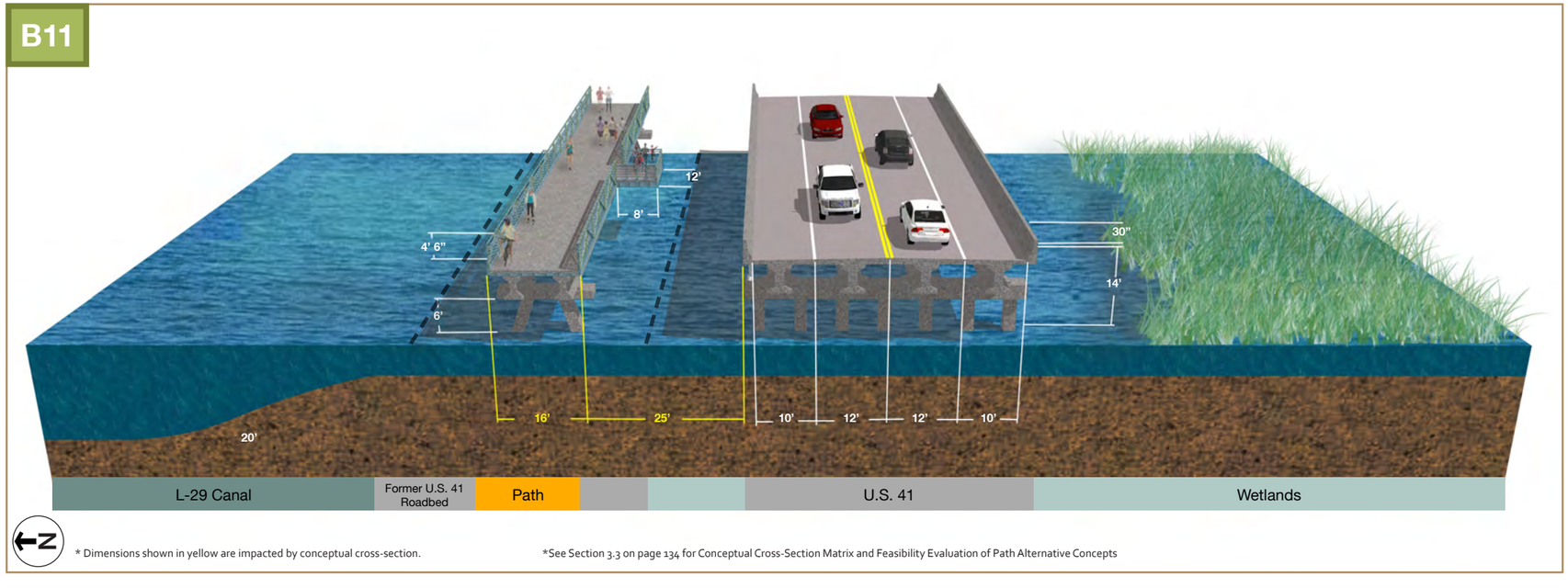
Description

The 'Path Next to Existing or Proposed Bridge/ Separate Facility' concept is potentially applicable in select areas in ROGG East and includes the following elements:

- 16' hard-surface shared-use bridge next to proposed or existing U.S. 41 bridges,
- Two foot shy-zones on both sides of boardwalk,
- Provides a medium to high-level experience for users highlighted by opportunities to observe views from the bridge to the north,
- Opportunity to include projecting fishing platforms from bridge,
- Provides a medium to high-level of separation with physical separation from U.S. 41 traffic.

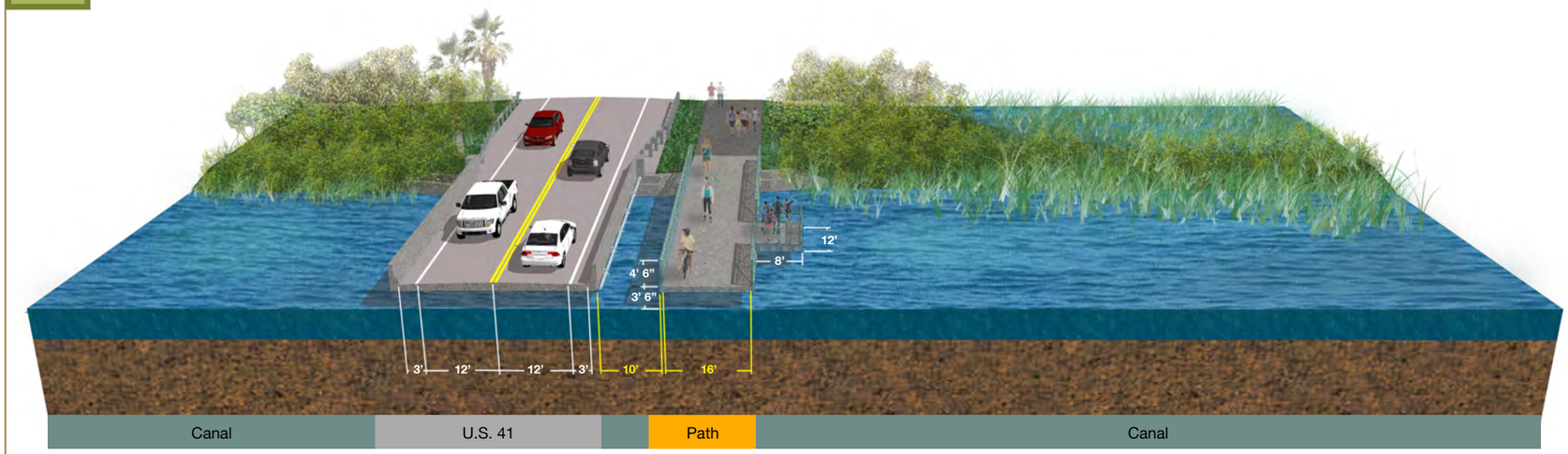
Feasibility Notes:

- Potentially high-level of cost due to construction costs for separate shared-use bridge facilities,
- Bridge would have to designed to coordinate with ongoing CEPP restoration efforts and proposed projects.



Path Next to Existing Bridge/ Separate Facility

B12



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

The 'Path Next to Existing Bridge/ Separate Facility' concept is potentially applicable where existing bridges and spillways are located and includes the following elements:

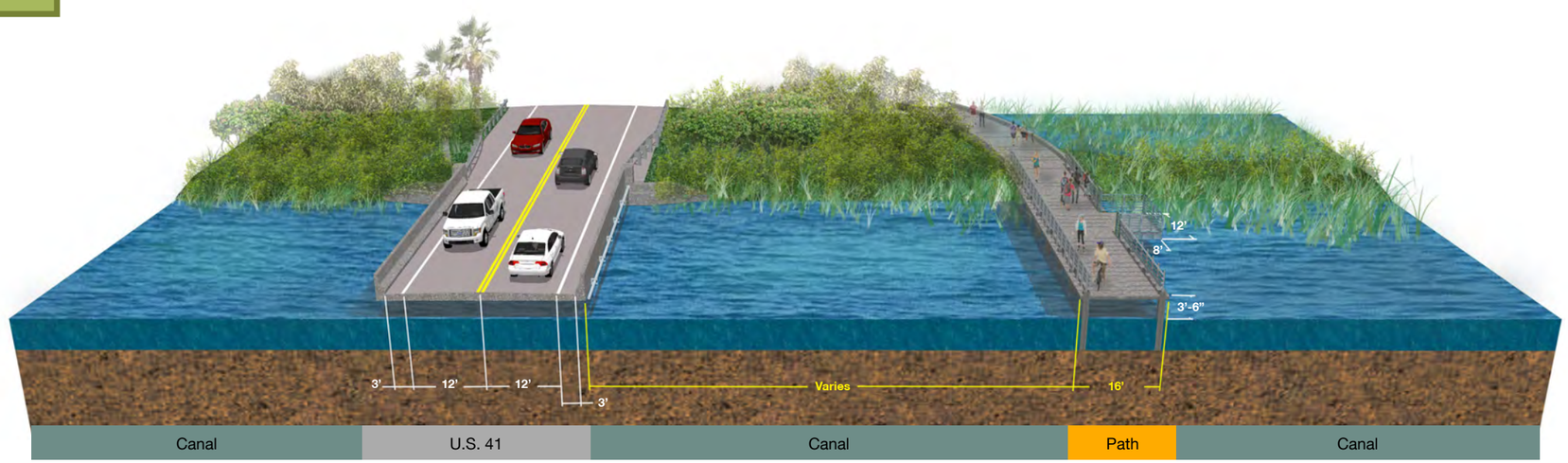
- 16' hard-surface non-motorized shared-use bridge next to existing U.S. 41 bridges,
- Two foot shy-zones on both sides of shared-use path,
- Provides a medium to high-level experience for users highlighted by opportunities to observe open views from the bridge to the south, and fish,
- Provides a medium to high-level of separation with physical separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially high-level of cost due to construction costs for separate bridge facilities,
- Mitigation impact from extending existing bridge headwalls, shadowing of canal and construction.

Path on Separate Boardwalk Facility Next to Existing Bridge

B13



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

The 'Path Next to Existing Bridge/ Separate Facility' concept is potentially applicable where existing bridges and spillways are located and includes the following elements:

- 16' hard-surfaced non-motorized shared-use boardwalk path near existing U.S. 41 bridges,
- Two foot shy-zones on both sides of boardwalk,
- Provides a medium to high-level experience for users highlighted by opportunities to observe open views from the bridge to the north and south, and fish,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.
- Safety railing

Feasibility Notes:

- Potentially medium-level of cost due to construction costs for separate boardwalk facilities,
- Mitigation impact from shadowing of canal and construction,
- Flexibility to avoid routing through highly sensitive resources,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.

Path on Separate Boardwalk Facility Adjacent to Existing Bridge

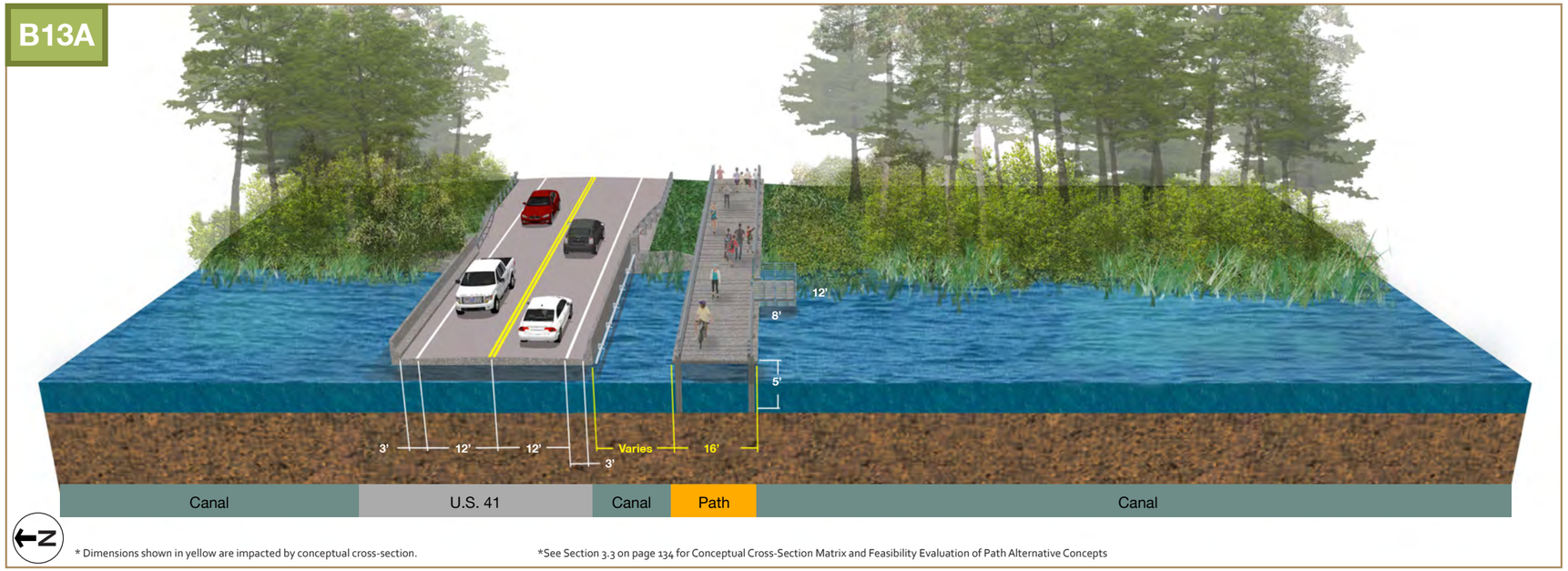
Description

The 'Path on Separate Boardwalk Facility Adjacent to Existing Bridge' concept is potentially applicable where existing bridges and spillways are located and includes the following elements:

- 16' hard-surfaced non-motorized shared-use boardwalk path near existing U.S. 41 bridges,
- Two foot shy-zones on both sides of boardwalk,
- Provides a medium to high-level experience for users highlighted by opportunities to observe open views from the bridge to the north and south,
- Opportunity to include projecting fishing platforms from boardwalk,
- Provides a medium-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially medium-level of cost due to construction costs for separate boardwalk facilities,
- Mitigation impact from shadowing of canal and construction,
- Flexibility to avoid routing through highly sensitive resources,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.



Path on Separate Boardwalk Facility Next to Existing Bridge with 12' Clearance

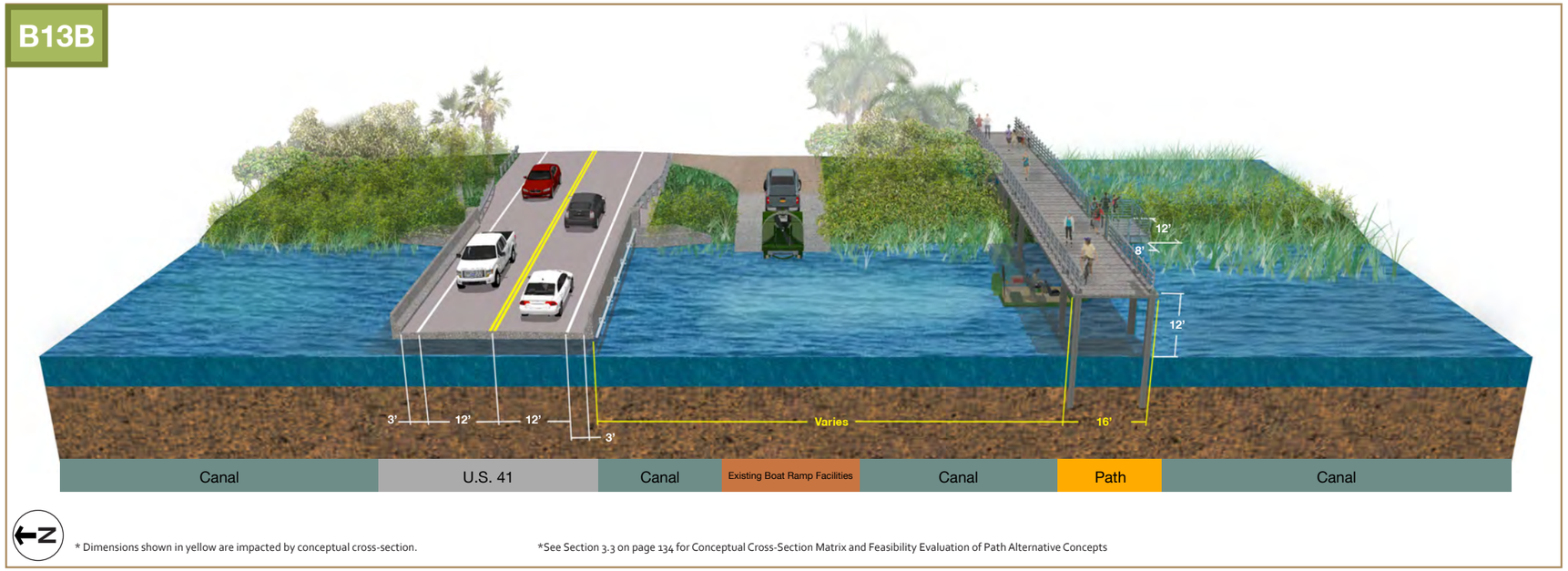
Description

The 'Path on Separate Boardwalk Facility Adjacent to Existing Bridge' concept is potentially applicable where existing bridges and spillways are located and includes the following elements:

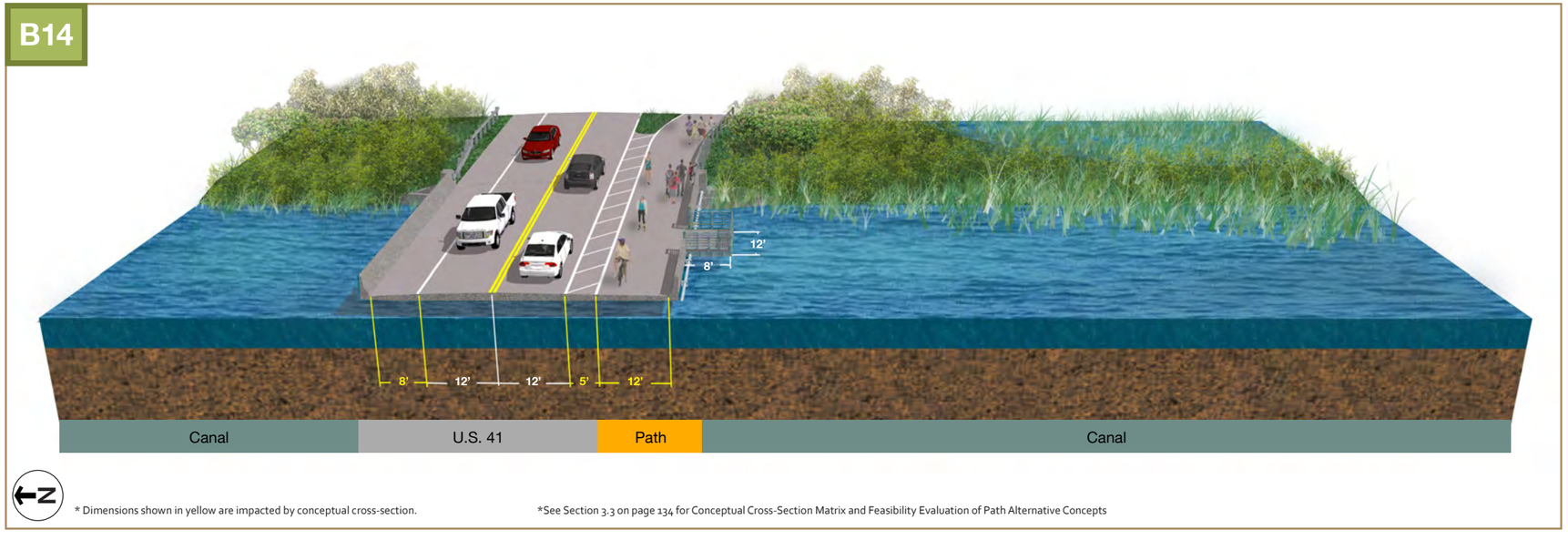
- 16' hard-surfaced non-motorized shared-use boardwalk path near existing U.S. 41 bridges,
- Two foot shy-zones on both sides of boardwalk,
- Provides a medium to high-level experience for users highlighted by opportunities to observe open views from the bridge to the north and south,
- Opportunity to include projecting fishing platforms from boardwalk,
- Provides a medium-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially medium-level of cost due to construction costs for separate boardwalk facilities,
- Mitigation impact from shadowing of canal and construction,
- Flexibility to avoid routing through highly sensitive resources,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.



Path on Widened Bridge



Description

The 'Path on Widened Bridge' concept is potentially applicable when existing bridges are replaced or improved and includes the following elements:

- 12' hard-surfaced shared-use path on widened or expanded existing or new bridges,
- Five foot spatial separation from U.S. 41 travel lanes,
- Provides a low-level experience for users highlighted by opportunities to observe views from the bridge to the south,
- Provides a low-level of separation with minimum spatial separation from U.S. 41 traffic,
- Safety railing.

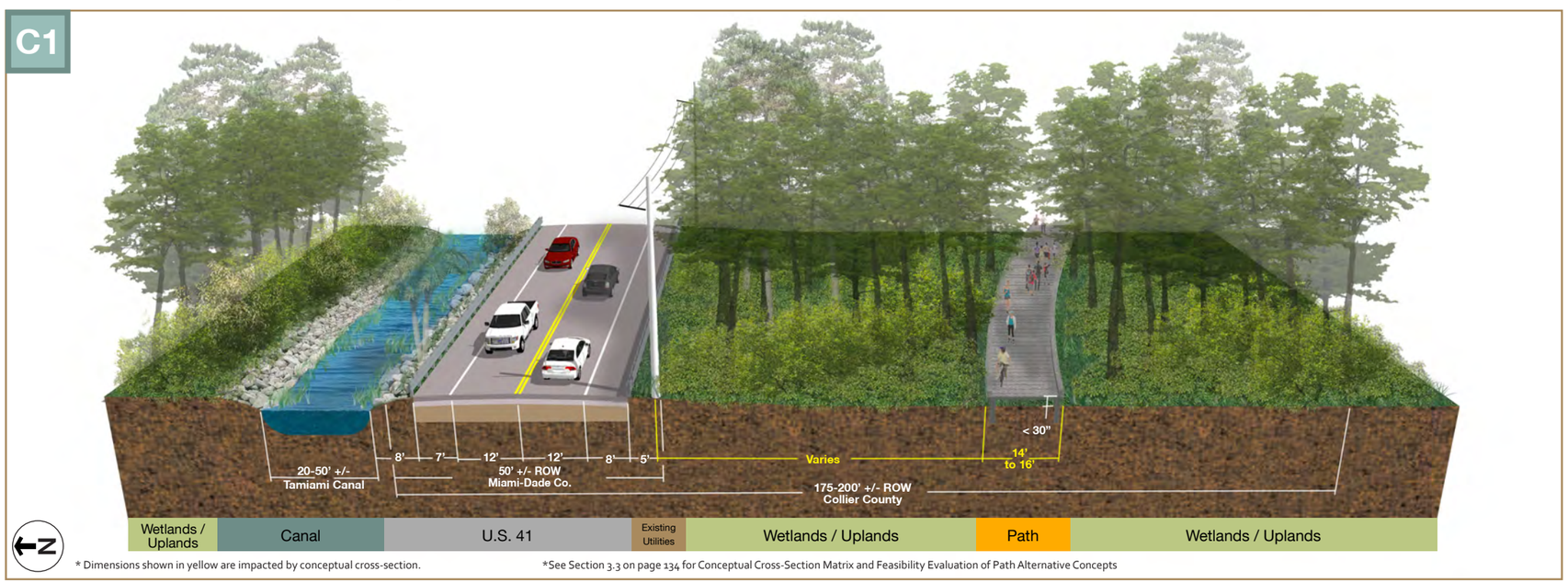
Feasibility Notes:

- **Requires variance approval from FDOT of PPM Section 8.6.10,**
- Potentially high-level of cost due to construction costs for widened or new bridge facilities,
- Mitigation impact from expansion of existing bridge headwalls, shadowing of canal and construction.

C Separated Path and Old Tamiami Trail

Type 'C' typical cross-sections focus on concepts involving separated paths south of U.S. 41.

Path on Low Boardwalk Facility



Description

The 'Path on Low Boardwalk Facility' concept is potentially applicable in select areas in ROGG Central and West and includes the following elements:

- 14-16' hard-surfaced shared-use boardwalk path,
- Two foot shy-zones on both sides of shared-use path,
- Provides a high-level experience for users highlighted by opportunities to observe open views from the boardwalks,
- Flexibility to respond to environmental constraints easily,
- In areas with a height less than 30" from path surface to existing grade, safety railing is not required,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic,
- Safety railing.

Feasibility Notes:

- Potentially medium-level of cost due to construction costs for separate boardwalk facilities and lack of railing,
- Mitigation impact from shadowing of ground and minimum construction,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.

Path on High Boardwalk Facility

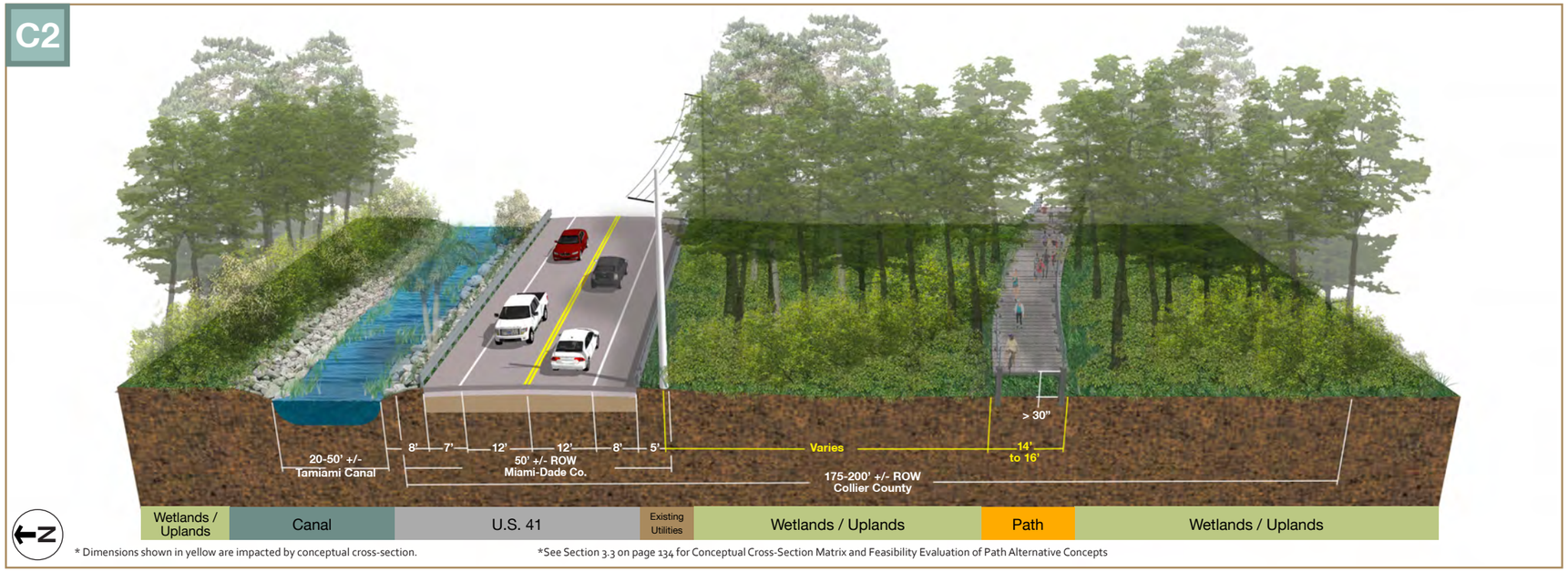
Description

The 'Path on High Boardwalk Facility' concept is potentially applicable in select areas in ROGG Central and West and includes the following elements:

- 14-16' hard-surfaced shared-use boardwalk path,
- Two foot shy-zones on both sides of shared-use path,
- Provides a high-level experience for users highlighted by opportunities to observe open views from the boardwalk,
- Flexibility to respond to environmental constraints easily,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Potentially medium to high-level of cost due to construction costs for separate boardwalk facilities,
- Less mitigation needed for impact from shadowing of ground due to higher height of path surface,
- Requires safety railing where heights are more than 30" above grade,
- Fire-resistant and toxic chemical-free boardwalk materials recommended.



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Path on New Earth Fill Berm

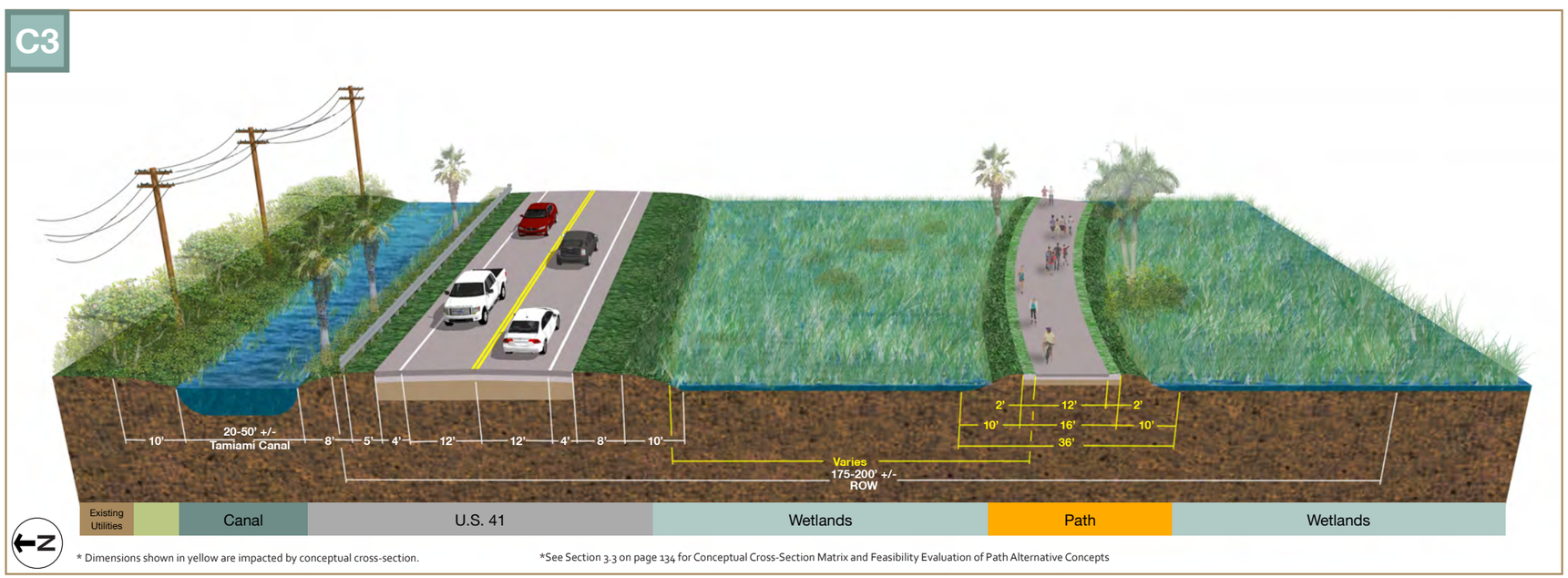
Description

The 'Path on New Earth Fill Berm' concept is potentially applicable in select areas in ROGG Central and West and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path,
- Two foot shy-zones on both sides of path,
- Provides a high-level experience for users highlighted by opportunities to observe open views to the north and south,
- Route can response to environmental constraints easily,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- May be used in conditions where protecting or enhancing waterflow is not needed,
- May have potential impact on water flow if applied to significant lengths without culverts,
- Potentially medium to high-level of cost due to construction costs for separate path facilities, required fill and mitigation needs,
- Mitigation impact from new berm and construction.



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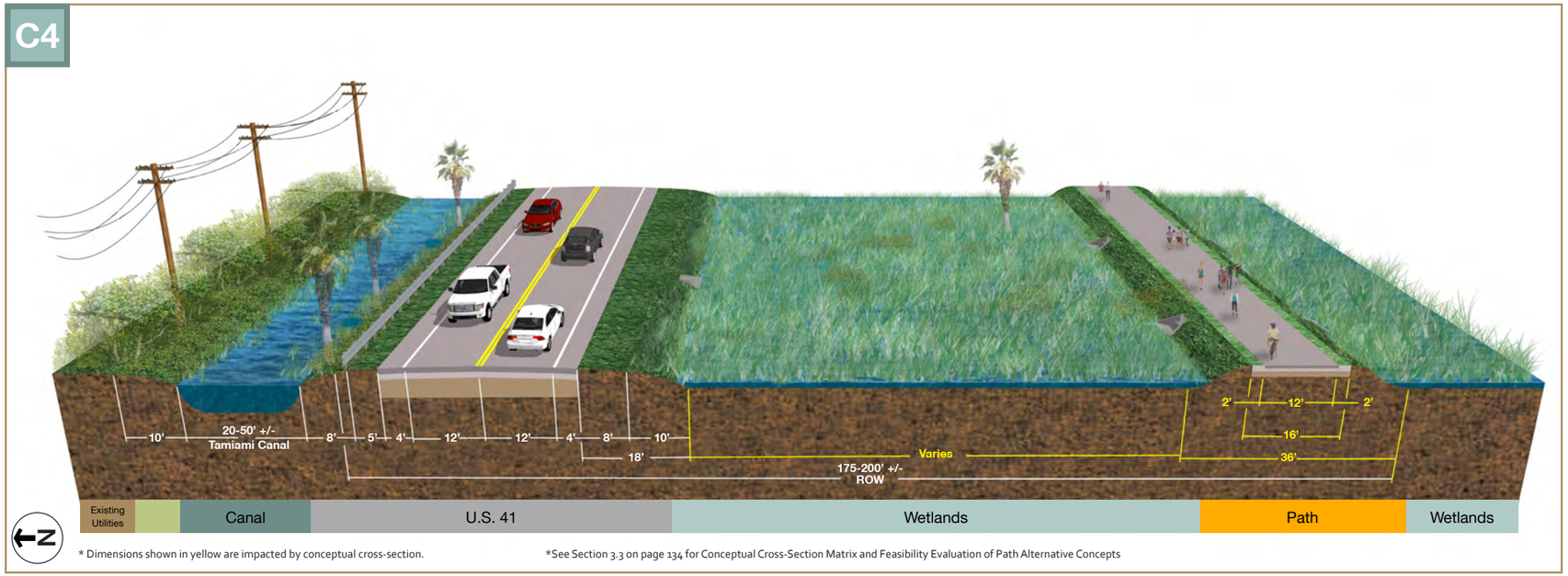
Path on New Earth Fill Berm with Culverts



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

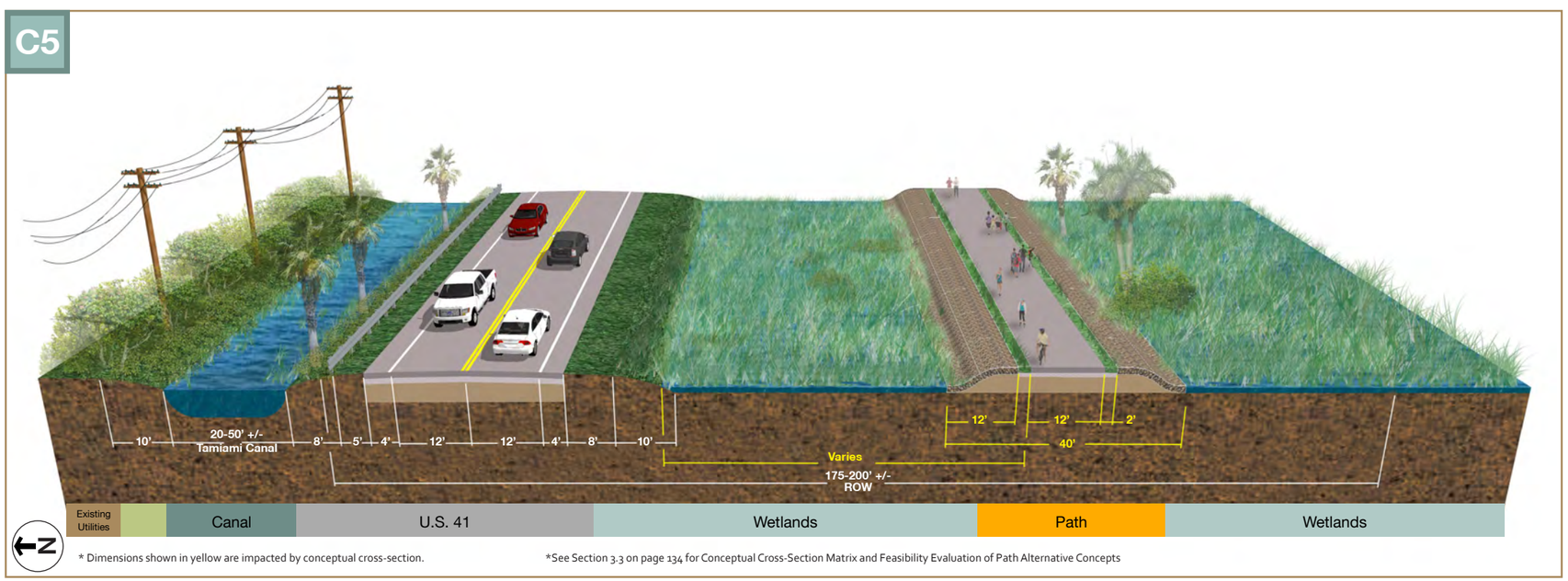
The 'Path on New Earth Fill Berm with Culverts' concept is potentially applicable in select areas in ROGG Central and West and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path,
- Two foot shy-zones on both sides of path,
- Provides a high-level experience for users highlighted by opportunities to observe open views to the north and south,
- Route can have limited response to environmental constraints,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Additional culverts may serve as a spreader for existing water flow, having a net benefit in select areas,
- Potentially medium to high-level of cost due to construction costs for separate path facilities, required fill , and culvert and mitigation needs,
- Mitigation impact from new berm and construction.

Path on New Earth Fill Berm with Gabion Walls



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Description

The 'Path on New Earth Fill Berm with Gabion Walls' concept is potentially applicable in select areas in ROGG Central and West and includes the following elements:

- 12' hard-surfaced non-motorized shared-use path,
- Two foot shy-zones on both sides of path,
- Provides a high-level experience for users highlighted by opportunities to observe open views to the north and south,
- Route can have limited response to environmental constraints,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Water can flow through gabion walls and serve as a spreader in select areas while further filtering water quality,
- Potentially high-level of cost due to construction costs for separate path facilities, required fill, gabion walls and mitigation needs,
- Mitigation impact from new berm and construction, reduced by steeper sides from gabion walls.

Path on Re-purposed Old Tamiami Road

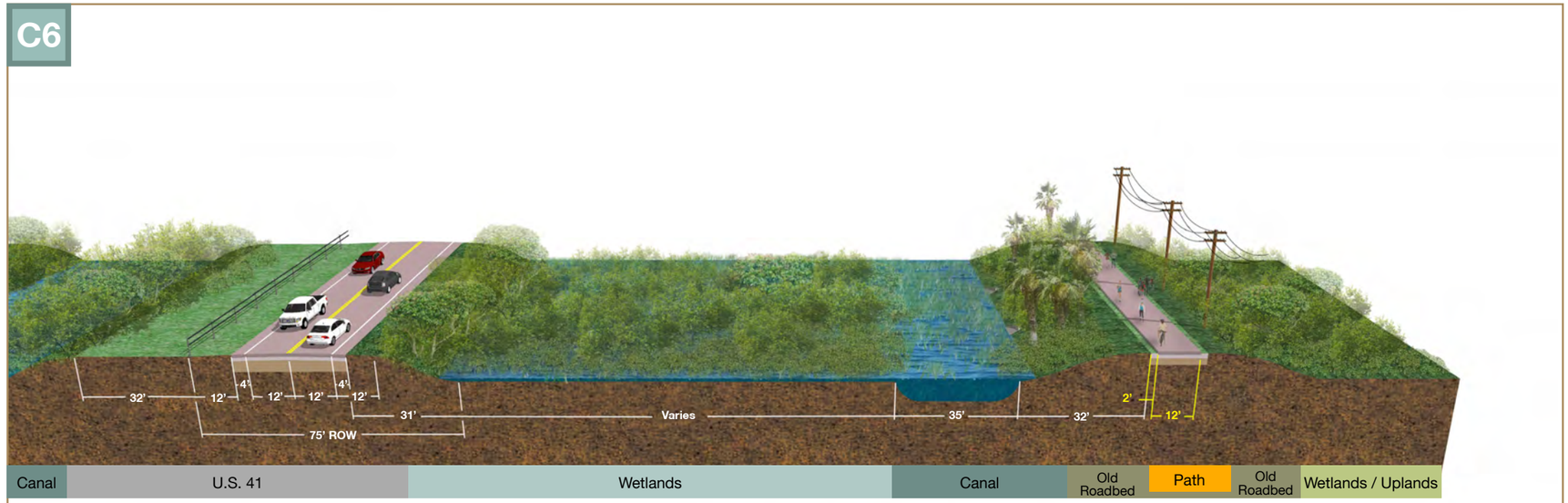
Description

The 'Path on Re-purposed Old Tamiami Road' concept is potentially applicable in ROGG East and includes the following elements:

- 12' hard-surfaced shared-use path on restored Old Tamiami Trail,
- Two foot shy-zones on both sides of path,
- Provides a high-level experience for users highlighted by opportunities to observe open views to the north and south,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic.

Feasibility Notes:

- Addition of new culverts may increase water flow, meeting the intent of CEPP,
- Provides improved access to existing utilities,
- Potentially low-level of cost due to existing Old Tamiami Trail roadbed,
- Removal of existing invasive and vegetative overgrowth,
- Old Tamiami Trail is included in proposed CEPP projects for removal from L-67 Ext. Canal to S12D,
- Removal is unfunded and unscheduled.



* Dimensions shown in yellow are impacted by conceptual cross-section.

*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Shared Road on Loop Road

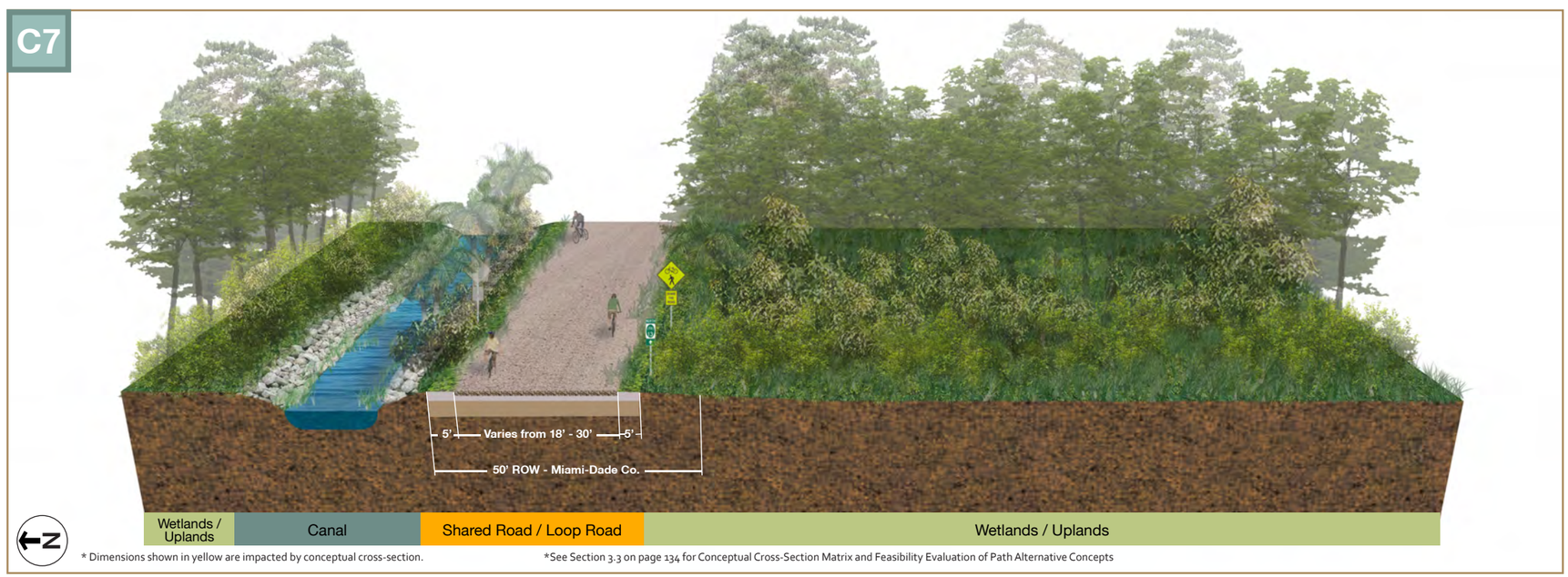
Description

The 'Shared Road on Loop Road' concept is potentially applicable in ROGG Central and East and includes the following elements:

- Shared-road facility with existing motorized vehicle traffic,
- Utilizes current limerock surface,
- Provides a shared experience for users highlighted by opportunities to observe open views to the north and south,
- Provides a high-level of separation with physical and spatial separation from U.S. 41 traffic, but shares on-road facilities with Loop Road motorized vehicular traffic.

Feasibility Notes:

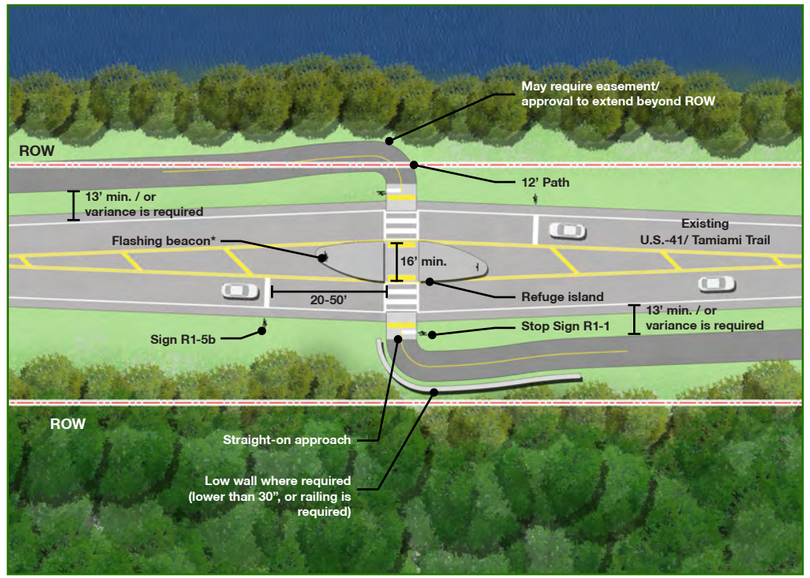
- Facilities for limited bike use, primarily large-tire mountain bikes or hybrid bikes, and lacks pedestrian facilities,
- Potentially low-level of cost due to need to install route and Share the Road signage and designate route as a bike route,
- Removal of existing invasive and vegetative overgrowth
- Limited opportunities for new trailheads and rest stops, however, new ORV trailheads provide minimum trail amenities,
- Lack of paved hard-surface for path for most of length of Loop Road.



* Dimensions shown in yellow are impacted by conceptual cross-section.

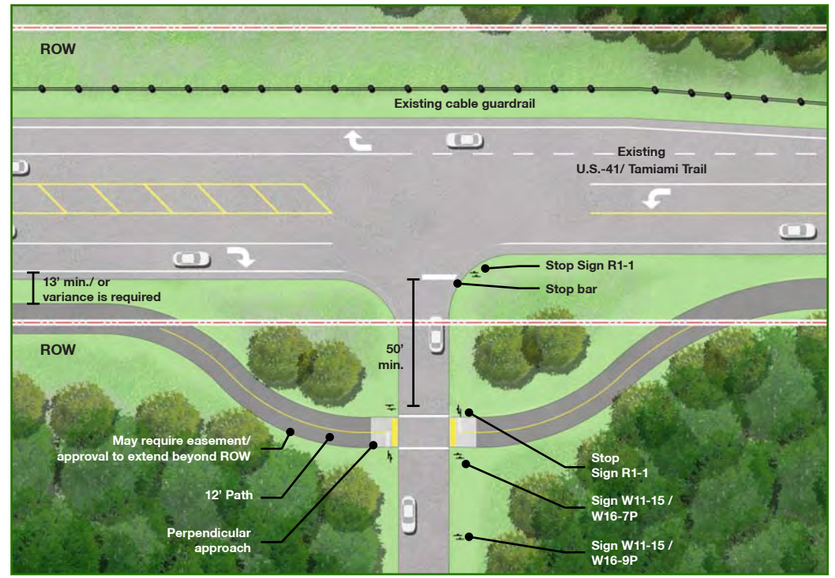
*See Section 3.3 on page 134 for Conceptual Cross-Section Matrix and Feasibility Evaluation of Path Alternative Concepts

Typical Highway/Street Crossing 'A'



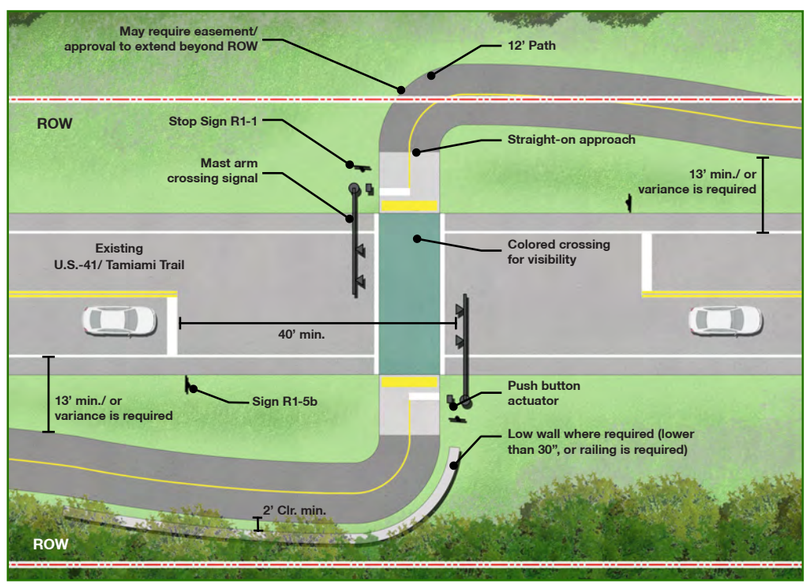
N 0 30 60 120 ft.

Typical Driveway Crossing 'A'



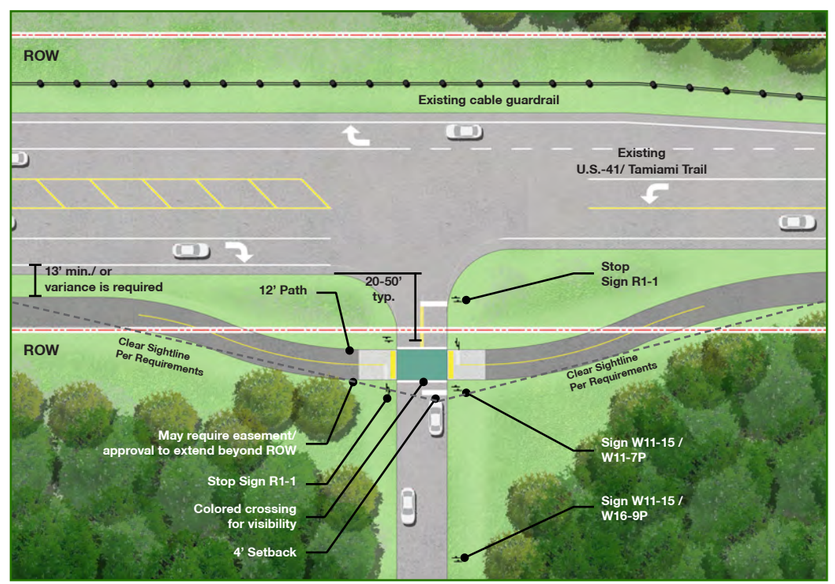
N 0 30 60 120 ft.

Typical Highway/Street Crossing 'B'



N 0 15 30 60 ft.

Typical Driveway Crossing 'B'



N 0 30 60 120 ft.

3.2.3 Typical Crossings

In order to make a safe crossing, a redundancy of measures should be employed that provides advanced notice to both shared-use path and motorized vehicle users. To guide appropriate actions by path users and motorist, designs should utilize a number of treatments, including but not limited to standard engineering practices. Additional treatments may include:

- Use of median or refuge islands;
- Limit asphalt portion of roadway to ten (10) feet wide, then allow up to twelve (12) feet of actual space by using wider shoulders;
- Advance bike/ped warning signs;
- Multiple crossing signs at the crossing;
- Use of extra signs to create a redundancy of warnings in the crossing refuge island;
- Use of mast arm crossing signals;
- Use of ADA tactile warning strip as an identifier for crossings.

In a safe crossing, cyclists and pedestrians should be able to determine their approach and actions for each crossing, no matter how minor, at the earliest possible time and then complete a full search for traffic before making a crossing.

For most U.S. 41 crossings, motorized vehicle volumes will be higher than the path. In this condition, the path user is expected to yield to the motorist. In some cases, however, it is necessary to have the motorist yield such as at driveway crossings. These treatments are recommended for consideration to alert motorists to their approach and duties at a crossing:

- Provide motorists with advance information on a straight approach, allowing advance notice of a crossing at least six (6) seconds ahead;
- Provide signage in advance, as well as a second sign showing where the crossing can be expected;
- Eliminate any possible parking at least thirty (30) feet out with sixty (60) feet preferred;
- If a crossing is around a corner, use signage that illustrates where conflict can be expected;
- Provide high visibility markings indicating to the motorist where the crossing will occur such as high contrast lane markings;
- When possible, provide sign redundancy by placing added signs in a median or overhead location;
- Use of standard yellow warning signs is acceptable, but strong fluorescent yellow-green signing is preferred, in order to call attention to the crossing.

3.2.4 Typical Trailheads

Successful pathways provide users with amenities and features that create a safe environment for all. Without such amenities as parking, access to water, or air for tires, projected use of a path may never be achieved. A challenge of planning a shared-use path the length of ROGG, is identifying and providing amenities and features for a wide array of potential users. **In most locations, trailhead facilities already exist and are publicly accessible.** Many of these facilities serve as campgrounds, tourist attractions and other points of interest along U.S. 41.

In order to accomplish a complete system over an extended length, a hierarchy of trailheads is needed. This system provides most amenities and features within cycling distance while providing some amenities and features such as shelter and parking on a more regular interval. A map of trailhead types and locations is provided at the end of this section. The following is the hierarchy of trailheads proposed for ROGG:

- Major Trailheads
- Minor Trailheads
- Rest Areas
- Rest Stops

Major and Minor Trailheads

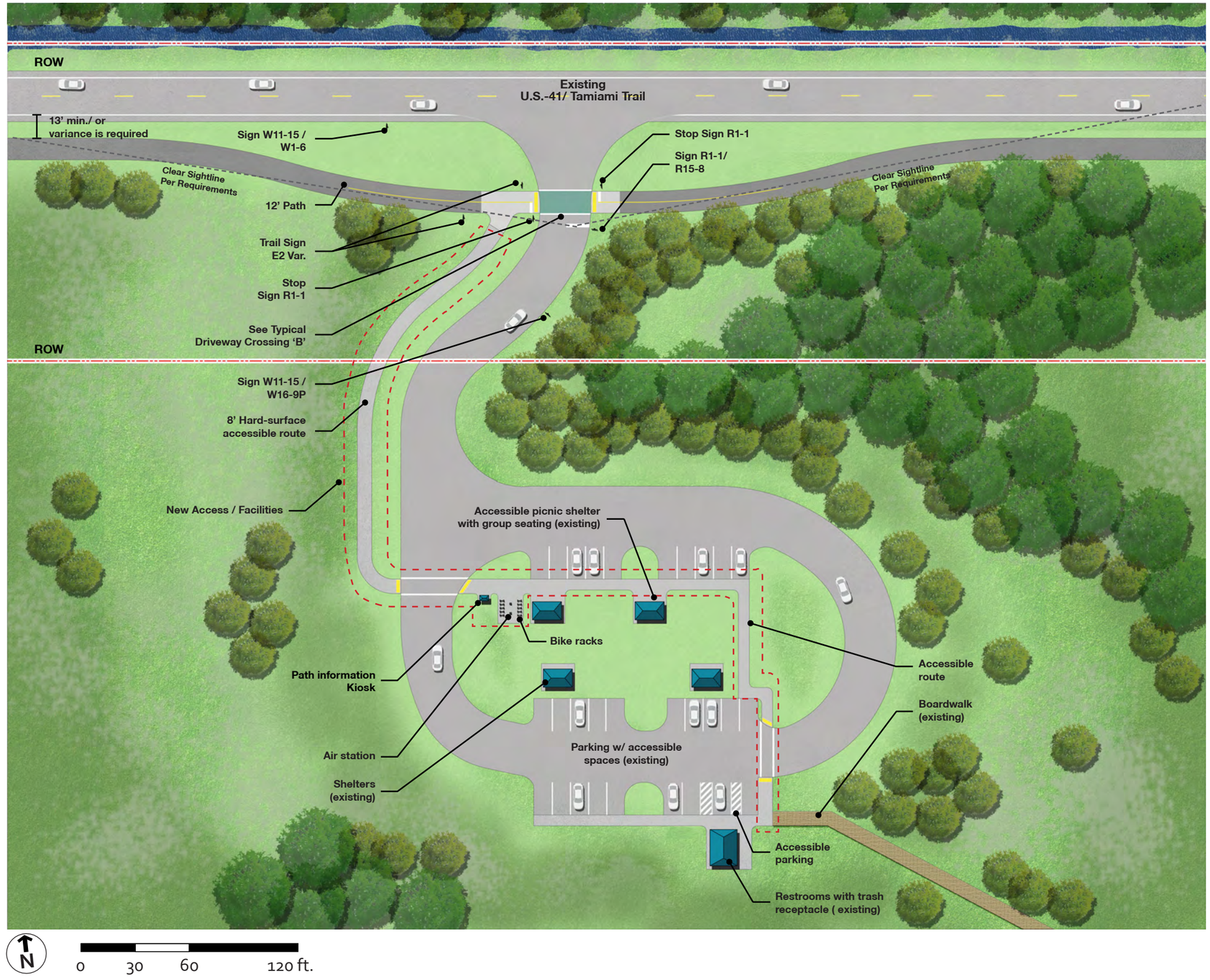
A series of full service trailheads may be provided along the ROGG spaced approximately 10-12-miles apart. **Existing facilities, such as identified destinations along U.S. 41, could meet many of the services and amenities needed for ROGG.** Based on existing conditions and appropriateness, typical trailheads would provide the following potential services:

- Parking for 10+ automobiles,
- Drinking fountains (potable water, optional at minor),
- Trash receptacles (recycling if possible),
- Picnic shelters with picnic tables (min. 3),
- Group and individual seating areas,
- Air station and bike repair station,
- Wayfinding and interpretive signage,
- Restrooms,
- Bike Racks (minimum 3),

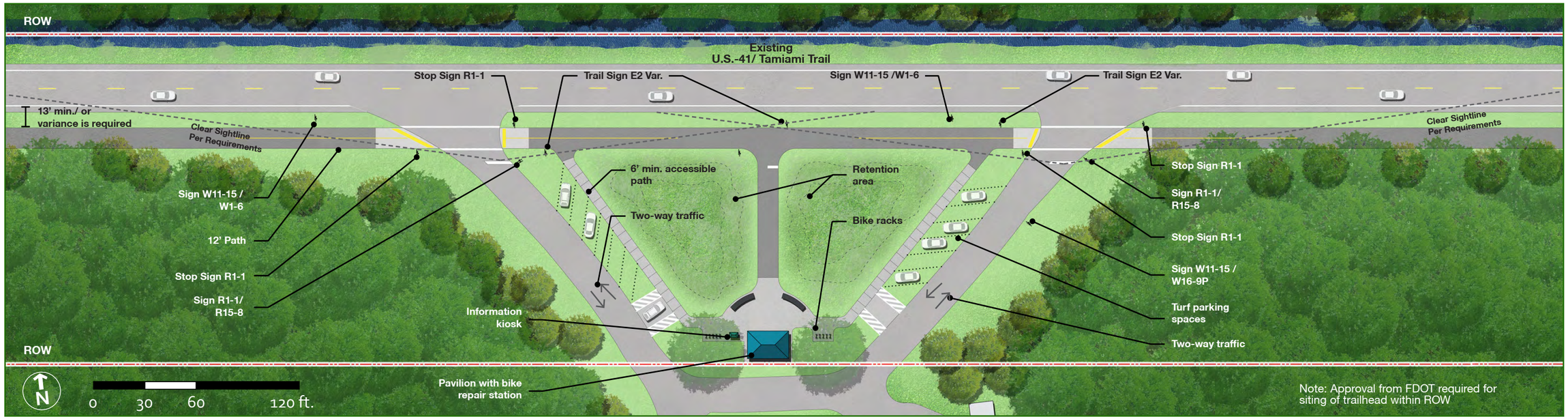
Rest Areas and Rest Stops

In addition to trailheads, rest areas and rest stops should also be developed along the ROGG route. Rest areas and stops should include limited parking, storm shelters or picnic shelters, bench seating, trash receptacles, and potential emergency call boxes. At least one rest area or stop should be located between major and minor trailheads. Parking for rest stops may be parallel to U.S. 41.

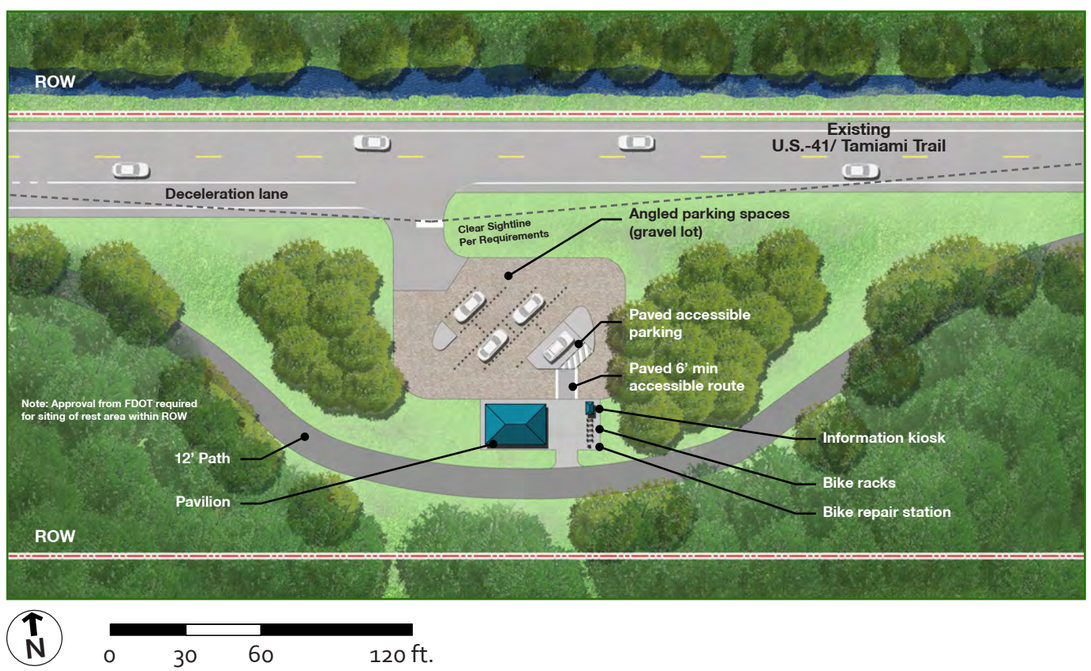
Typical Major Trailhead with Existing Facilities (Kirby Storter Roadside Park)



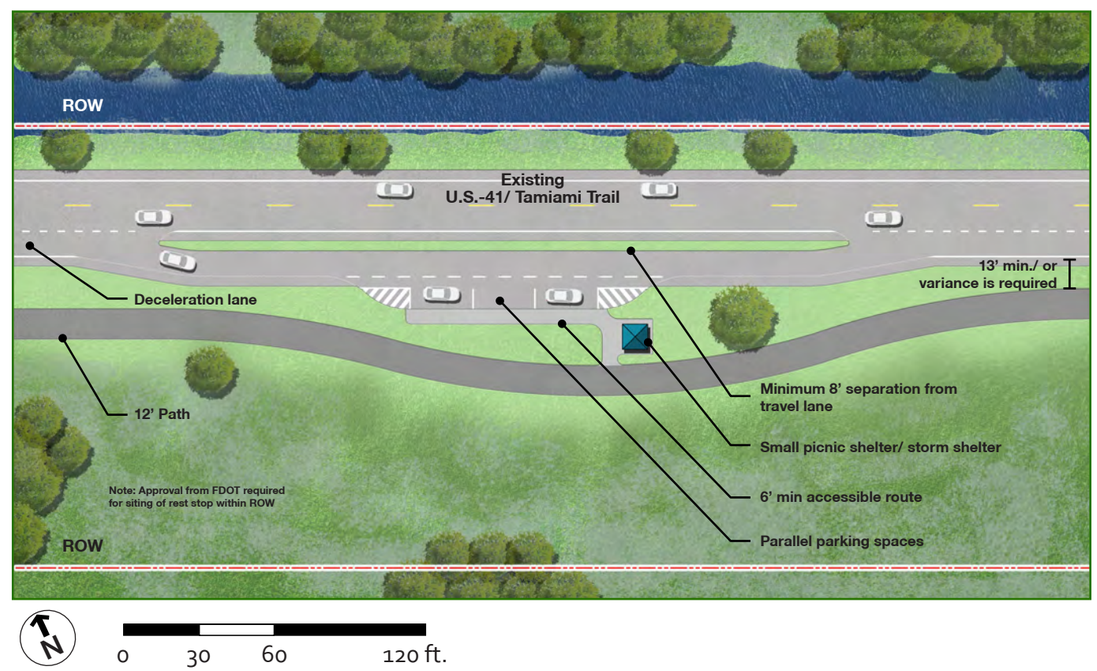
Typical Minor Trailhead (Midway Campground)



Typical Rest Area



Typical Rest Stop



3.2.5 Typical Hubs and Gateways

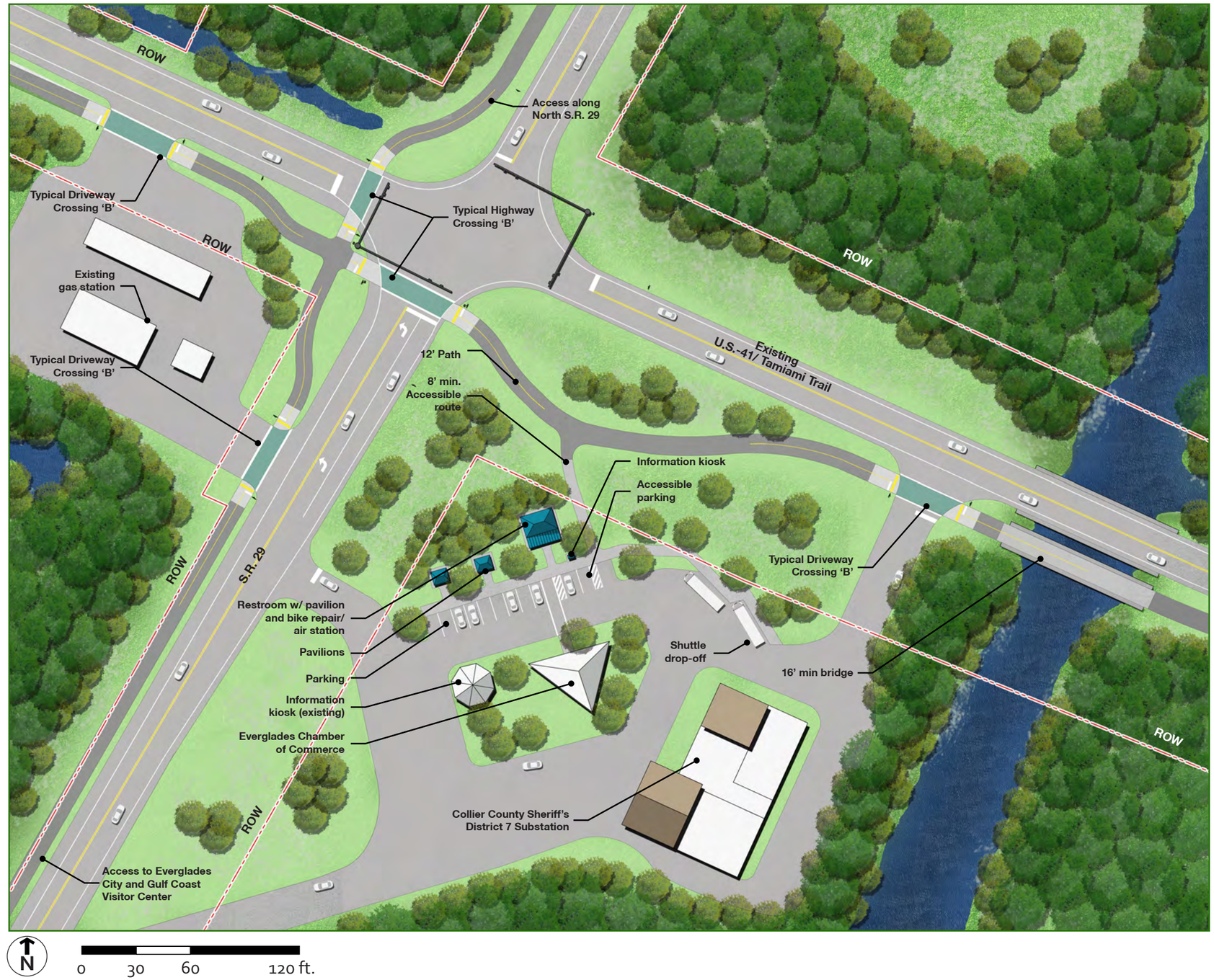
A complete pathway system, especially one with the length of ROGG, needs facilities that provide added amenities for users above and beyond typical trailhead offerings. These facilities may consist of food concessions, overnight accommodations, multi-modal access or additional recreation opportunities. Several existing points of interest and destination facilities are located along U.S. 41 that can serve as hubs and gateways with limited need for improvements.

Hubs

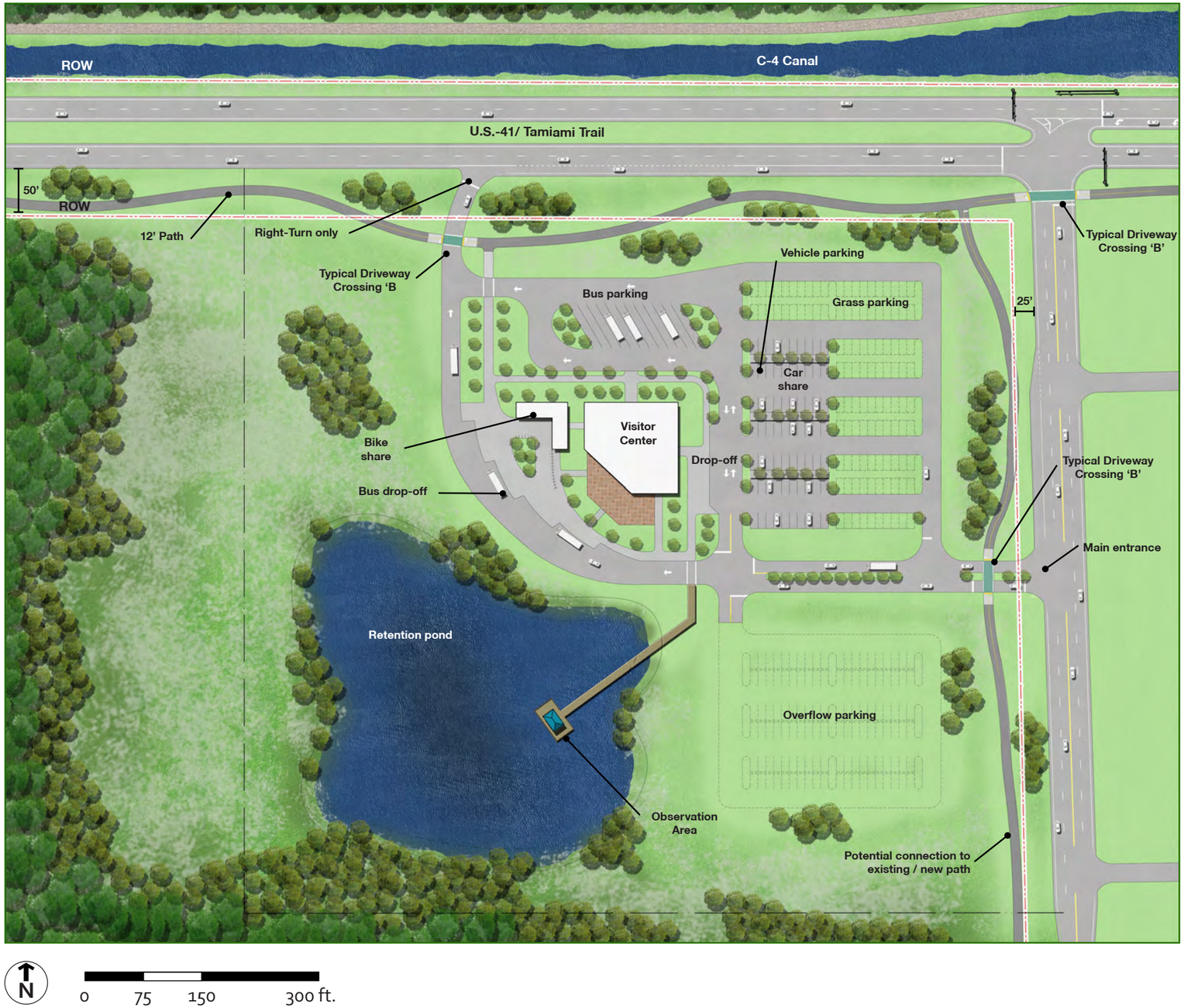
Through the ROGG Study Area, seven existing facilities may serve future needs of the ROGG with limited improvements required. Hubs are typically facilities that include the minimum amenities of a major trailhead with added features such as transit access, visitor centers, food vending (where existing), and/or expanded parking capacity. Hubs serve as primary destinations along the path and normally experience significant numbers of visitors. Seven facilities have been identified as potential hubs and include:

- Shark Valley Entrance at Everglades National Park,
- Miccosukee Village,
- Big Cypress National Preserve - Oasis Visitor Center,
- Big Cypress Swamp Welcome Center,
- Everglades Chamber Welcome Station,
- Fakahatchee Strand Preserve State Park Welcome Center (under design),
- Port of the Islands Marina.

Typical Hub (Everglades Area Chamber of Commerce - Chamber Welcome Station Site - Existing)



Typical Multi-modal Hub



Multi-modal Hubs

All shared-use path facilities should encourage multi-modal use when accessing and using the ROGG, however, some facilities should be able to operate as a hub for multi-modal access. A seamless connection between various modes of travel such as bicycle, shuttle, bus transit and motorized vehicles is the best way to encourage use of the ROGG with minimum impact to the environment and U.S. 41. Multi-modal hubs should have easy access to bus transit routes with priority loading and unloading facilities, bus and shuttle parking, bike-share, car-share, vehicle parking and trail connectivity. A visitor center or educational facility may be appropriate due to the high number of visitors in one location.

Many paths fall short in providing this critical facility which in the case of the ROGG, may aid in reducing the impact of path users and existing visitors on U.S. 41 by providing an opportunity to arrive to use the ROGG via transit. One facility location has been identified, near the eastern terminus of the ROGG Study Area at SW 147th Ave. This location is ideal due to proximity of existing bus transit lines and availability of land for appropriate facilities and influx of parking demands during peak use periods or events. Planning and Development of Multi-modal Hubs should be coordinated with appropriate transit agencies.

Gateways

Gateways should be planned and developed at key locations along the path where additional user amenities such as transit connectivity, additional parking capacity and recreation opportunities are present. An additional criterion is for a gateway to be located near a path's terminus or at a point of significant influx of potential shared-use path users.

Two such locations exist along the U.S. 41 corridor; Collier-Seminole State Park, and Spillway S333/ ValuJet Flight 592 Memorial. SFWMD has planned facility improvements at the S333 location that are directly tied to proposed CEPP projects in the immediate area. These planned improvements include the addition of boat launch ramp(s), boat trailer parking, restrooms, shaded picnic shelters, and vehicle parking. Added features could make the facility a gateway for ROGG users with the addition of transit connectivity, emergency phone call box, informational kiosk, and accessible parking.

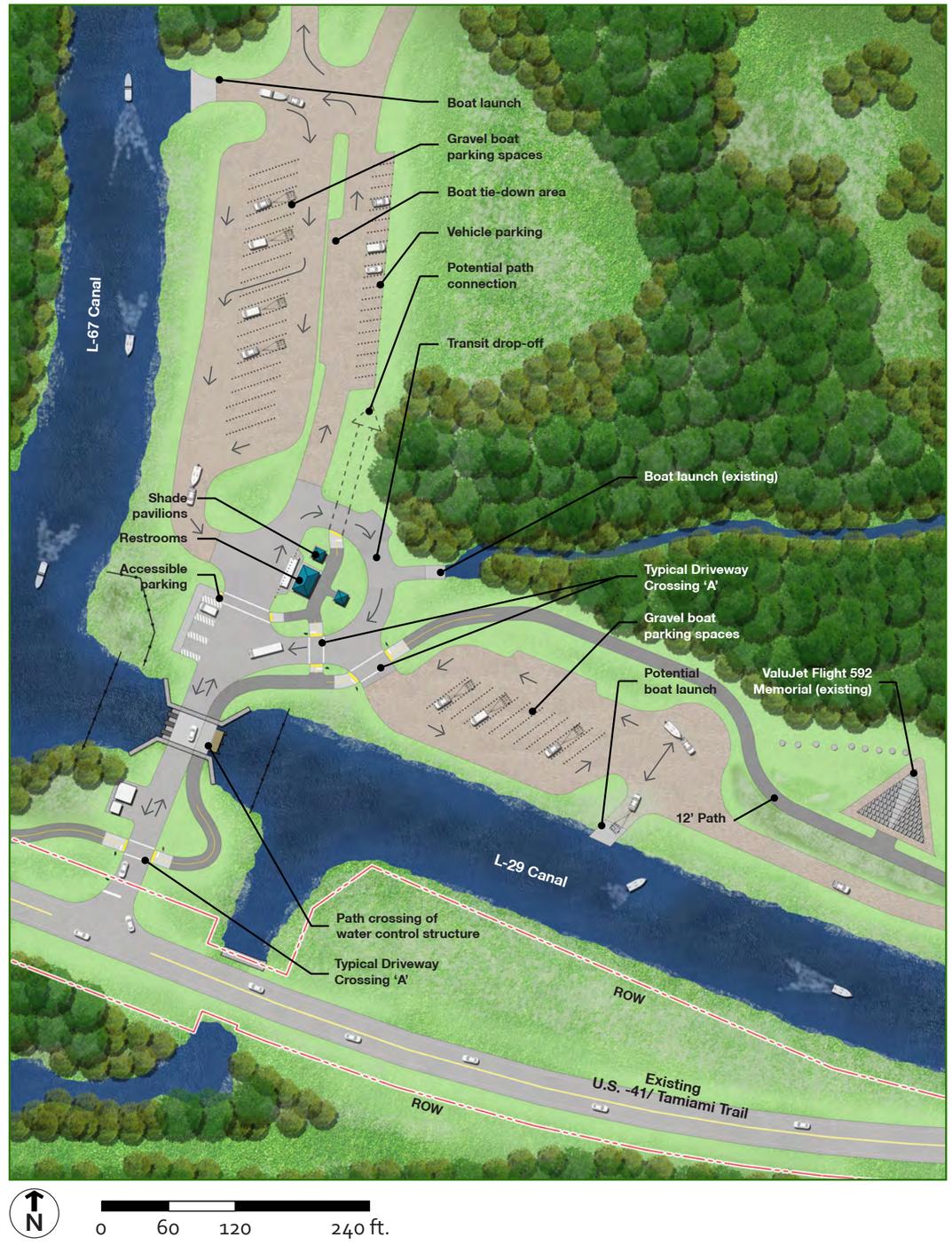
3.2.6 Wayfinding

ROGG is required to incorporate standard MUTCD markings and signage at all intersections and crossings. These represent basic requirements to provide user safety throughout the path. Beyond required safety signs and markings, ROGG should provide informational signs along the path that inform users about distance to trailheads, points of historical/ cultural/ environmental interest along the path, and adjacent uses. Signs should be consistent with the Miami-Dade County Park and Recreation Sign Implementation Manual wayfinding program for trails where no other signage standards exist, example shown below.

Ideally, wayfinding signs will also identify nearby destinations including points of interest, public facilities and commercial centers, similar to roadway signage and inform users. While it is not desirable to clutter the path with signs, the goal is to meet the needs of users for information. The proper placement of signage can have a dramatic affect on the pathway user's experience and should be carefully planned and executed.

In addition to wayfinding, another aspects of trail safety that will need to be provided on the ROGG path is informational signage regarding human-wildlife conflicts. In order to reduce the potential for harmful encounters with wildlife such as Florida panthers, black bears, alligators, snakes and coyotes, signage should be present that warns users of the potential for these encounters, as well as the appropriate human responses to avoid dangerous conflicts.

Typical Gateway (Spillway S333/ ValuJet Flight 592 Memorial)



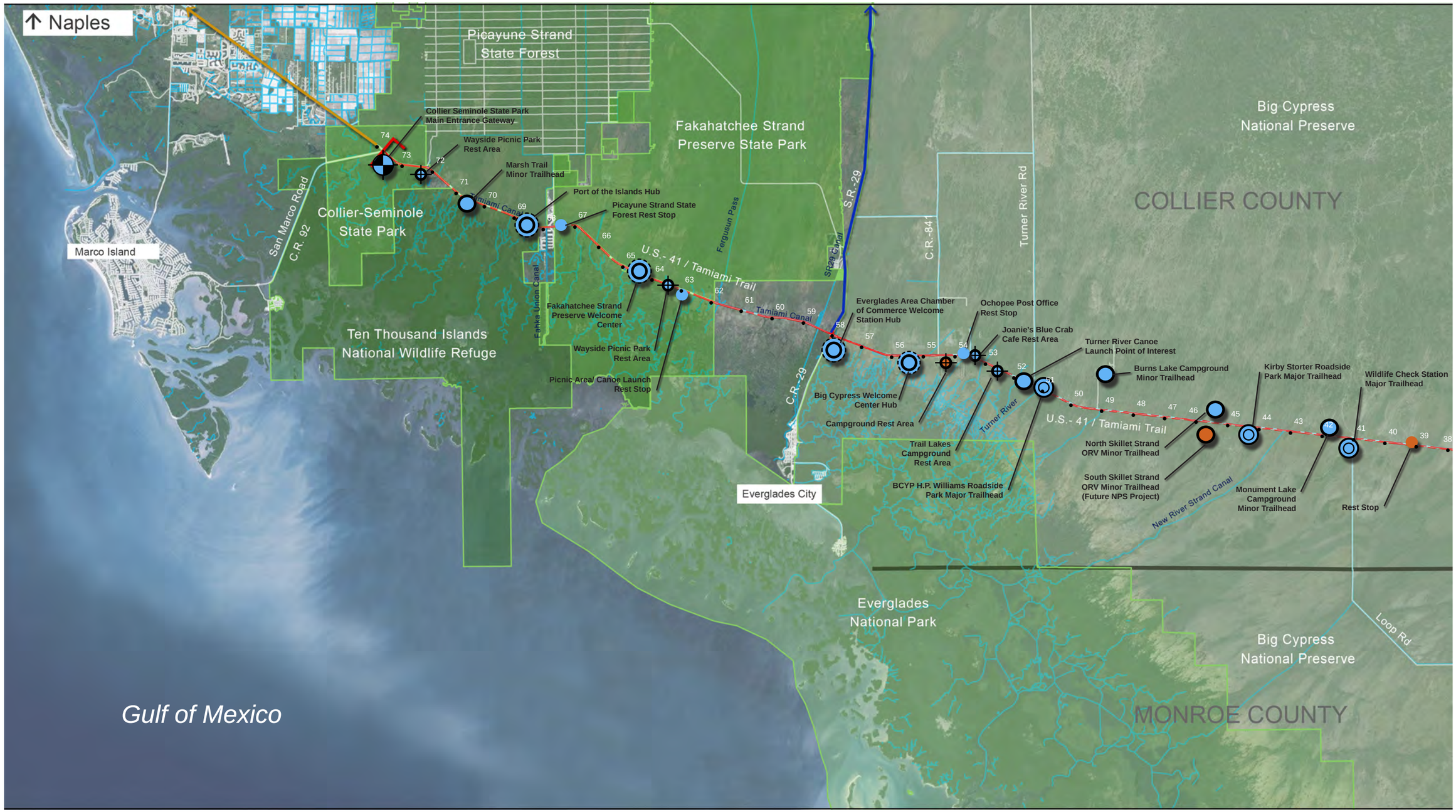
Wayfinding and Signage examples per the Miami-Dade Parks and Recreation Sign Implementation Manual.

Interpretive Signage example

Embedded Pavement Marker - Placed every 200-500 feet on a path surface, these bright yellow decals have unique location numbers that are tied to a county's GIS system. The combination of letters and numbers enables emergency response vehicles to pinpoint the exact location of an incident. The decals also provide a number to report trail maintenance issues.

Looking West at Midway Campground in Big Cypress National Preserve in ROGG Central

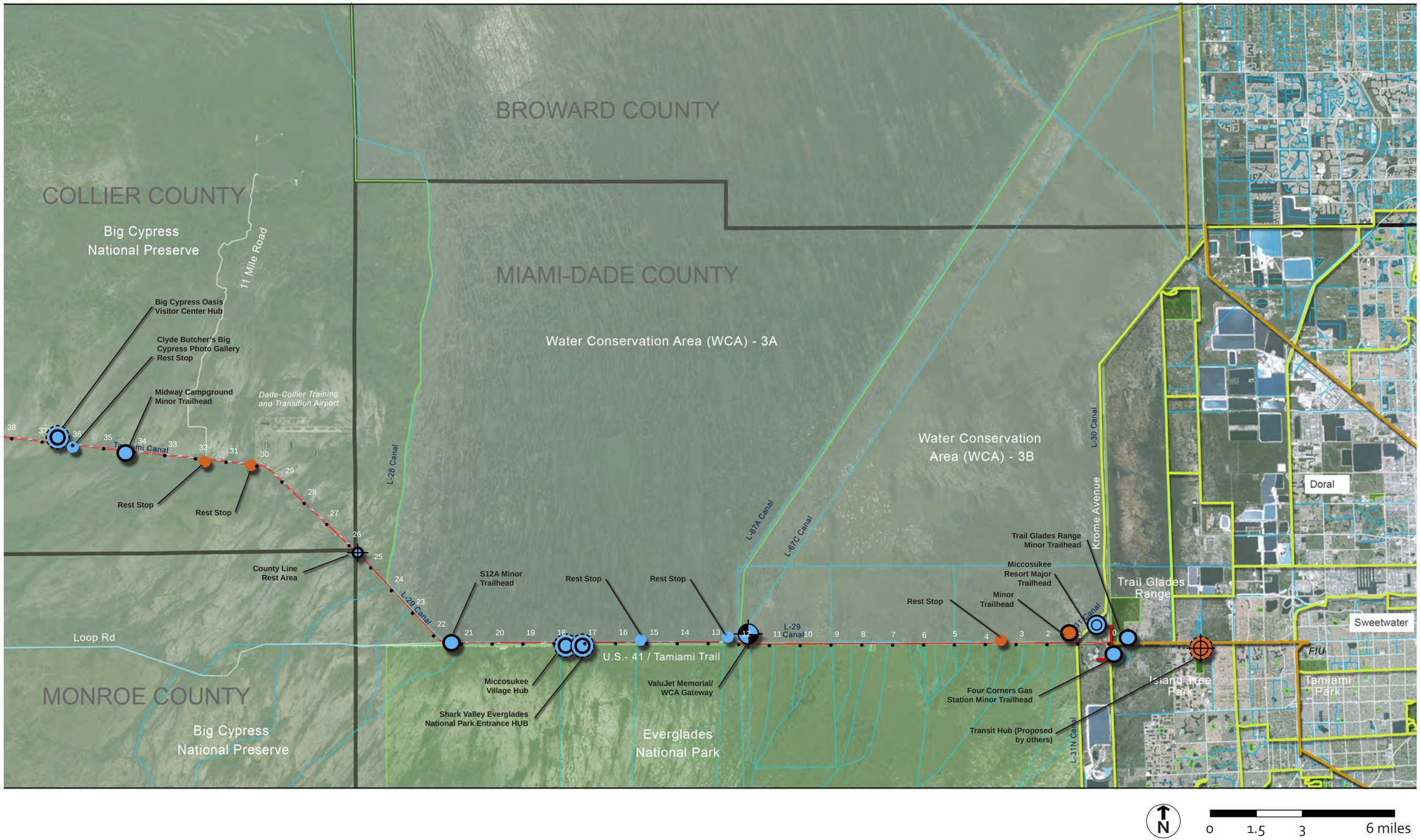
Study Area Map - Trailheads



Legend

- Study Area Terminus
- Public Lands (Entity Name on Map)
- ROW
- County Line
- Existing Canal
- Miami-Dade County Greenway
- Broward County Greenway
- Collier County Canoe Trail
- Proposed OGT Priority Land Trail
- # Miles from Krome Avenue
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop

Status: Existing / Proposed


BROWARD COUNTY
COLLIER COUNTY
Big Cypress
National Preserve
11 Mile Road
MIAMI-DADE COUNTY
Water Conservation Area (WCA) - 3A
Water Conservation
Area (WCA) - 3B
Big Cypress Oasis
Visitor Center Hub
Clyde Butcher's Big
Cypress Photo Gallery
Rest Stop
Midway Campground
Minor Trailhead
Dade-Collier Training
and Transition Airport
Tamiami Canal
Rest Stop
Rest Stop
County Line
Rest Area
L-28 Canal
S12A Minor
Trailhead
Rest Stop
Rest Stop
L-67A Canal
L-67C Canal
L-29
Canal
Rest Stop
Minor
Trailhead
Miccosukee
Resort Major
Trailhead
Trail Glades Range
Minor Trailhead
Krome Avenue
L-30 Canal
L-31 Canal
Loop Rd
U.S.- 41 / Tamiami Trail
Miccosukee
Village Hub
Shark Valley Everglades
National Park Entrance HUB
ValuJet Memorial/
WCA Gateway
Four Corners Gas
Station Minor Trailhead
Transit Hub (Proposed
by others)
L-31N Canal
MONROE COUNTY
Big Cypress
National Preserve
Everglades
National Park
Trail Glades
Range
Island Tree
Park
Doral
Sweetwater
FIU
Tamiami
Park
N
0
1.5
3
6 miles

3.3 FEASIBILITY EVALUATION

"There are no other Everglades in the world. They are, they have always been, one of the unique regions of the earth; remote, never wholly known. Nothing anywhere else is like them."

– Marjory Stoneman Douglas

Introduction

Determination of feasibility is perhaps the most important step in this planning process. Through extensive research and analysis, compiled with broad public and stakeholder input, an evaluation of the ROGG's conceptual designs in an objective approach can be accomplished.

'The feasibility of designating a trail shall be determined on the basis of an evaluation of whether or not it is physically possible to develop a trail along a route being studied, and whether the development of a trail would be financially feasible.' Section 5(b) of the National Trails System Act, administrated by the National Park Service.

Though a definition exists by which the NPS evaluates potential National Historic Trails for feasibility, a clear, nationally accepted set of criteria does not exist for determination of feasibility for trails/paths. Through the input of public participants, stakeholders, steering committee members, and extensive research, comprehensive criteria have been developed to evaluate proposed concepts for the ROGG. This section defines and applies the criteria to proposed concepts, in addition to evaluating potential route alternatives. Based on results of the feasibility evaluation, a preferred route is identified, where appropriate, for further analysis.

The follow two sections are included in this evaluation:

- **Criteria and Application** – This section introduces comprehensive feasibility criteria and applies it to conceptual alternatives for path development.
- **Alternative Route Evaluation** – This section evaluates path routing alternatives for each mile of the ROGG Study Area and identifies a preferred route.

2 Step

Refer to Section 3.3.3 for route alternative determination process

3.3.1 Criteria Evaluation and Application

Determining feasibility should be an objective and transparent process based on reliable research and analysis for a comprehensive criteria. In the case of the ROGG, feasibility was determined based on extensive research of the Study Area's existing conditions and refinement of publicly developed concepts. Ranking of feasibility is based on a point scale system with the highest scoring cross-section representing the highest ranking. Six categories were identified as follows:

- **Cultural Impacts** - Includes two elements; heritage and archaeological resources which includes the broad tangible and intangible historical elements found within the Study Area;
- **User Experience** - Includes considerations of a user's experience such as authenticity of an Everglades experience, diversity of scenery and level of comfort while using the path;
- **Environmental Impacts** - Includes potential impacts to environmental concerns as a direct or indirect result of the development or use of the path. This category includes potential impacts to wetlands, water quality and lack of compatibility with existing or proposed Everglades restoration efforts or with the mission or management plan of a public land unit;
- **Attributes** - Includes four elements that capture wide-reaching topics important to the success of a trail or path; potential partnerships, aesthetics of design in the context of the path user and non-user, opportunities to provide educational experiences or information, innovation of the proposed concept in the area of design, reduction of impacts and benefits, and constructibility of the concept;
- **Transportation** - Goes beyond the required elements of safety which any concept would be required to fully meet or exceed and instead focuses on perceived safety for users, connectivity to destinations such as significant resources, amenities and transit, and ease of public universal accessibility;
- **Cost** - Includes two considerations of cost; range of construction costs based on four levels, Level 1 [5 pt.] under $750,000 per mile, Level 2 [3 pt.] $750,000-$1.5m per mile, Level 3 [1 pt.] $1.5m - $2m per mile and Level 4 [0 pt.] over $2m per mile; and estimates of annual and life-cycle operations and maintenance costs.

Criteria Evaluation

Within these six categories, 18 individual criterion were evaluated for each conceptual typical cross-section. All 18 criterion were weighted equal in order to provide a balance between each category. **[Future evaluations may seek to weigh individual elements due to permitting requirements or specific management needs.]** The feasibility criteria matrix to the right contains the evaluation of 28 proposed conceptual cross-sections. Cross-sections with fatal flaws in select locations are included in the matrix for further evaluation and comparison to other concepts but were not considered for use as alternative route options. A breakdown of each typical cross-section follows this section. Points are assigned on the following scale:

- 0 points for complete lack of element,
- 1 point for low or negative assessments, or high costs
- 3 points for medium or neutral assessments,
- 5 points for high or maximum positive assessments, or low costs

In addition to the evaluation of each conceptual typical cross-section by the established feasibility criteria, unique situations were considered where a proposed concept is incompatible with the site or defined guideline/plan for a specific reason. These situations are defined as fatal flaws and typically contain design characteristics that violate a defined goal, code, initiative or requirement. The following fatal flaws have been identified and will be utilized to determine a preferred alternative route along with the concept's overall feasibility score:

- Significant impact to wetlands;
- Lack of Everglades restoration or park unit compatibility;
- Potentially high level of maintenance required to maintain a safe, accessible path surface and route;
- Lack of compatibility with public land unit's mission or management plan;
- Lack of bicycle or pedestrian mode;
- High number of required highway or driveway crossings.

Following the evaluation of each typical cross-section, feasibility for route alternatives are determined by assessing all feasible alternatives and selecting the cross-section with the highest score as a preferred alternative. Routing alternatives are determined for the entire length of the ROGG Study Area.

Point Scale:
0 = None/ Extreme
1= Low/ Negative
3 = Medium/ Neutral
5 = High/ Positive

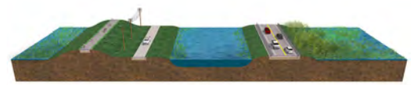
		Levee / Canal				Highway and Shoulders																	Separated Path						
		A				B																	C						
		1	2	3	4	1	2	3	4	5	6	7	8	9	9A	10	11	12	13	13A	13B	14	1	2	3	4	5	6	7
Criteria	Conceptual Cross-Section / No Build Alternative	Top of Levee	Levee Bench	North of Canal	Floating Path	Barrier and Canal	Filled Canal	Sheet Pile	Cantilevered	Lanes Shift - North Side	On-Road Bike Lanes	Lanes Shift- South Side	Fill in Maintained ROW	Expand Shoulder	Expand Shoulder (Alt.)	On Proposed Bridges	Boardwalk Next to Bridge	Separate Bridge	Boardwalk Bridge	Boardwalk Bridge (Alt.)	Boardwalk Bridge (Alt.)	Widened Bridge	Low Boardwalk	High Boardwalk	New Berm	New Berm w/ Culverts	New Berm Gabion Walls	Old Tamiami Road	Loop Road
Cultural Impacts																													
Heritage Resources	3	5	5	3	1	3	1	1	1	3	3	3	1	1	1	3	3	1	3	3	3	1	1	1	1	1	1	3	3
Archaeological Resources	3	5	5	3	1	5	1	1	1	3	3	3	1	1	1	3	3	1	3	3	3	1	1	1	1	1	1	3	3
User Experience																													
Authenticity of Everglades Experience	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1	1	3	3	5	3	5	1	5	5	3	3	3	3	5
Diversity of Cultural and Natural Scenery	1	1	1	3	3	3	3	3	3	1	1	1	3	3	3	1	1	3	3	3	5	3	5	5	3	3	3	3	5
Comfort	0	3	3	5	3	3	1	1	1	1	1	1	3	3	3	1	3	3	5	5	3	1	5	5	5	5	5	3	3
Environmental Impacts																													
Wetlands	3	5	5	1	1	5	1	1	1	1	3	1	1	1	1	1	1	1	3	3	3	1	1	3	1	1	1	5	5
Compatibility (Restoration/ Management)	5	3	3	1	1	5	1	1	1	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	1	5	5	0	5
Water Quality	3	3	3	3	1	5	1	1	1	1	3	1	3	3	3	3	3	3	3	3	3	3	3	3	5	5	5	3	3
Attributes																													
Potential Partnerships	1	3	3	5	1	3	1	1	1	3	3	3	3	3	3	5	3	3	3	3	3	5	3	3	1	3	3	5	3
Aesthetics of Design	1	3	3	5	3	3	3	1	3	1	1	1	3	3	3	1	5	3	5	3	5	1	5	5	3	3	3	3	3
Educational Opportunities	1	3	3	5	5	3	3	3	3	1	1	1	3	3	3	1	3	3	5	5	5	1	5	5	3	5	5	5	3
Innovation	1	3	3	3	5	3	3	3	5	1	1	1	3	3	3	1	3	3	5	3	5	1	5	5	3	5	5	3	3
Constructibility	0	0	5	0	0	5	0	0	0	0	1	0	3	5	3	0	0	1	0	1	0	0	1	1	3	1	1	0	5
Transportation																													
Perceived Safety	0	3	5	5	1	3	3	3	3	1	1	1	3	3	5	1	3	3	5	3	5	1	3	5	5	5	5	5	3
Connectivity to Destinations (Resources, Amenities and Transit)	3	1	1	3	1	3	1	1	1	3	3	3	3	3	3	1	1	3	3	3	3	3	3	3	3	3	3	3	1
Ease of Universal Public Accessibility	0	3	3	3	1	3	3	3	3	3	1	3	3	5	5	1	3	3	3	3	3	1	5	5	5	5	5	5	1
Cost																													
Typical Construction Cost	5	5	5	5	0	5	1	0	0	3	1	0	1	3	0	0	0	0	0	0	0	0	0	0	3	3	0	0	5
Operations and Maintenance Costs	5	0	5	5	0	5	3	1	1	5	5	5	3	3	3	5	1	3	3	3	1	3	3	1	3	3	3	3	3
Total Points (of possible 90):	**36**	**50**	**62**	**61**	**31**	**66**	**31**	**26**	**30**	**35**	**36**	**32**	**44**	**50**	**45**	**32**	**42**	**43**	**60**	**53**	**58**	**30**	**57**	**59**	**52**	**60**	**57**	**55**	**62**

3.3.2 Criteria Scoring

Typical cross-sections were evaluated for feasibility using a six part criterion with 18 elements. The following section summarizes the results for each typical cross-section to better understand the strengths and weaknesses of feasibility for each.

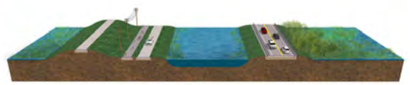
Addition levels of feasibility will be made for cross sections in design and permitting stages for any future segments of ROGG. Refer to feasibility determination process information located in Section 3.3.1.

A1 Top of Levee



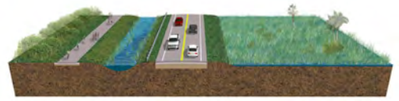
1. **Cultural Impacts:** The concept has low to no impacts on existing cultural resources due to the existence of SFWMD levee.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to the SFWMD levee not being a natural land feature. This also limits the diversity of the natural and cultural scenery due to the need to maintain the slopes of the levee. Comfort is medium due to its separation from U.S. 41 roadway but lack of ability to provide amenities for trail users on the levee.
3. **Environmental Impacts:** The concept has low impacts to existing wetlands due to existing levee, however, may require additional coordination to ensure no impacts to Everglades restoration efforts where the existing levee is proposed to be removed and ensuring position impact to water quality.
4. **Attributes:** The concept provides opportunities for partnership with SFWMD, exhibits medium levels of aesthetics due to its simplistic design and innovative use of existing infrastructure and educational opportunities with proximity to natural areas. Constructibility is none due to the lack of approval from SFWMD for a hard-surface path surface on top of their levee.
5. **Transportation:** The concept has a medium level of perceived safety due to shared facilities with periodic motorized vehicles. Ease of universal accessibility is medium due to potential slope issues and connectivity to destinations is low because of the isolation of the levee from attractions.
6. **Cost:** This concept has one of the lowest construction costs due to the need to simply pave the existing gravel base of the existing maintenance road. Maintenance and operating costs may be exceedingly high due to the resurfacing required to maintain a smooth path surface from periodic damage caused by levee maintenance equipment.

A2 Levee Bench



1. **Cultural Impacts:** The concept has low to no impacts on existing cultural resources due to the existence of SFWMD levee.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to the SFWMD levee not being a natural land feature. This also limits the diversity of the natural and cultural scenery due to location of the levee bench. Comfort is medium due to its separation from U.S. 41 roadway but lack of ability to provide amenities for trail users on the levee.
3. **Environmental Impacts:** The concept has low impacts to existing wetlands due to existing SFWMD levee, however, may require additional coordination to ensure no impacts to Everglades restoration efforts where the existing levee is proposed to be removed and ensuring positive impact to water quality.
4. **Attributes:** The concept provides opportunities for partnership with SFWMD, exhibits medium levels of aesthetics due to its simplistic design and innovative use of existing infrastructure and educational opportunities with proximity to natural areas. Constructibility is high because the ability to pave the path surface with ample room for levee maintenance equipment and minimum permitting requirements.
5. **Transportation:** The concept has a high level of perceived safety due to separated facilities with periodic motorized vehicles. Ease of universal accessibility is medium due to potential slope issues and connectivity to destinations is medium because of the isolation of the levee but ability to provide amenities along the pathway.
6. **Cost:** This concept has one of the lowest construction costs due to the need to simply provide a paved pathway with little to no grading or fill. Maintenance and operating costs may be low due to separation of trail facility from periodic maintenance vehicles and levee maintenance equipment and ease of access from existing gravel maintenance road.

A3 North of Canal



1. **Cultural Impacts:** The concept may have medium impacts to existing cultural resources which may be undocumented on the north side of the existing canals.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to proximity to existing natural areas and diversity of scenery. Comfort is high due to its separation from U.S. 41 roadway but ability to provide ample space for user amenities.
3. **Environmental Impacts:** The concept has the potential to have impacts to wetlands and water quality due to its proximity to these sensitive lands. Compatibility with Everglades restoration is low due to the potential impediment of existing water flow from north to south by the pathway.
4. **Attributes:** The concept provides several potential partnership opportunities simply be routing and connecting the pathway through various land management units and exhibits high levels of aesthetics due to its simplistic design and educational opportunities with proximity to natural areas. Constructibility is none because the extensive permitting would be required in addition easements and approvals to route the pathway through park units.
5. **Transportation:** The concept has a high level of perceived safety due to separated facilities with vehicle traffic. Ease of universal accessibility is medium due to potential access point limitations and connectivity to destinations is medium because of the isolation of the route from attractions.
6. **Cost:** This concept has a lowest construction cost due to minimum construction material needs. Maintenance and operating costs may be low due to limitation of user to path uses only and construction techniques.

A4 Floating Path

1. **Cultural Impacts:** The concept may have significant impacts to existing cultural resources including visual and physical impacts to the existing Tamiami Canal which is historical register eligible.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to proximity to the Tamiami Canal and existing natural areas and diversity of scenery. Comfort is medium due to instability of the floating path.
3. **Environmental Impacts:** The concept has the potential to have impacts to wetlands, water quality and Everglades restoration efforts due to its interaction with and impacts on the existing Tamiami Canal. During times of drought, the path may be rendered useless if substantial floating surface is not maintained.
4. **Attributes:** Though the educational opportunities are high due to proximity to the canal and innovation is high due to design techniques, the potential for partnerships is low and constructibility is none due to significant impacts to the canal, permit requirements and difficulty in construction.
5. **Transportation:** Due to instability in surface and changing elevations, perceived safety and universal access are very low. Connectivity is difficult due to the fixed location of the path and elevation changes of the water surface.
6. **Cost:** This concept has a high cost potential due to the materials and construction techniques required. Operational and maintenance costs may be significant as well to maintain access, surface and function of the floating path and keep the surface free of obstructions.

B1 Barrier and Canal

1. **Cultural Impacts:** The concept may have limited impacts to existing cultural resources due to the route being disturbed lands already, however, undocumented resources may be present near the L-29 Canal.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway, cable barrier and L-29 Canal, all man-made features. Diversity of scenery is medium as the area is currently maintained FDOT ROW. Comfort is medium due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has minimum environmental impact due to the area already being maintained FDOT ROW. The trail may help to improve water quality by serving as a catch basin for pollutants from U.S. 41 roadway. This concept is compatible with Everglades restoration efforts and may help to educate users of the restoration.
4. **Attributes:** The concept has medium levels of potential for partnerships with the nearby tribes and FDOT, the aesthetics and innovation are simple but low impact, education opportunities are present but not extensive while constructibility is high use to ease of access, disturbance of FDOT ROW and low impact construction techniques needed.
5. **Transportation:** Perceived safety is medium due to the separation of the facility from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is highly potential.
6. **Cost:** This concept has a low cost to construct due to the lack of need to heavily grade the corridor or provide fill. Operations and maintenance costs may be minimum due to the potential to partner with adjacent land owners and ease to access the path.

B2 Filled Canal

1. **Cultural Impacts:** The concept may have significant impacts to existing cultural resources including visual and physical impacts to the existing Tamiami Canal which is historical register eligible.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway, guardrail barrier and canal, all man-made features. Diversity of scenery is medium due to access to the canal. Comfort is low due to the proximity to U.S. 41 roadway and the Tamiami Canal.
3. **Environmental Impacts:** The concept has the potential to have impacts to wetlands, water quality and Everglades restoration efforts due to its encroachment on the existing canal. This concept has extremely limited application in locations where plugging of existing SFWMD canals is needed.
4. **Attributes:** The educational opportunities are medium due to proximity to the canal and innovation and aesthetics is medium due to design techniques, the potential for partnerships is low and constructibility is none due to significant impacts to the canal, permit requirements and difficult in construction.
5. **Transportation:** Perceived safety is medium due to the separation of the facility from U.S. 41 roadway, connectivity is low due to isolation of the path from other connections between the existing guardrail and canal.
6. **Cost:** This concept has a high cost to construct due to amount of fill needed for the canal and mitigation costs. Operations and maintenance costs may be medium and focused on impacts from erosion and subsidence of the fill.

B3 Sheet Pile

1. **Cultural Impacts:** The concept may have significant impacts to existing cultural resources including visual and physical impacts to the existing Tamiami Canal which is historical register eligible.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway, guardrail barrier and canal, all man-made features. Diversity of scenery is medium due to access to the canal. Comfort is low due to the proximity to U.S. 41 roadway and the canal.
3. **Environmental Impacts:** The concept has the potential to have impacts to wetlands, water quality and Everglades restoration efforts due to its encroachment on the existing Tamiami Canal.
4. **Attributes:** The educational opportunities are medium due to proximity to the canal and aesthetics is low due to design techniques, and requirement of railing along the canal edge. The potential for partnerships is low and constructibility is none due to significant impacts to the canal, permit requirements and difficult in construction.
5. **Transportation:** Perceived safety is medium due to the separation of the facility from U.S. 41 roadway, connectivity is low due to isolation of the path from other connections between the existing guardrail and Tamiami Canal.
6. **Cost:** This concept has an extreme cost to construct due to amount of fill, construction techniques required and mitigation costs. Operations and maintenance costs may be high and focused on impacts from subsidence of the fill and maintenance to the sheet pile wall and railing.

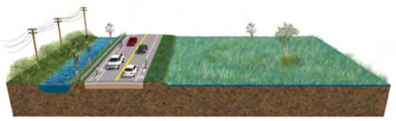
B4 Cantilevered

1. **Cultural Impacts:** The concept may have significant impacts to existing cultural resources including visual and physical impacts to the existing Tamiami Canal which is historical register eligible.
2. **User Experience:** The cantilevered concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway, guardrail barrier, railing and canal, all man-made features. Diversity of scenery is medium due to access to the canal. Comfort is low due to the proximity to U.S. 41 roadway and the Tamiami Canal.
3. **Environmental Impacts:** The concept has the potential to have impacts to wetlands, water quality and Everglades restoration efforts due to its encroachment on the existing Tamiami Canal.
4. **Attributes:** The educational opportunities are medium due to proximity to the canal and aesthetics is medium and innovation is high due to design techniques, and requirement of railing along the path's edge. The potential for partnerships is low and constructibility is none due to significant impacts to the Tamiami Canal, permit requirements and difficult in construction.
5. **Transportation:** Perceived safety is medium due to the separation of the facility from U.S. 41 roadway, connectivity is low due to isolation of the path from other connections between the existing guardrail and Tamiami Canal.
6. **Cost:** The has an extreme cost to construct due to amount of fill, construction techniques required and mitigation costs. Operations and maintenance costs may be high and focused on impacts from subsidence of the fill and maintenance to the sheet pile wall and railing.

B5 Lane Shift-North Side

1. **Cultural Impacts:** The concept is neutral to impacts to cultural resource as the expanded roadbed would be on existing disturbed FDOT ROW embankment in most locations.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway and guardrail. Diversity of scenery is low as the area is currently maintained roadway. Comfort is low due to the proximity to vehicle traffic at high speeds, noise and lack of separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the U.S. 41 roadbed. The concept is neutral in compatibility to Everglades restoration in that it may not impact nor improve current conditions. Water quality may be negatively impacted by the increase in asphalt surface to the roadbed.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are low due to the path being directly adjacent to U.S. 41 traffic. Constructibility is none due the requirement of a variance from FDOT to reduce the width of separation required between the nearest travel lane and the path.
5. **Transportation:** Perceived safety is low due to the lack of separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a medium potential.
6. **Cost:** This concept has a medium cost to construct due to the cost of expanding the existing U.S. 41 roadbed. Operations and maintenance costs may be minimum due to the potential to partner with FDOT and high durability of material.

B6 On- Road Bike Lanes



1. **Cultural Impacts:** The concept is neutral to impacts to cultural resource as the expanded roadbed would be on existing disturbed FDOT ROW embankment in most locations.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway and guardrail. Diversity of scenery is low as the area is currently maintained roadway. Comfort is low due to the proximity to vehicle traffic at high speeds, noise and lack of separation from U.S. 41 roadway and lack of pedestrian facilities.
3. **Environmental Impacts:** The concept has medium environmental impacts due to potential impacts to wetlands required to widen the U.S. 41 roadbed one foot in each side and widen bridge crossings. The concept is neutral in compatibility to Everglades restoration in that it may not impact nor improve current conditions. Water quality may be negatively impacted by the increase in asphalt surface to the roadbed and lack of area to filter stormwater runoff.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are low due to the path being directly adjacent to U.S. 41 traffic. Constructibility is low due the need to widen existing bridge crossings which require extensive permitting and impacts.
5. **Transportation:** Perceived safety is low due to the lack of separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a low due to lack to pedestrian and handicap routes.
6. **Cost:** The concept has a medium cost to construct due to the cost of expanding the existing U.S. 41 roadbed and potentially widening bridges. Operations and maintenance costs may be minimum due to the potential to partner with FDOT and high durability of material.

B7 Lane Shift-South Side

1. **Cultural Impacts:** The concept is neutral to impacts to cultural resource as the expanded roadbed would be on existing disturbed FDOT ROW embankment in most locations.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway. Diversity of scenery is low as the area is currently maintained roadway. Comfort is low due to the proximity to vehicle traffic at high speeds, noise and lack of separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the existing U.S. 41 roadbed. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions. Water quality may be negatively impacted by the increase in asphalt surface to the U.S. 41 roadbed.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are low due to the path being directly adjacent to U.S. 41 traffic. Constructibility is none due to the requirement of a variance from FDOT to reduce the width of separation required between the nearest travel lane and the path.
5. **Transportation:** Perceived safety is low due to the lack of separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a medium potential.
6. **Cost:** This concept has a extreme cost to construct due to the cost of expanding the existing U.S. 41 roadbed and maintaining existing lane widths. Operations and maintenance costs may be minimum due to the potential to partner with FDOT and high durability of material.

B8 Fill in Maintained ROW

1. **Cultural Impacts:** The concept may have impacts to cultural resource as the concept would require widening the existing U.S. 41 roadway embankment in areas which may disturb undocumented resources.
2. **User Experience:** Concept B8 has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is medium due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the existing U.S. 41 embankment. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions. Water quality impact may be neutral as well with a slight potential to improve stormwater runoff from U.S. 41.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are medium due to the path being near U.S. 41 traffic. Constructibility is medium due to additional retaining and fill needed to maintain existing U.S. 41 roadway embankment limits.
5. **Transportation:** Perceived safety is medium due to the separation from U.S. 41 roadway, connectivity is medium for ease to connecting attractions and universal access is a medium potential.
6. **Cost:** This concept has a high cost to construct due to the cost of expanding the existing U.S. 41 roadway embankment and retaining wall where required. Operations and maintenance costs may be medium due to the potential to partner with FDOT and high durability of material.

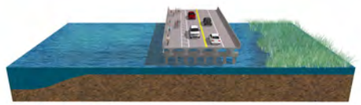
B9 Expand Shoulder

1. **Cultural Impacts:** The concept may have impacts to cultural resource as the concept would require widening the existing U.S. 41 roadway embankment in areas which may disturb undocumented resources.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is medium due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the existing U.S. 41 roadway embankment. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions. Water quality impact may be neutral as well with a slight potential to improve stormwater runoff from U.S. 41 roadway.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are medium due to the path being near U.S. 41 roadway traffic. Constructibility is high due the ease of providing additional fill to the existing roadway embankment, however, providing significant fill may be difficult.
5. **Transportation:** Perceived safety is medium due to the separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a high potential with the additional width to provide gentle slopes.
6. **Cost:** This concept has a low cost to construct due to the minimum cost of providing additional fill and pathway but may have mitigation costs. Operations and maintenance costs may be medium due to the potential to partner with FDOT and high durability of material.

B9A Expand Shoulder (Alt.)

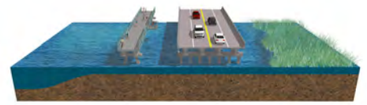
1. **Cultural Impacts:** The concept may have impacts to cultural resource as the concept would require widening the existing U.S. 41 roadway embankment in areas which may disturb undocumented resources.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is medium due to greater separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the U.S. 41 embankment. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions. Existing practice of parking along highway may be maintained. Water quality impact may be neutral as well with a slight potential to improve stormwater runoff from U.S. 41 roadway.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are medium due to the path being near U.S. 41 traffic. Constructibility is medium due the ease of providing additional fill to the existing roadway embankment, however, providing significant fill may be difficult.
5. **Transportation:** Perceived safety is high due to the spatial separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a high potential with the additional width to provide gentle slopes.
6. **Cost:** This concept has a high cost to construct due to the cost of providing additional fill and mitigation costs. Operations and maintenance costs may be medium due to the potential to partner with FDOT and high durability of material.

B10 On Proposed Bridges



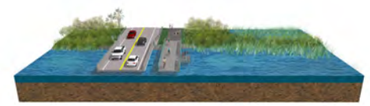
1. **Cultural Impacts:** The concept is neutral in impacts to cultural resource as the concept follows currently proposed U.S. 41 bridge routes.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway and location on a man-made bridge structure. Diversity of scenery is low as the route is on a bridge while comfort is low due to lack of separation from U.S. 41 roadway and lack of amenities for users.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to widen the existing U.S. 41 roadway bridge. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and relies on currently proposed bridge routes. Water quality impact may be neutral as well.
4. **Attributes:** The concept has high levels of potential for partnership based on involvement with FDOT and ACOE. The aesthetics, innovation and education opportunities are low due to location on existing bridge. Constructibility is none due to the limited ROW widths and required additional wetland mitigation and permitting needed.
5. **Transportation:** Perceived safety is low due to the lack of separation from U.S. 41 roadway, connectivity is low for lack of ability to connect to attractions and universal accessibility is low due to lack of pedestrian and access route.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of expanding a motorized vehicle bridge for non-motorized path use, mitigation costs and construction techniques. Operations and maintenance costs may be low due to durability of materials and potential partnership with FDOT.

B11 Boardwalk Next to Bridge



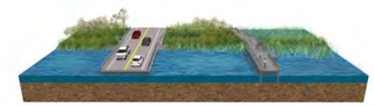
1. **Cultural Impacts:** The concept is neutral in impacts to cultural resource as the concept follows current U.S. 41 roadway alignment.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have look-out and fishing facilities. Diversity of scenery is low as the route is on a bicycle/pedestrian bridge while comfort is medium due to separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to add the bicycle/pedestrian bridge. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions by transversing existing bridged areas. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT and ACOE. The aesthetics may be high dependent on bicycle/pedestrian bridge design, while innovation and education opportunities are medium due to location on a bridge. Constructibility is none due to the limited ROW widths and required additional wetland mitigation and permitting needed for a bicycle/pedestrian bridge.
5. **Transportation:** Perceived safety is medium due to separation from U.S. 41 roadway, however, isolation on bridge may decrease safety. Connectivity is low for lack of ability to connect to attractions and universal accessibility is neutral as it is dependent on surface material.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing a bicycle/pedestrian bridge, mitigation costs and construction techniques. Operations and maintenance costs may be high due limited access to maintain bridge without environmental impacts.

B12 Separate Bridge



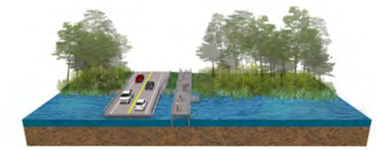
1. **Cultural Impacts:** The concept may be high in impacts to cultural resource as the concept would require construction of new bicycle/pedestrian bridges in areas that may have minimum previous disturbance.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have look-out and fishing facilities. Diversity of scenery is medium as the route may be short and close to canal while comfort is medium due to separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to add the bicycle/pedestrian bridge. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with FDOT. The aesthetics and innovation may be medium dependent on bicycle/pedestrian bridge design, while education opportunities are medium due to location on a bridge. Constructibility is low due to the limited ROW widths and required additional wetland mitigation and permitting needed for a bicycle/pedestrian bridge.
5. **Transportation:** Perceived safety is medium due to separation from U.S. 41 roadway. Connectivity is neutral due to typically short bridge distances and universal accessibility is neutral as it is dependent on bridge surface material.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing a bicycle/pedestrian bridge, mitigation costs and construction techniques. Operations and maintenance costs may be medium due to access from existing roadway bridges and short spans.

B13 Boardwalk Bridge



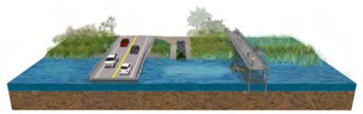
1. **Cultural Impacts:** The concept may be medium in impacts to cultural resource as the concept would require construction of new boardwalks in areas that may have minimum previous disturbance, however construction techniques may limit this.
2. **User Experience:** This concept has a high score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have viewsheds away from the highway. Diversity of scenery is medium as the route may be short and close to canal while comfort is high due to separation from U.S. 41 roadway and potential short span of the boardwalk.
3. **Environmental Impacts:** The concept has medium environmental impacts due to impacts to wetlands with routing flexibility to avoid. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with adjacent land units. The aesthetics and innovation may be high based on context sensitive design and construction techniques, while education opportunities are high due to proximity away from U.S. 41 roadway. Constructibility is low due to the require of extensive permits, mitigation needs and potential easements outside of FDOT ROW.
5. **Transportation:** Perceived safety is high due to separation from U.S. 41 roadway. Connectivity is neutral due to typically short bridge distances and universal accessibility is neutral as it is dependent on bridge surface material.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing a boardwalk and mitigation costs. Operations and maintenance costs may be medium due to access from existing U.S. 41 roadway bridges and short spans.

B13A Boardwalk Bridge (Alt.)



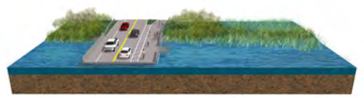
1. **Cultural Impacts:** The concept may be medium in impacts to cultural resource as the concept would require construction of new boardwalks in areas that may have minimum previous disturbance, however construction techniques may limit this.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have viewsheds away from the highway. Diversity of scenery is medium as the route may be short and close to canal while comfort is high due to separation from U.S. 41 and potential short span of the boardwalk.
3. **Environmental Impacts:** The concept has medium environmental impact due impacts to wetlands with routing flexibility to avoid. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with adjacent land units. The aesthetics and innovation may be medium based on basic context sensitive design and construction techniques, while education opportunities are high due to proximity away from U.S. 41 roadway. Constructibility is low due to the require of extensive permits, mitigation needs and potential easements outside of FDOT ROW.
5. **Transportation:** Perceived safety is medium due to separation from U.S. 41 roadway. Connectivity is neutral due to typically short bridge distances and universal accessibility is neutral as it is dependent on bridge surface material.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing a boardwalk and mitigation costs. Operations and maintenance costs may be medium due to access from existing U.S. 41 roadway bridges and short spans.

B13B Boardwalk Bridge (Alt.)



1. **Cultural Impacts:** The concept may be medium in impacts to cultural resource as the concept would require construction of new boardwalks in areas that may have minimum previous disturbance, however construction techniques may limit this.
2. **User Experience:** This concept has a high score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have elevated viewsheds away from the highway. Diversity of scenery is high as the route is elevated above the canal and comfort is medium due to separation from U.S. 41 and long span of the boardwalk needed to achieve elevation.
3. **Environmental Impacts:** The concept has medium environmental impacts due to impacts to wetlands with routing flexibility to avoid. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with adjacent land units. The aesthetics and innovation may be high based on context sensitive design and construction techniques, while education opportunities are high due to proximity away from U.S. 41 roadway. Constructibility is low due to the require of extensive permits, mitigation needs and potential easements outside of FDOT ROW.
5. **Transportation:** Perceived safety is high due to separation from U.S. 41 roadway. Connectivity is neutral due to typically short bridge distances and universal accessibility is neutral as it is dependent on bridge surface material.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing a boardwalk and mitigation costs. Operations and maintenance costs may be high due to access from existing U.S. 41 roadway bridges and long spans.

B14 Widened Bridge



1. **Cultural Impacts:** The concept may be high in impacts to cultural resource as the concept would require construction of new bridges in areas that may have minimum previous disturbance.
2. **User Experience:** This concept has a low score for authenticity of the Everglades due to proximity to U.S. 41 roadway. Diversity of scenery is medium due to short span of bridge while comfort is low due to lack of separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to construct new, wider U.S. 41 bridges. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and relies on currently proposed bridge routes. Water quality impact may be neutral as well.
4. **Attributes:** The concept has high levels of potential for partnership based on involvement with FDOT. The aesthetics, innovation and education opportunities are low due to location on a bridge. Constructibility is none due to the limited FDOT ROW widths and required additional wetland mitigation and permitting needed.
5. **Transportation:** Perceived safety is low due to the lack of separation from U.S. 41 roadway, connectivity is medium due to short span of typical bridges and universal accessibility is low due to lack of pedestrian and access route.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of expanding a vehicle bridge for path use, mitigation costs and construction techniques. Operations and maintenance costs may be low due to durability of materials and potential partnership with FDOT.

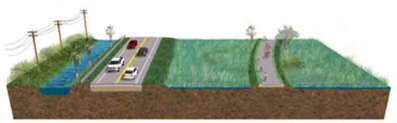
C1 Low Boardwalk

1. **Cultural Impacts:** The concept may be high in impacts to cultural resource as the concept would require construction of new boardwalks in areas that may have minimum previous disturbance, however construction techniques may limit this.
2. **User Experience:** This concept has a high score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have viewsheds away from the existing highway. Diversity of scenery is high as the route may transverse sensitive lands while comfort is high due to separation from U.S. 41 roadway and potential short span of the boardwalk.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to construct the boardwalk. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with adjacent land units. The aesthetics and innovation may be high based on context sensitive design and construction techniques, while education opportunities are high due to proximity away from U.S. 41 roadway. Constructibility is low due to the require of extensive permits, mitigation needs and potential easements outside of ROW.
5. **Transportation:** Perceived safety is medium due to separation from U.S. 41 roadway and lack of safety railing. Connectivity is neutral due to typically short bridge distances and universal accessibility is high as surface elevation have a gentle slope.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing an elevated boardwalk and mitigation costs. Operations and maintenance costs may be medium due to materials durability and construction.

C2 High Boardwalk

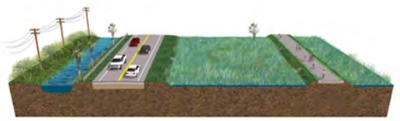
1. **Cultural Impacts:** The concept may be high in impacts to cultural resource as the concept would require construction of new boardwalks in areas that may have minimum previous disturbance, however construction techniques may limit this.
2. **User Experience:** This concept has a high score for authenticity of the Everglades due to separation from U.S. 41 roadway and potential to have viewsheds away from the existing highway. Diversity of scenery is high as the route may transverse sensitive lands while comfort is high due to separation from U.S. 41 roadway and potential short span of the boardwalk.
3. **Environmental Impacts:** The concept has medium environmental impacts due to minimum impacts to wetlands required to construct the elevated boardwalk. The concept is neutral in compatibility to Everglades restoration in that it does not impact nor improve current conditions and would bridge existing canals. Water quality impact may be neutral as well.
4. **Attributes:** The concept has medium levels of potential for partnership based on involvement with adjacent land units. The aesthetics and innovation may be high based on context sensitive design and construction techniques, while education opportunities are high due to proximity away from U.S. 41 roadway. Constructibility is low due to the require of extensive permits, mitigation needs and potential easements outside of FDOT ROW.
5. **Transportation:** Perceived safety is high due to separation from U.S. 41 roadway and presence of safety railing. Connectivity is neutral due to typically short bridge distances and universal accessibility is high as surface elevation have a gentle slope.
6. **Cost:** This concept has an extreme cost to construct due to the high cost of constructing an elevated boardwalk and mitigation costs. Operations and maintenance costs may be high due to materials durability but constrained access.

C3 New Berm



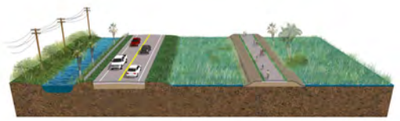
1. **Cultural Impacts:** The concept may have impacts to cultural resource as the concept would require creating a new embankment in areas which may disturb undocumented resources.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is high due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to create a new embankment away from U.S. 41. The concept may have negative impacts to compatibility in Everglades restoration due to impediment of water flow. Water quality impact may be improved with a potential to improve stormwater runoff from U.S. 41.
4. **Attributes:** The concept has low levels of potential for partnership. The aesthetics, innovation and education opportunities are medium due to the path being near U.S. 41 traffic. Constructibility is medium due the ease of access, however, providing significant fill may be difficult.
5. **Transportation:** Perceived safety is high due to the separation from U.S. 41, connectivity is medium for ease to connect to attractions and universal access is a high potential with the additional width to provide gentle slopes.
6. **Cost:** This concept has a medium cost to construct due to the cost of providing additional fill and pathway but may have mitigation costs. Operations and maintenance costs may be medium due to the potential to partner with FDOT and adjacent land units, and high durability of material.

C4 New Berm w/ Culverts



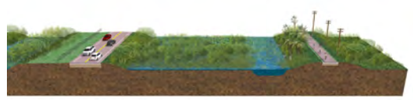
1. **Cultural Impacts:** The concept may have impacts to cultural resource as the concept would require creating a new embankment in areas which may disturb undocumented resources.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is high due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to create a new embankment away from U.S. 41. The concept is may have positive impacts to compatibility in Everglades restoration due potential sheet flow of water downstream from berm. Water quality impact may be improved with a potential to improve stormwater runoff from U.S. 41.
4. **Attributes:** The concept has medium levels of potential for partnership from agency interested in restoration. Aesthetics may be medium while innovation and education opportunities are high due to construction techniques and separation from U.S. 41. Constructibility is medium due the ease of access, however, providing significant fill may be difficult.
5. **Transportation:** Perceived safety is high due to the separation from U.S. 41, connectivity is medium for ease to connect to attractions and universal access is a high potential with the additional width to provide gentle slopes.
6. **Cost:** This concept has a medium cost to construct due to the cost of providing additional fill and pathway but may have mitigation costs. Operations and maintenance costs may be medium due to the potential to partner with FDOT and adjacent land units, and high durability of material.

C5 New Berm Gabion Walls



1. **Cultural Impacts:** The concept may have impacts to cultural resources as the concept would require creating a new embankment in areas which may disturb undocumented resources.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to separation from U.S. 41 roadway. Diversity of scenery is medium as the route borders wetlands. Comfort is high due to the separation from U.S. 41 roadway.
3. **Environmental Impacts:** The concept has high environmental impacts due to impacts to wetlands required to create a new embankment away from U.S. 41. The concept is may have positive impacts to compatibility in Everglades restoration due potential sheet flow of water downstream from berm. Water quality impact may be improved with a potential to improve stormwater runoff from U.S. 41 roadway.
4. **Attributes:** The concept has medium levels of potential for partnership from adjacent land units interested in restoration. Aesthetics may be medium while innovation and education opportunities are high due to construction techniques and separation from U.S. 41 roadway. Constructibility is medium due the ease of access, however, providing significant fill may be difficult.
5. **Transportation:** Perceived safety is high due to the separation from U.S. 41 roadway, connectivity is medium for ease to connect to attractions and universal access is a high potential with the additional width to provide gentle slopes.
6. **Cost:** This concept has a extreme cost to construct due to the cost of providing additional fill, gabion walls, and pathway but may have mitigation costs. Operations and maintenance costs may be medium due to the potential to partner with FDOT and adjacent land units, and high durability of material.

C6 Old Tamiami Road



1. **Cultural Impacts:** The concept is neutral in impacts to cultural resource as the concept follows existing U.S. 41 roadway alignment.
2. **User Experience:** This concept has a medium score for authenticity of the Everglades due to the former roadway's separation from existing U.S. 41 roadway. Diversity of scenery is medium with the need to remove existing invasive. Comfort is medium due to its separation from existing U.S. 41 roadway but lack of ability to provide amenities for trail users on the old road.
3. **Environmental Impacts:** The concept has low impacts to existing wetlands due to existing old road, however, will have significant impacts on Everglades restoration efforts where the existing roadbed is proposed to be removed and ensuring positive impact to water quality.
4. **Attributes:** The concept provides significant opportunities for partnership with SFWMD, FDOT and NPS, exhibits medium levels of aesthetics due to its simplistic design and innovative use of existing infrastructure and educational opportunities with proximity to natural areas. Constructibility is none due to the impacts on Everglades restoration, construction costs, and mitigation.
5. **Transportation:** The concept has a high level of perceived safety due to separated facilities from motorized vehicular traffic. Ease of universal accessibility is high and connectivity to destinations is medium because of the isolation of the old U.S. 41 roadbed and ability to provide amenities along the pathway.
6. **Cost:** This concept may have an extreme construction cost due to extensive clearing needed and installation of additional drainage to encourage sheet flow. Maintenance and operating costs may be medium due to ease of access from existing old U.S. 41 roadbed.

C7 Loop Road

1. **Cultural Impacts:** The concept is neutral in impacts to cultural resource as the concept follows existing roadway alignment.
2. **User Experience:** This concept has a high score for authenticity of the Everglades due to the separation from U.S. 41 roadway. Diversity of scenery is high with many highly scenic viewsheds. Comfort is medium due to its separation from U.S. 41 roadway and lack of ability to provide amenities for trail users on the Loop Road.
3. **Environmental Impacts:** The concept has low impacts to existing wetlands due to existing roadway alignment and minimum impacts on Everglades restoration efforts. Water quality may be impacted by stormwater runoff from gravel roadway.
4. **Attributes:** The concept provides some opportunities for partnership, exhibits medium levels of aesthetics due to its simplistic design and innovative use of existing infrastructure and educational opportunities with proximity to natural areas. Constructibility is high due to limited needs for improvements and existing access from current alignment.
5. **Transportation:** The concept has a medium level of perceived safety due to shared facilities with existing motorized vehicle traffic. Ease of universal accessibility is low due to lack of accessible or pedestrian routes and connectivity is low due to lack of connections to attractions.
6. **Cost:** This concept may have a low construction cost due to lack of significant improvements needed. Maintenance and operating costs may be medium due to need to maintain a smooth gravel surface.

3 Step

Refer to Section 3.3.3 Study Area Map for Preferred Route

3.3.3 Alternative Route Evaluation

The following section contains a mile-by-mile analysis of potential route alternatives for the ROGG corridor.

Where required due to constraints of existing conditions, a 'Land Manager's' Preferred Alternative may be identified. This alternative is one that is preferred by local land management at the time of this study, however the alternative may have a reduced feasibility due to additional permitting requirements, environment impacts, or costs.

Though a preferred alignment was identified through a matrix evaluation process, numerous alignments and alternative routes may be feasible. Determination of final feasibility is dependent upon permitting and regulatory requirements which include rigorous environmental analysis.

The final feasibility for cross-sections will be made during the design and permitting phases for any future segments of ROGG.

Legend

- A# Path Section - Regular Alternative
- A# Path Section - Preferred Alternative
- A# Path Section - Land Managers' Preferred Alternative
- Path Type A
- Path Type B
- Path Type C
- Preferred Route
- Alternative Route
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop
- Restrooms
- Drinking Water
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- Nature Viewing
- Hiking
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- Historical Structures
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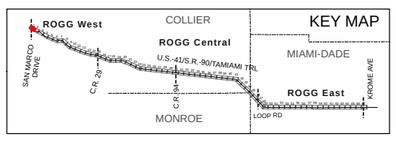
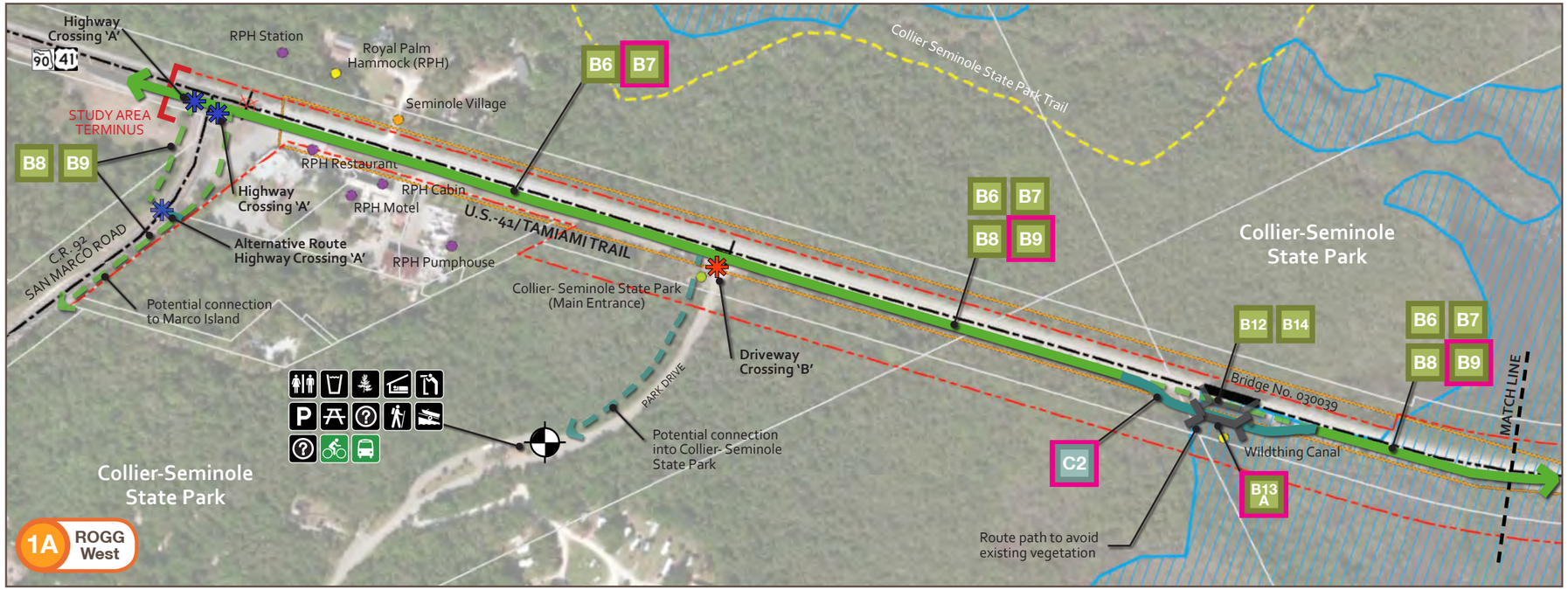
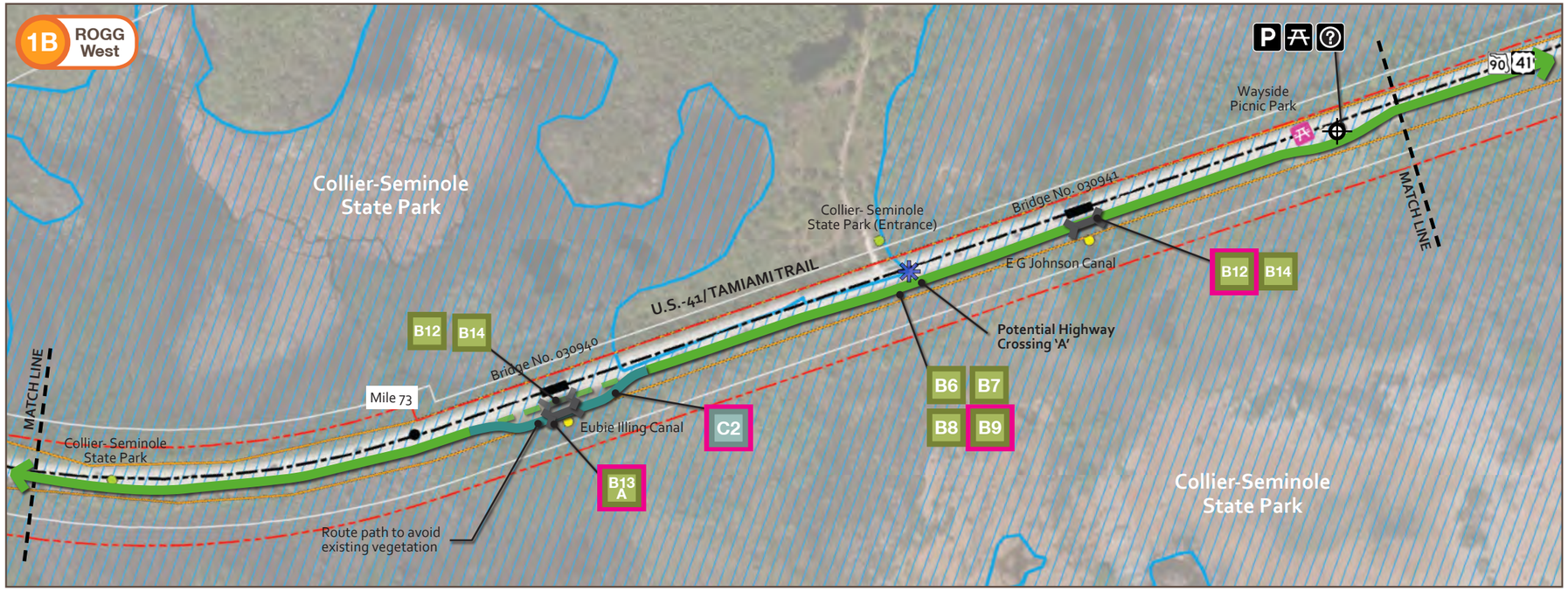
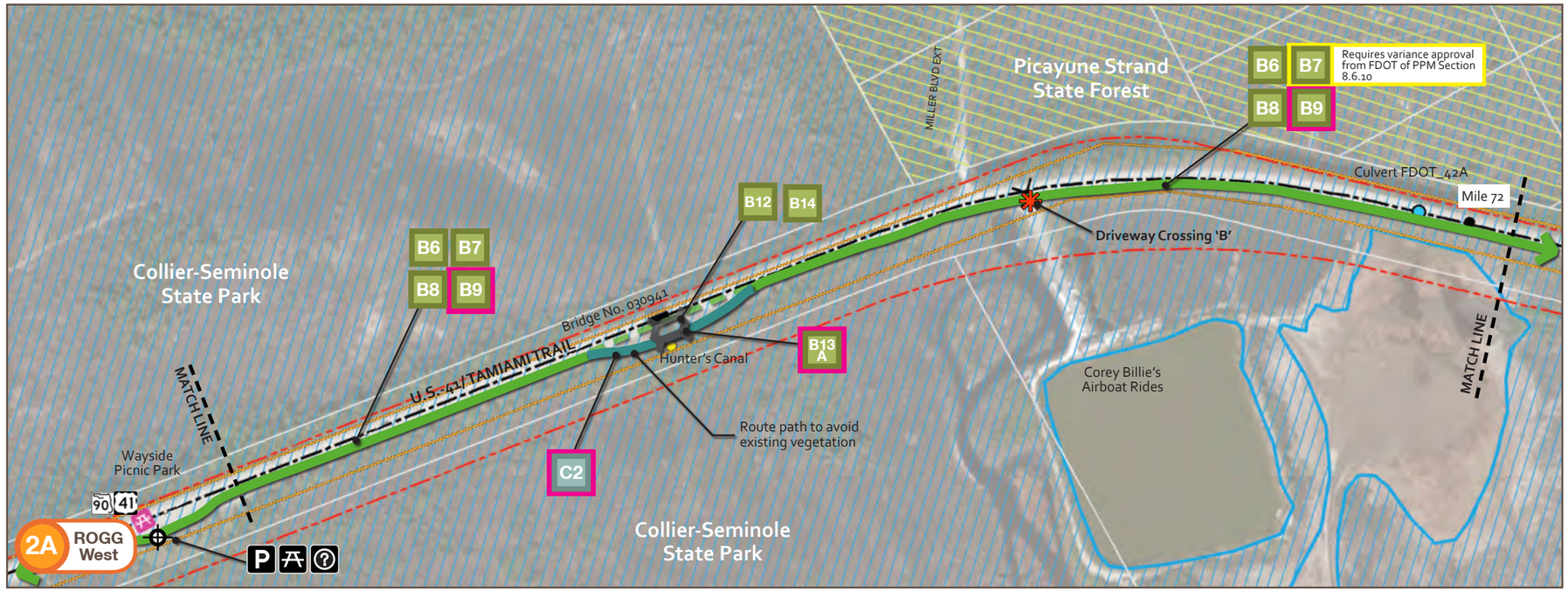
- Existing Hiking Trail
- Existing Motorized Trail
- Road Centerline
- Roadway Bridge
- Trail Bridge
- Wayside Park
- Microwave Tower
- Contaminated Site
- Waste Facility
- Traffic Signal
- Intersection
- Parcel Line
- Conservation Project Tamiami Trail Culverts
- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

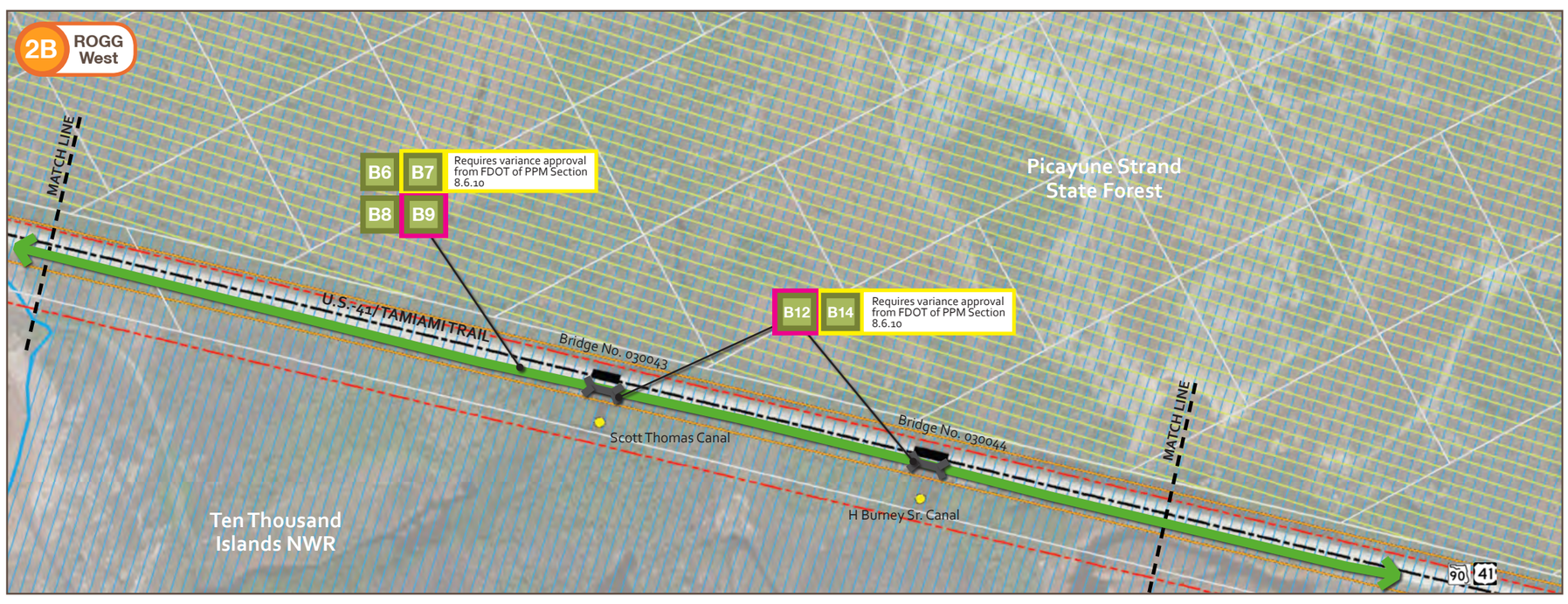
N 0 150 300 600 ft.











Legend

- Path Section - Regular Alternative
- Path Section - Preferred Alternative
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- Path Type A
- Path Type B
- Path Type C
- Preferred Route
- Alternative Route
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- Bike Rental
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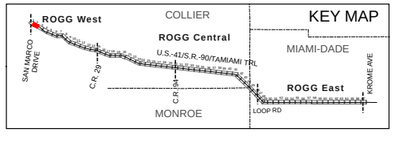
- Traffic Signal
- Intersection
- Parcel Line
- Conservation Project Tamiami Trail Culverts
- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

N

0 150 300 600 ft.



Legend

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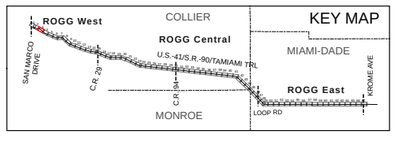

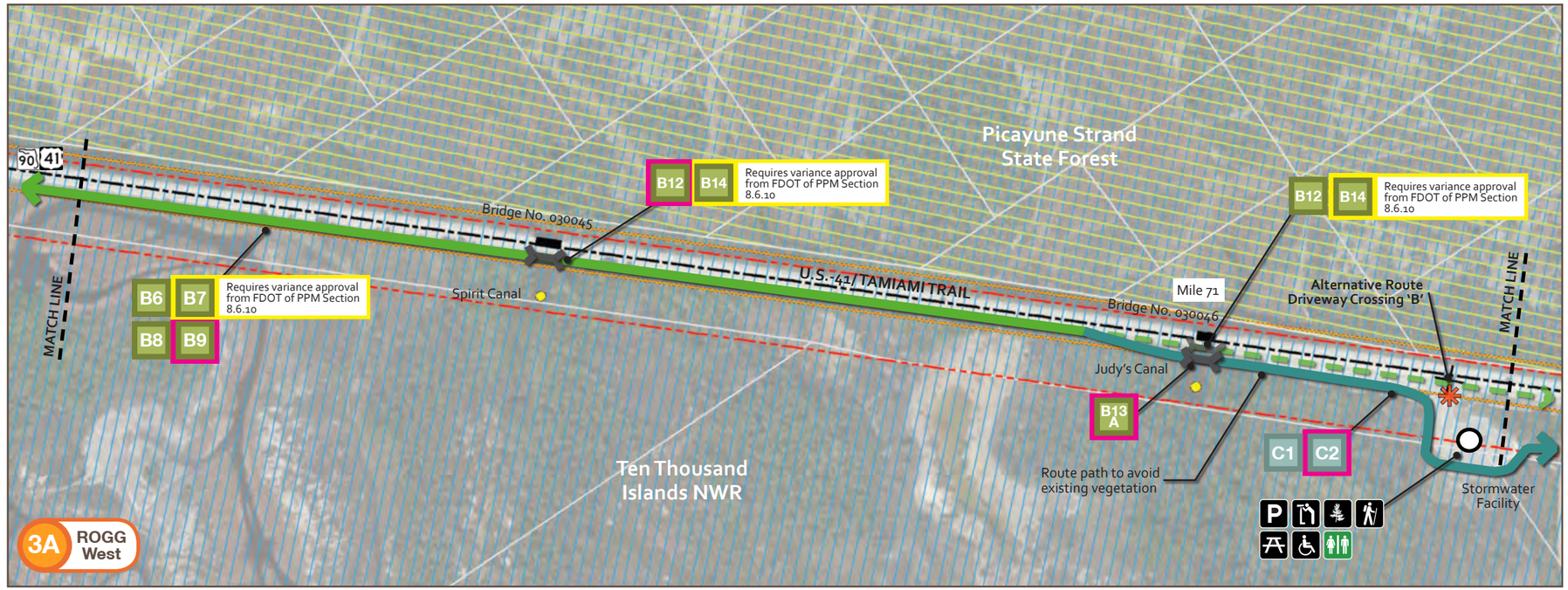

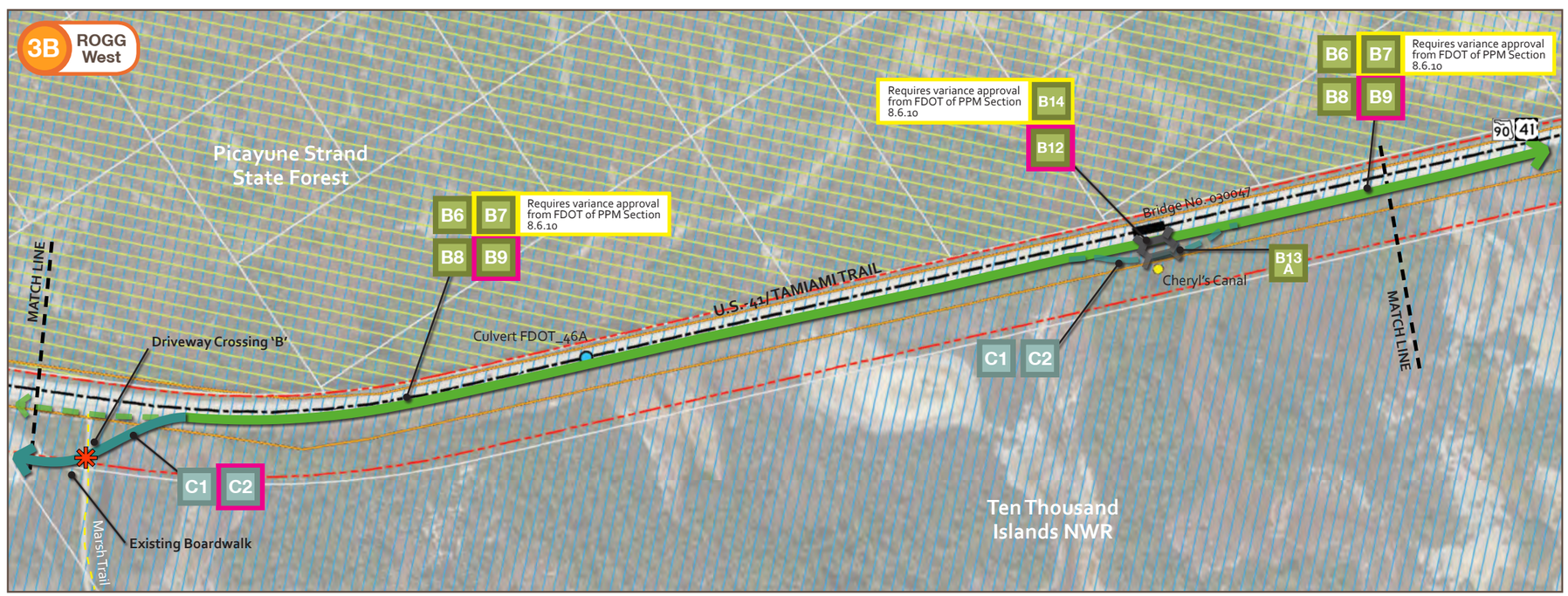

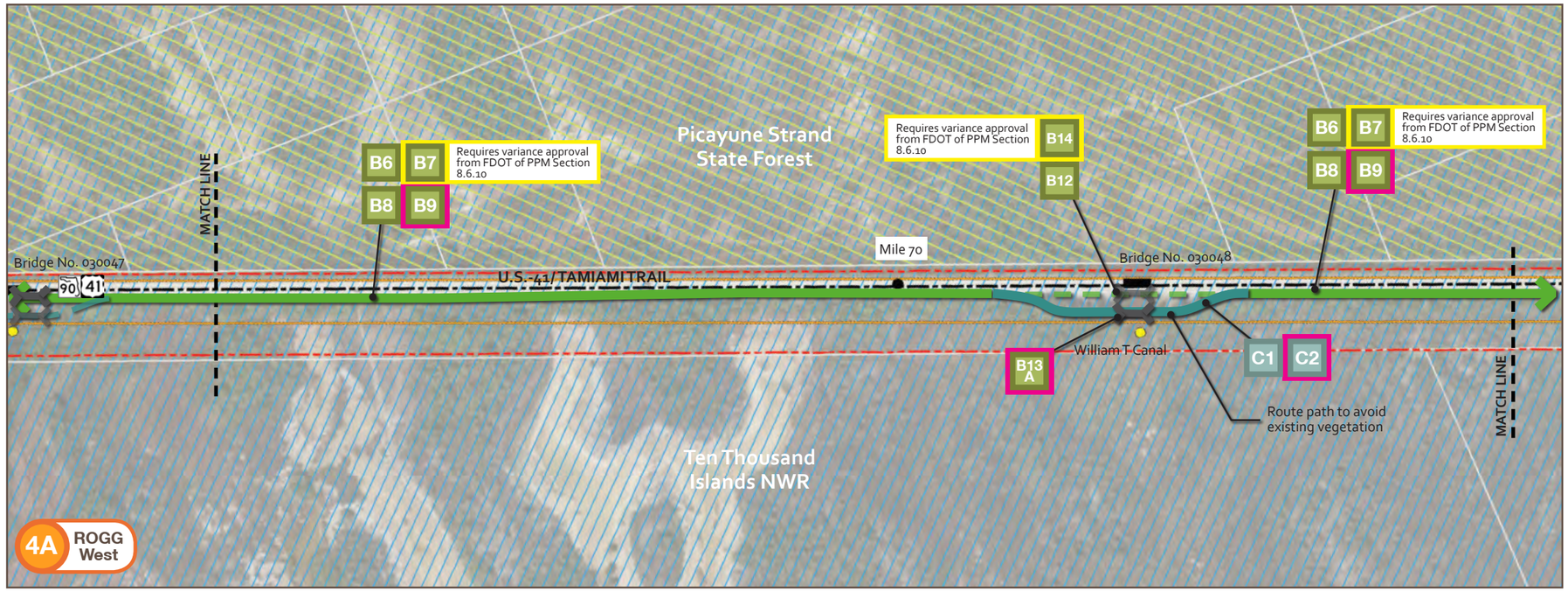

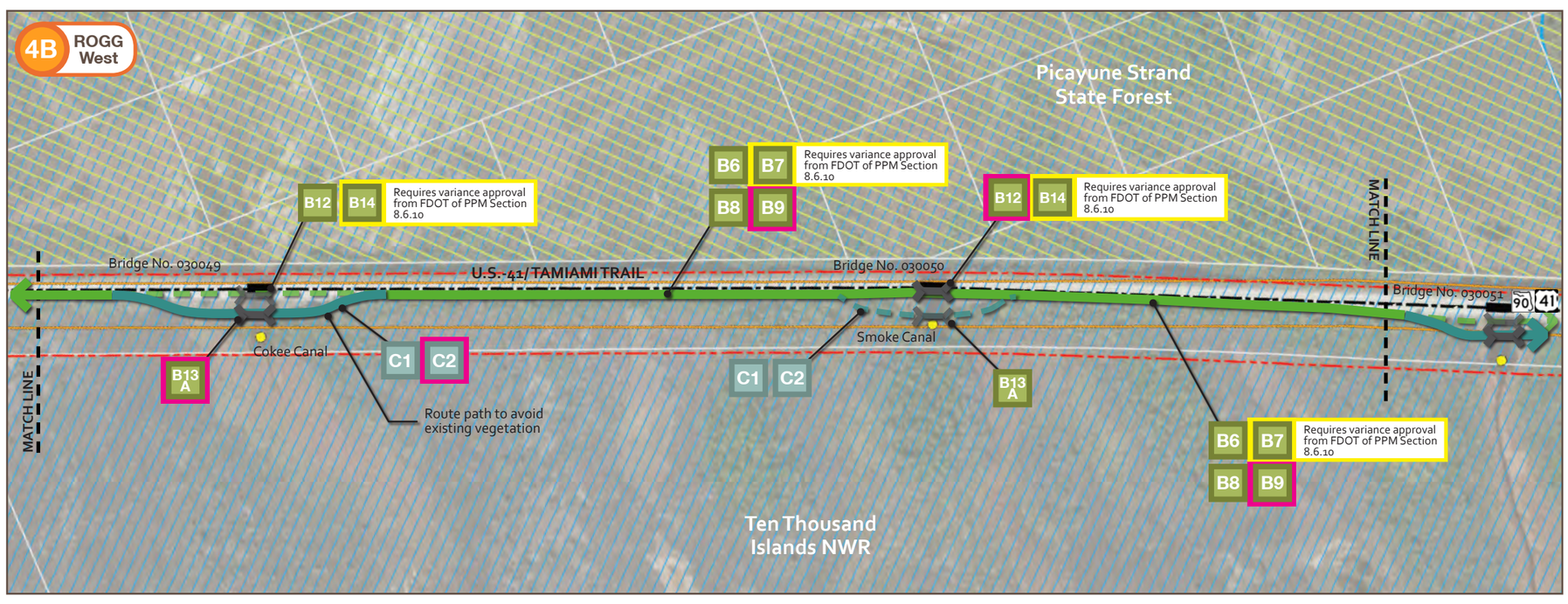

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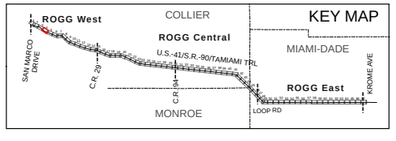
- Wetland Area

N

0 150 300 600 ft.



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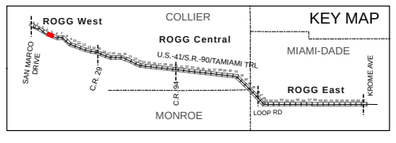

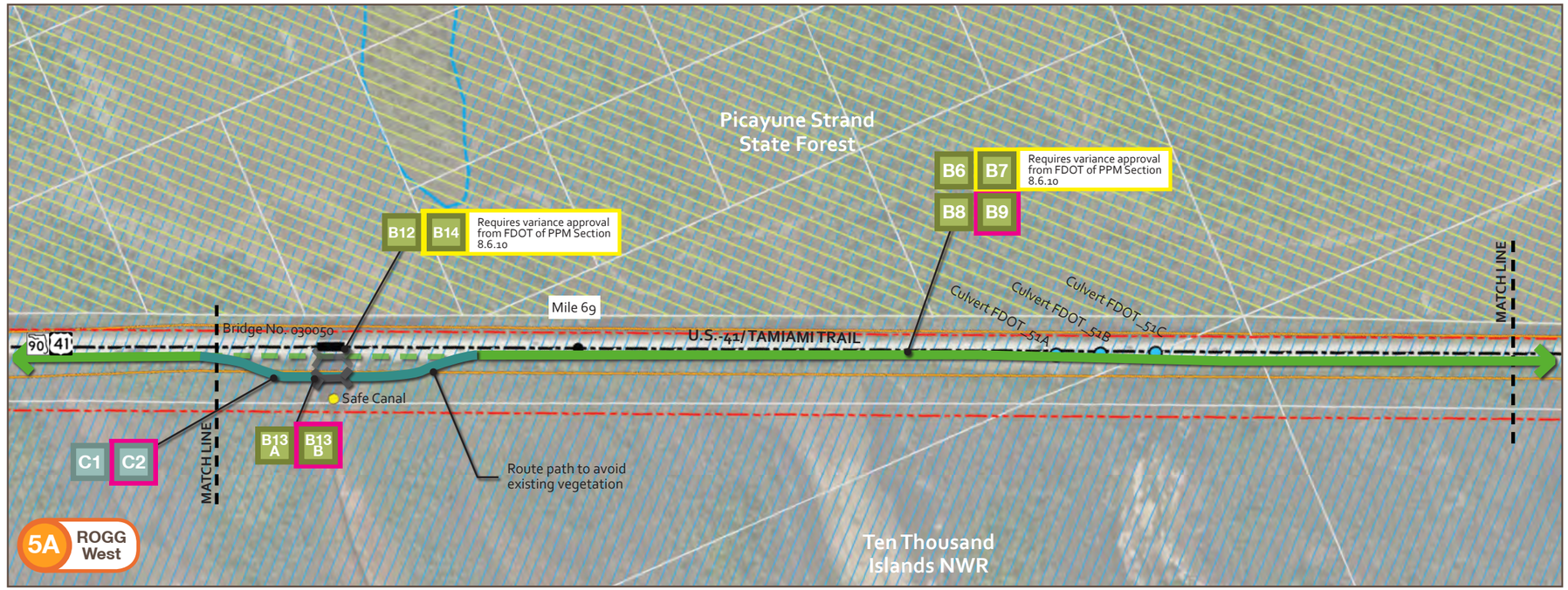

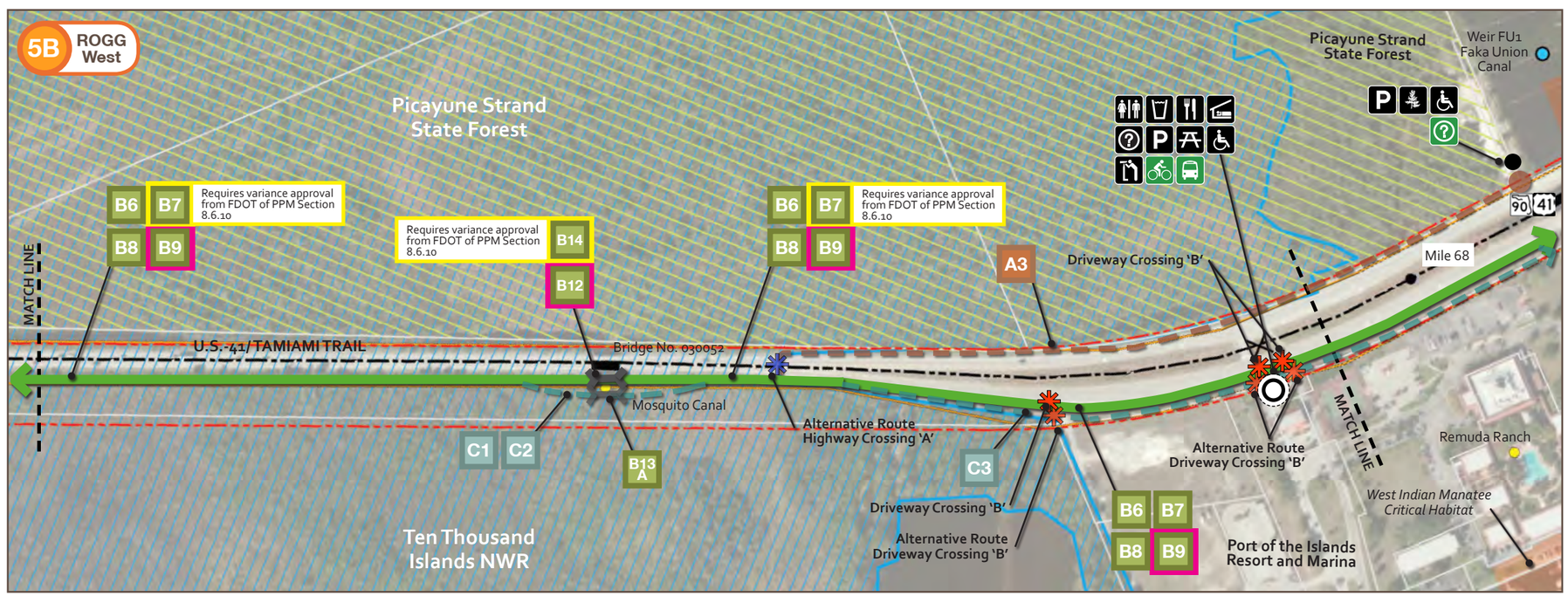

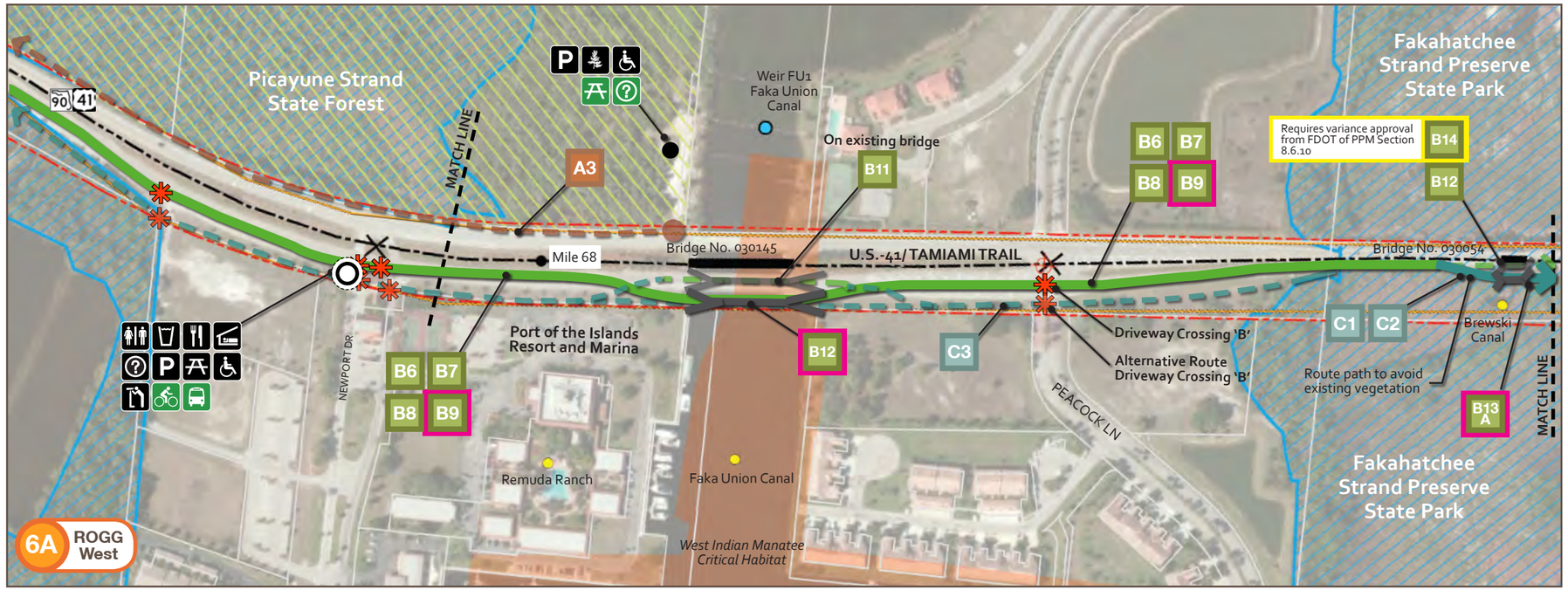

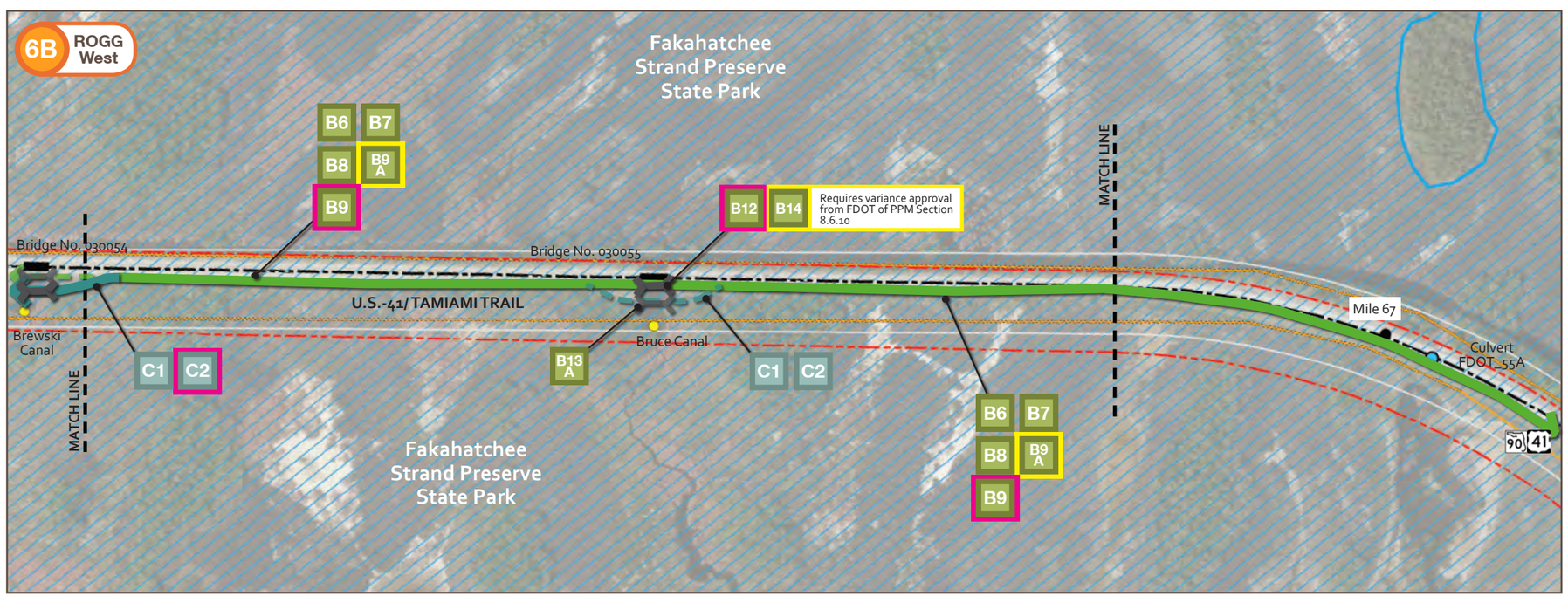

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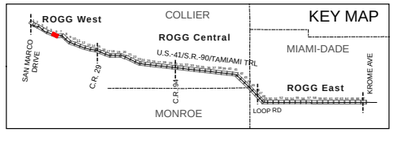
- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

N

0 150 300 600 ft.



Legend

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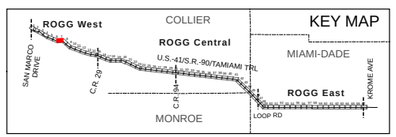
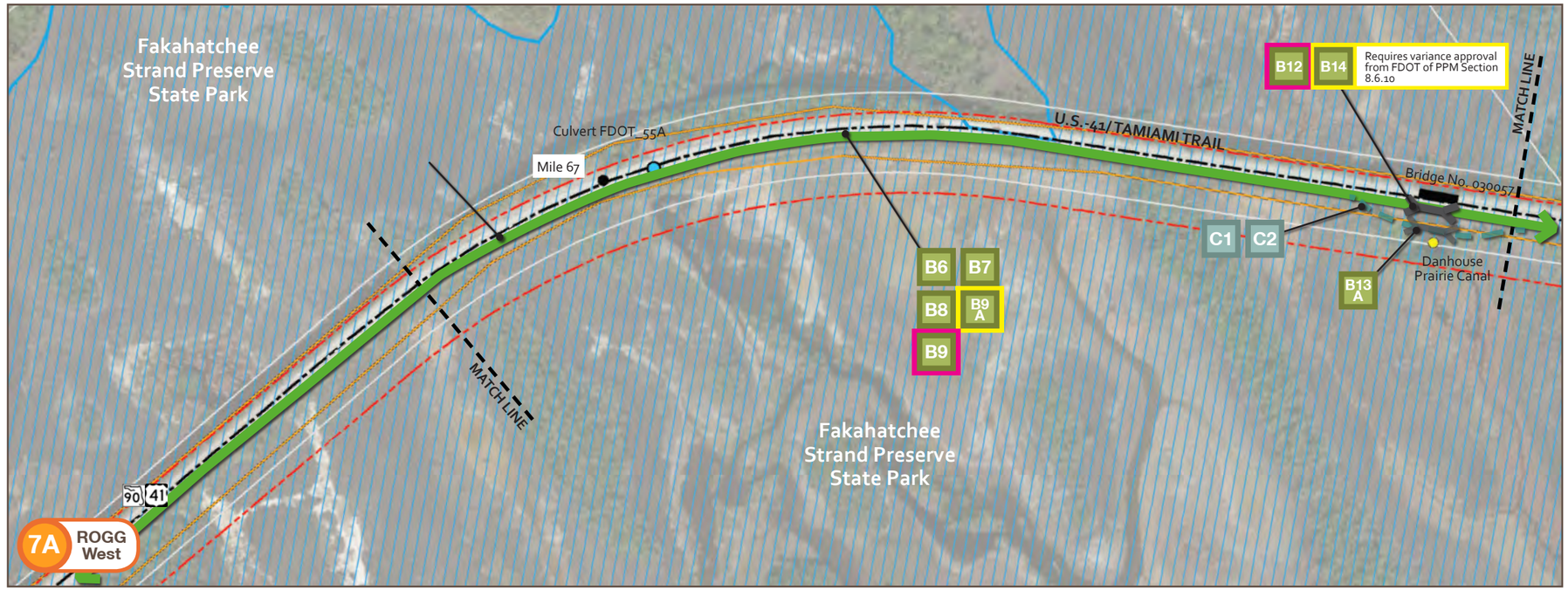
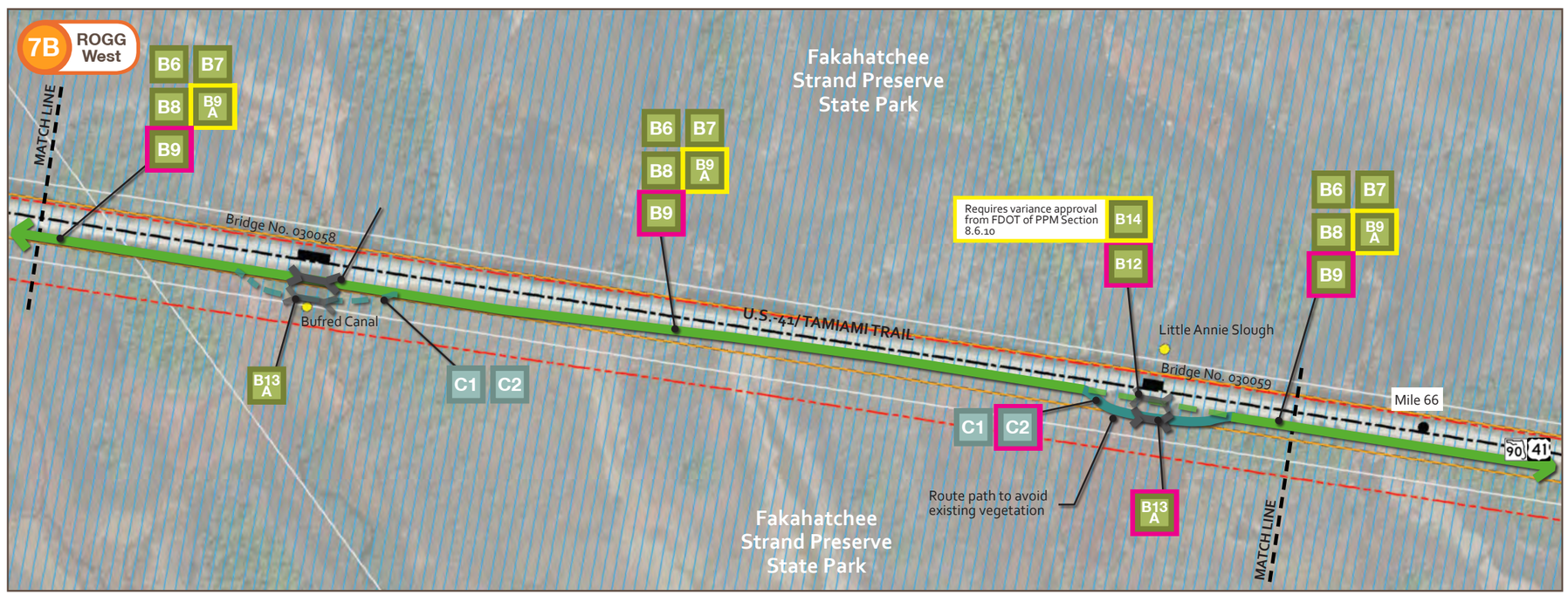
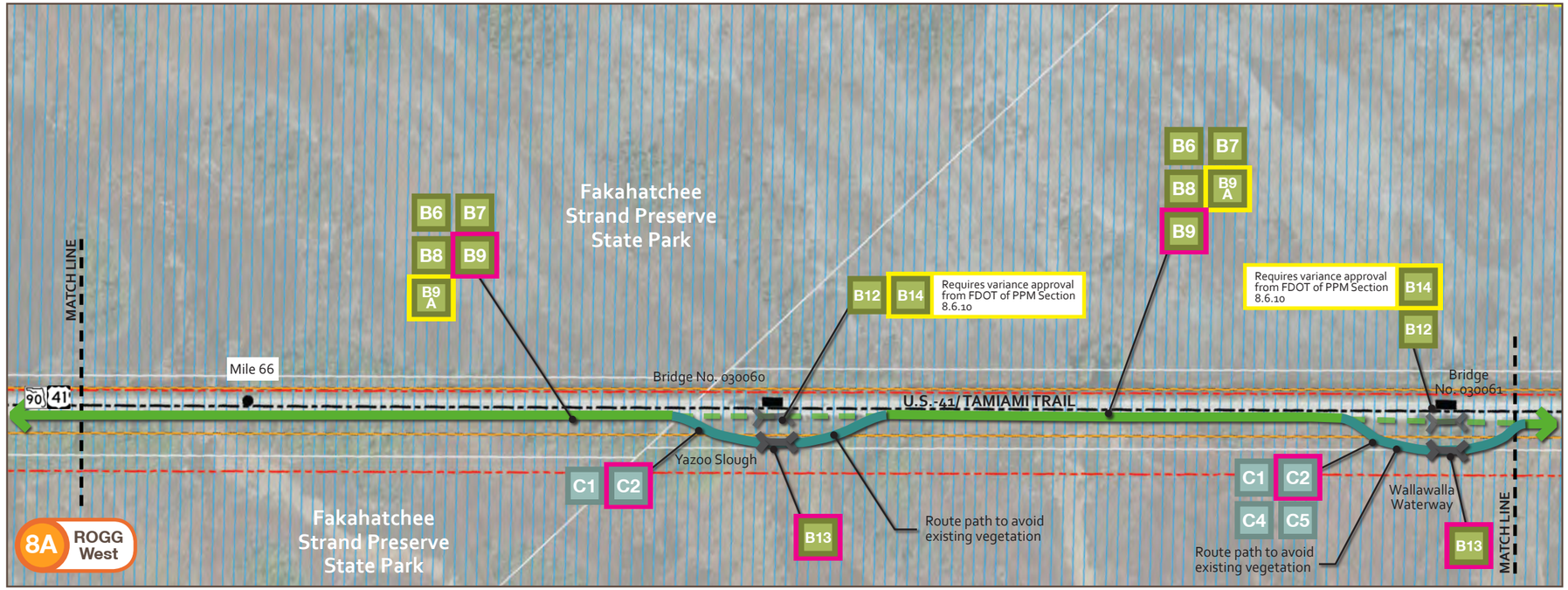
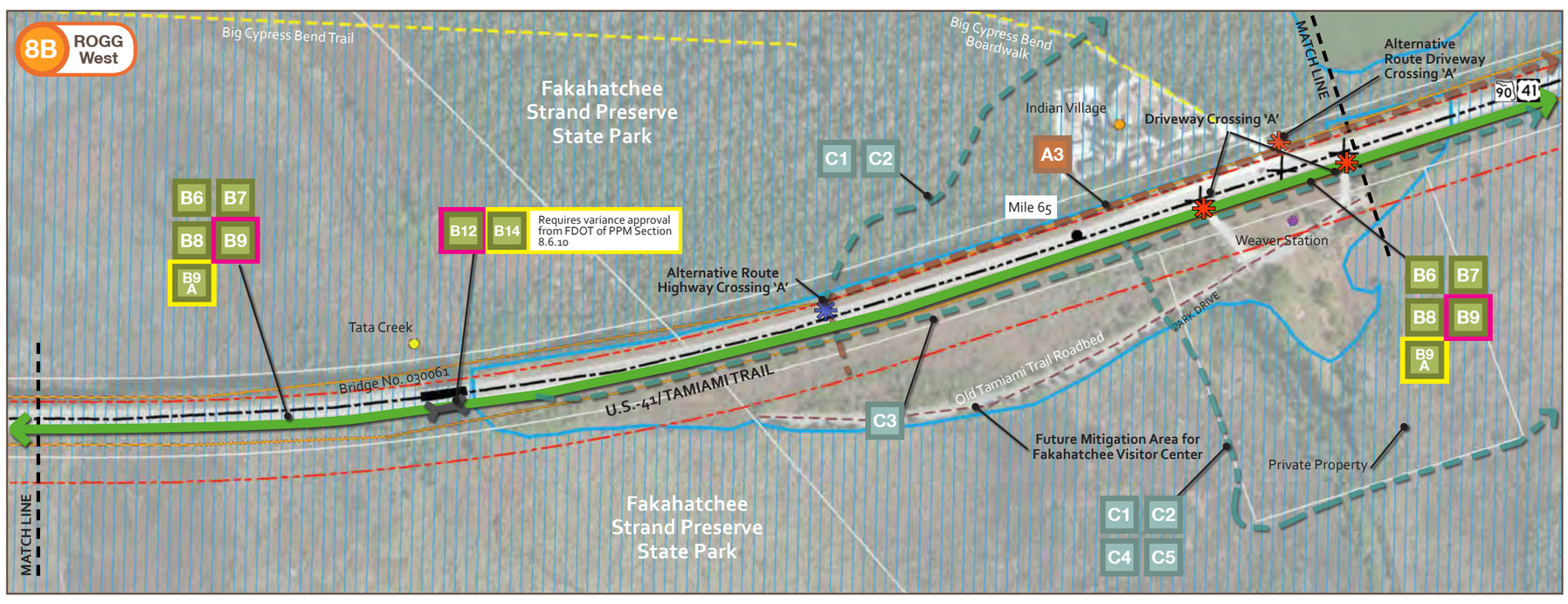
0 150 300 600 ft.











Legend

- Path Section - Regular Alternative (A#)
- Path Section - Preferred Alternative (A#)
- Path Section - Land Managers' Preferred Alternative (A#)
- Path Type A
- Path Type B
- Path Type C
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- Historical Structures
- SFWMD Water Control Structure
- Right of Way
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- Intersection
- Parcel Line
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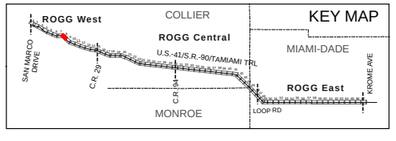
- Critical Habitat
- Wetland Area

N

0 150 300 600 ft.



Legend

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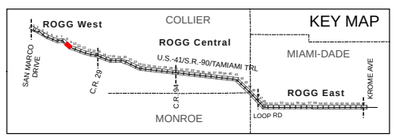

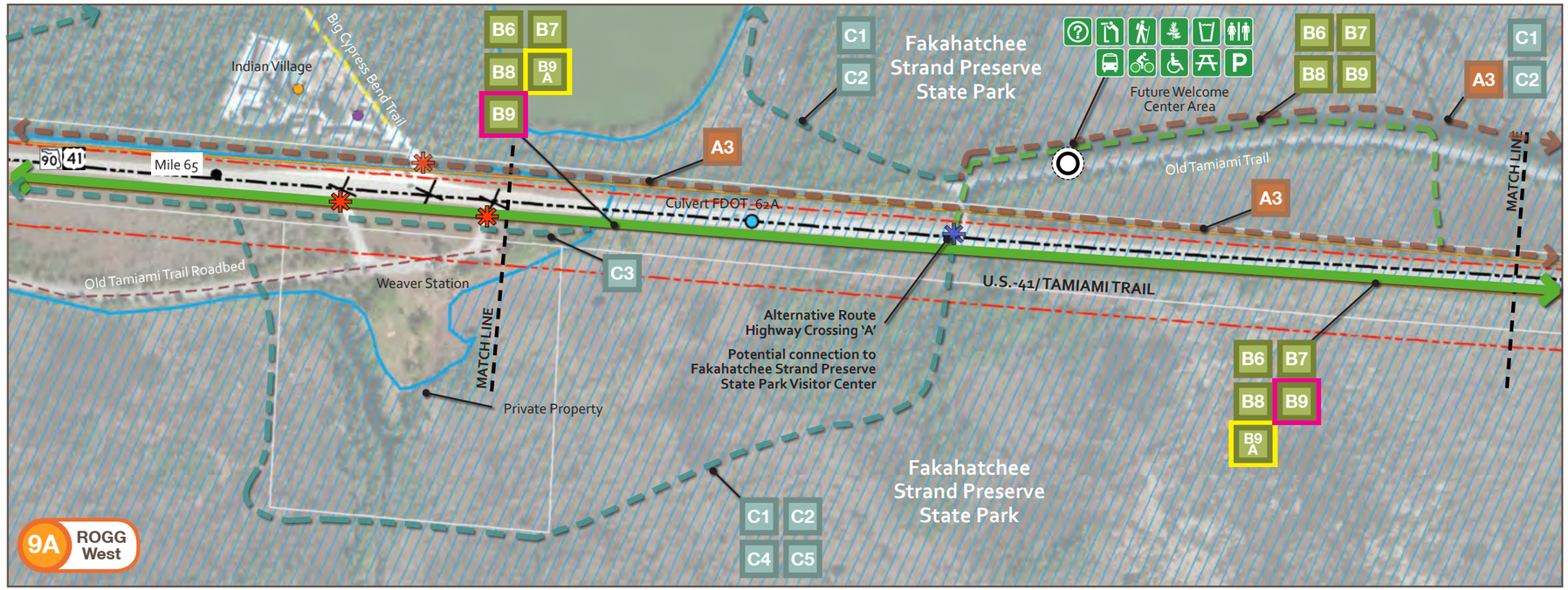

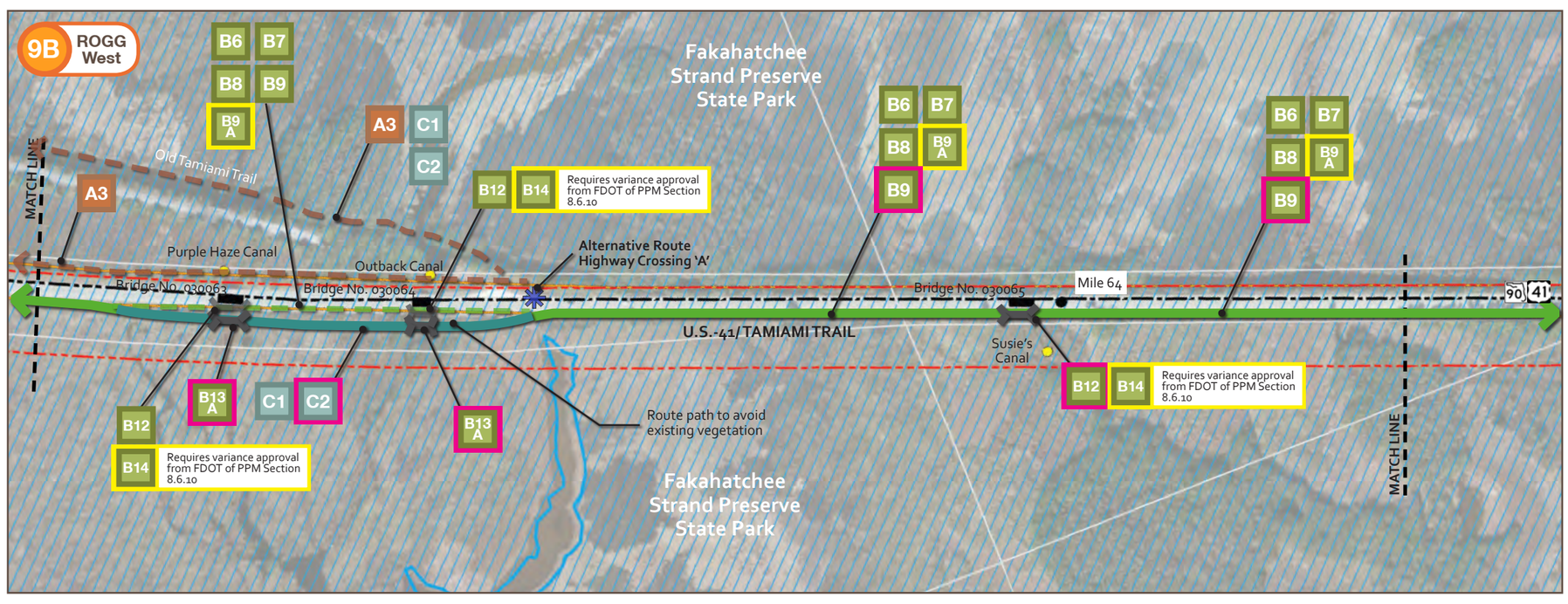

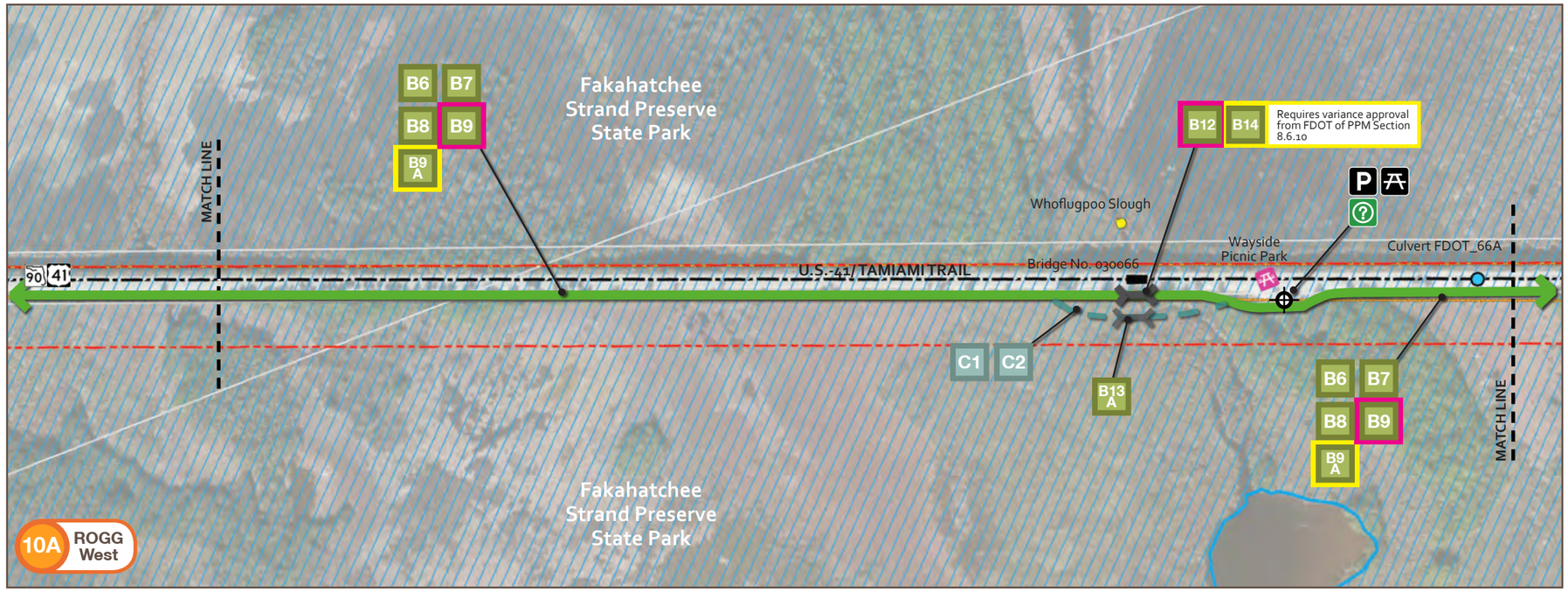

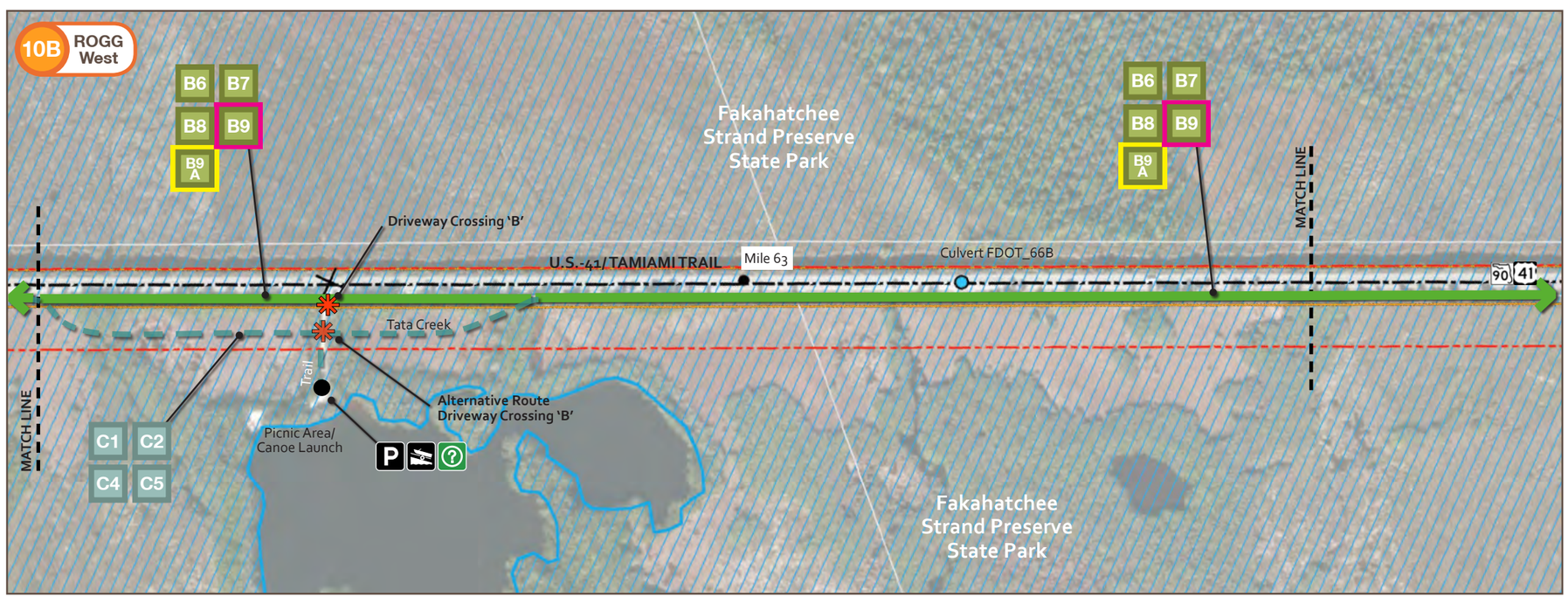

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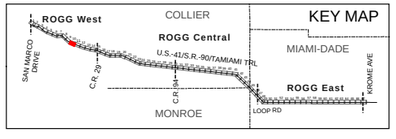

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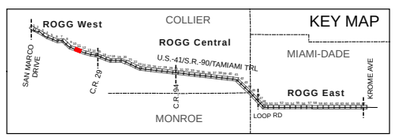

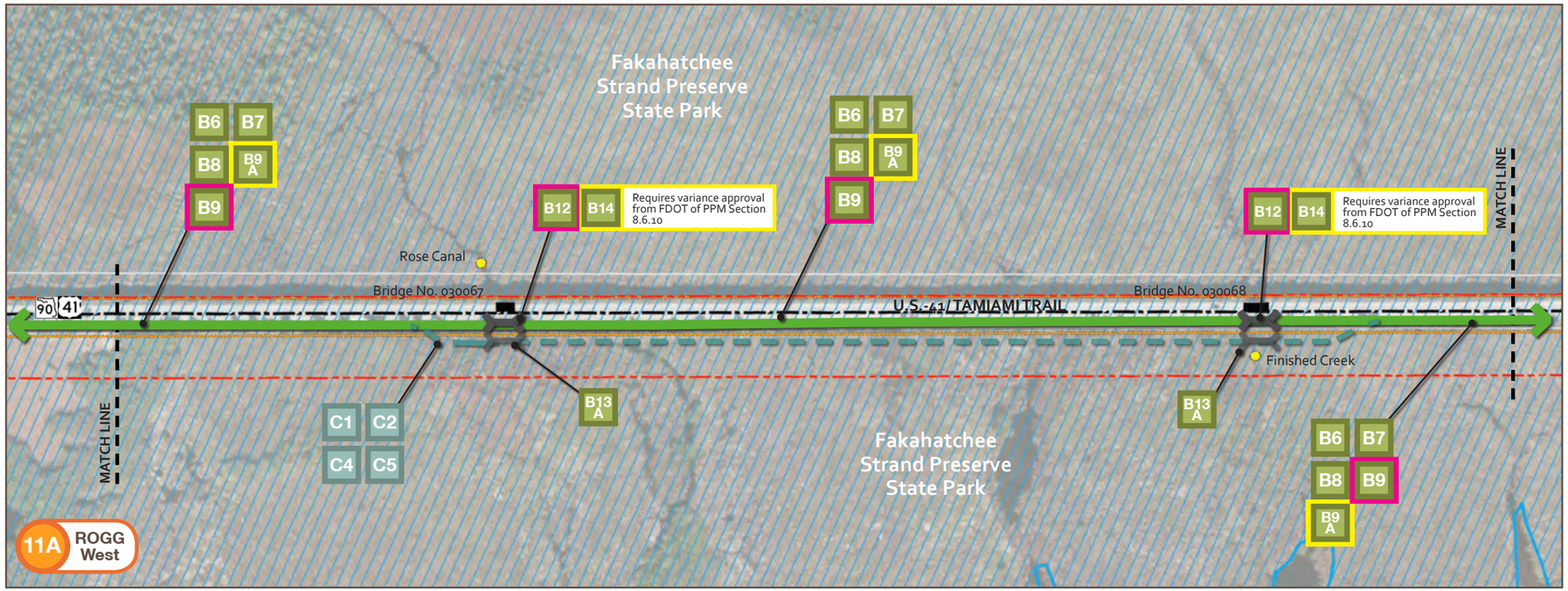

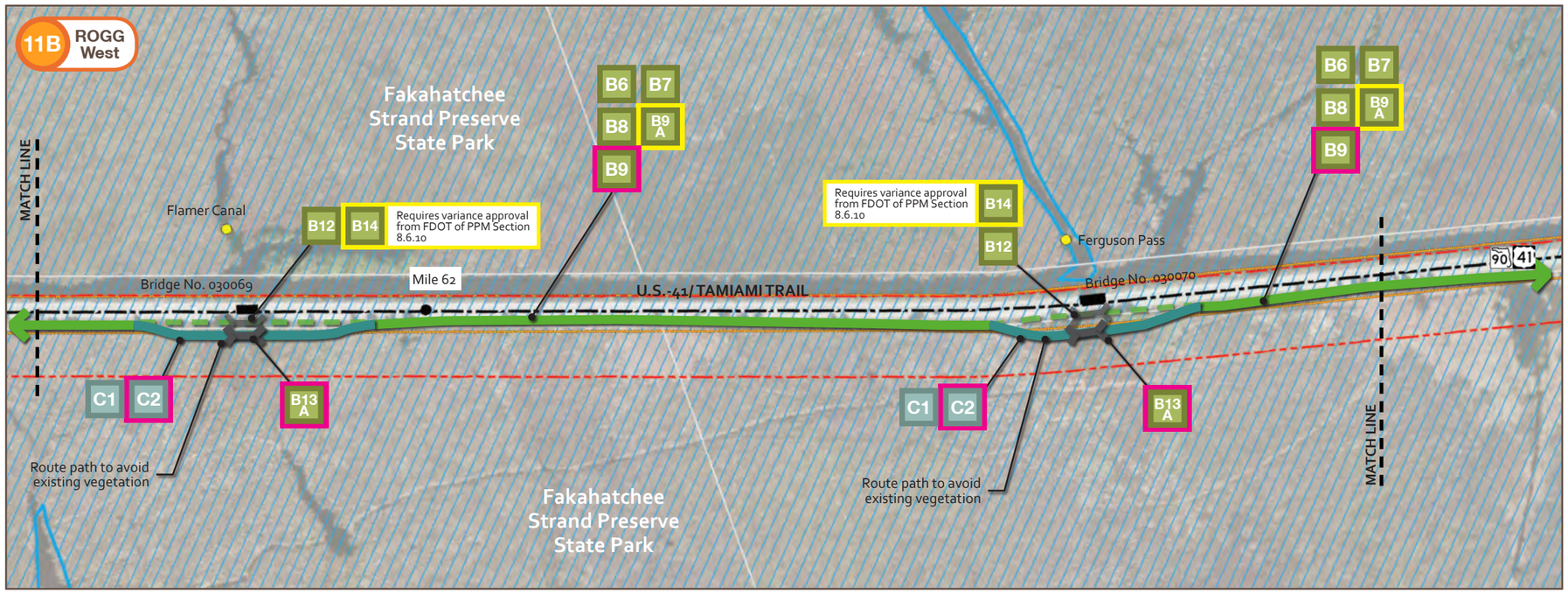

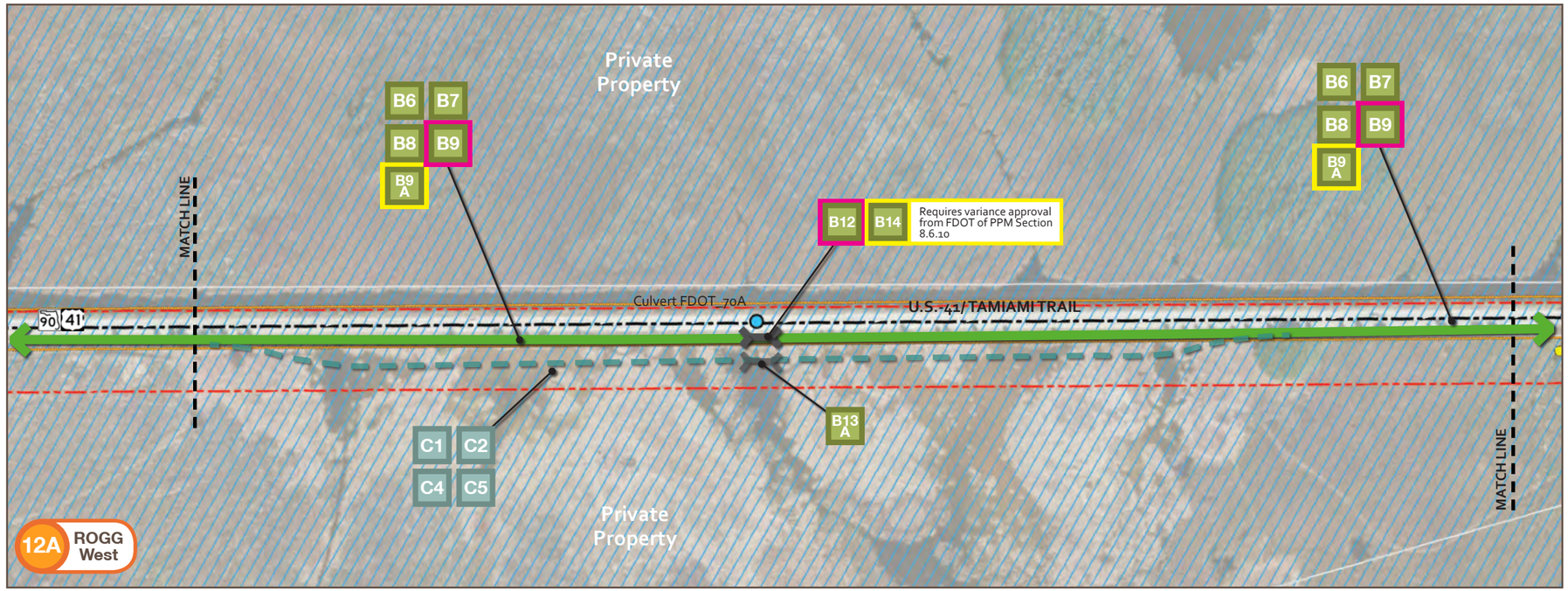

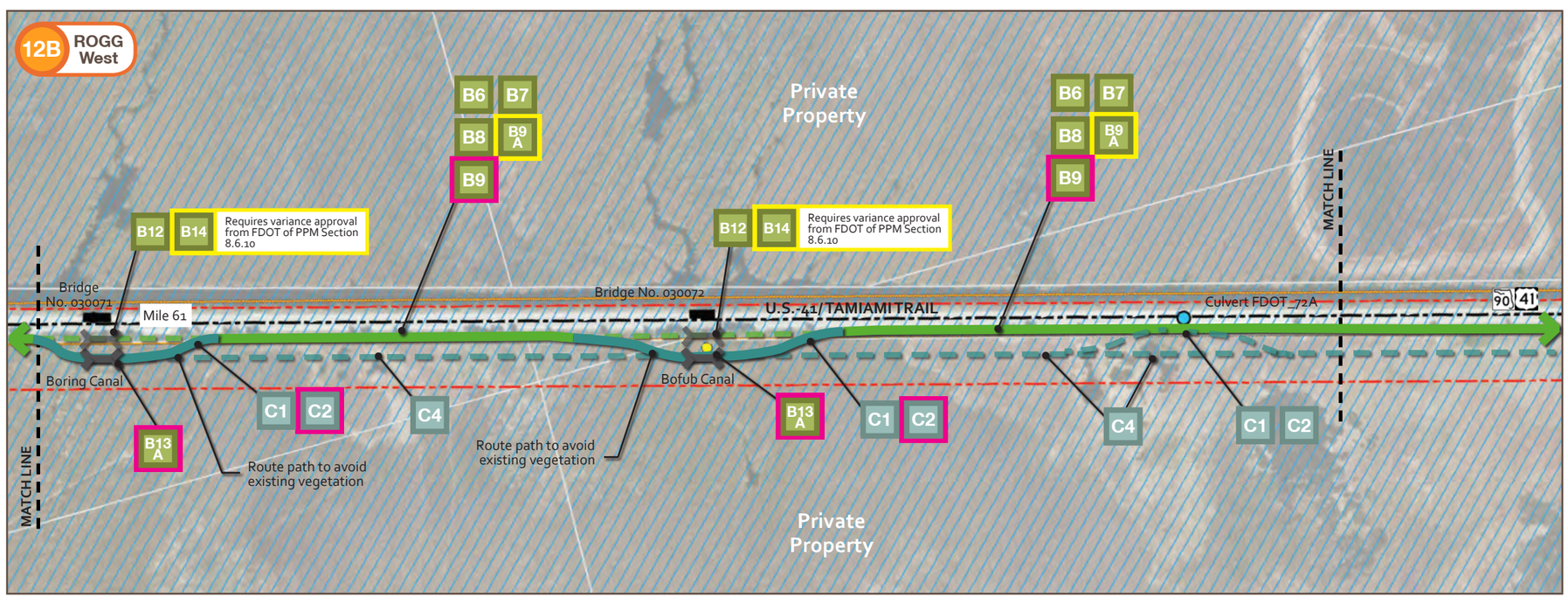

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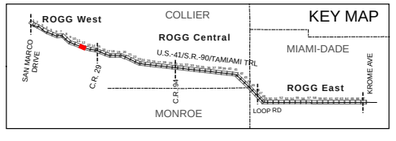
N

0 150 300 600 ft.



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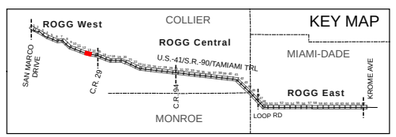

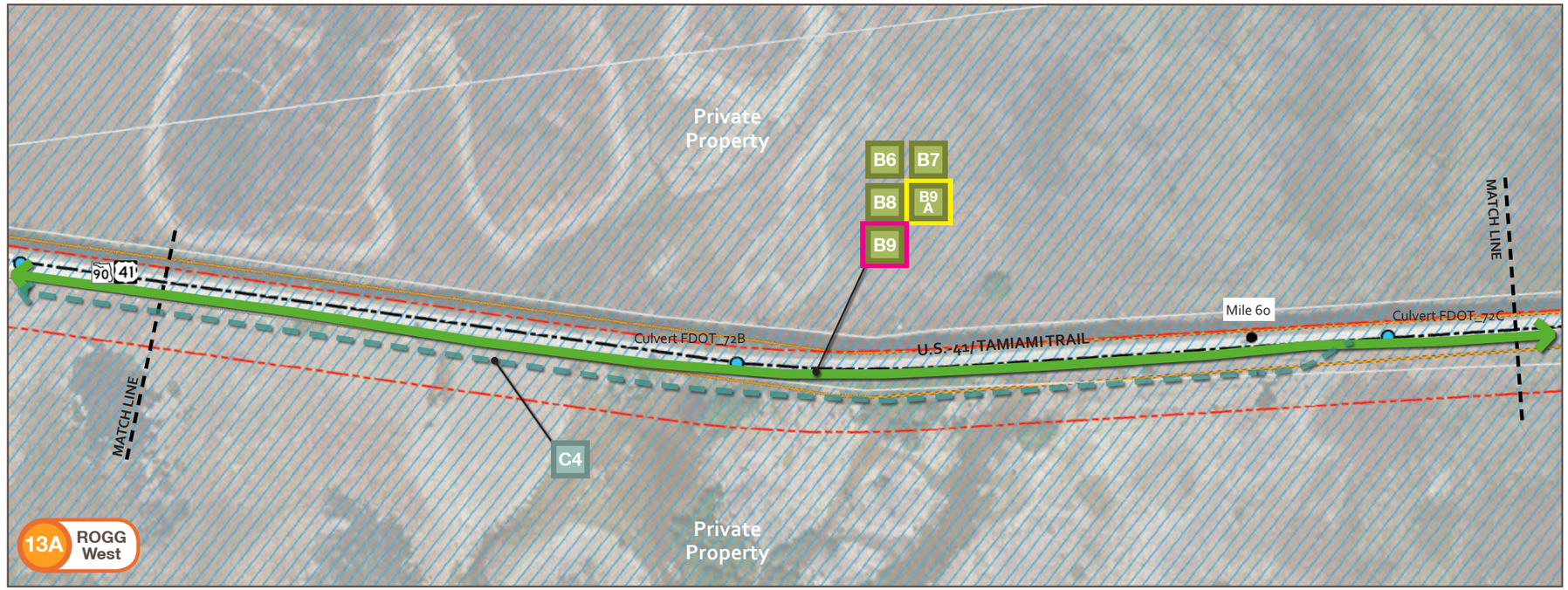

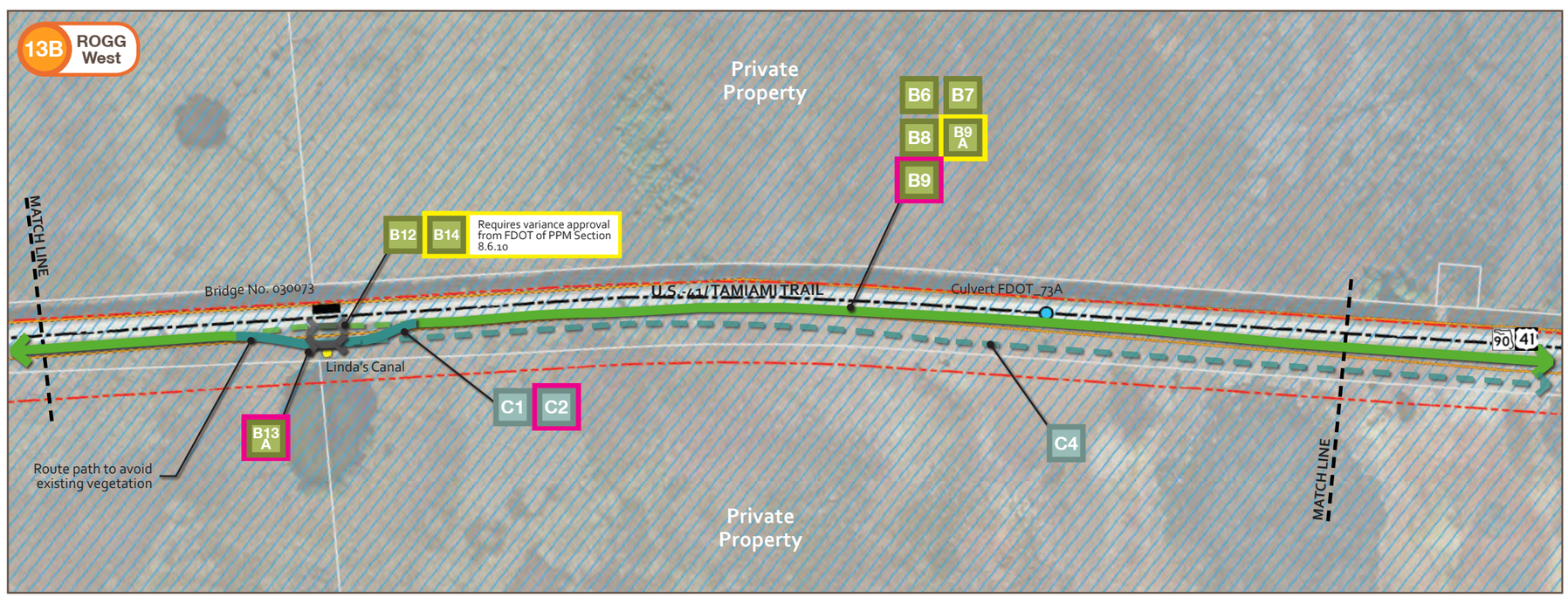

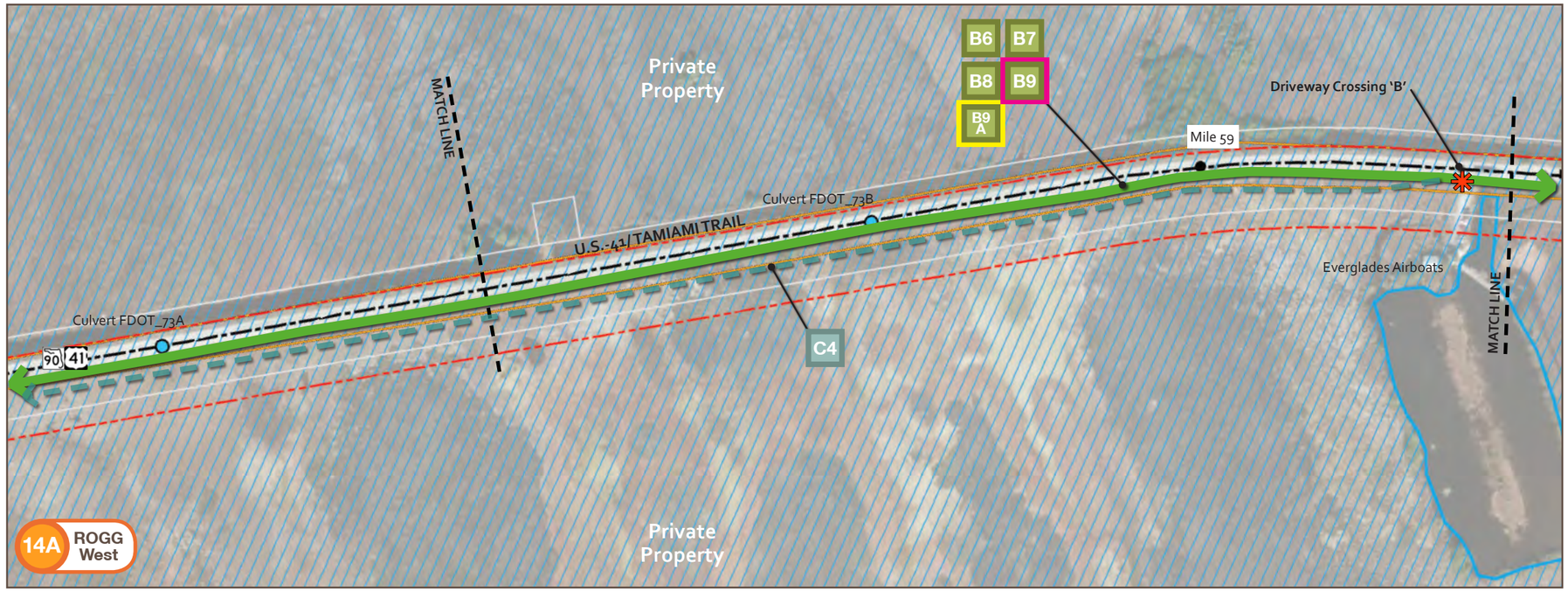

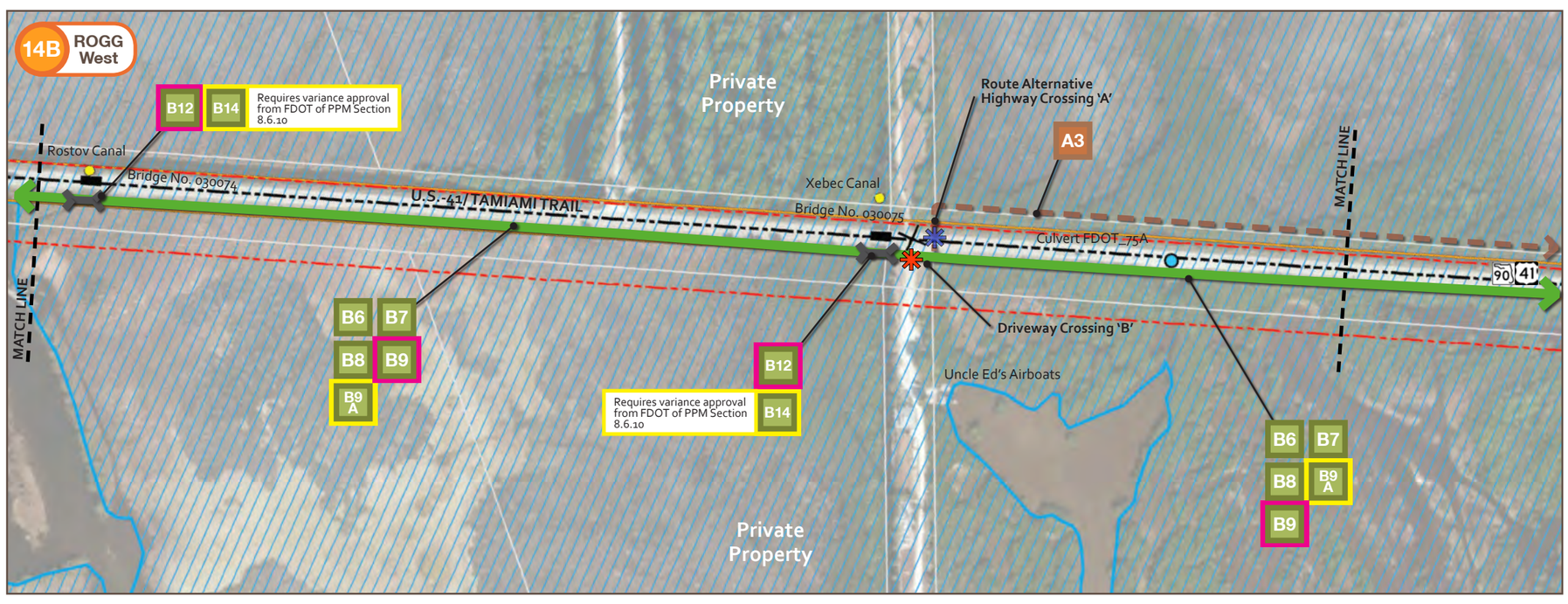

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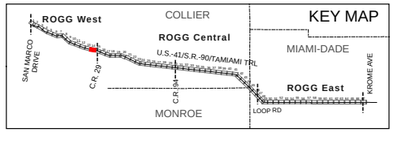
N

0 150 300 600 ft.



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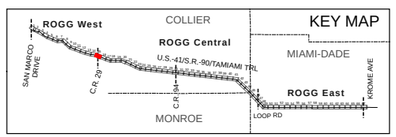

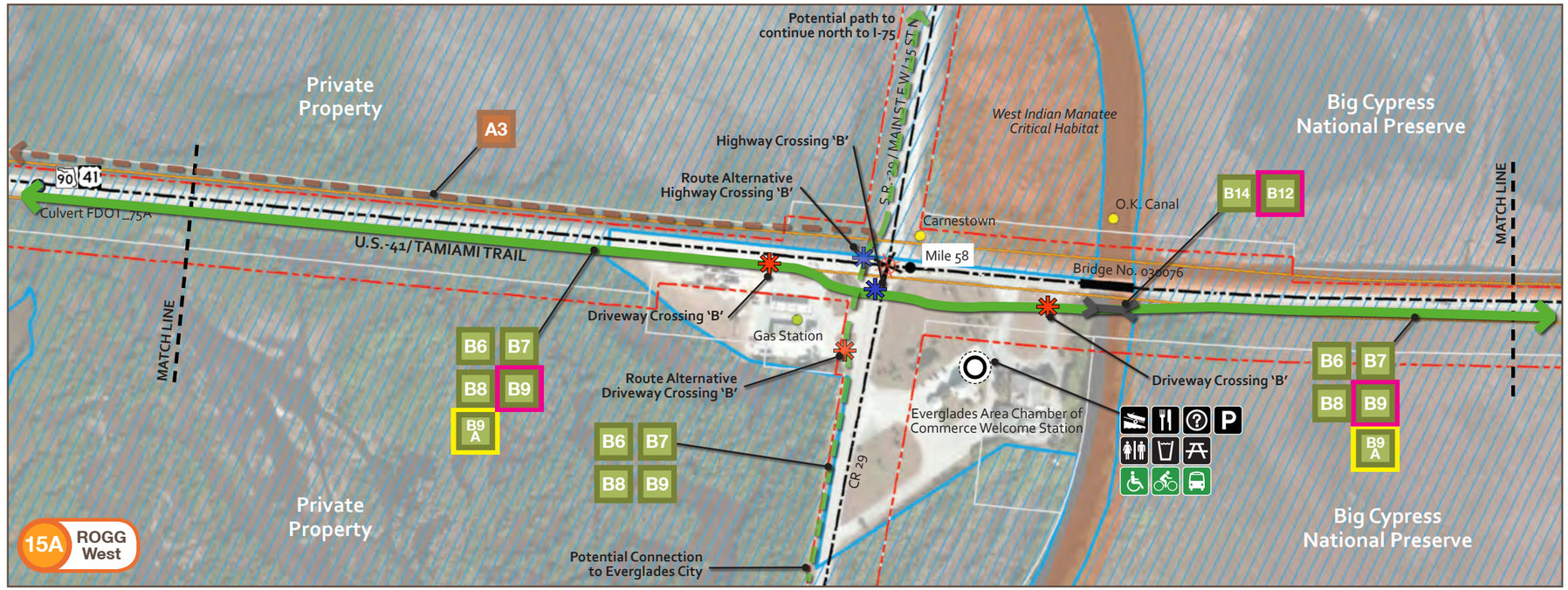

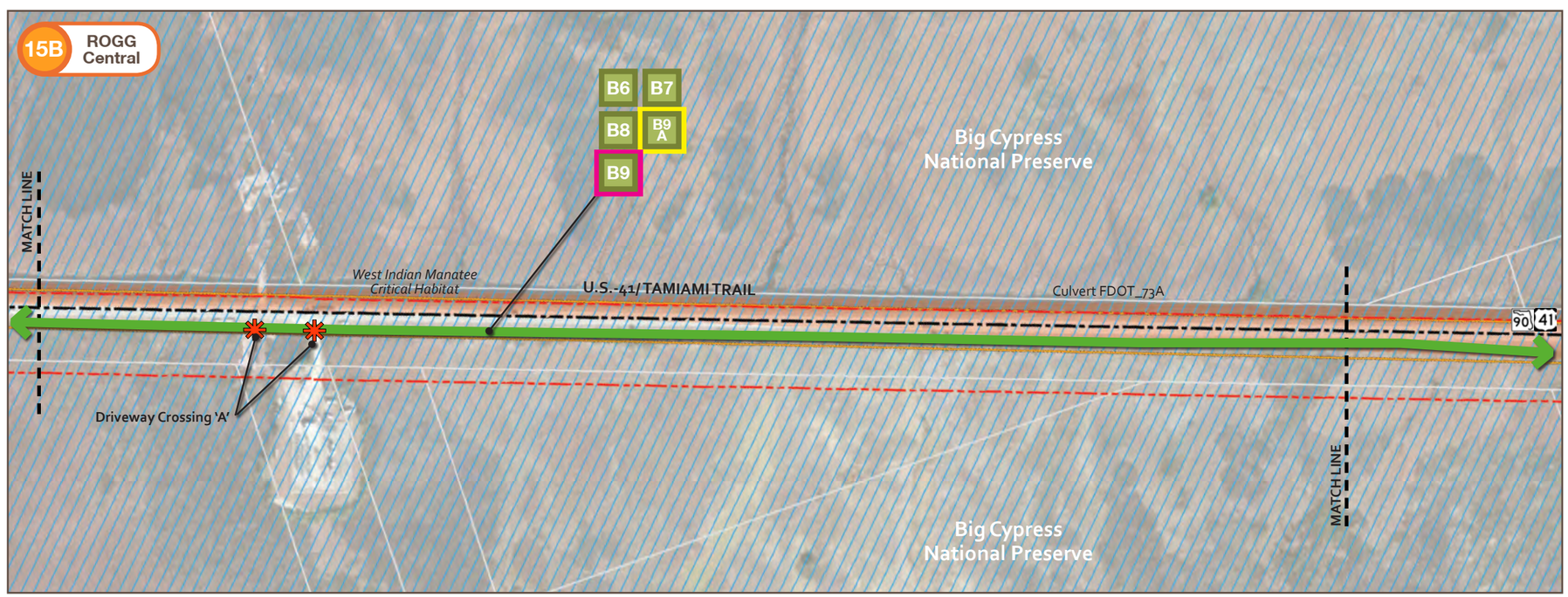

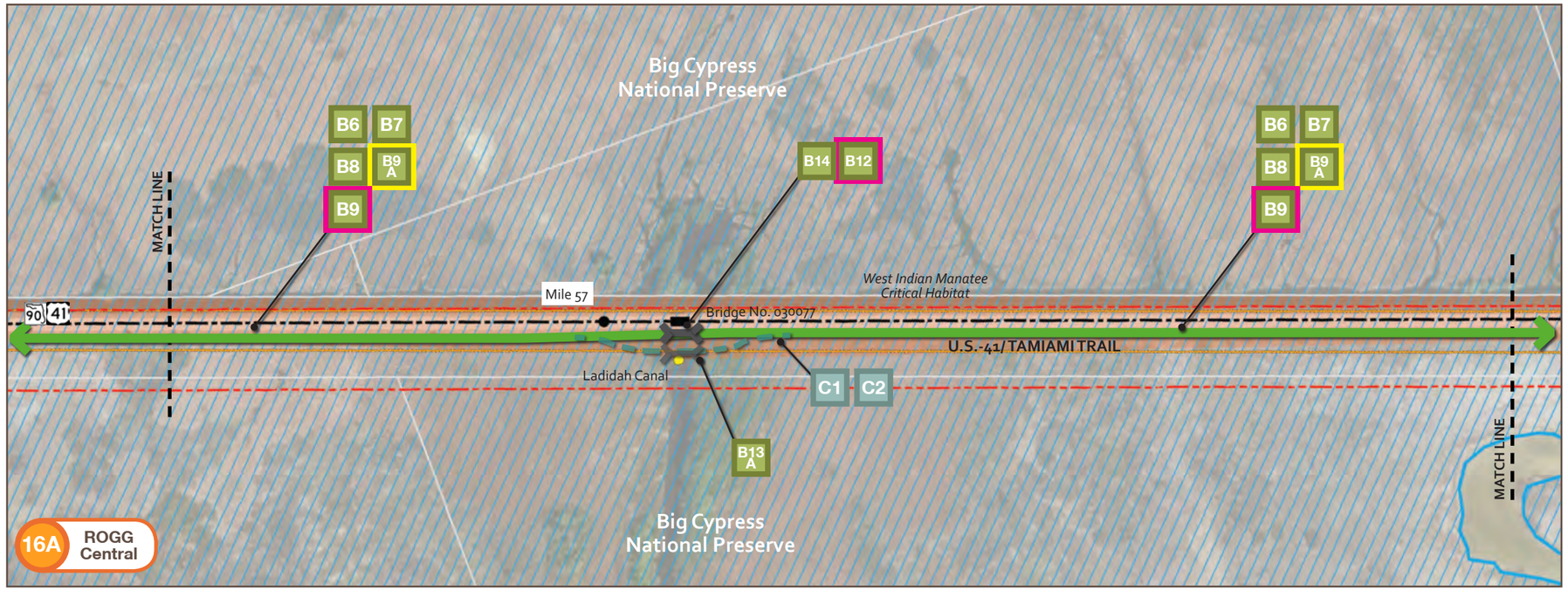

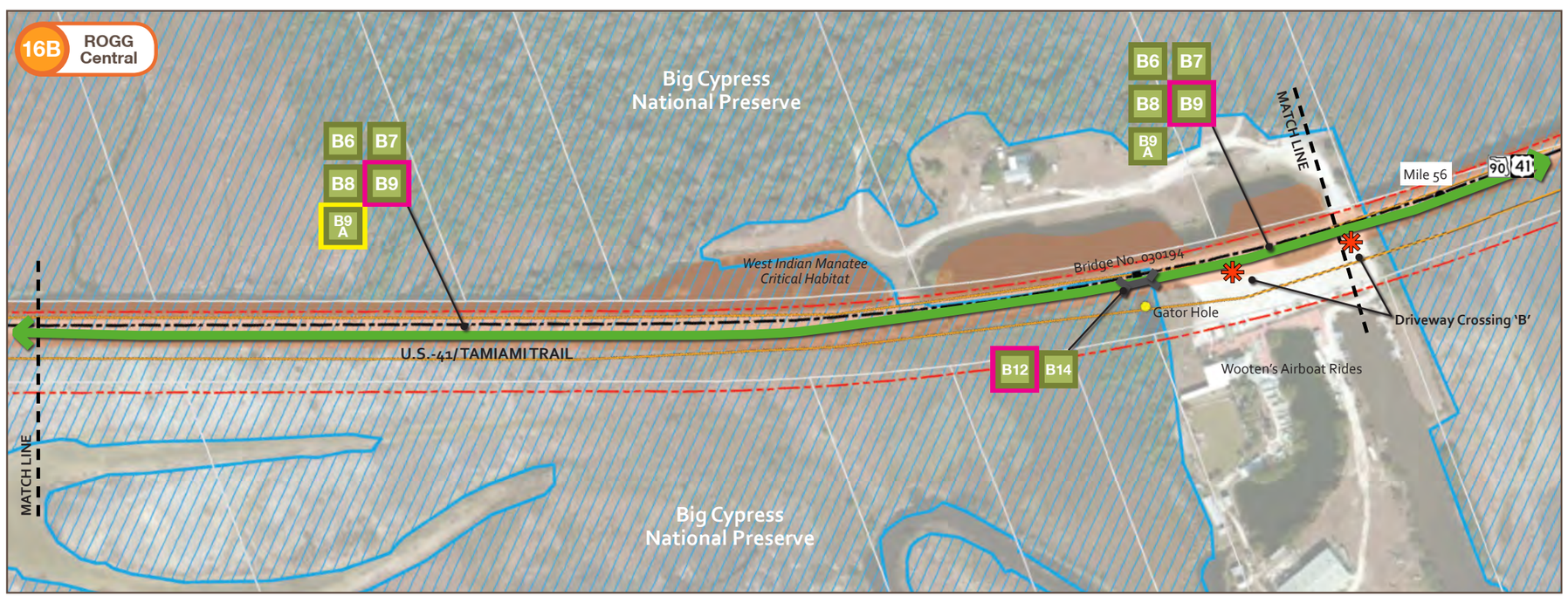

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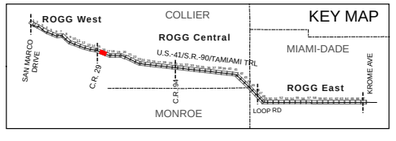
0 150 300 600 ft.



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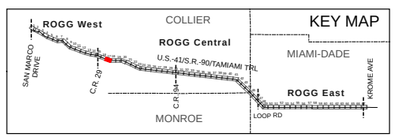

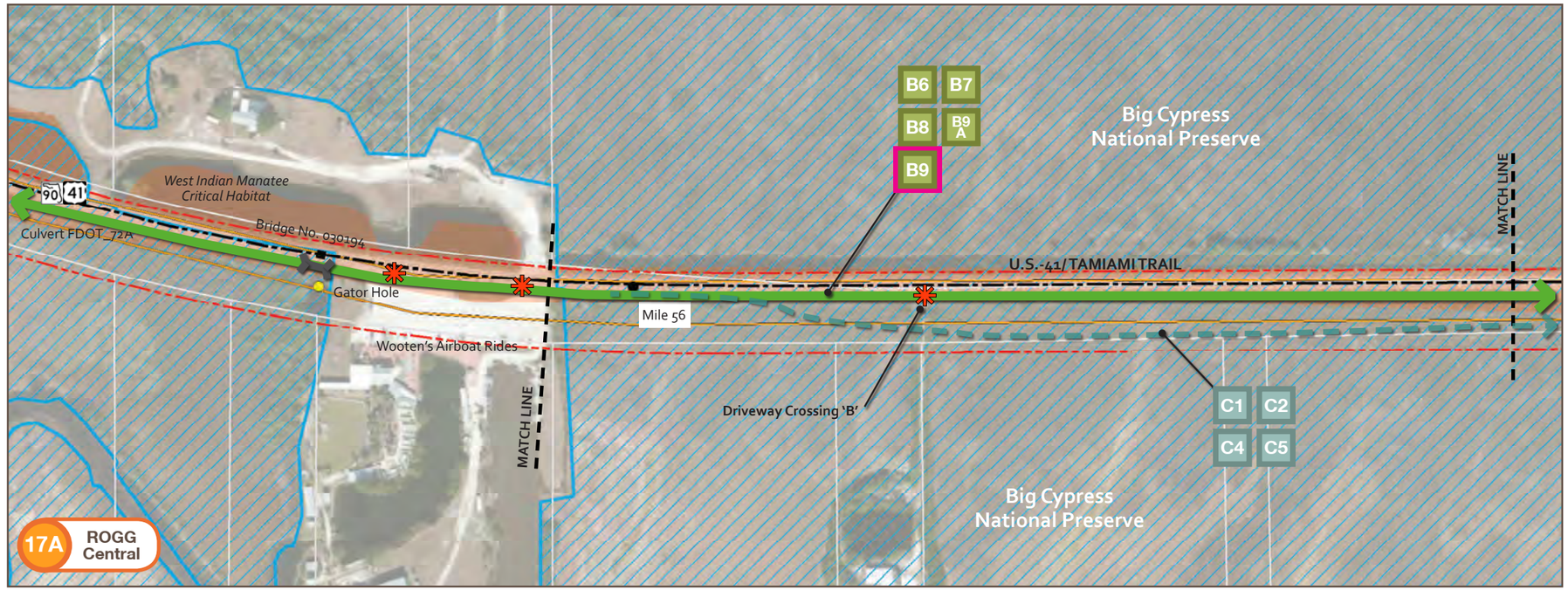

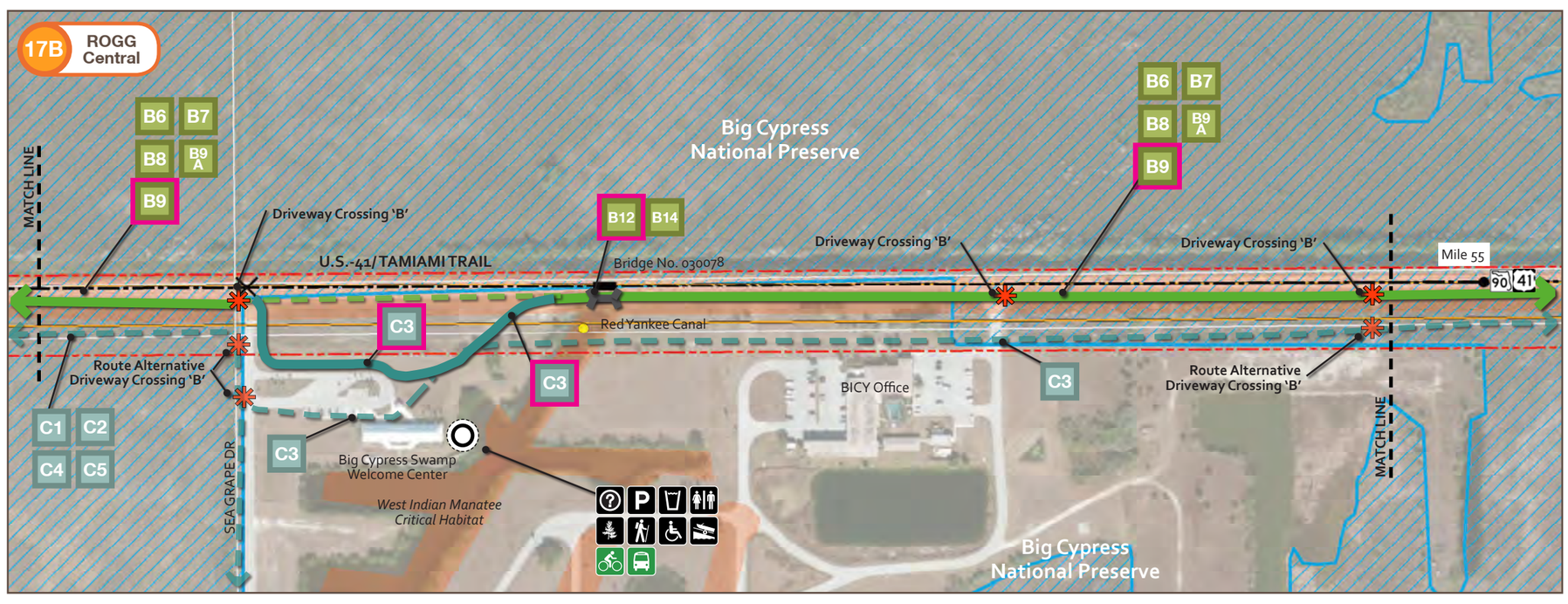

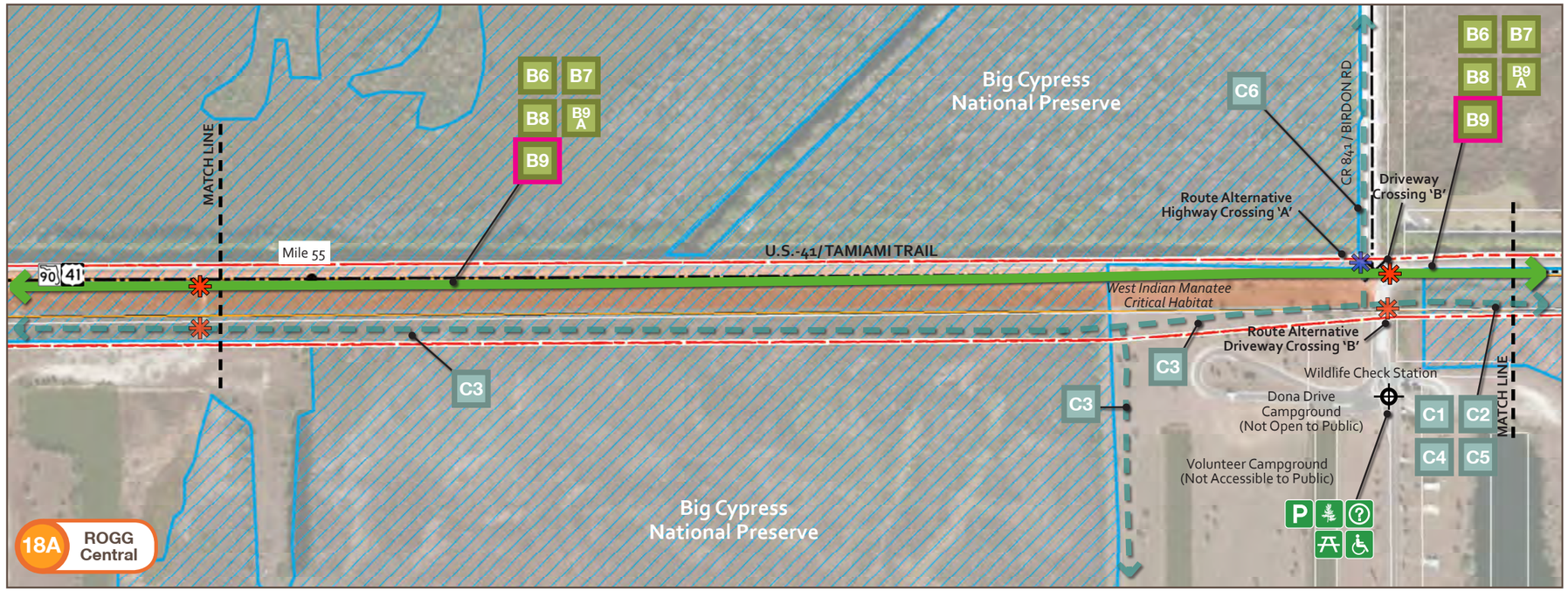

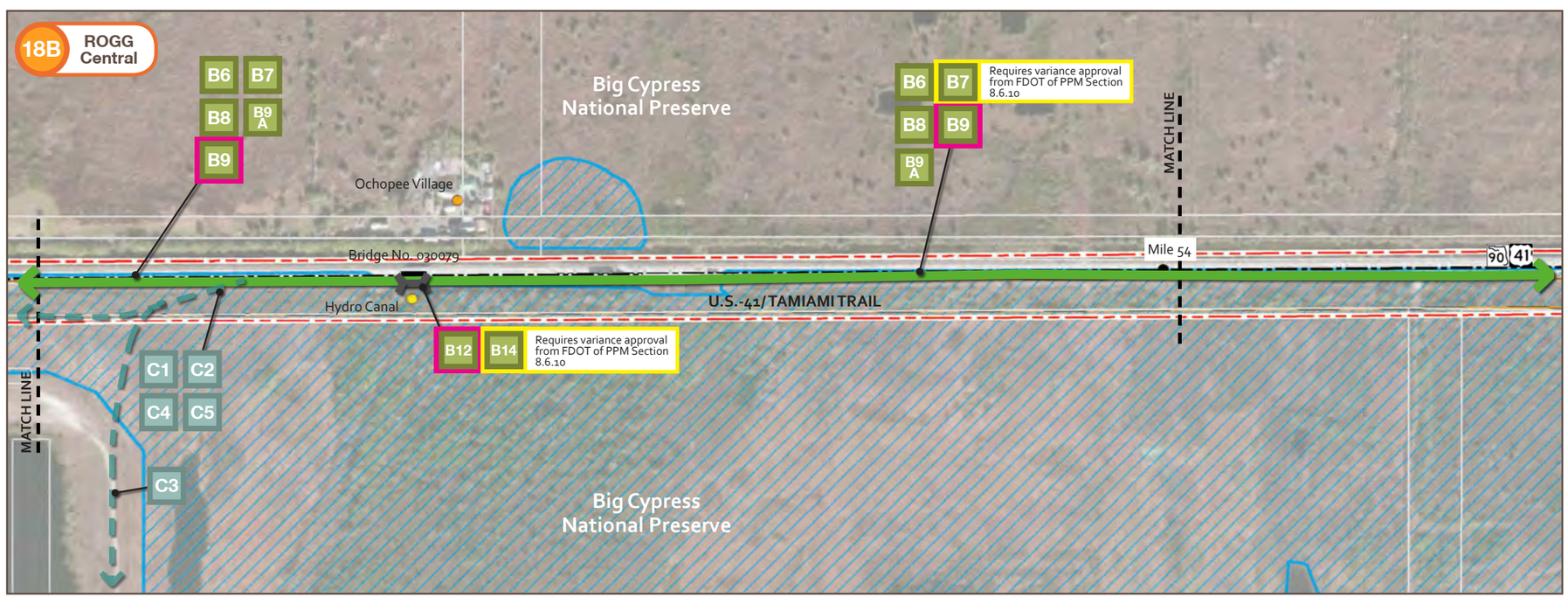

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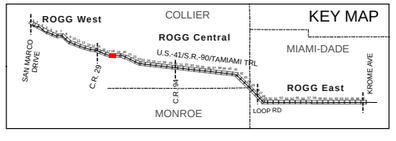

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- Transit Stop
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- Driveway Crossing
- Private/Resident Unit
- Point of Interest
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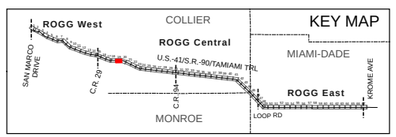
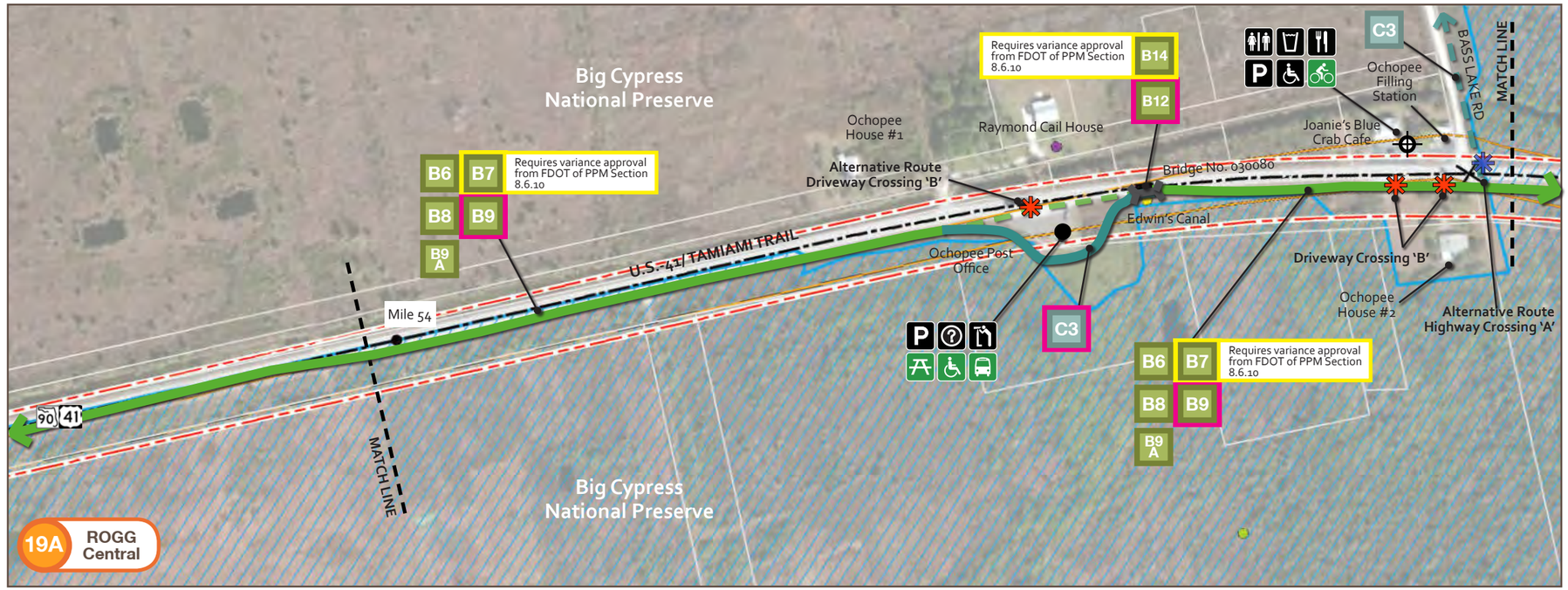
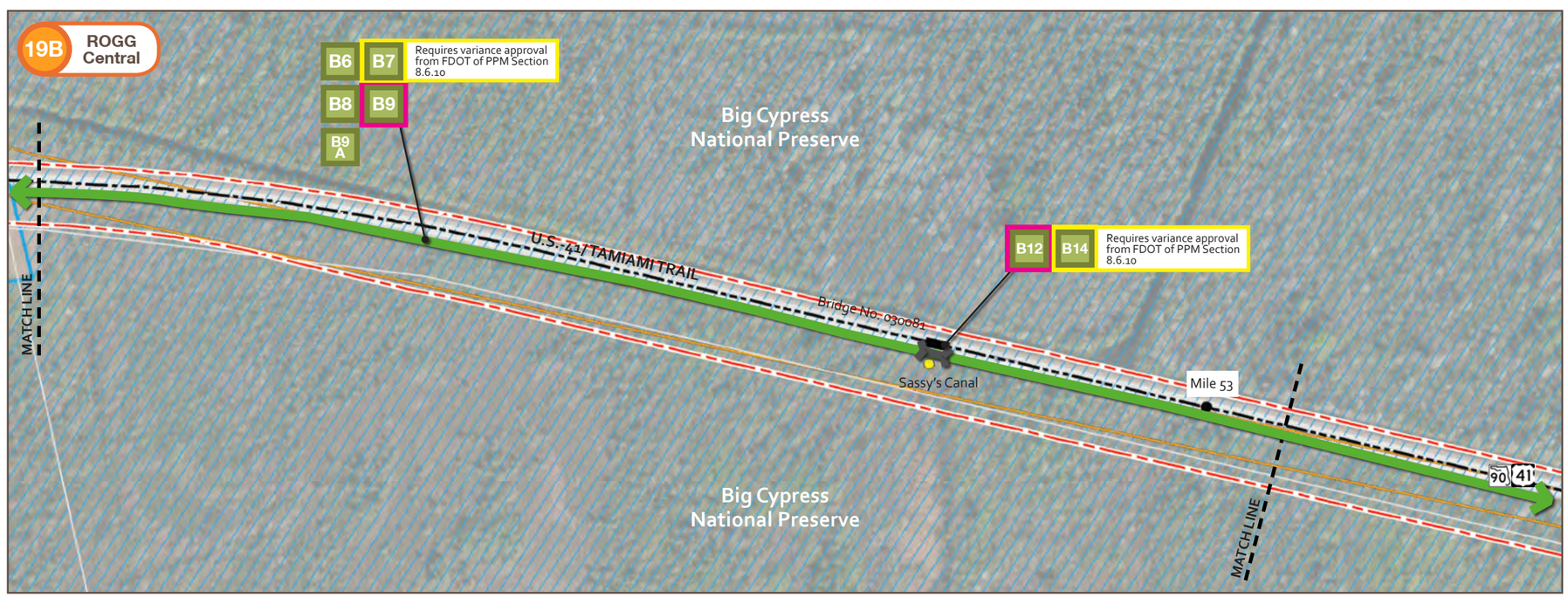
- Intersection
- Parcel Line
- Conservation Project Tamiami Trail Culverts
- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

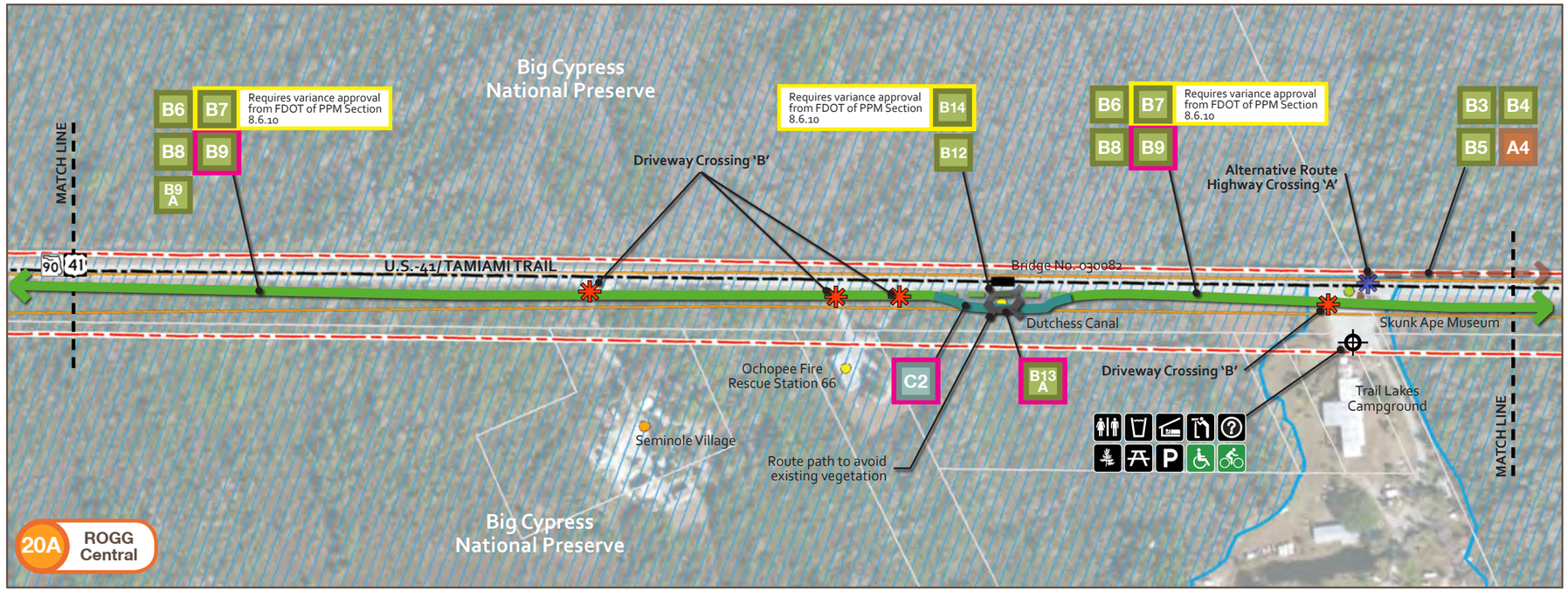
N

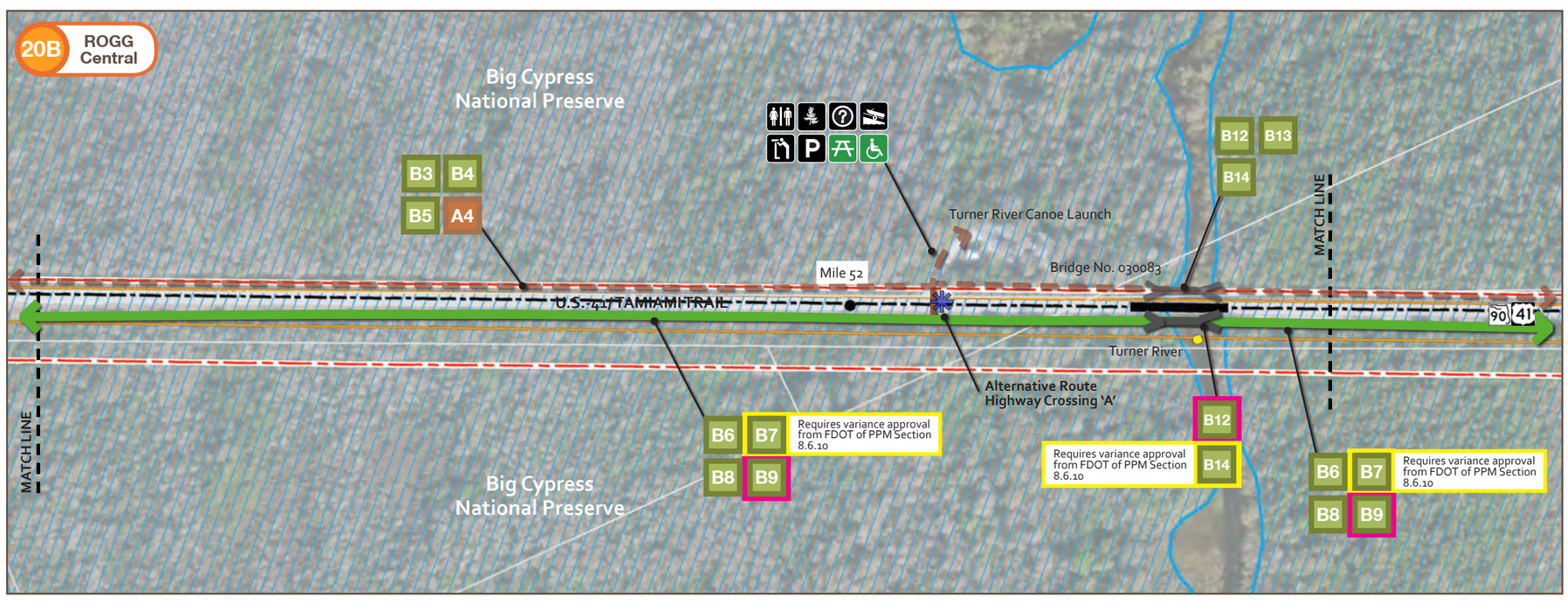
0 150 300 600 ft.











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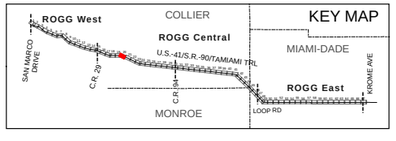
N

0 150 300 600 ft.



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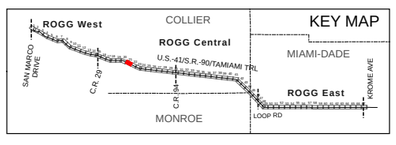

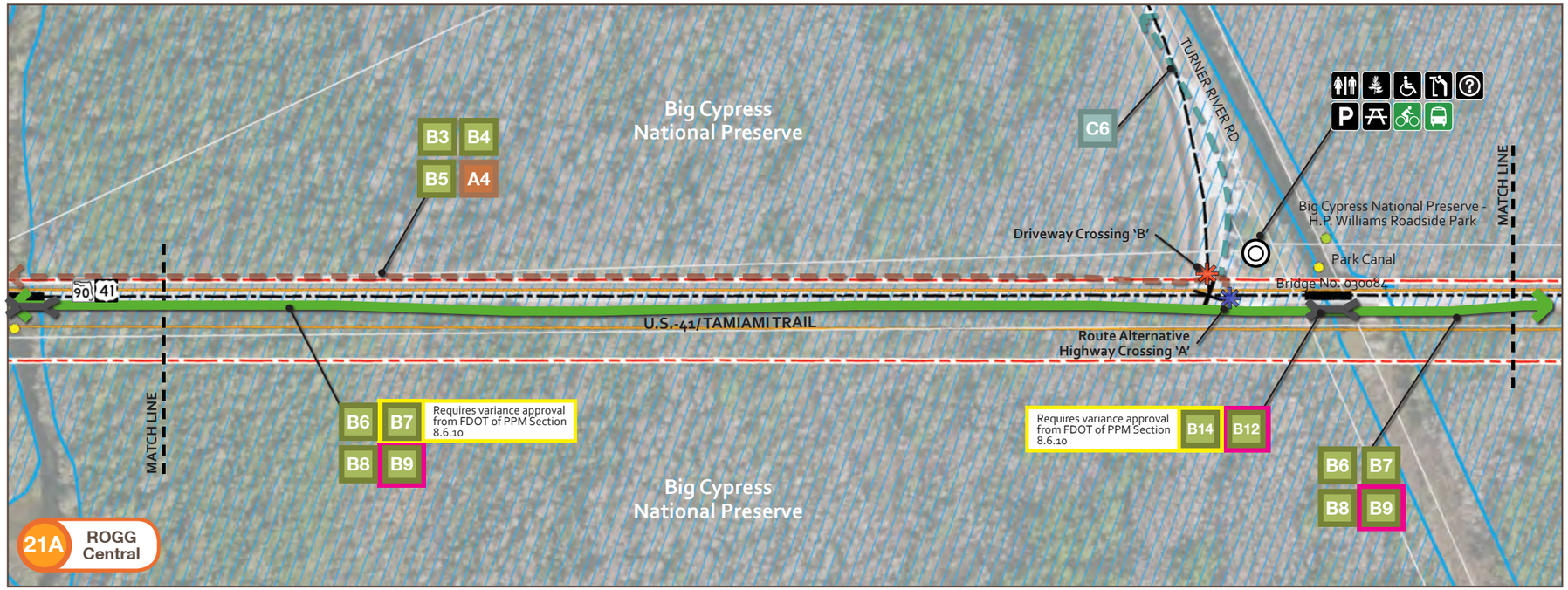

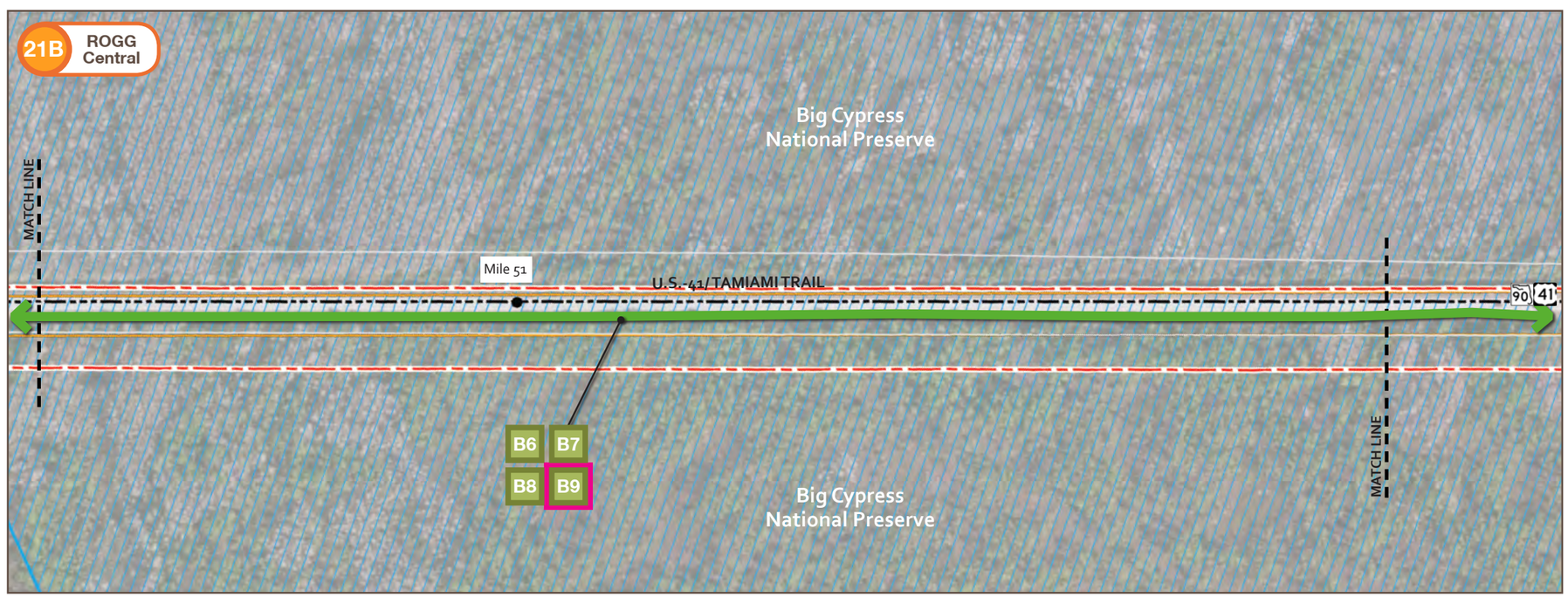

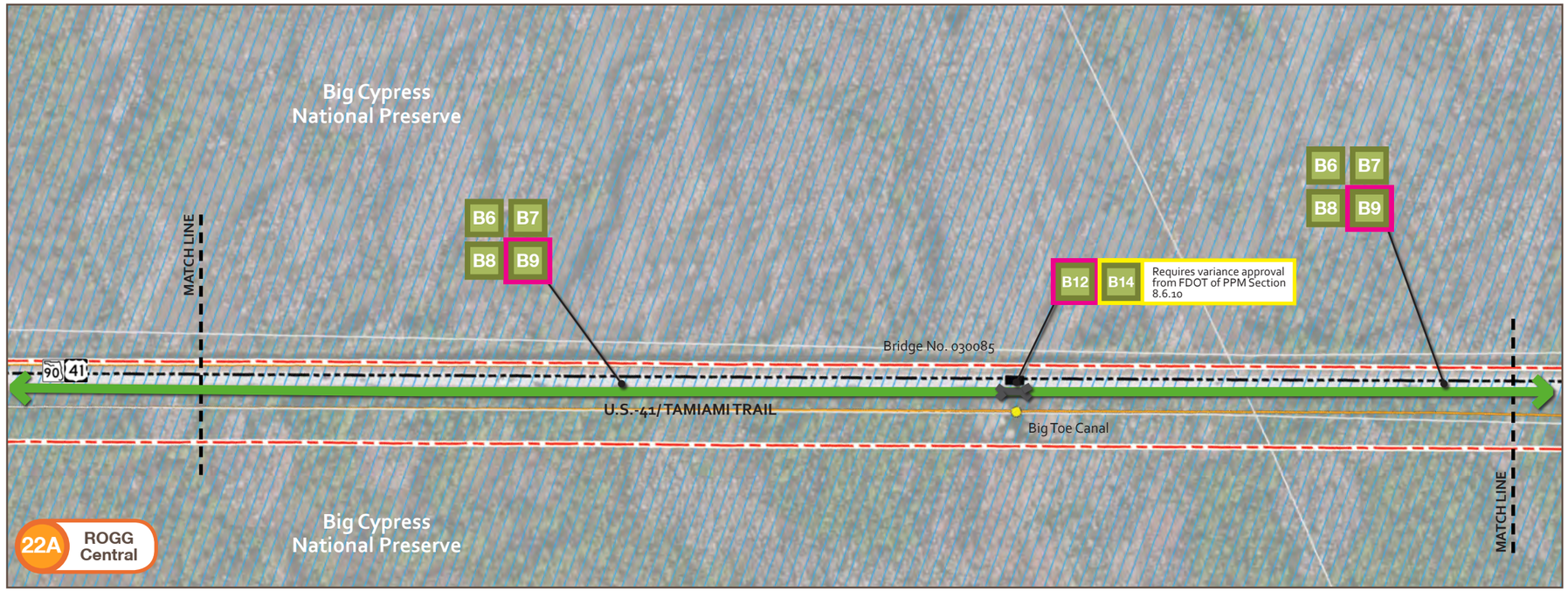

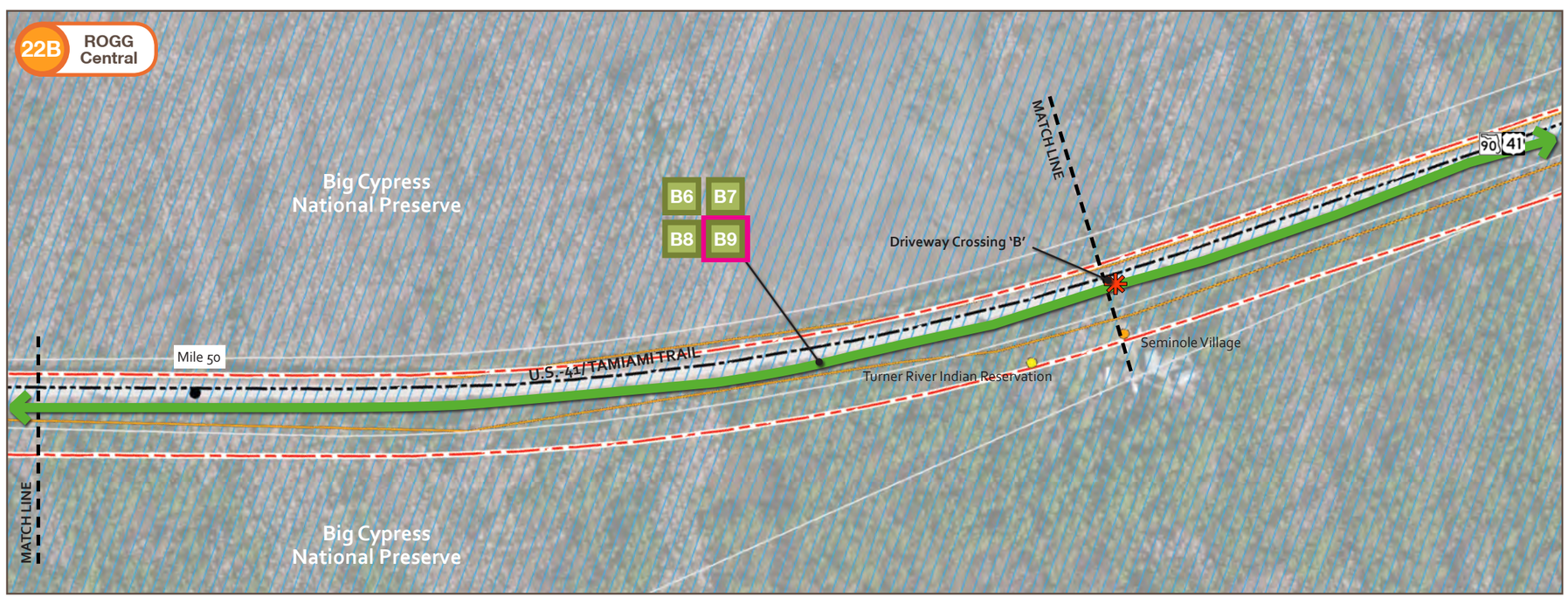

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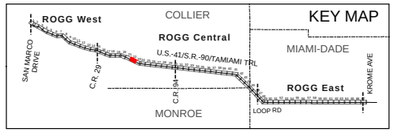
N

0 150 300 600 ft.



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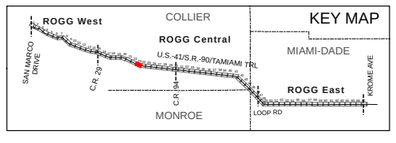

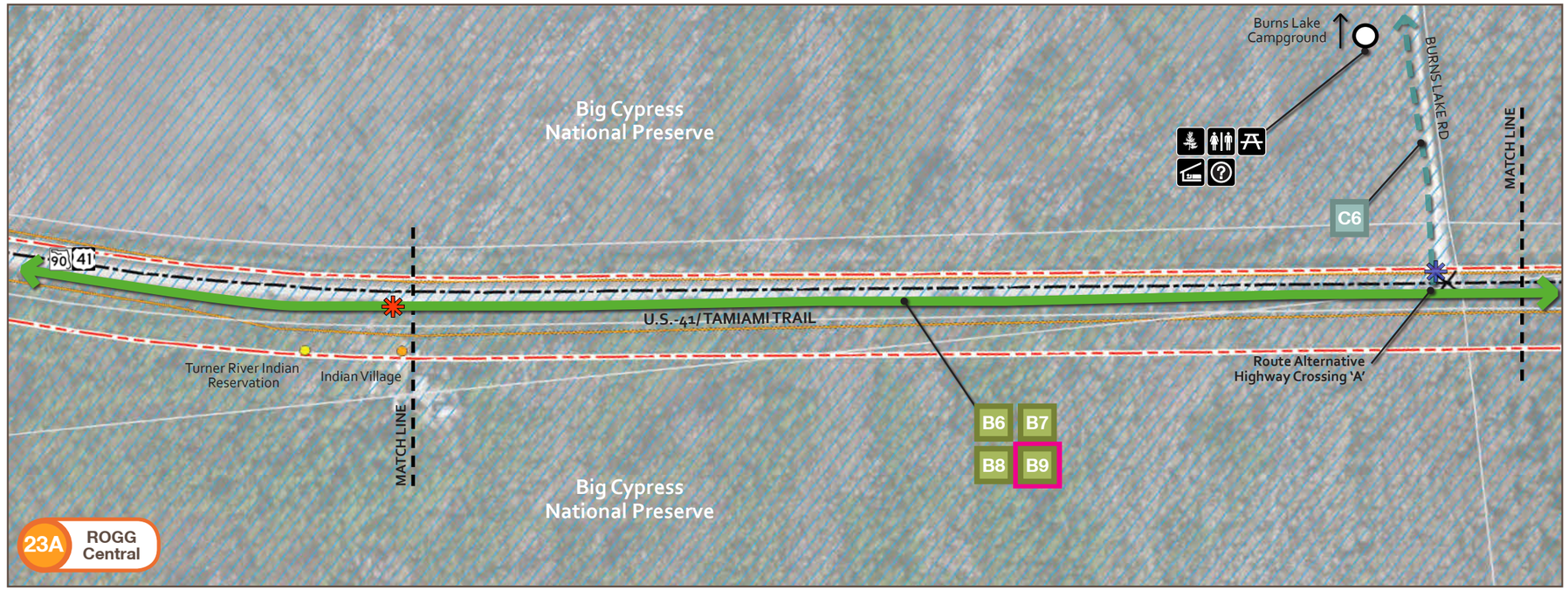

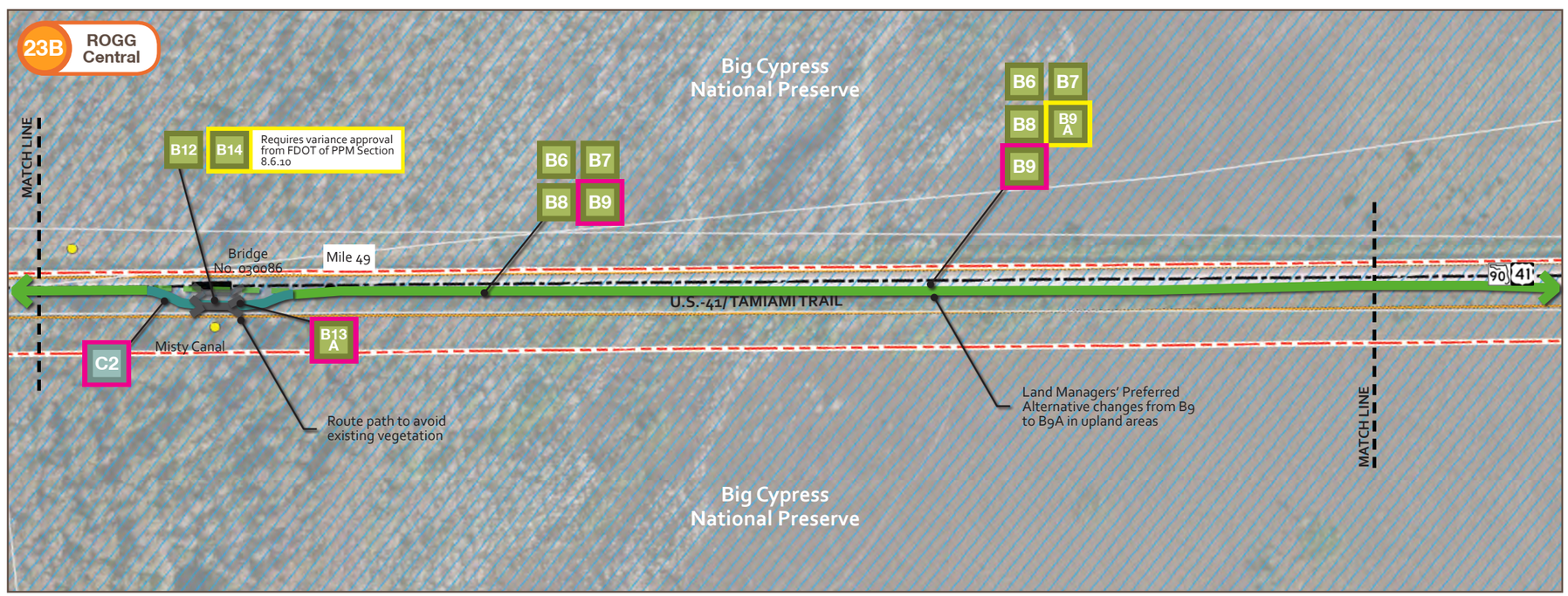

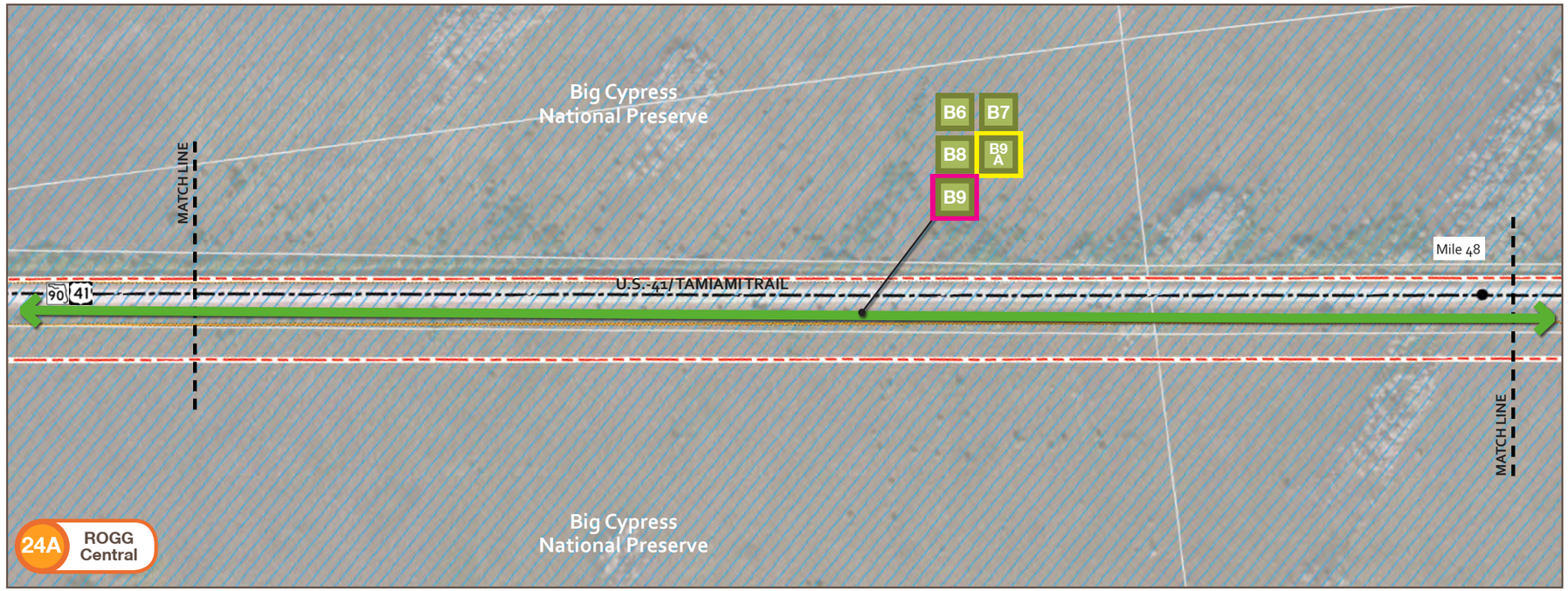

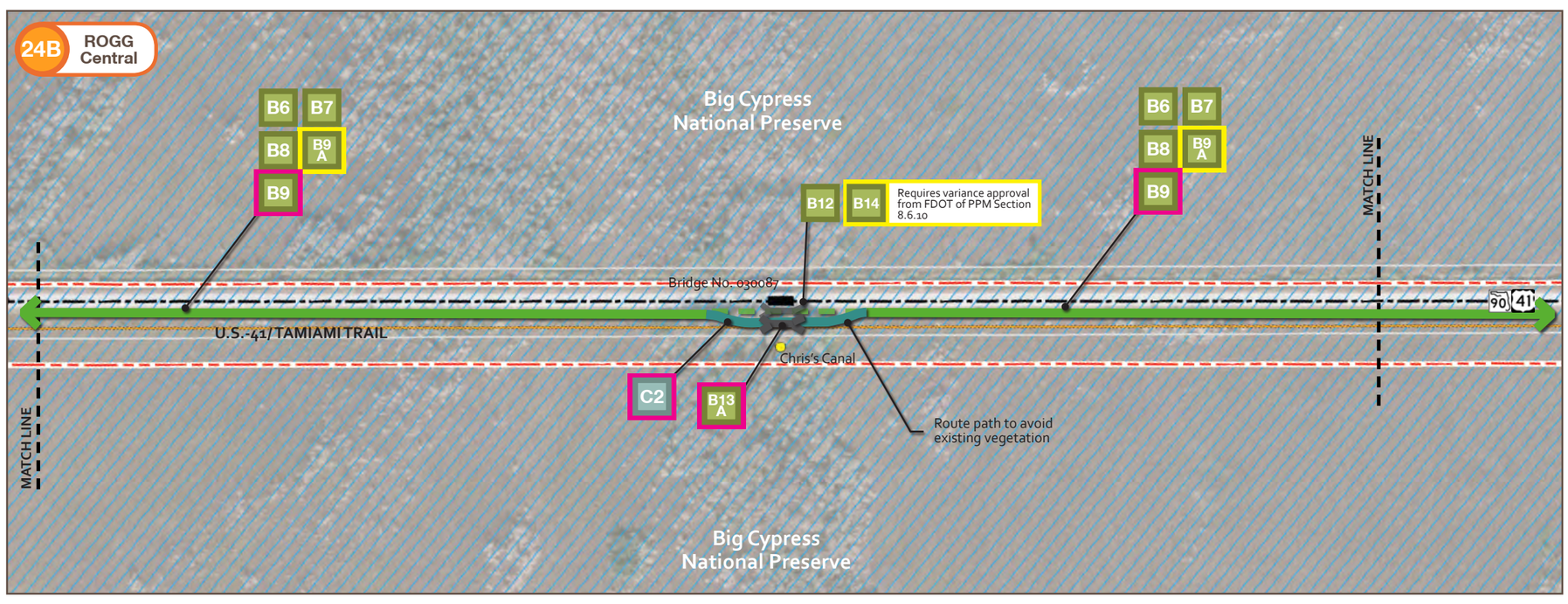

Legend

- Path Section - Regular Alternative (A#)
- Path Section - Preferred Alternative (A#)
- Path Section - Land Managers' Preferred Alternative (A#)
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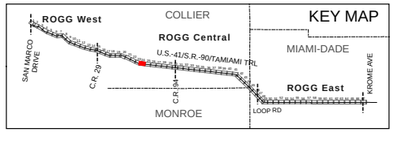
N

0 150 300 600 ft.



Legend

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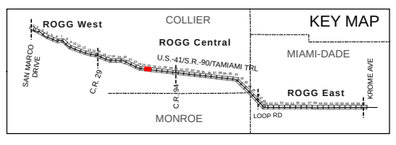
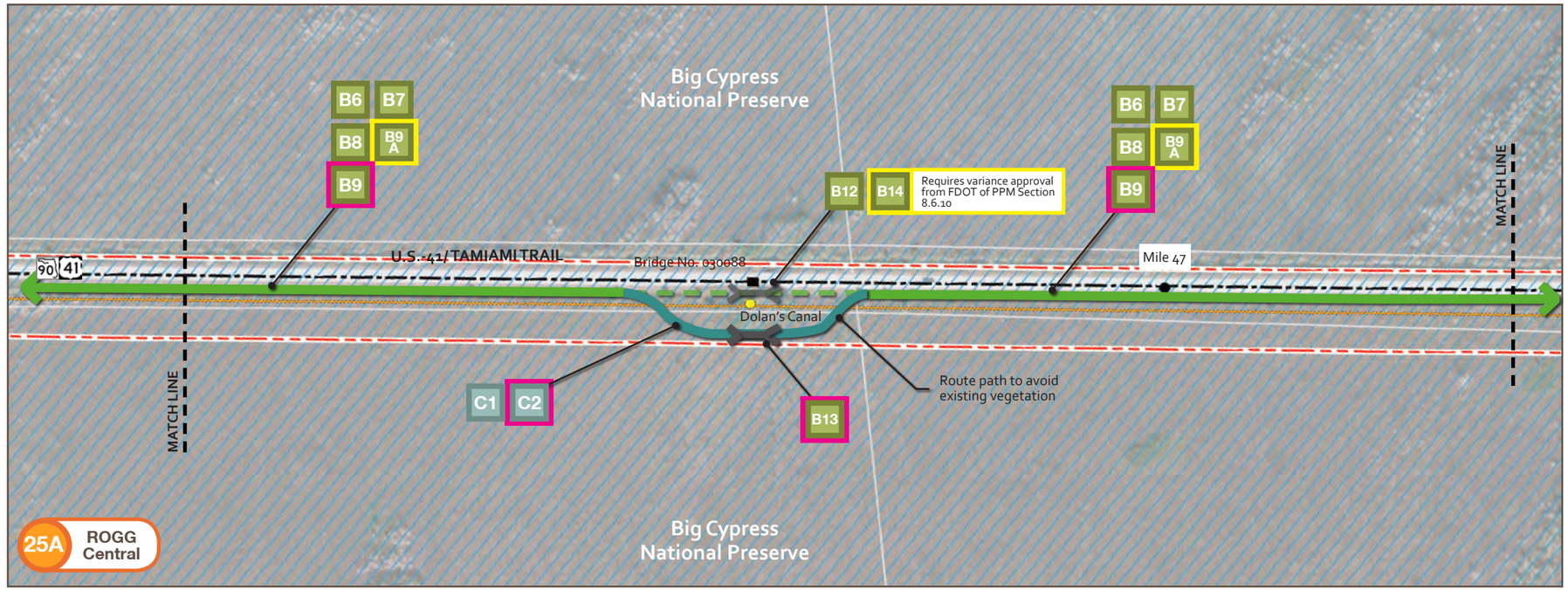
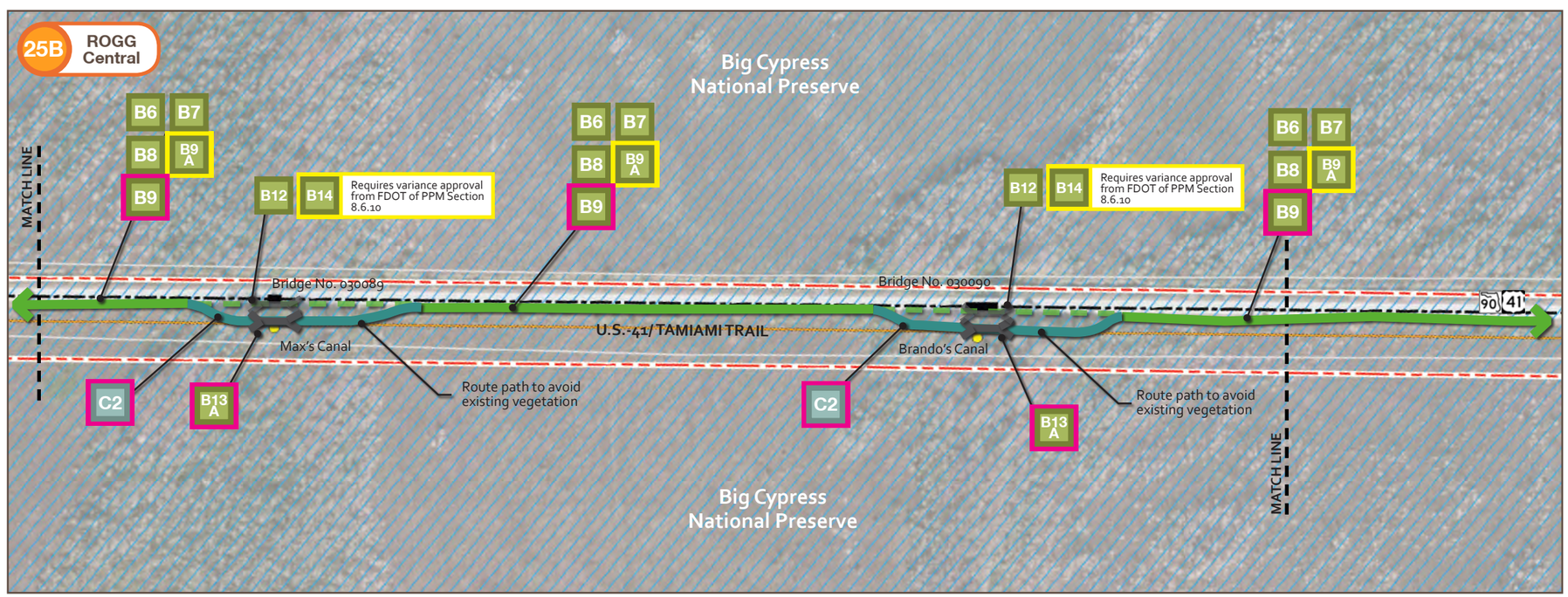
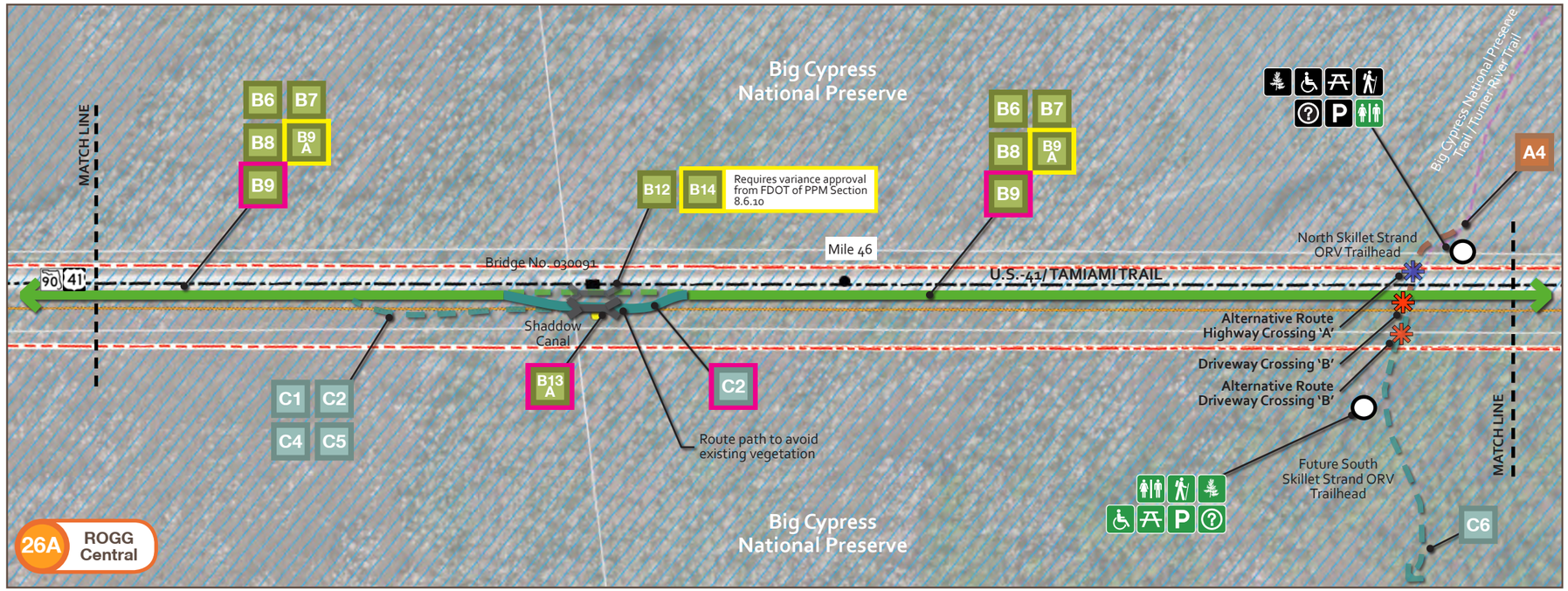
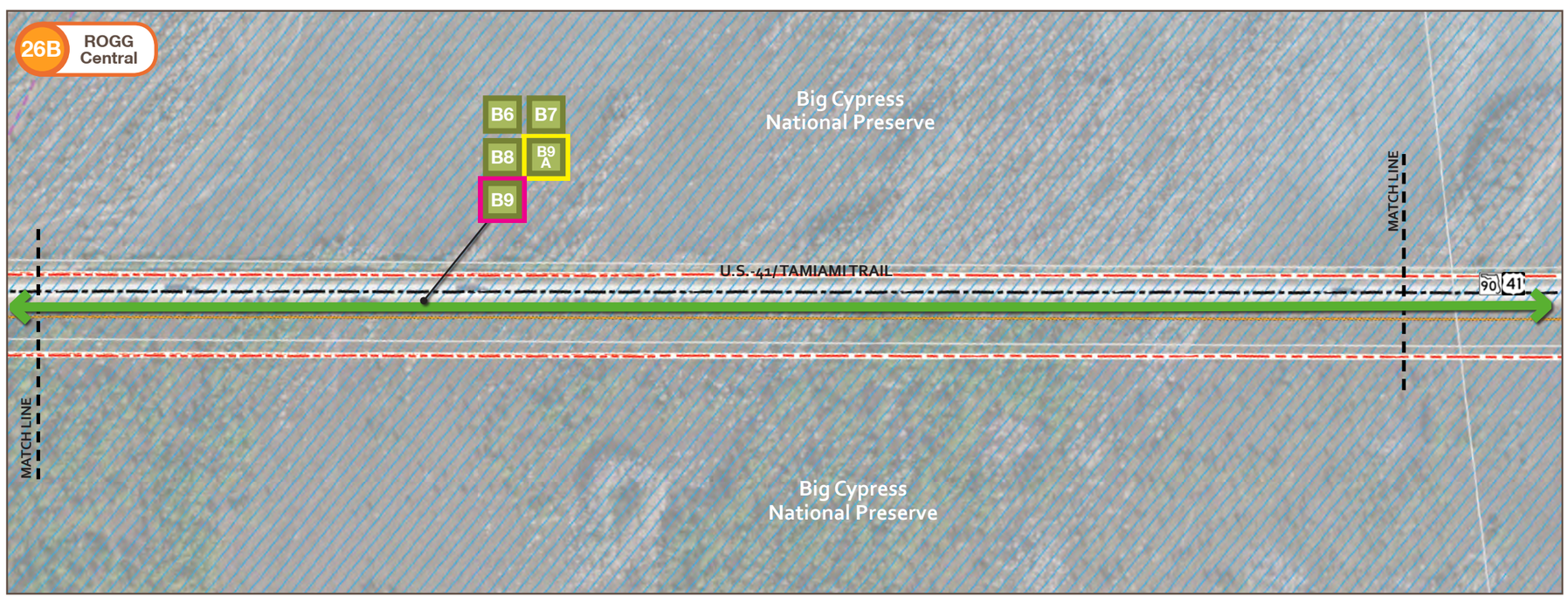
0 150 300 600 ft.











Legend

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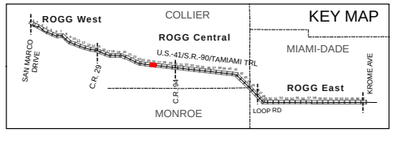
N

0 150 300 600 ft.



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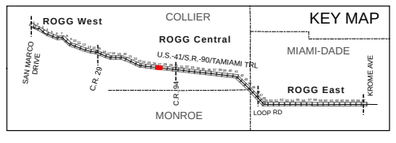

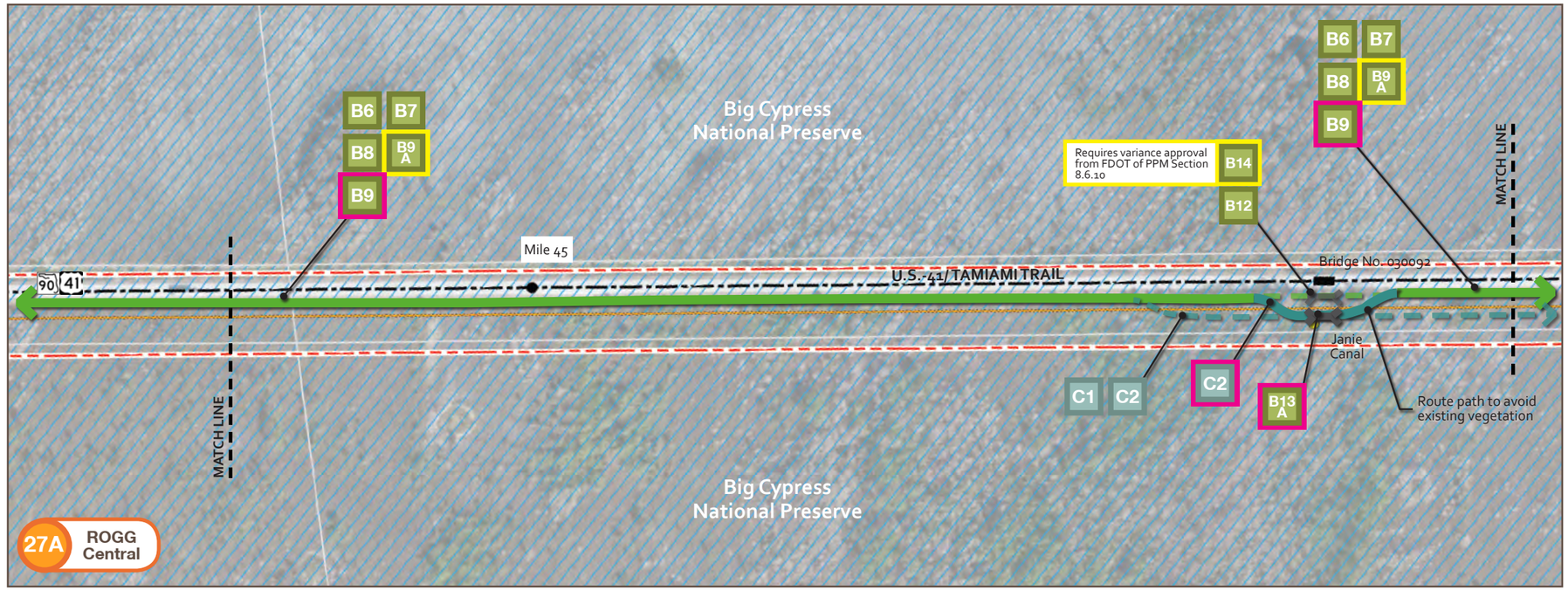

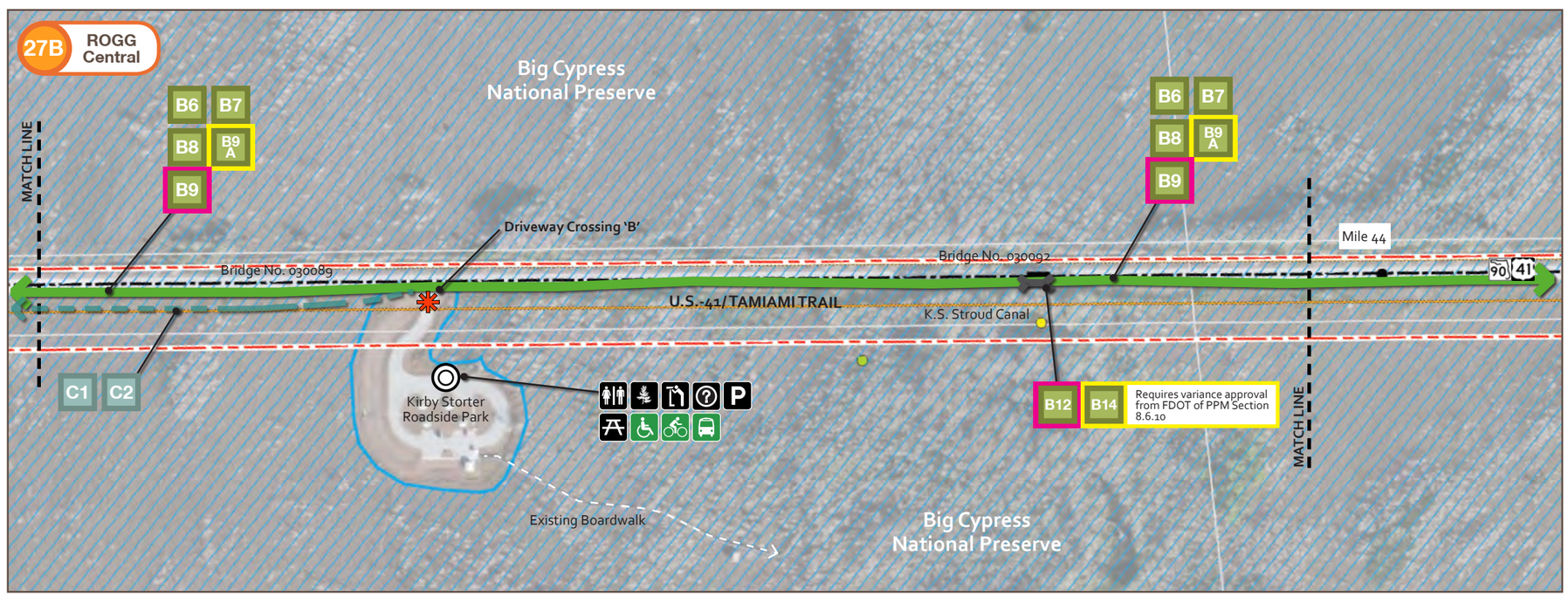

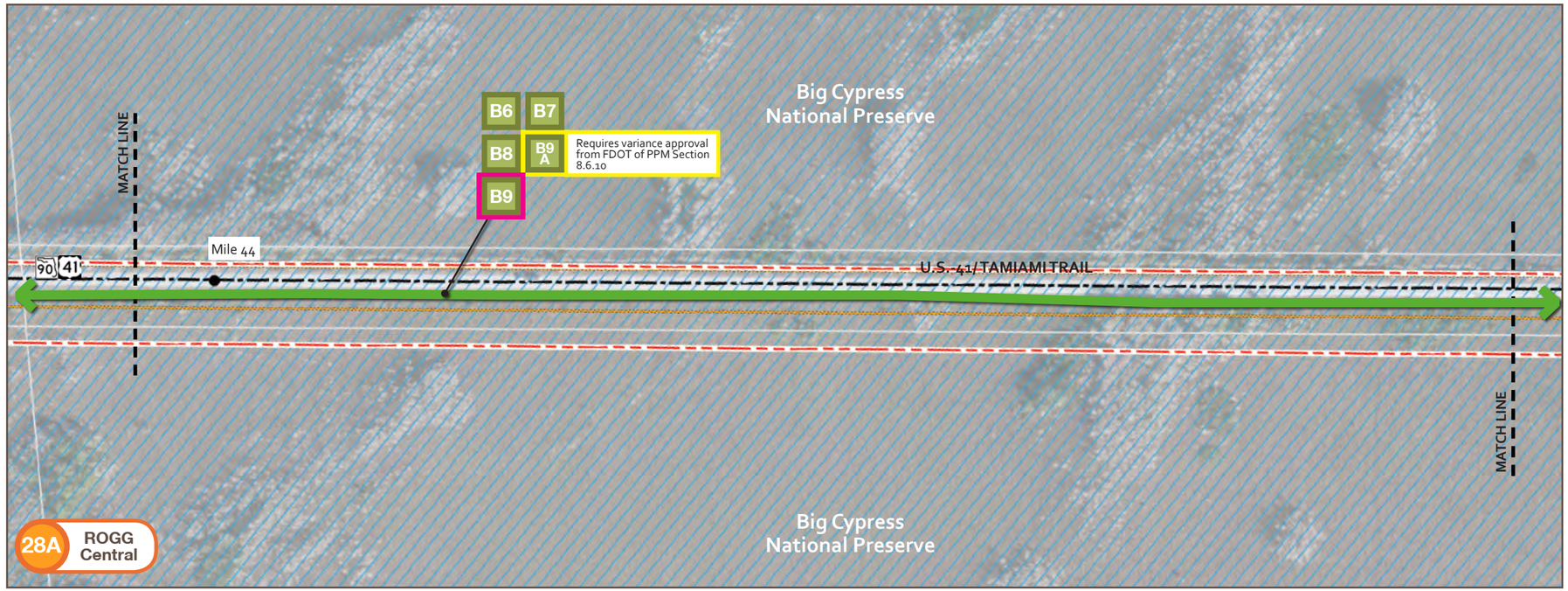

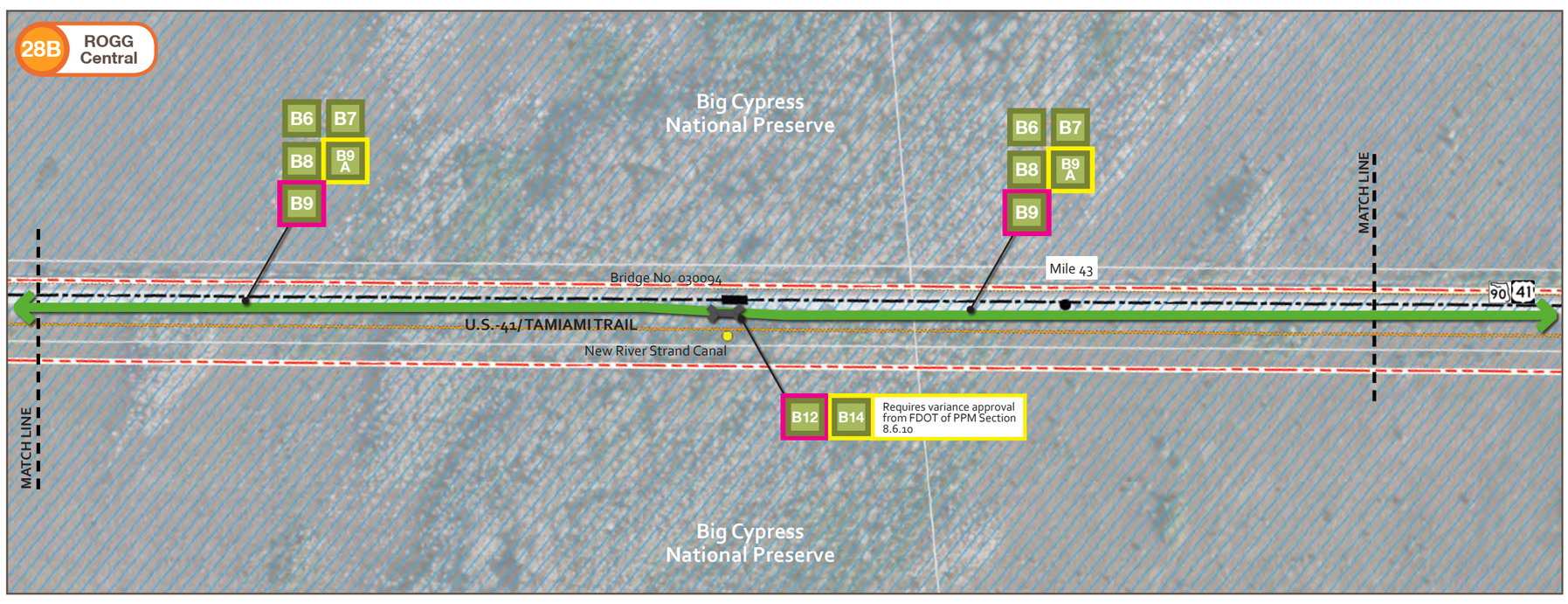

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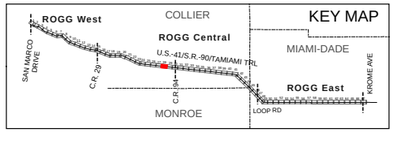
0 150 300 600 ft.



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- Wayside Park
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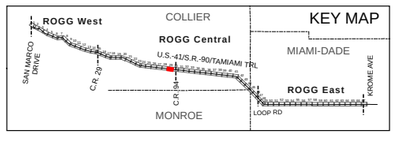
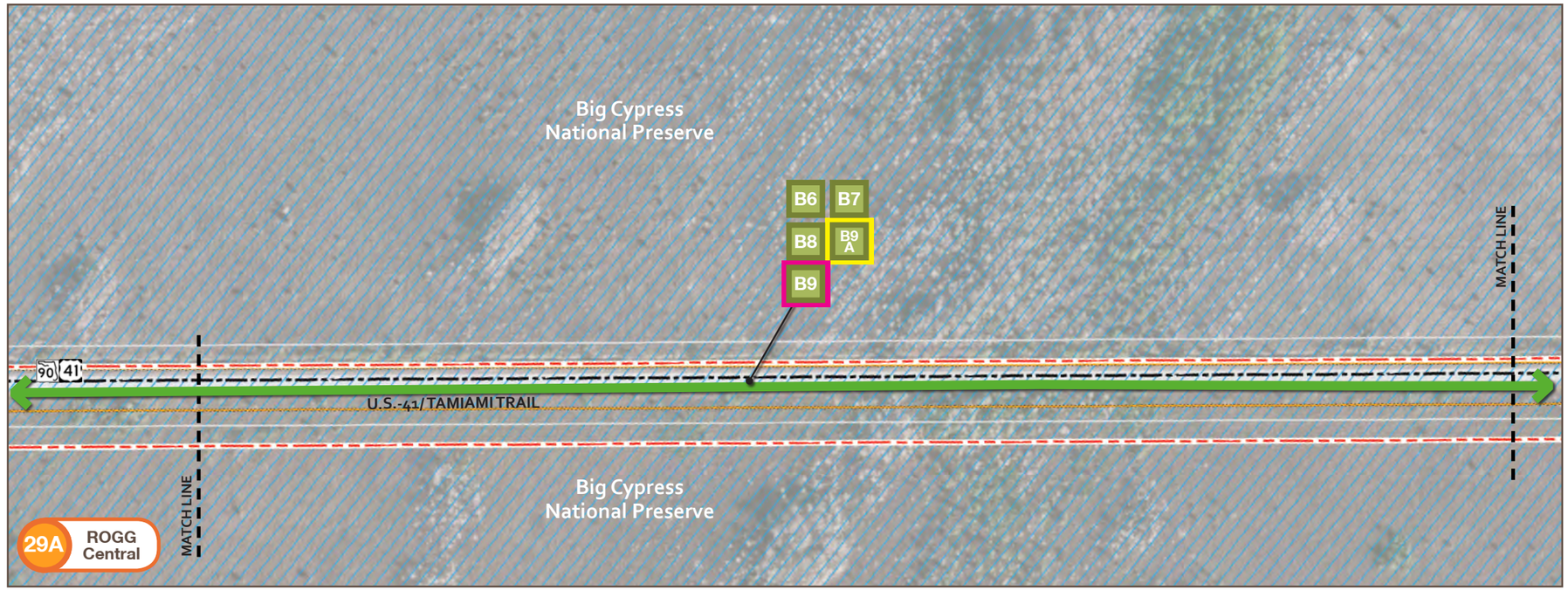
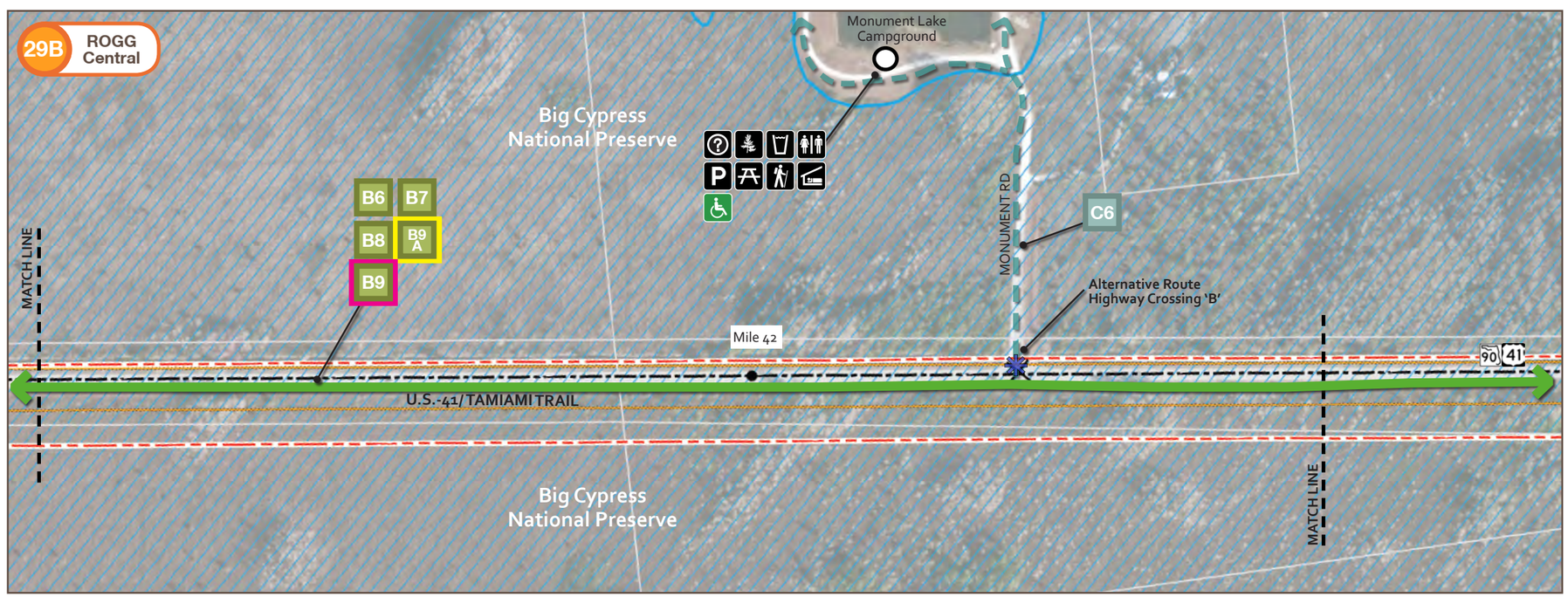
- Waste Facility
- Traffic Signal
- Intersection
- Parcel Line
- Conservation Project Tamiami Trail Culverts
- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

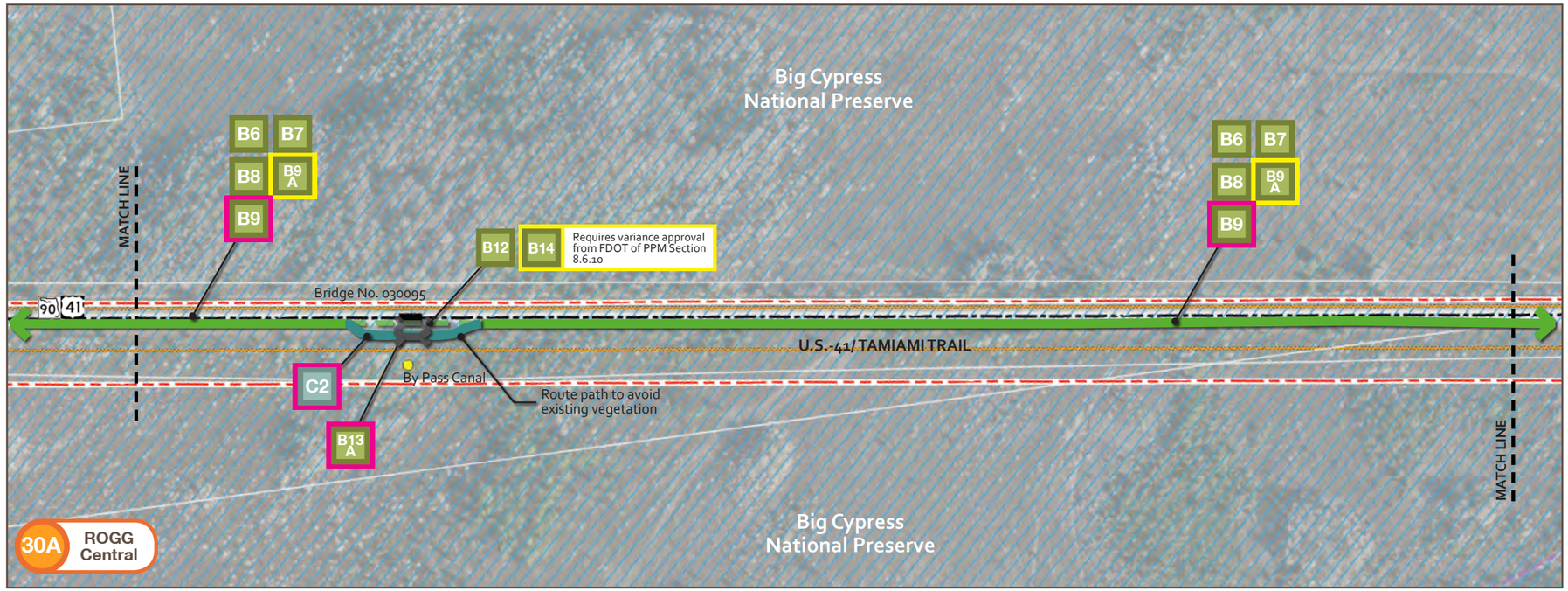
N

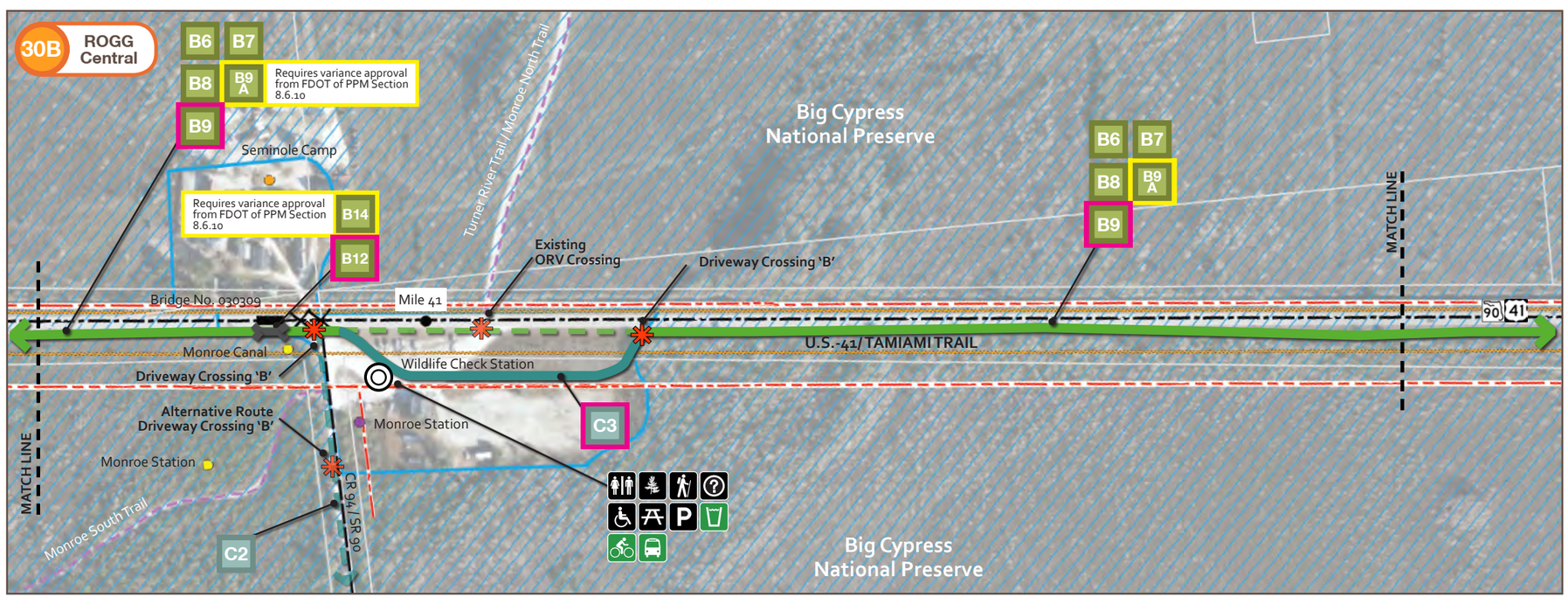
0 150 300 600 ft.











Legend

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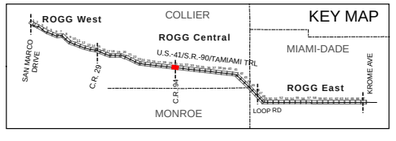
N

0 150 300 600 ft.



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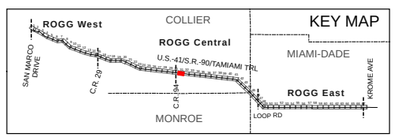

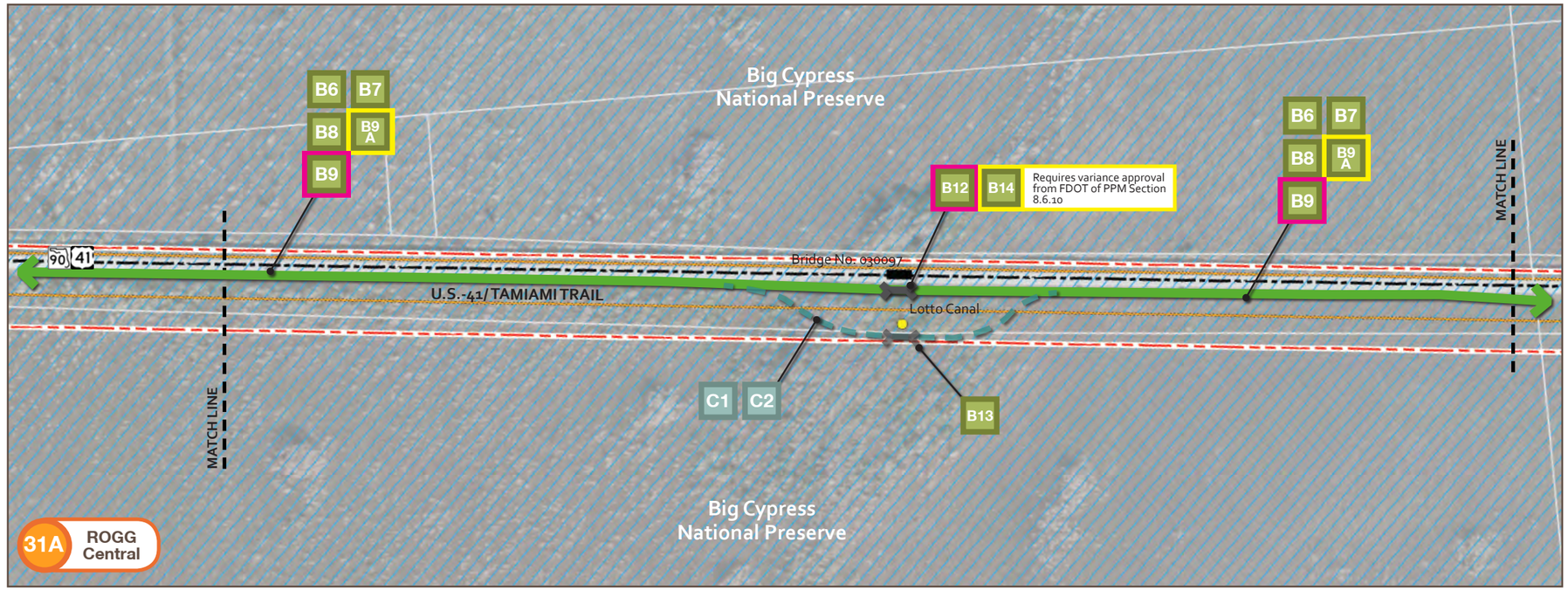

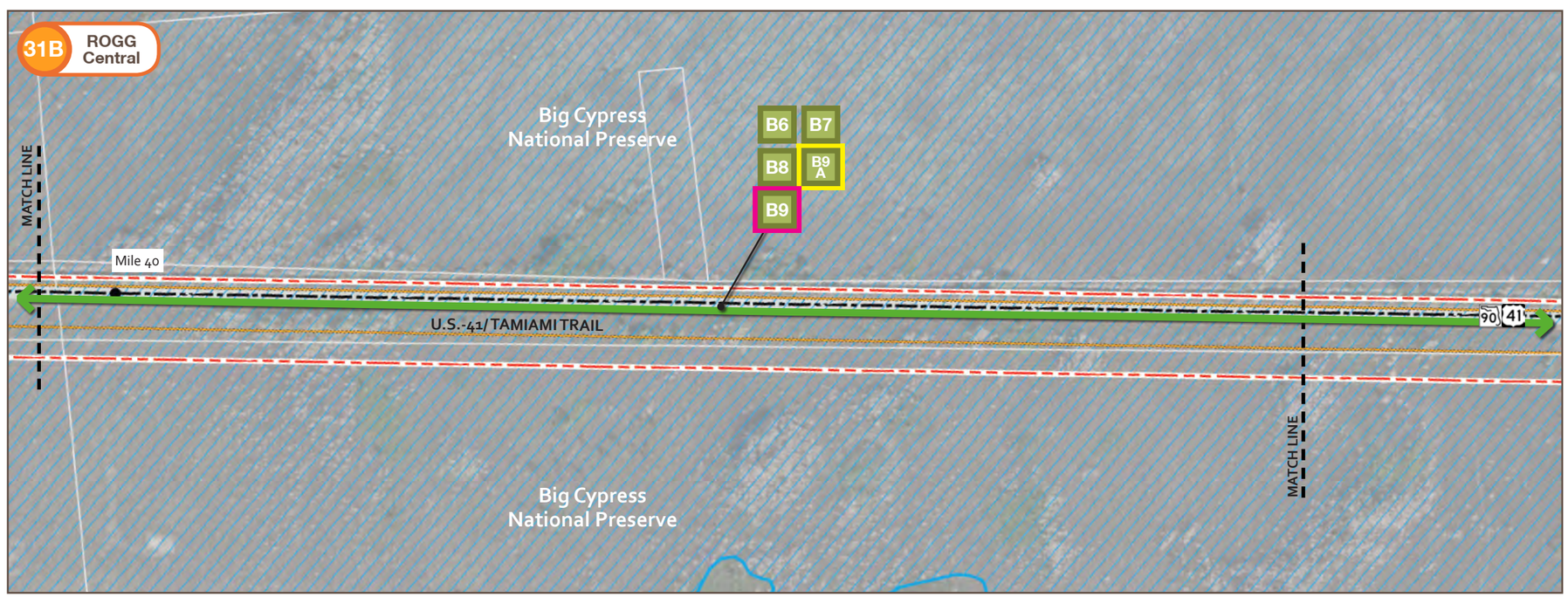

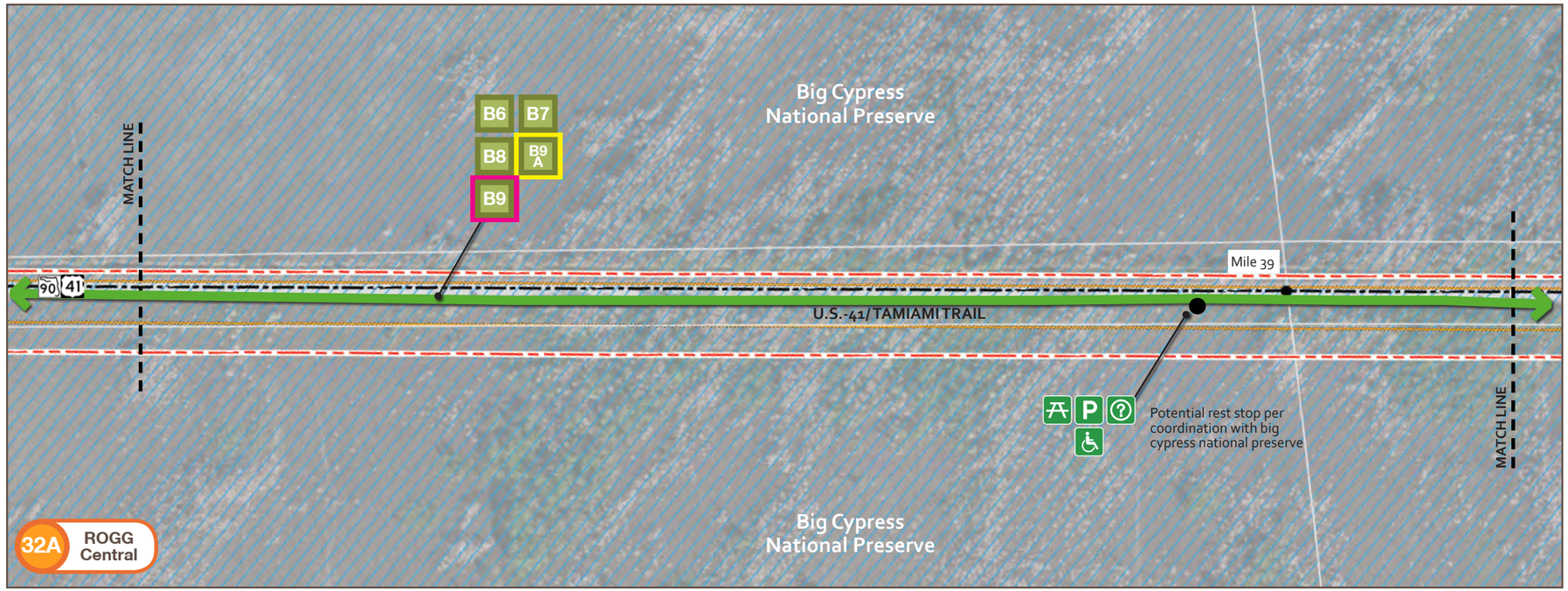

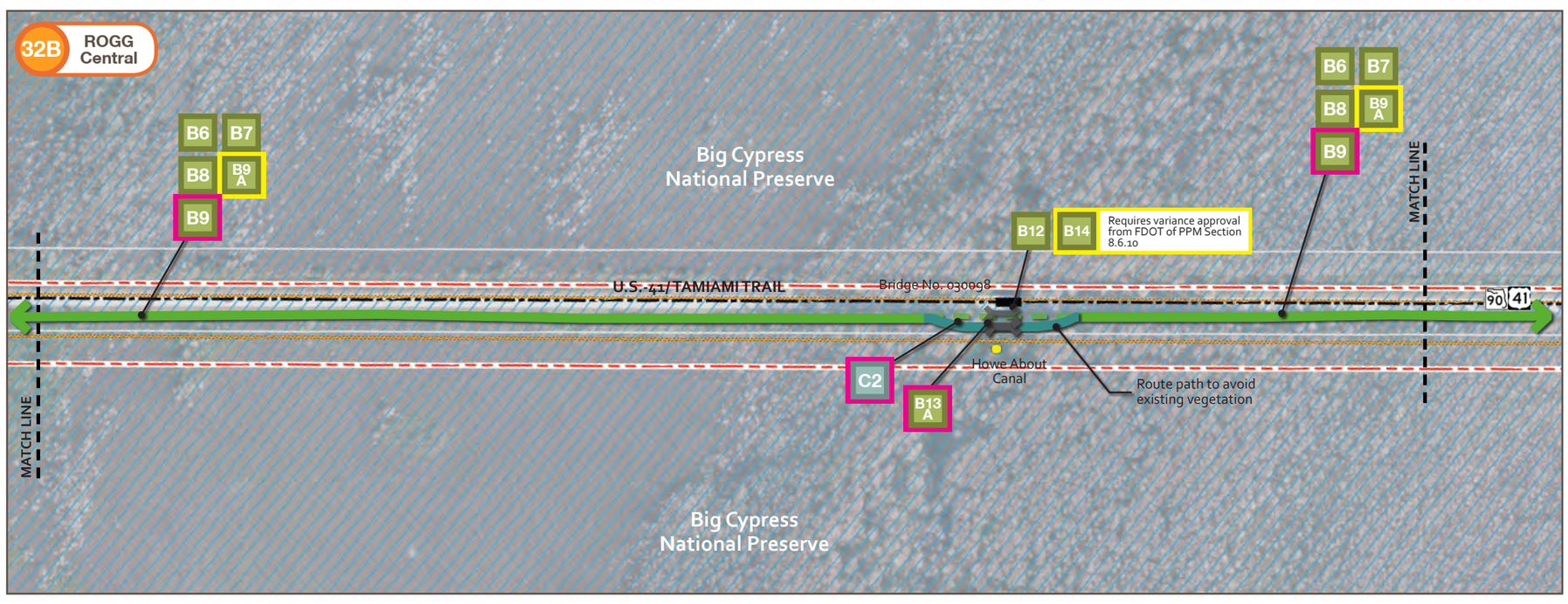

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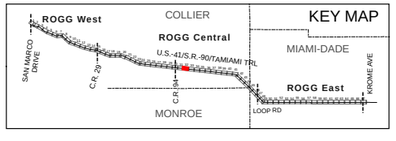
N

0 150 300 600 ft.



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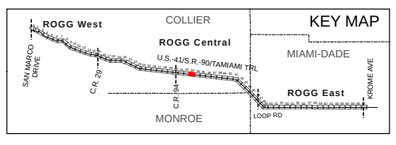

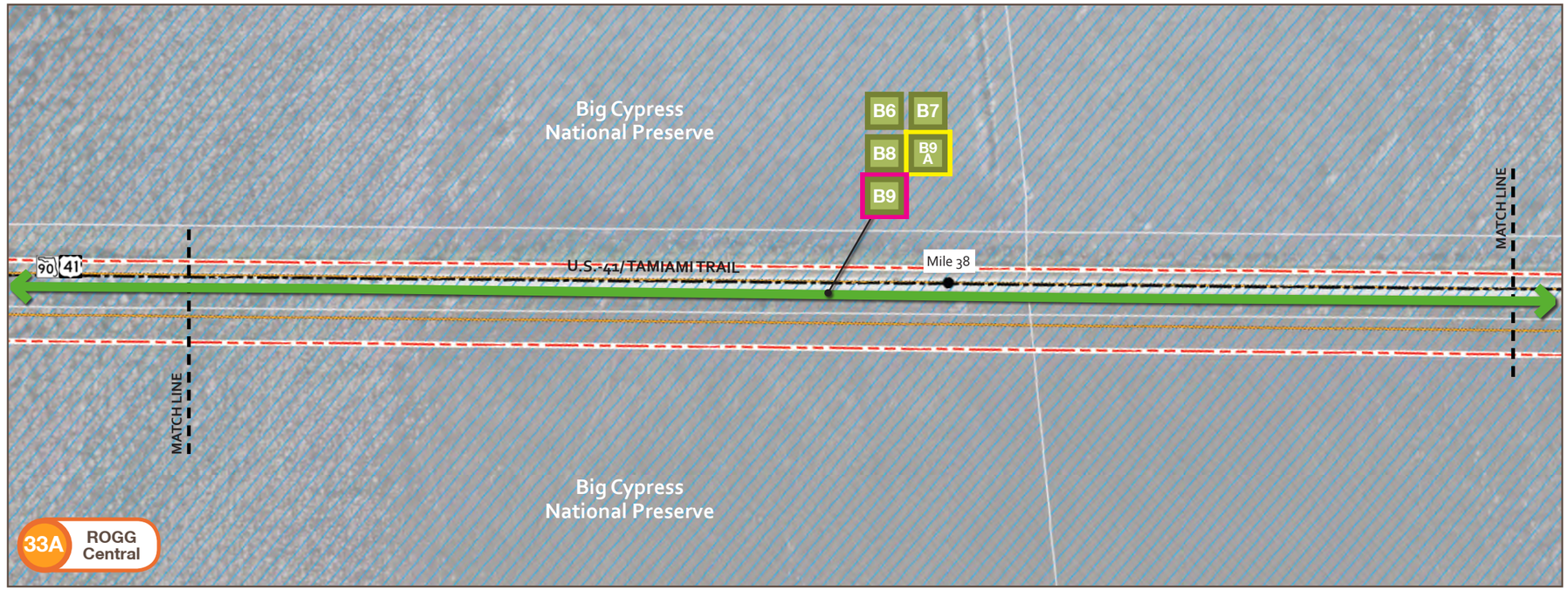

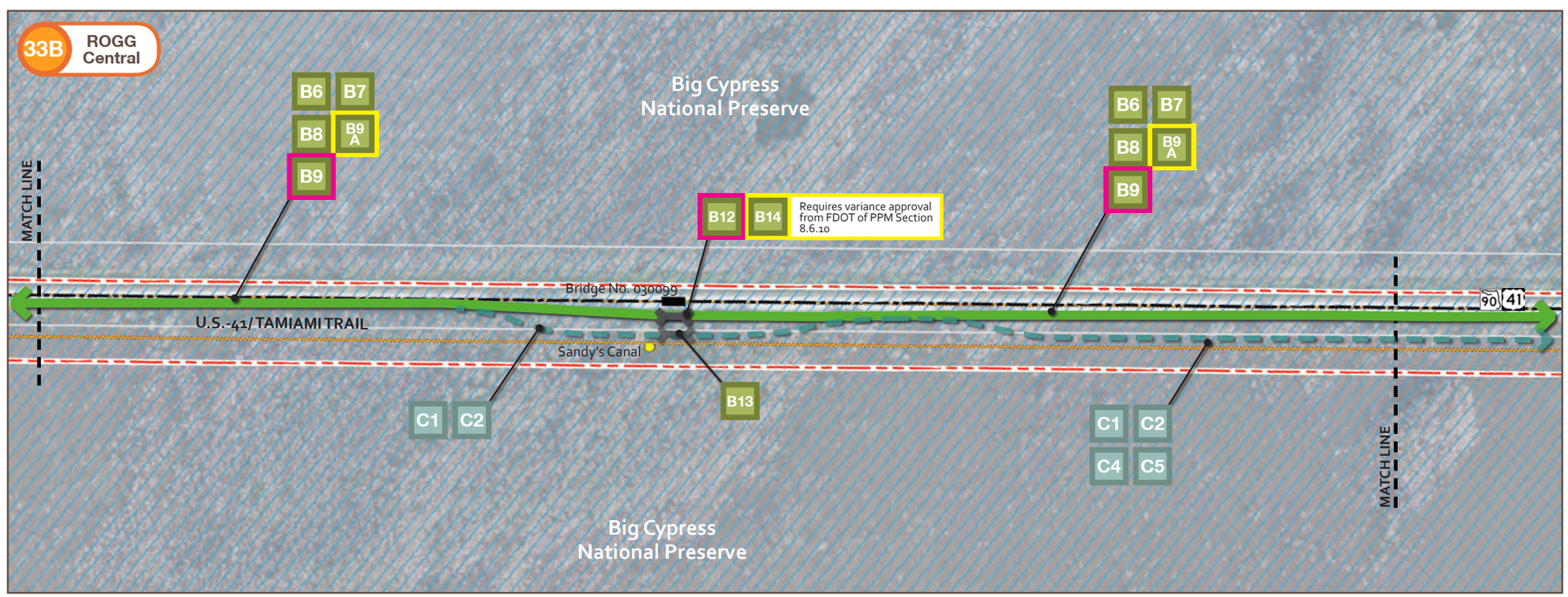

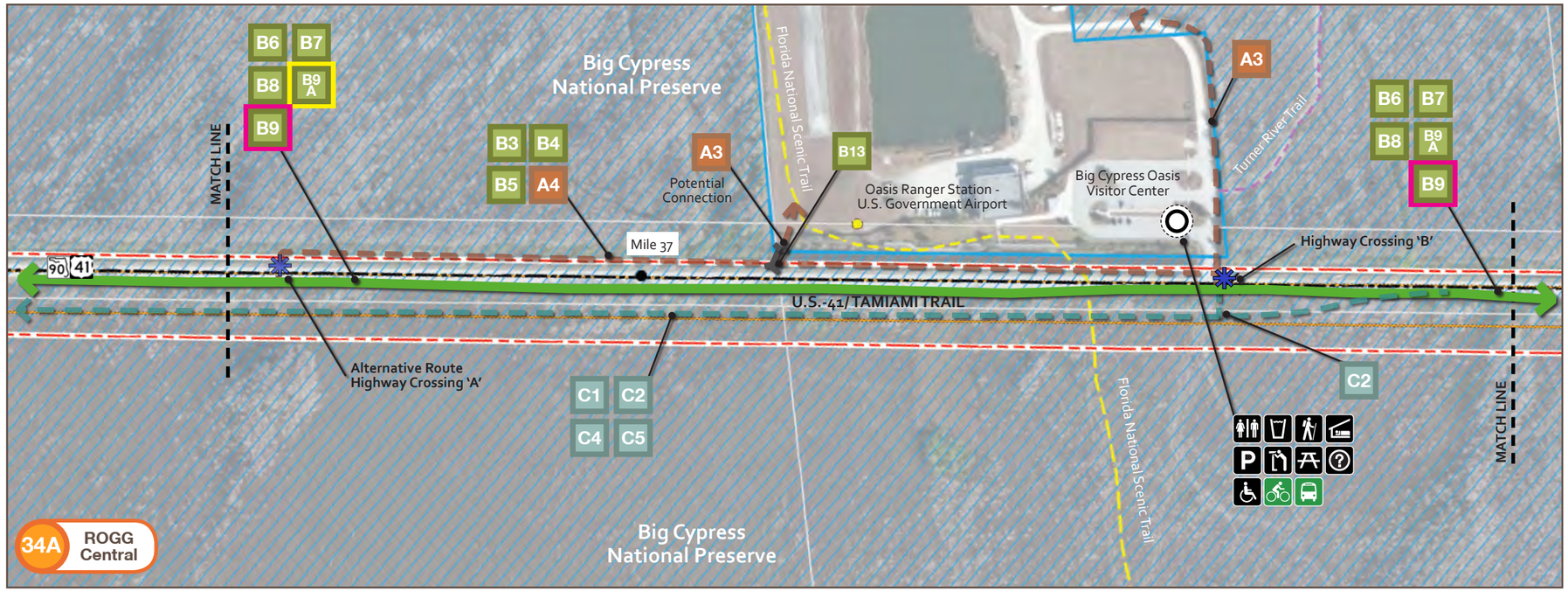

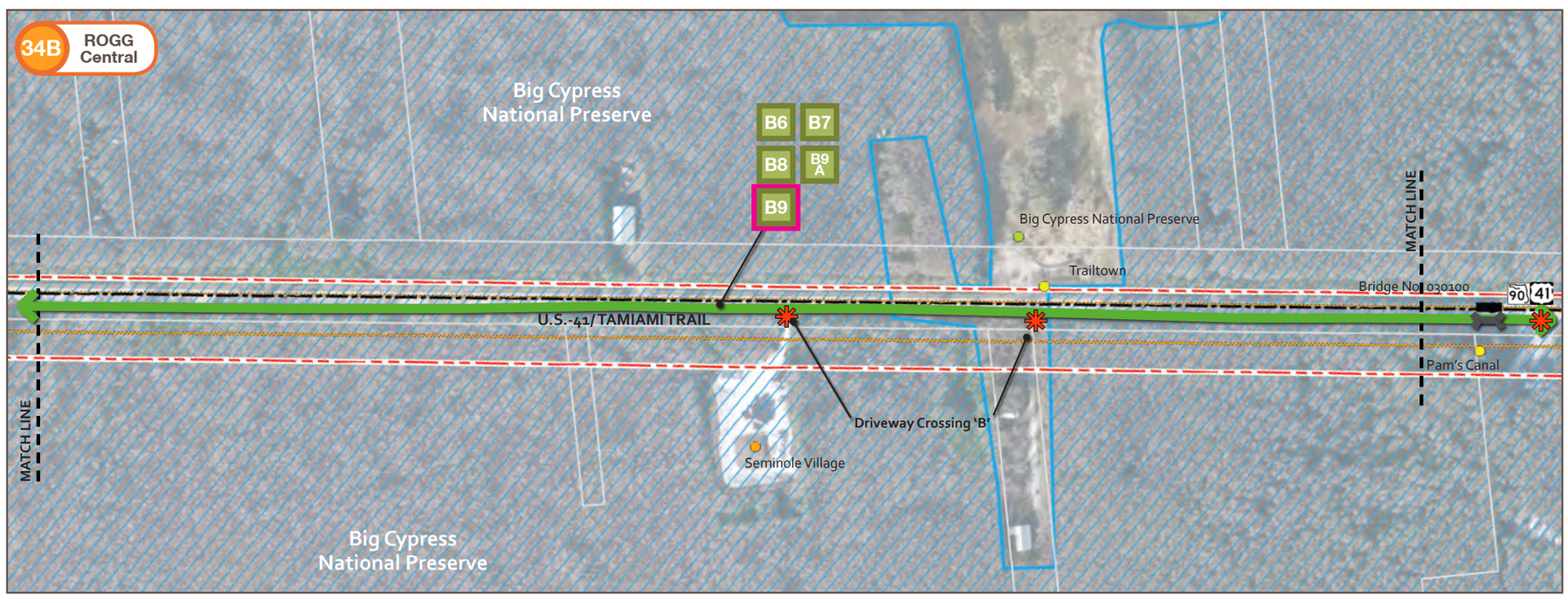

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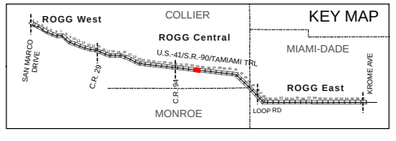
N

0 150 300 600 ft.



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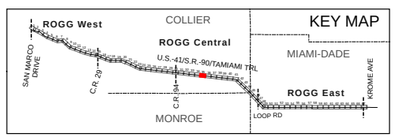

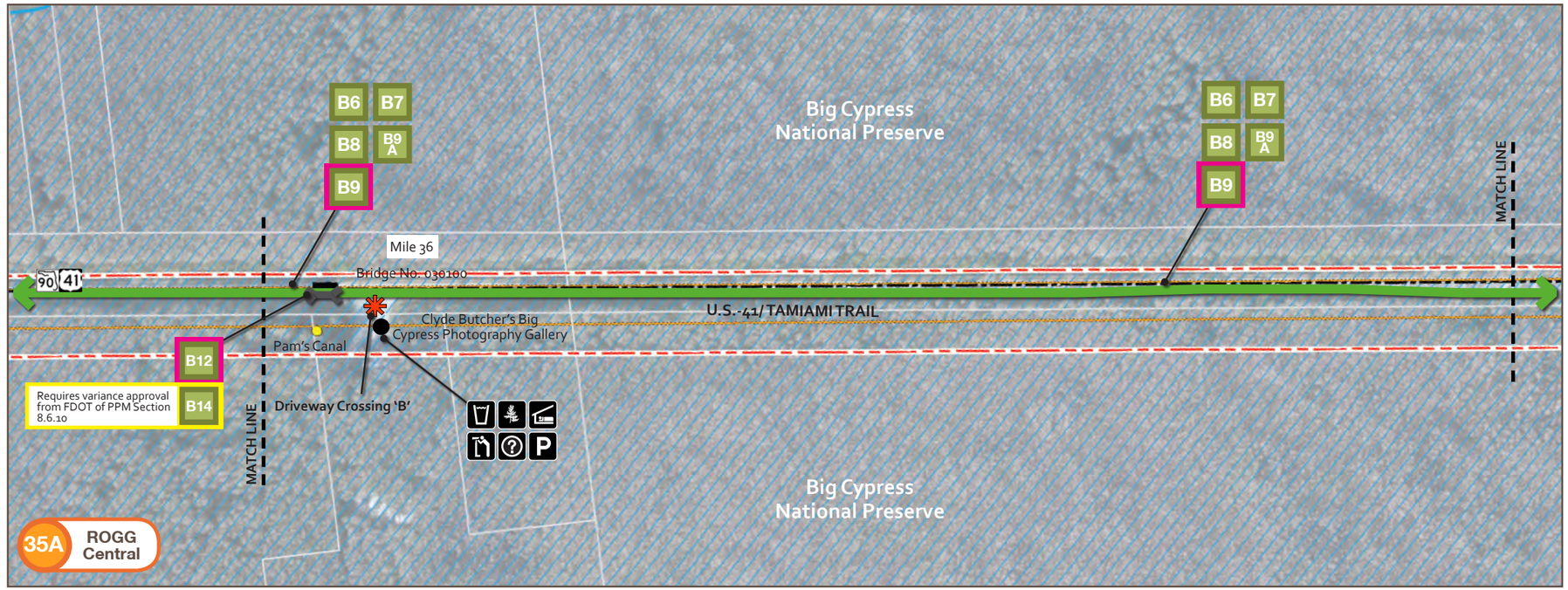

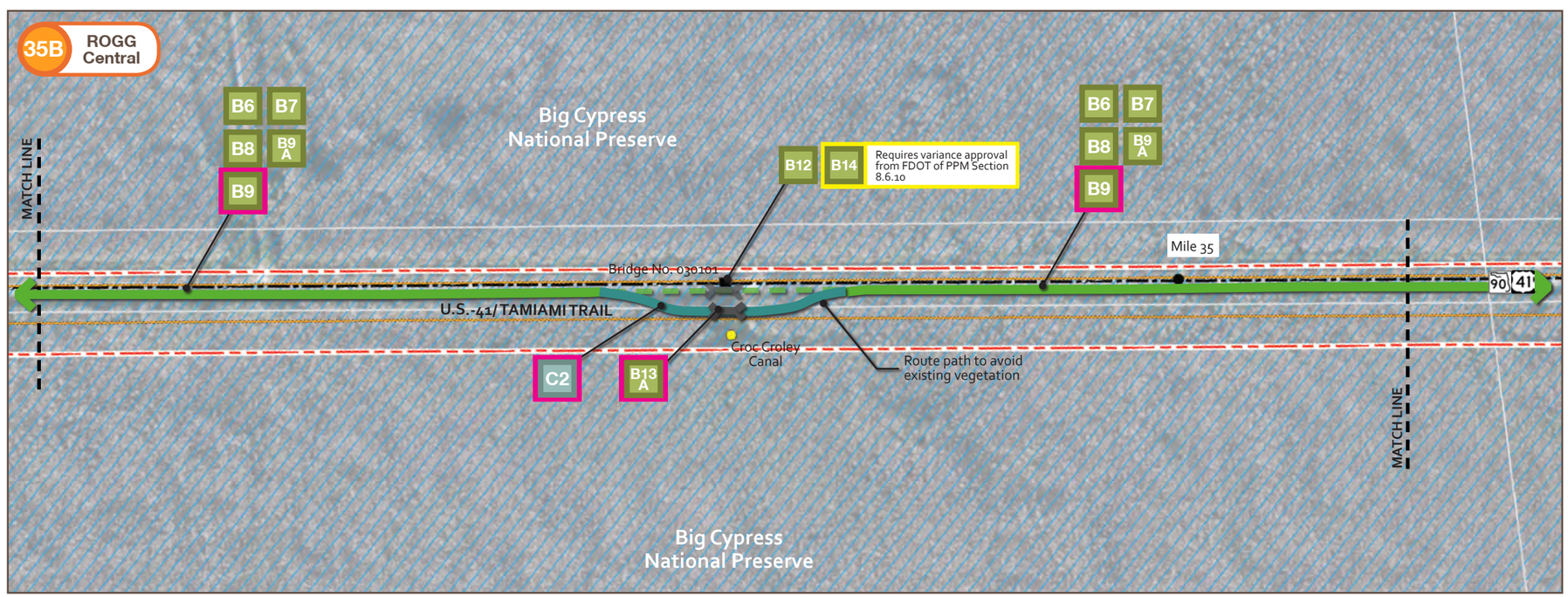

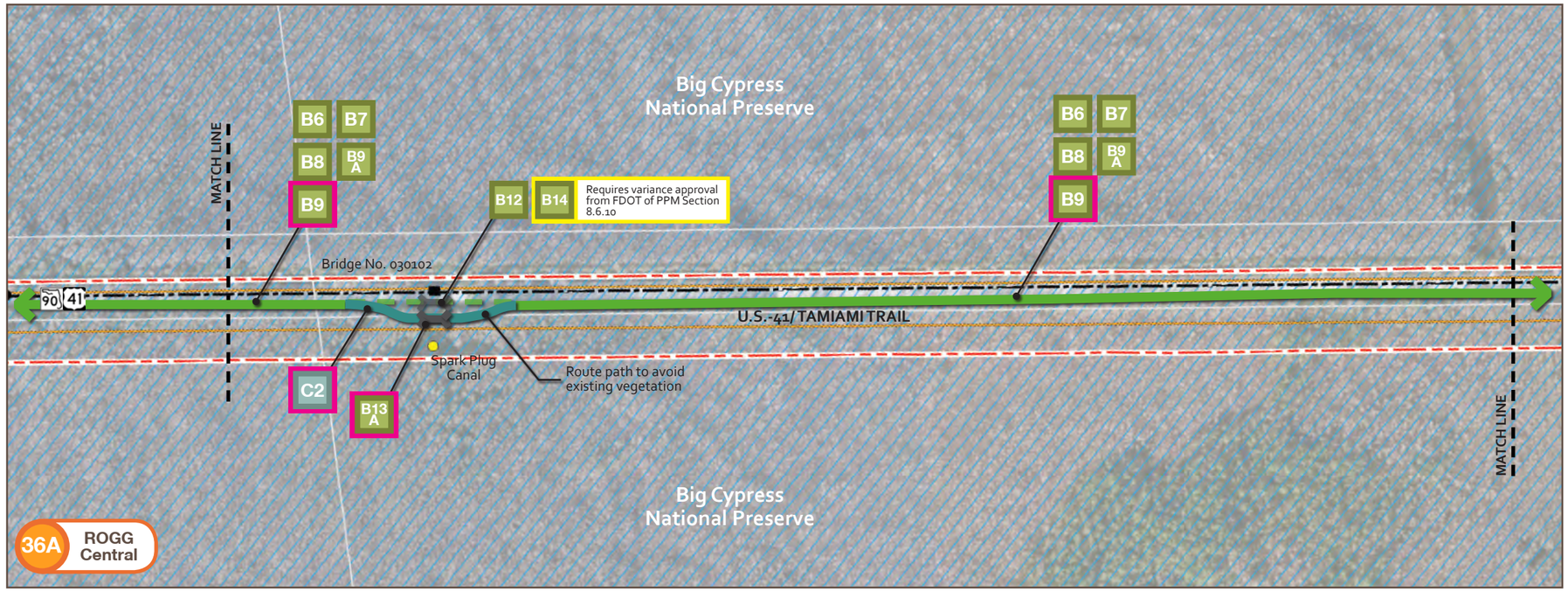

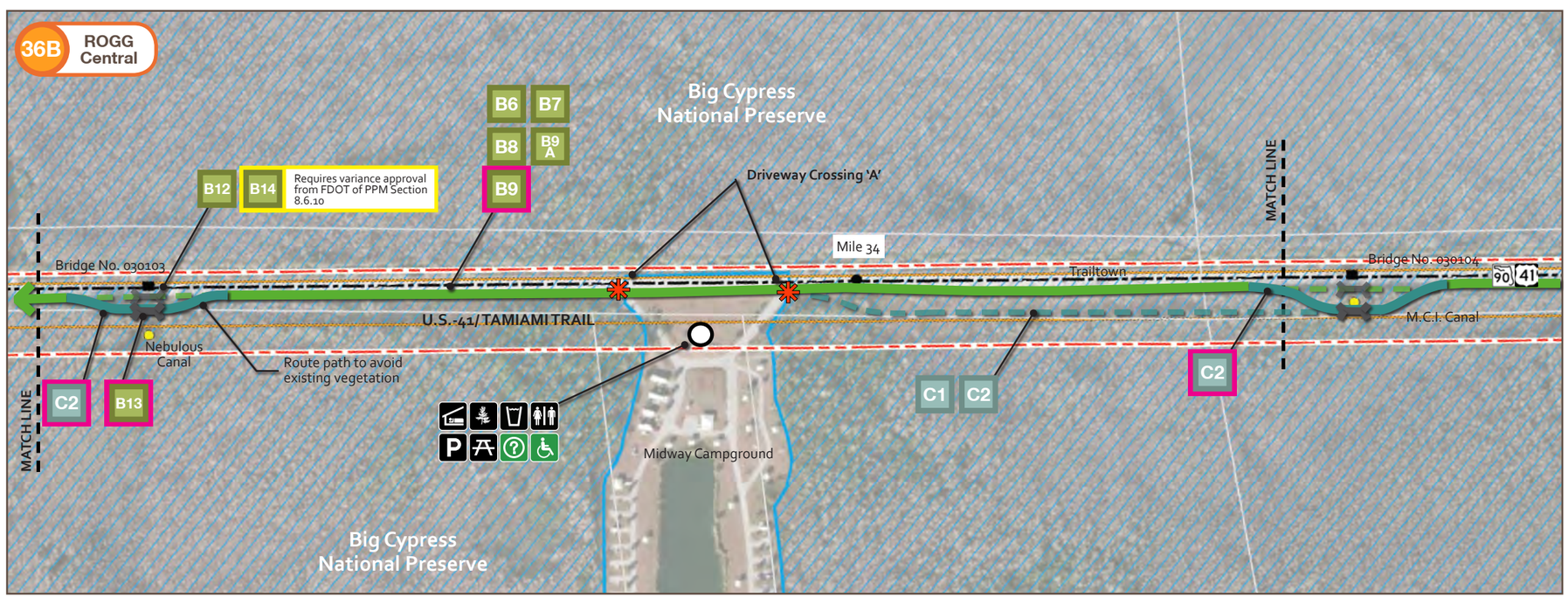

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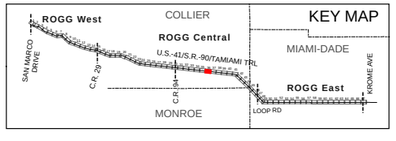
0 150 300 600 ft.



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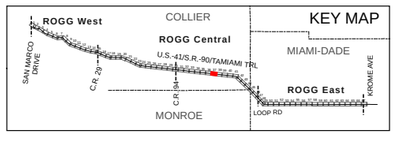

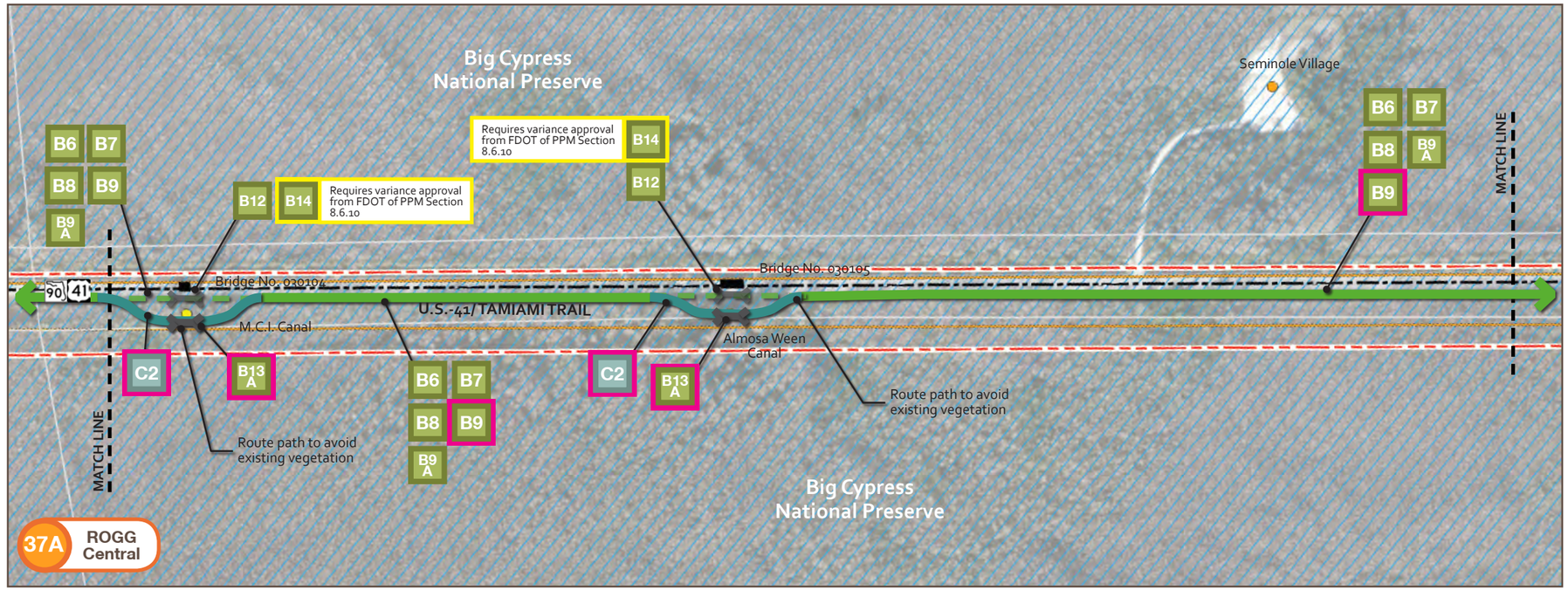

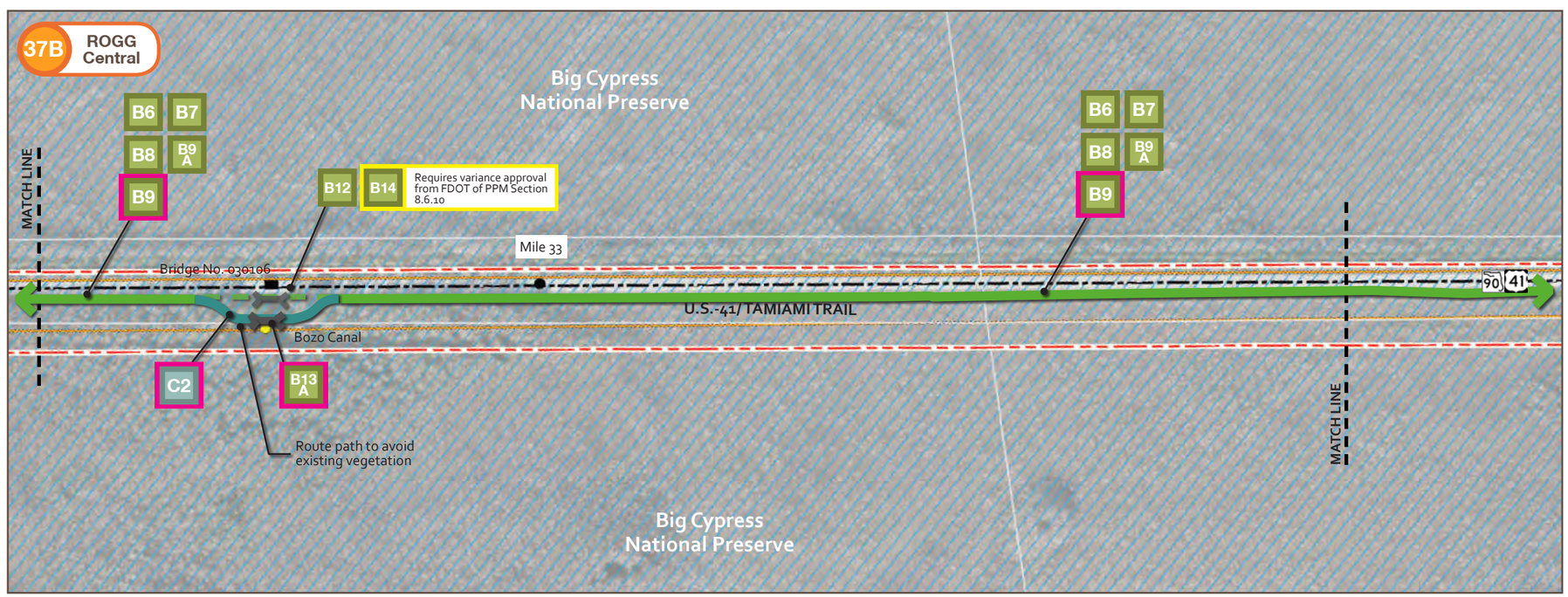

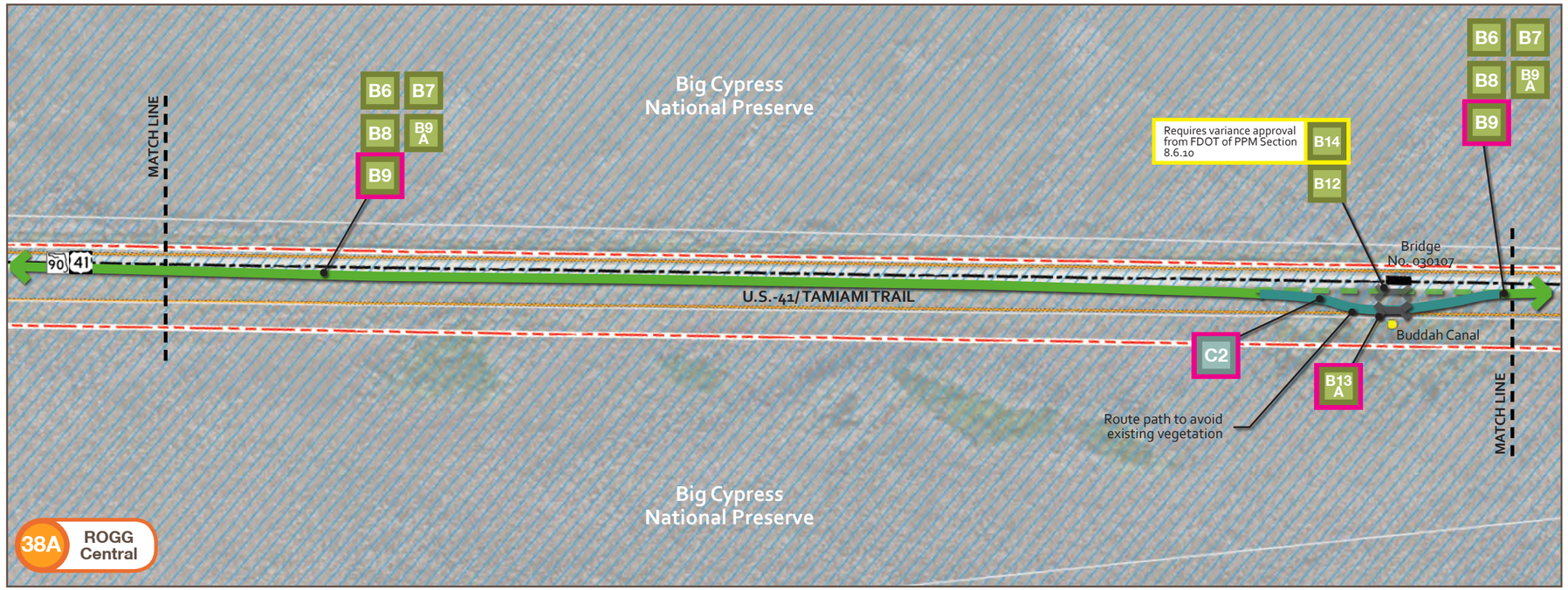

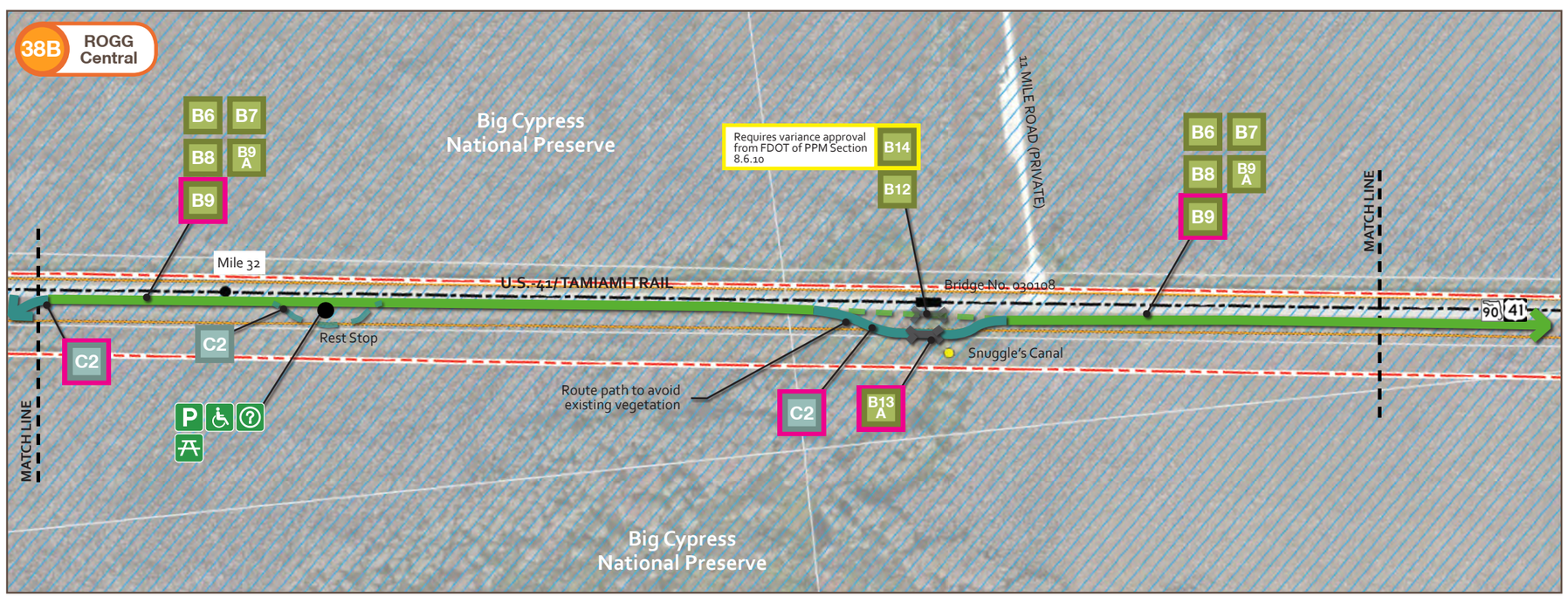

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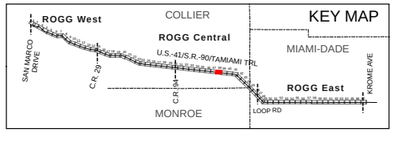
0 150 300 600 ft.



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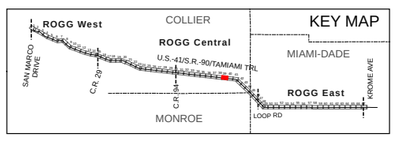

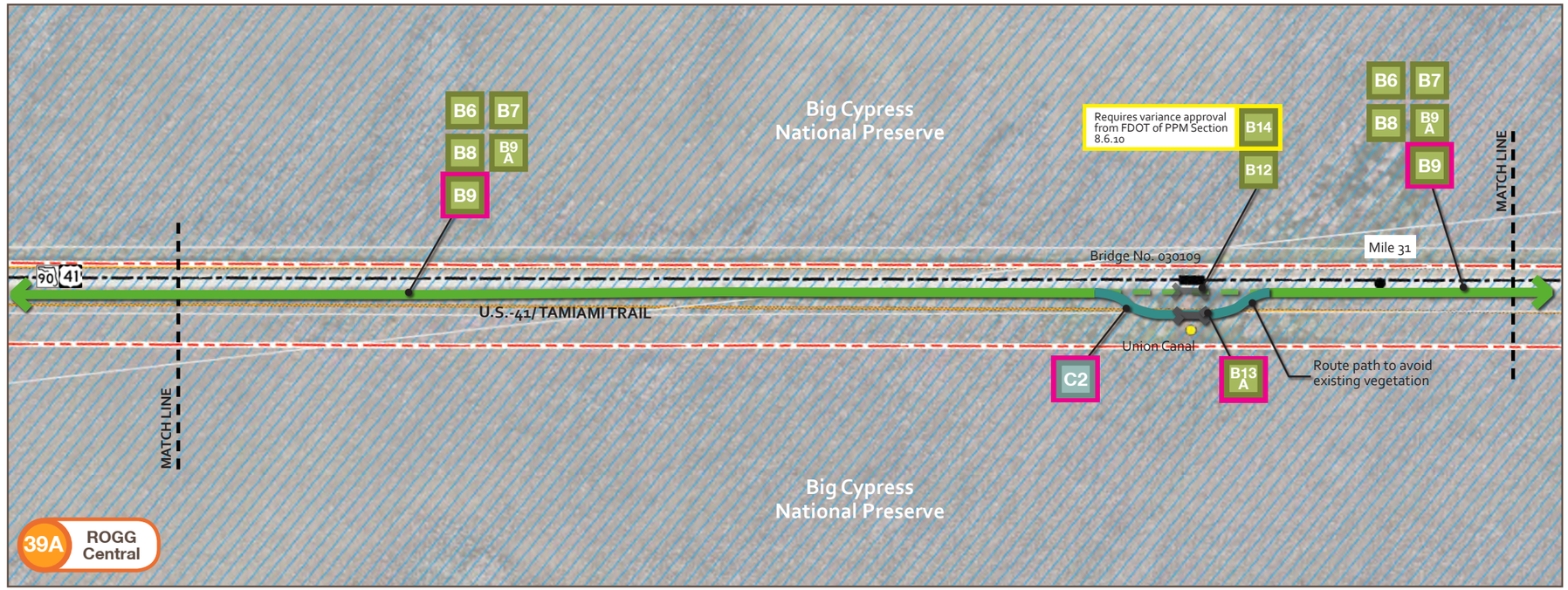

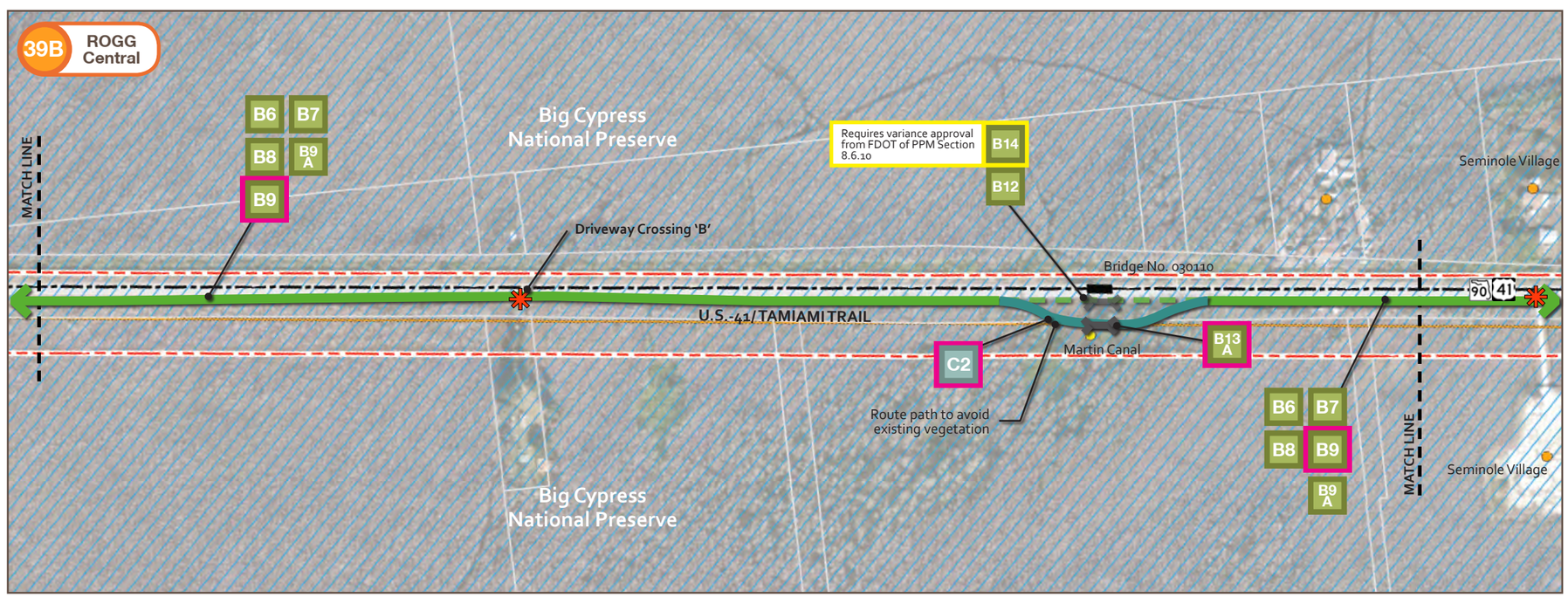

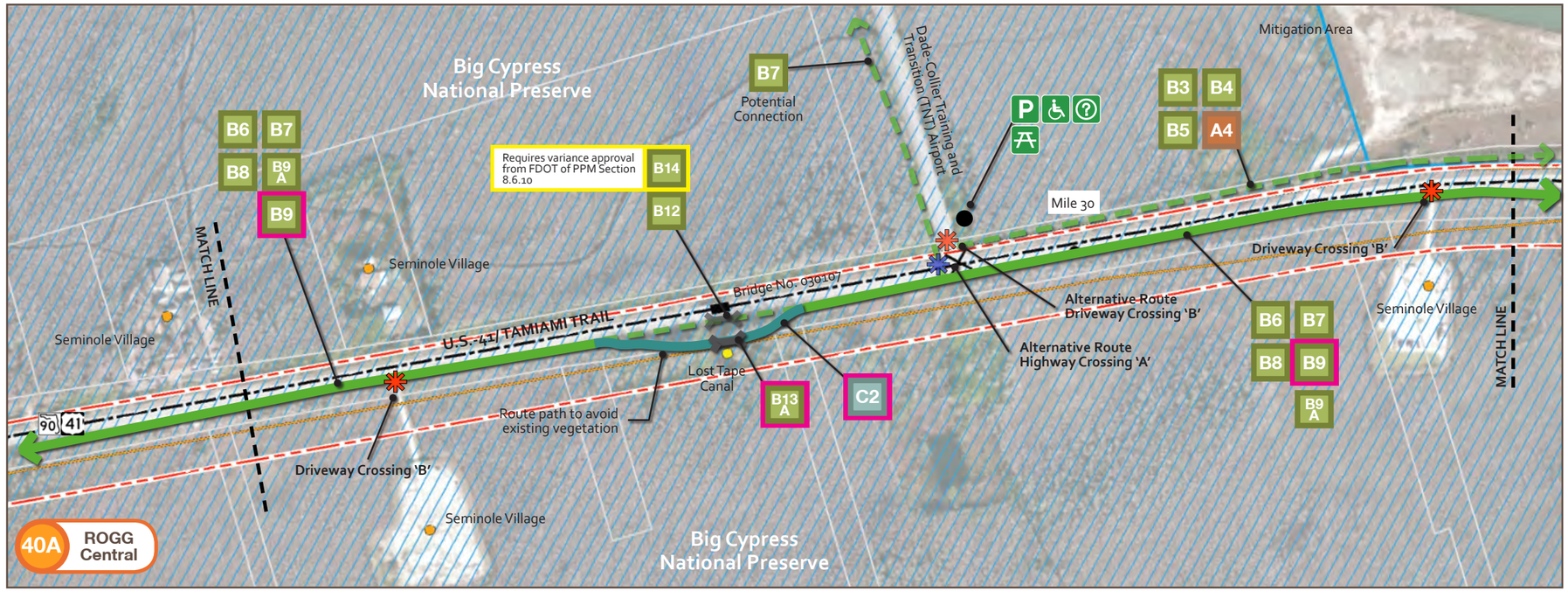

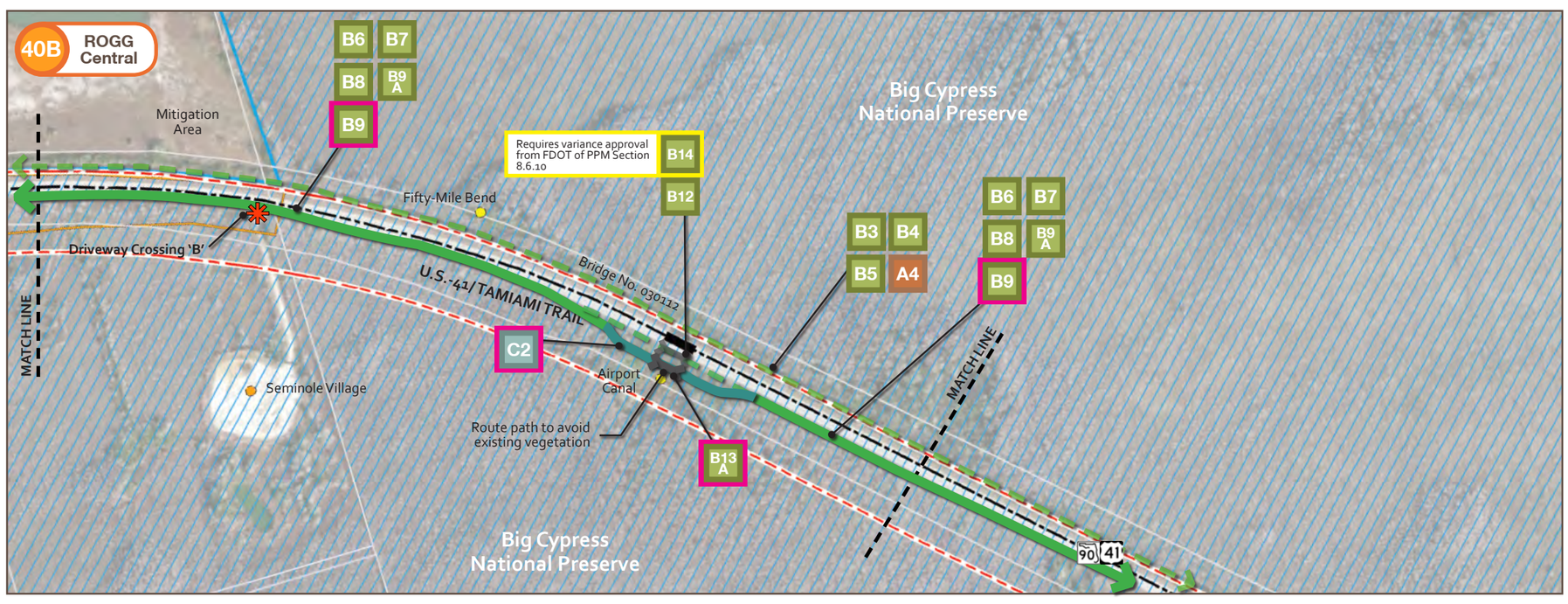

Legend

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- Parcel Line
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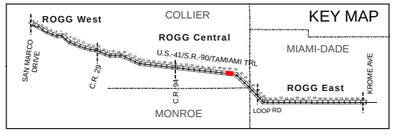
- Critical Habitat
- Wetland Area

N

0 150 300 600 ft.



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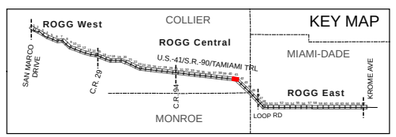

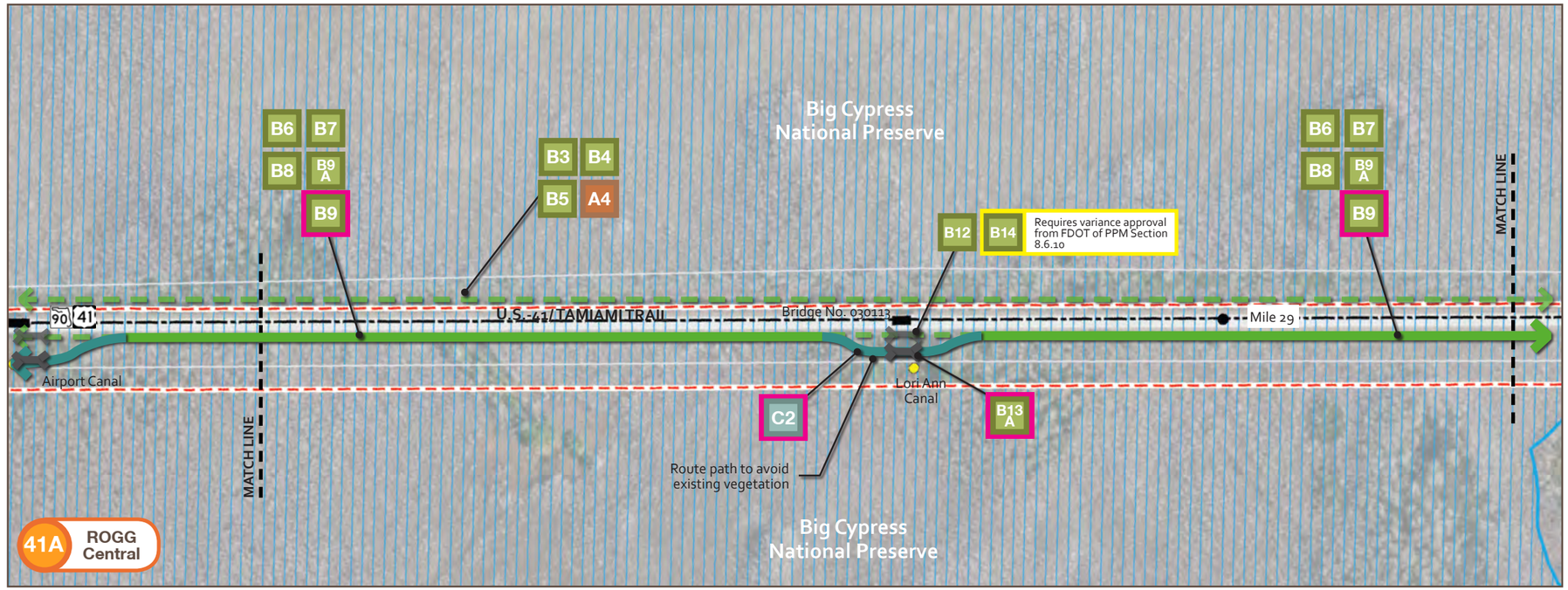

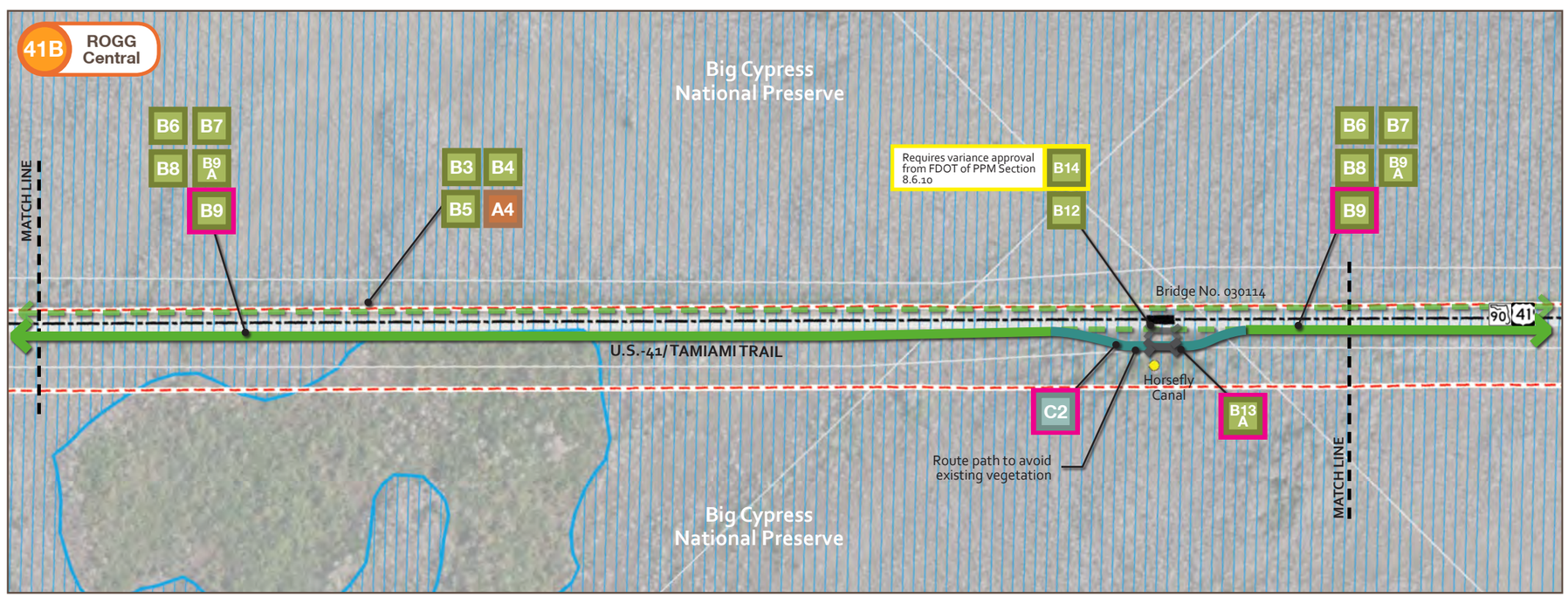

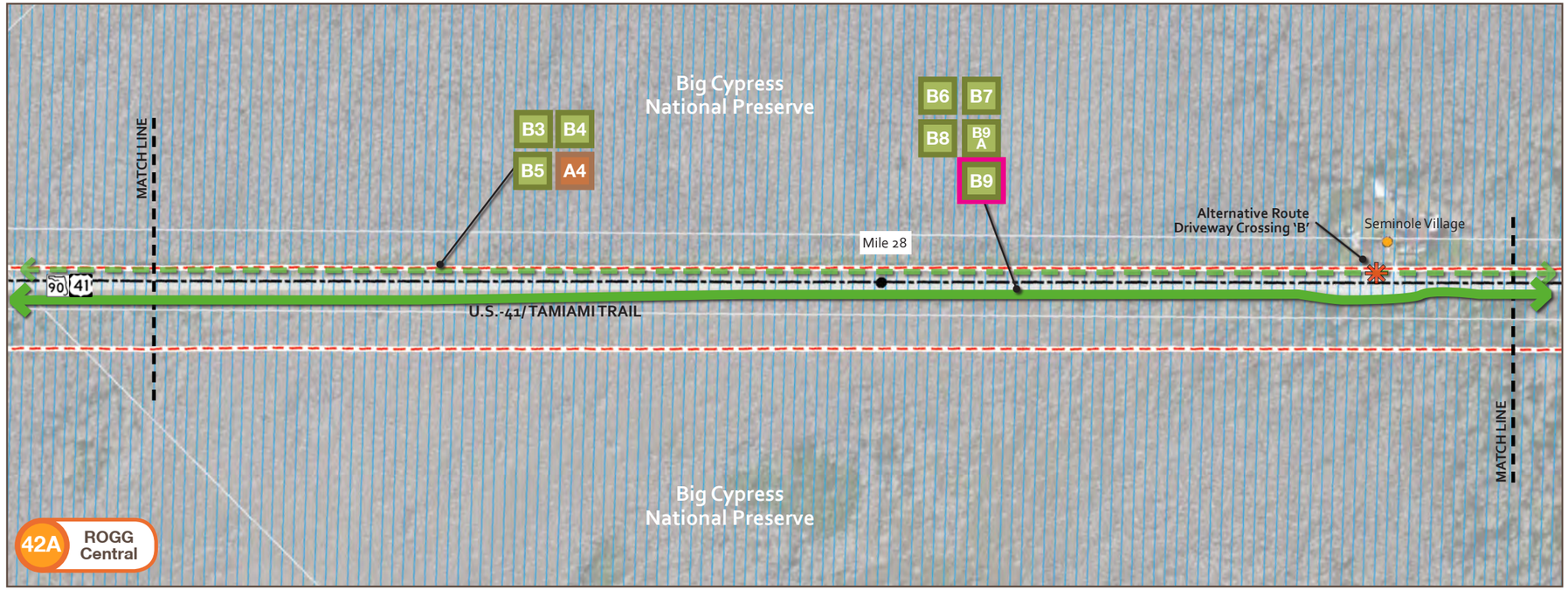

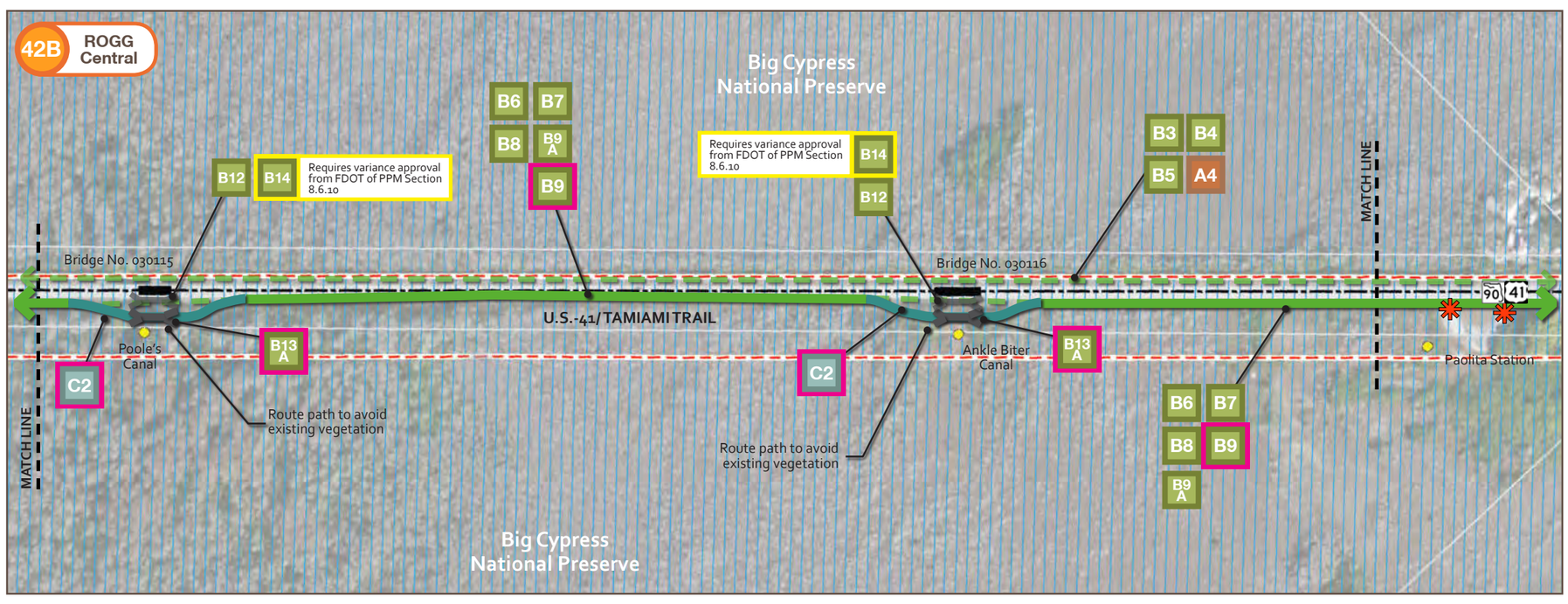

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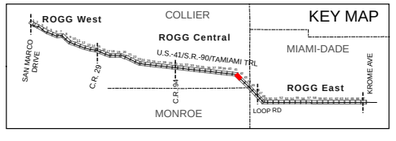
N

0 150 300 600 ft.



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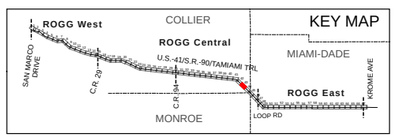

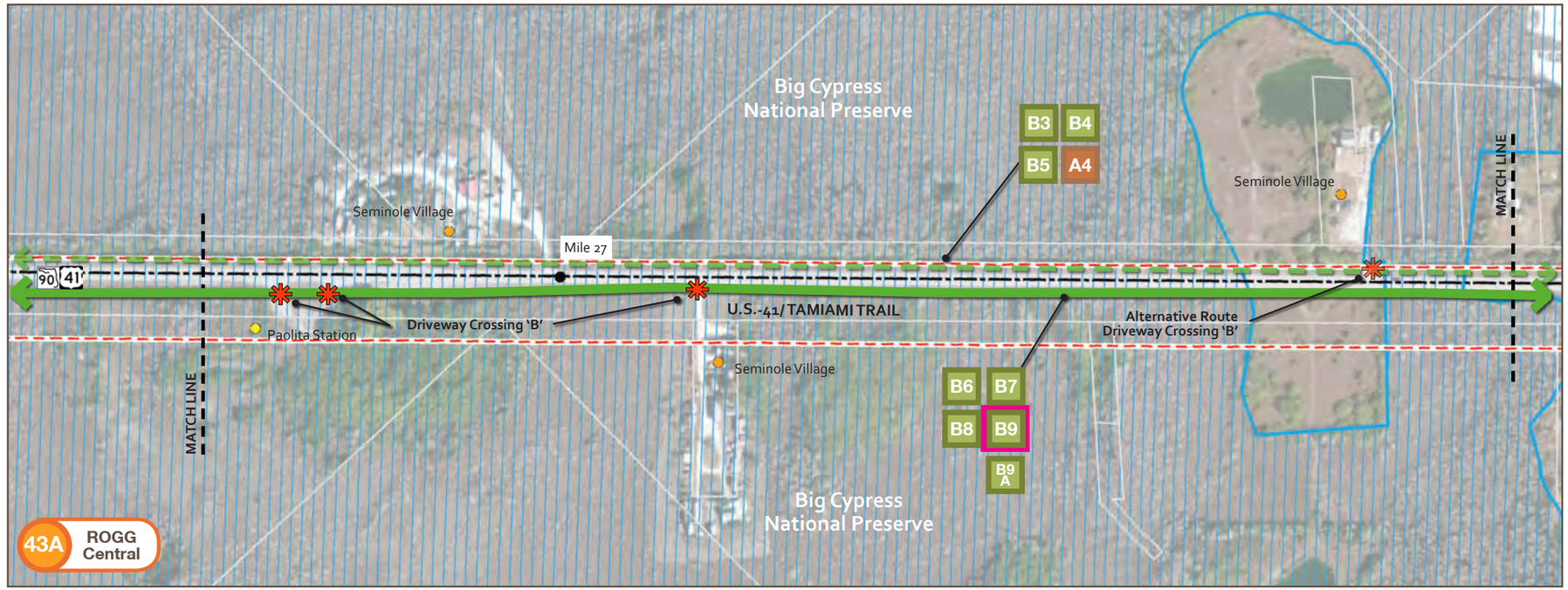

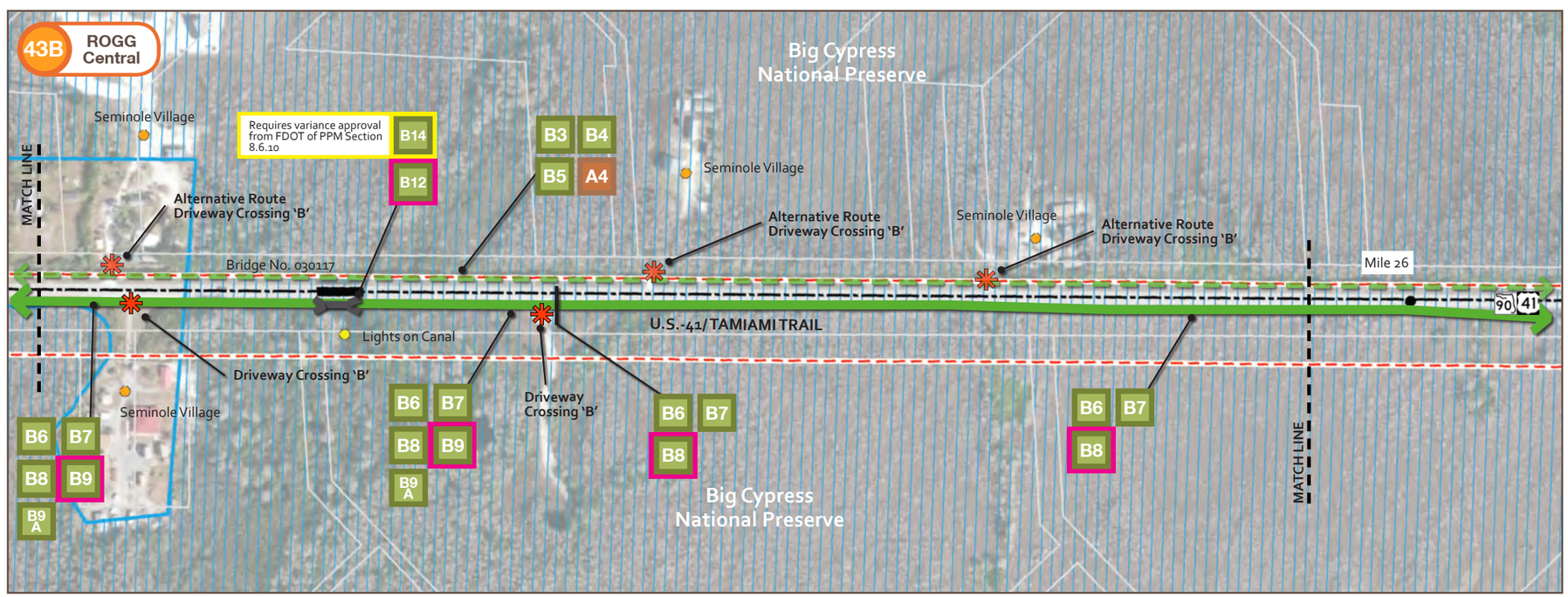

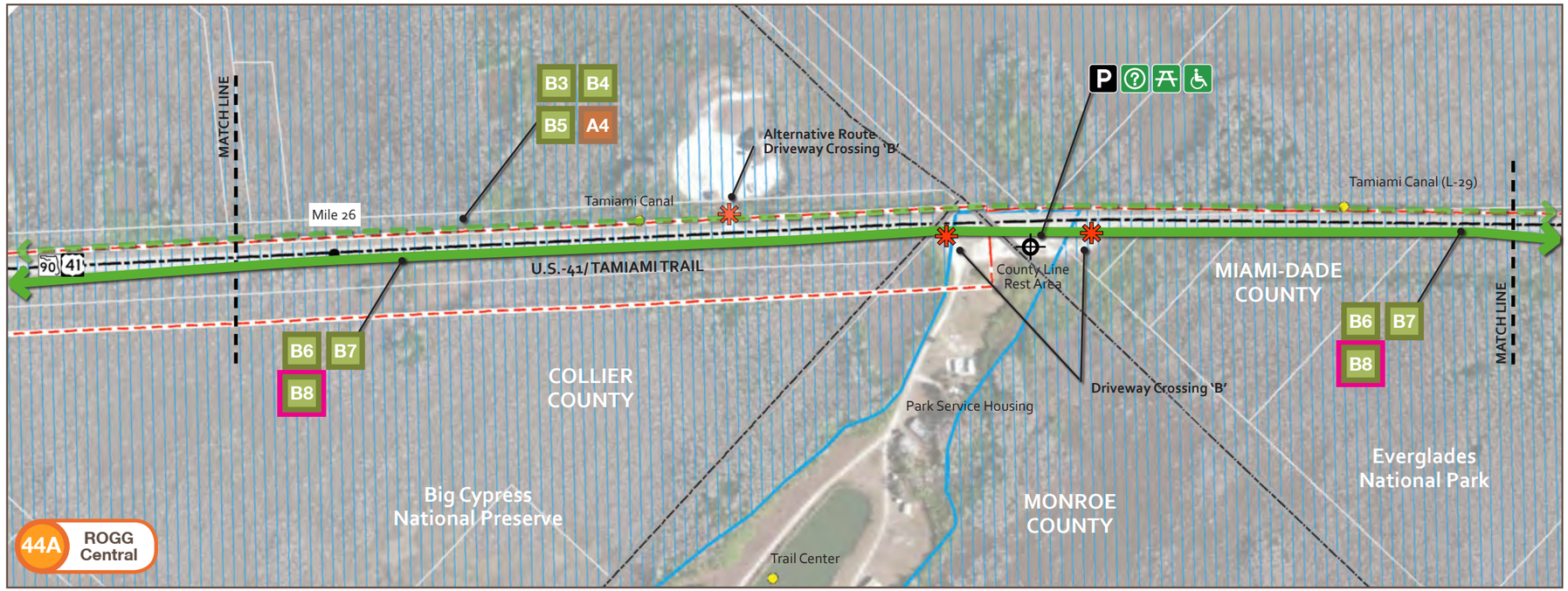

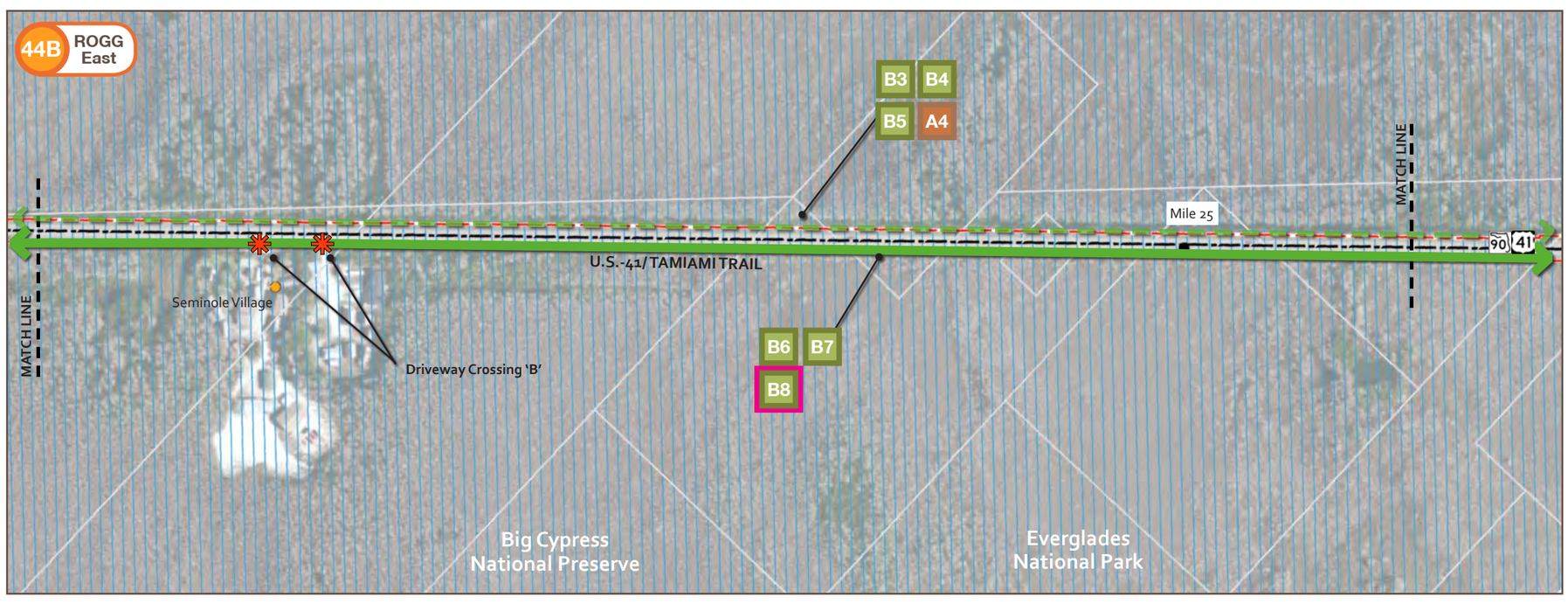

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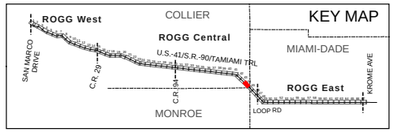
N

0 150 300 600 ft.



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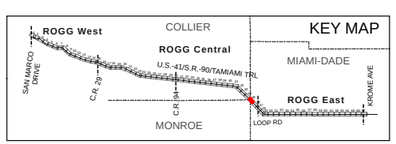

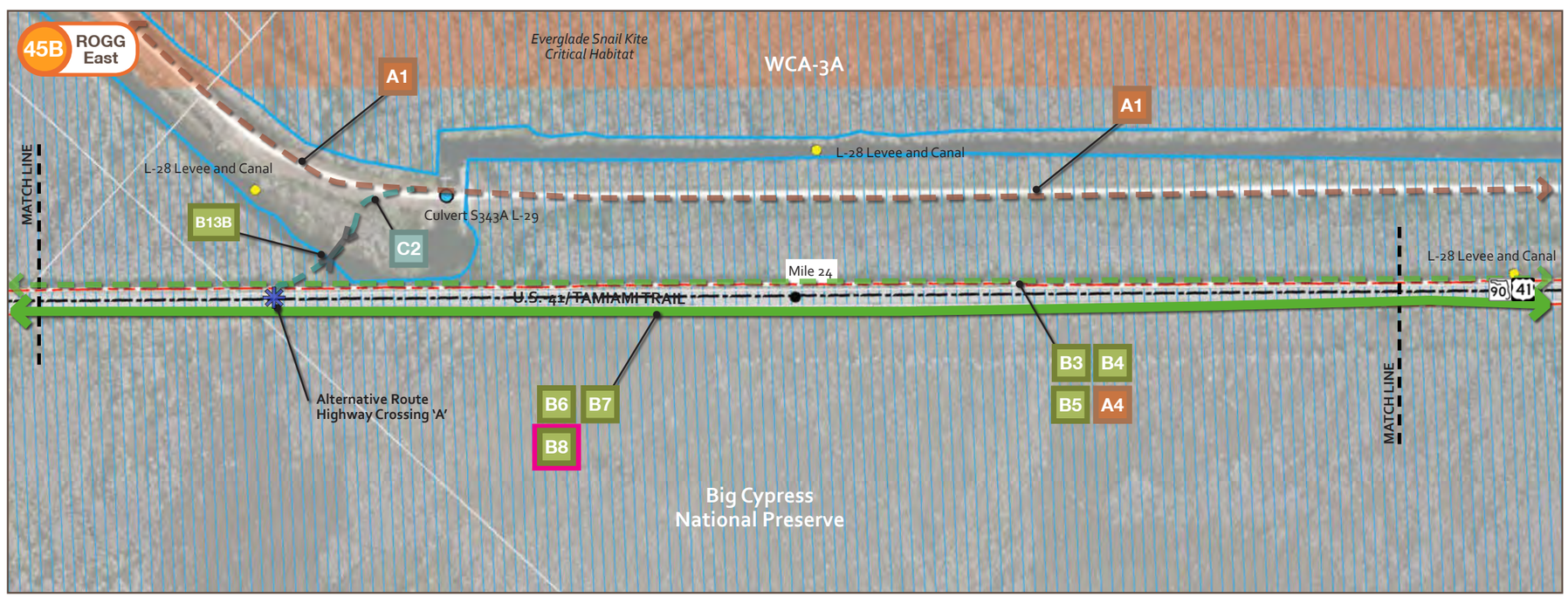

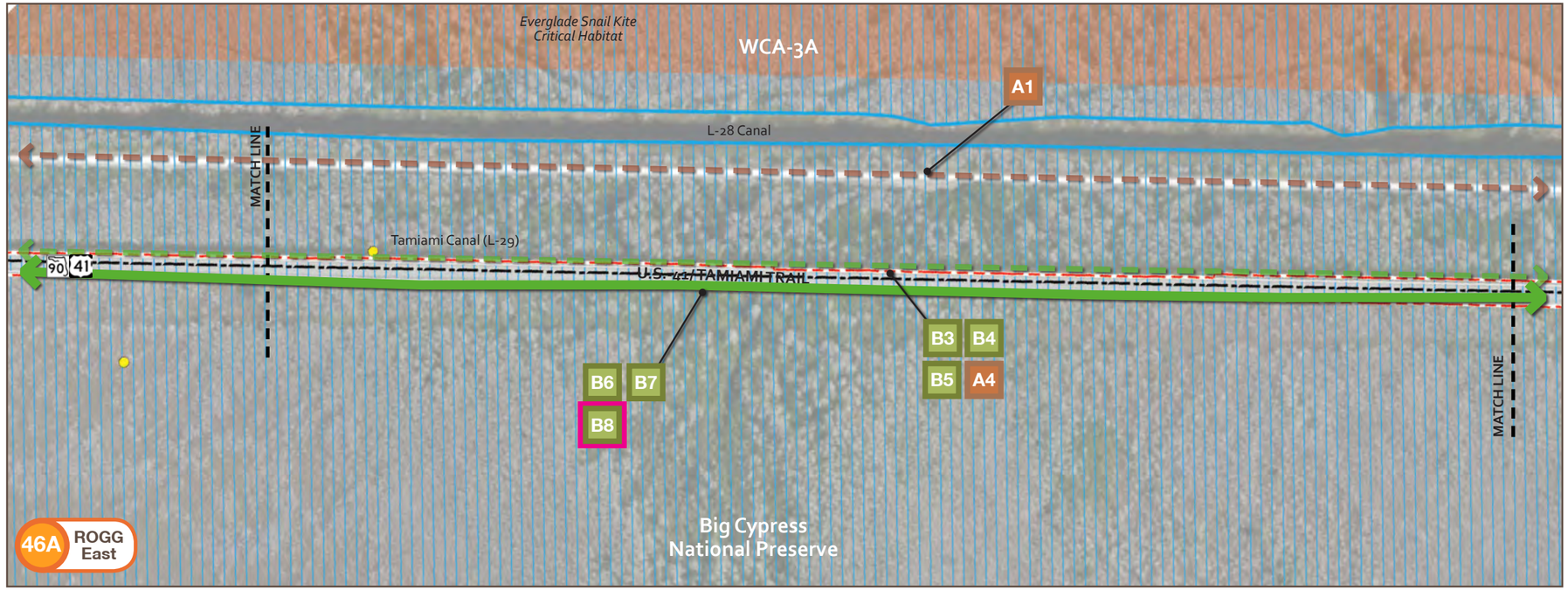

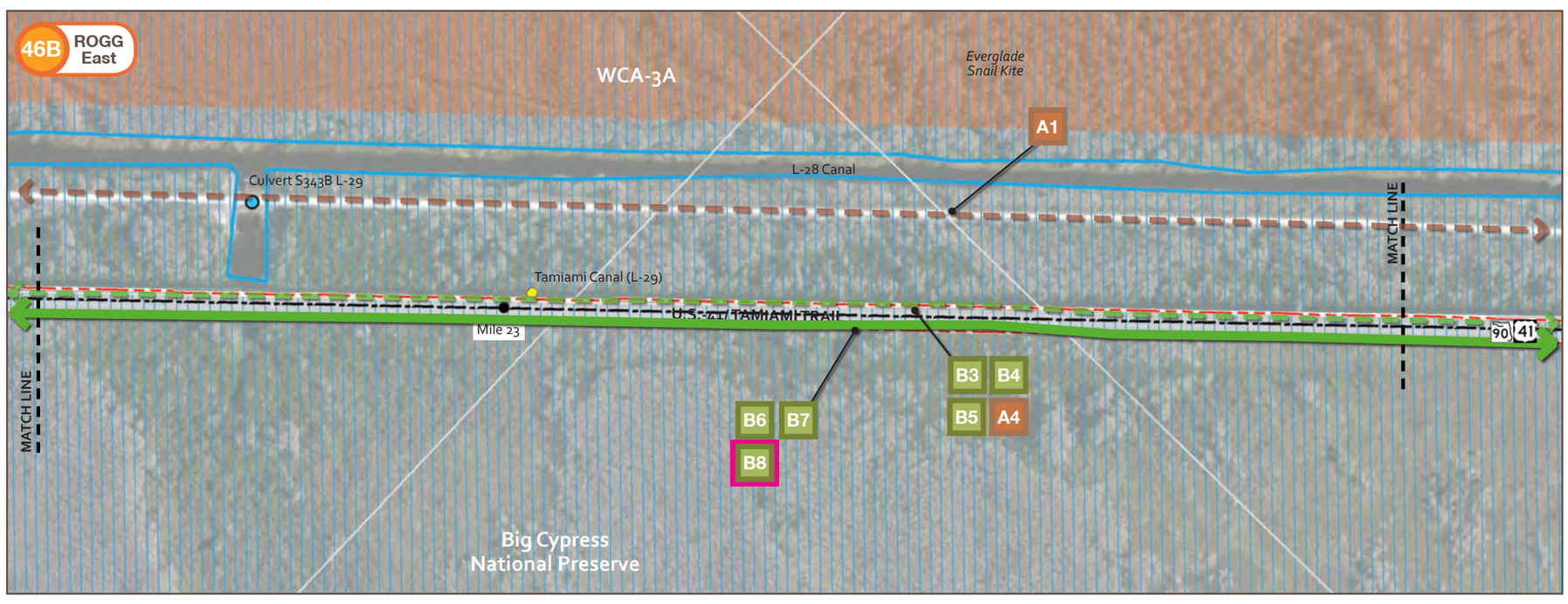

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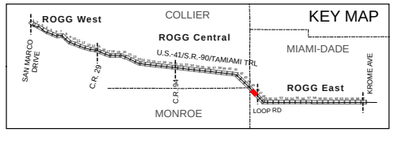
0 150 300 600 ft.



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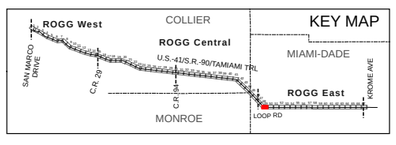

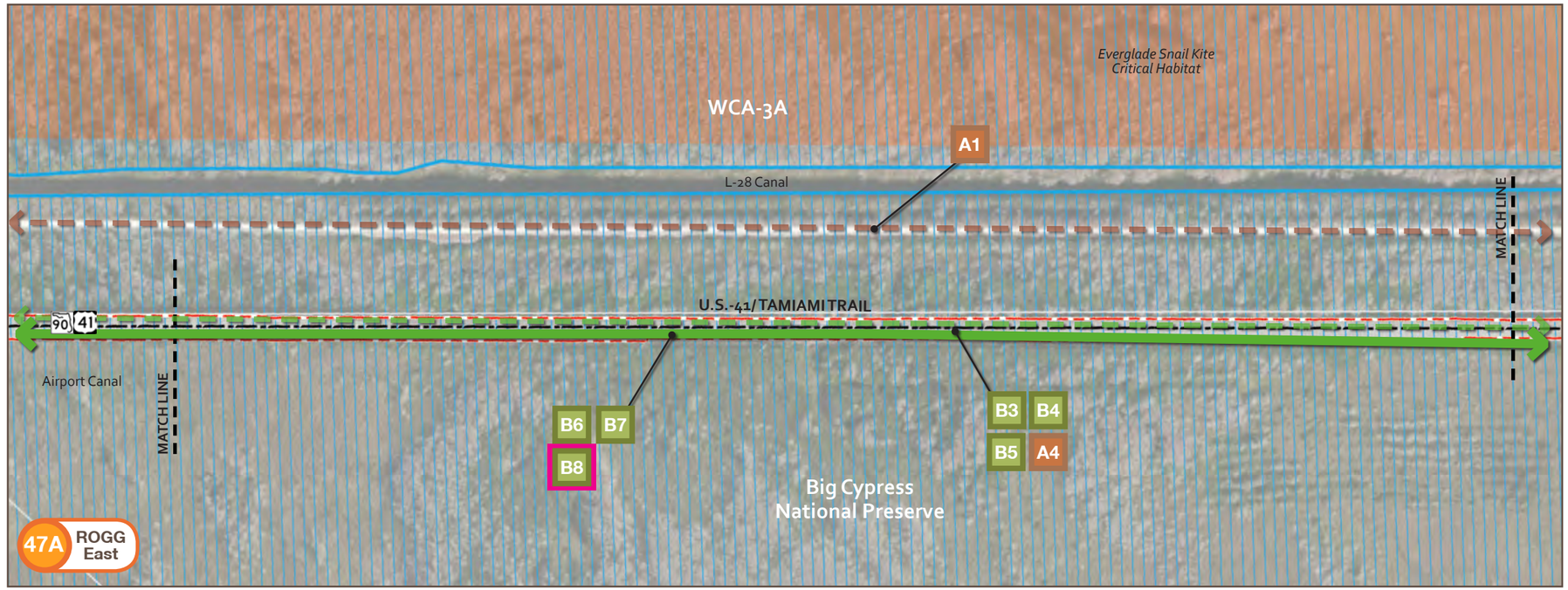

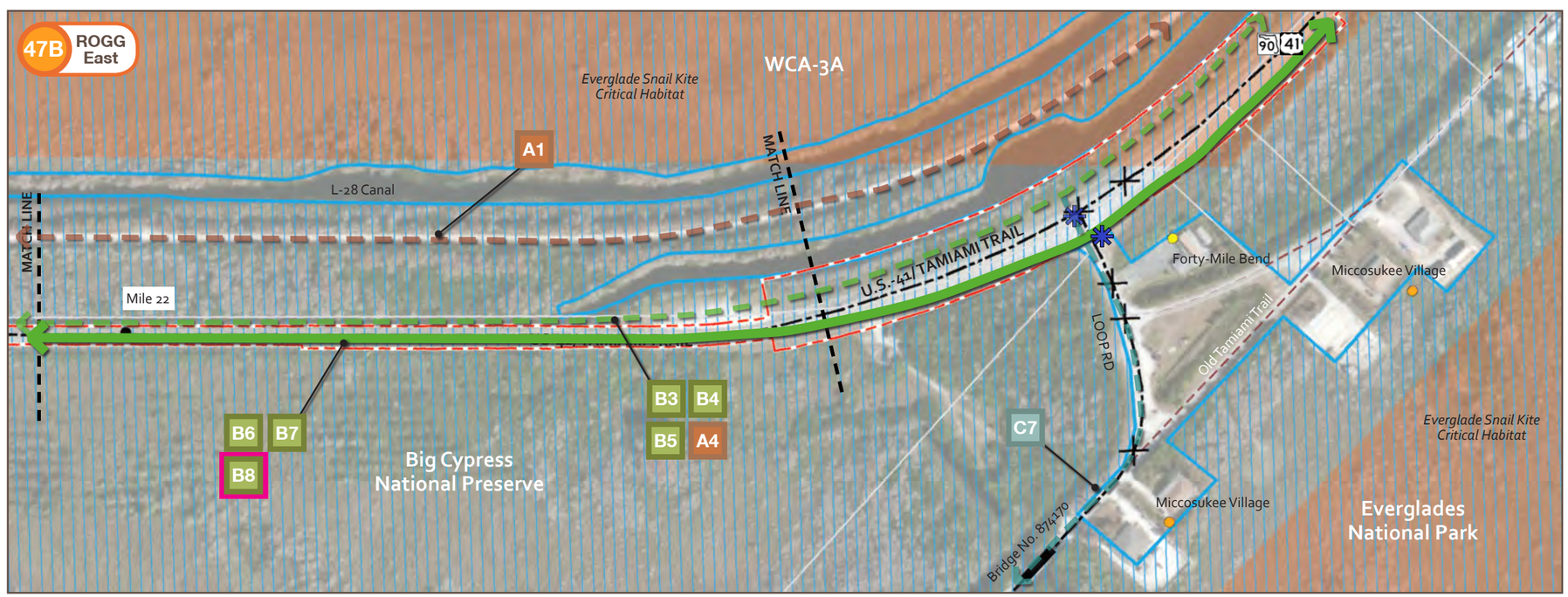

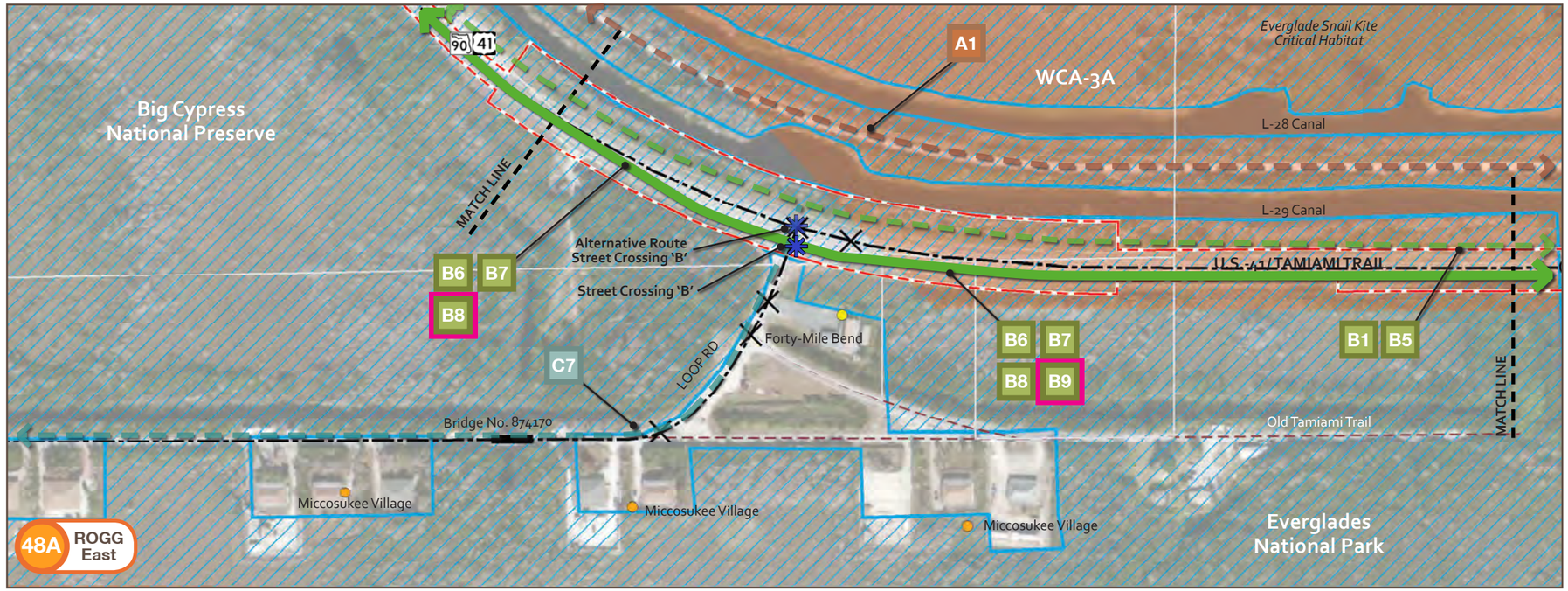

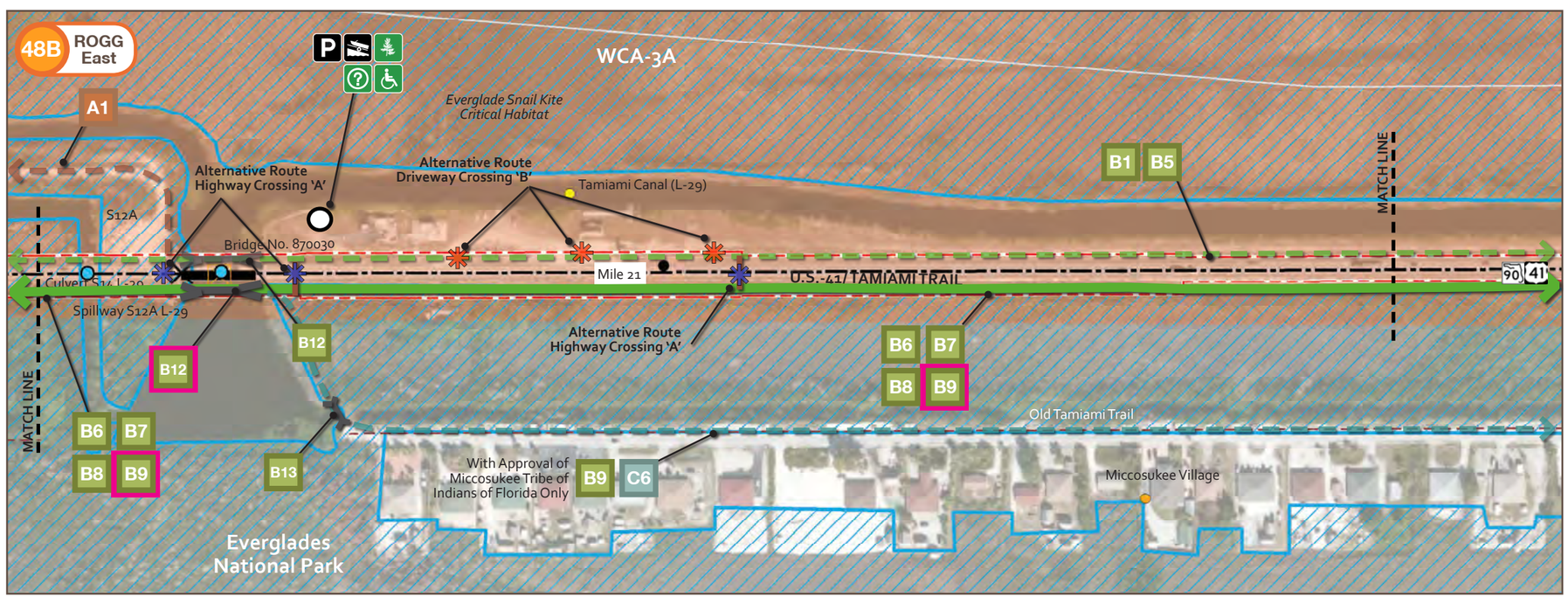

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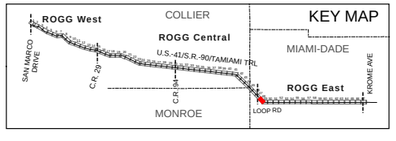
0 150 300 600 ft.



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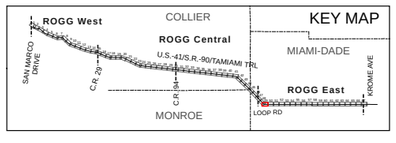

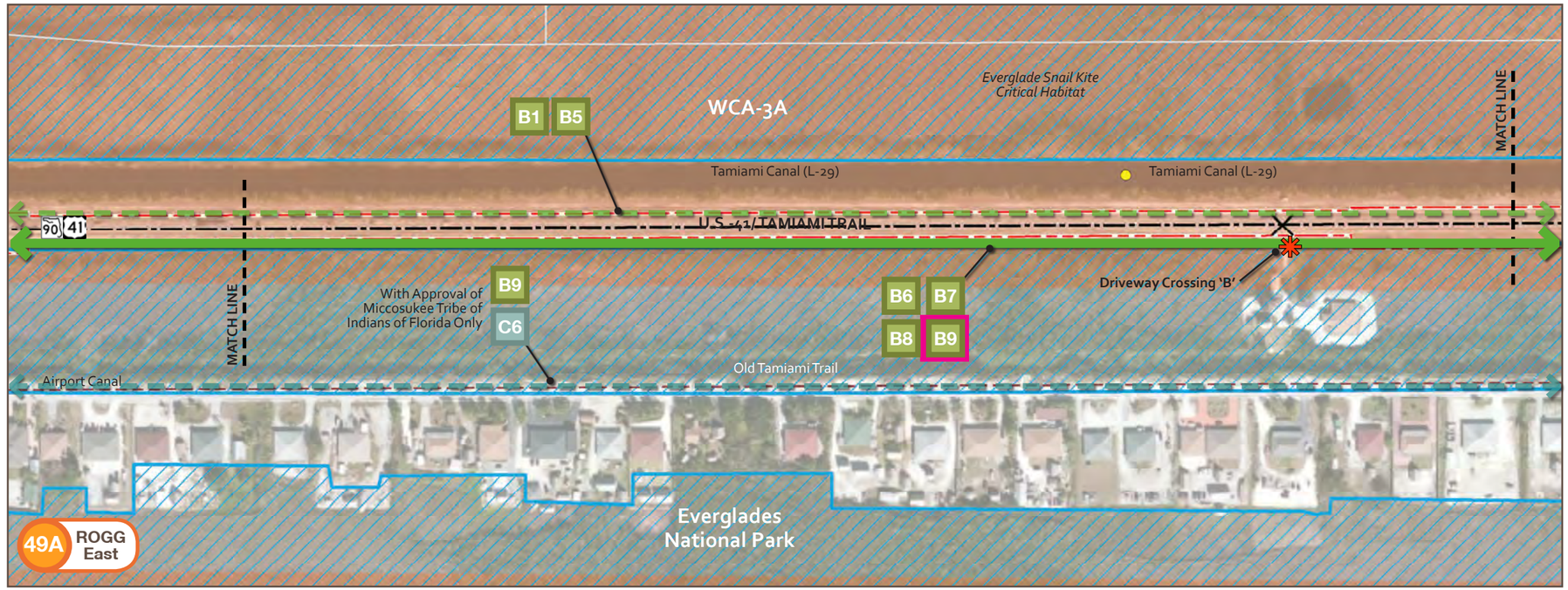

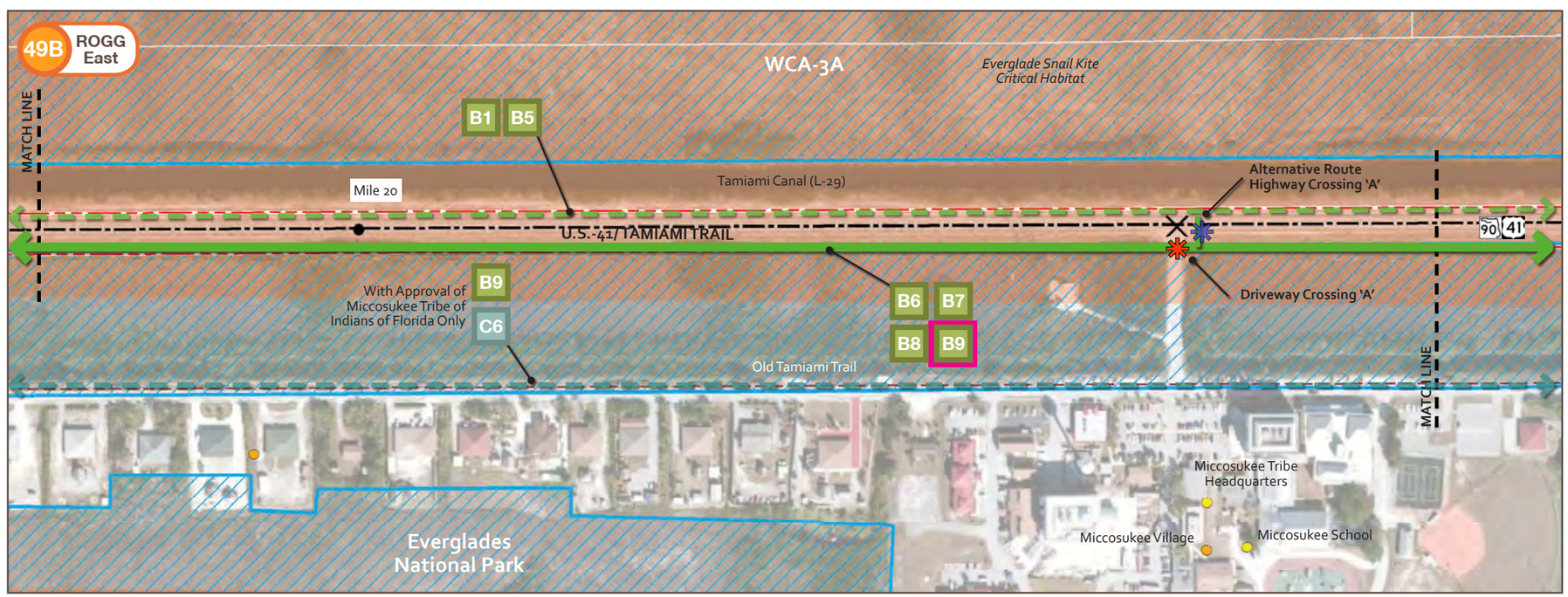

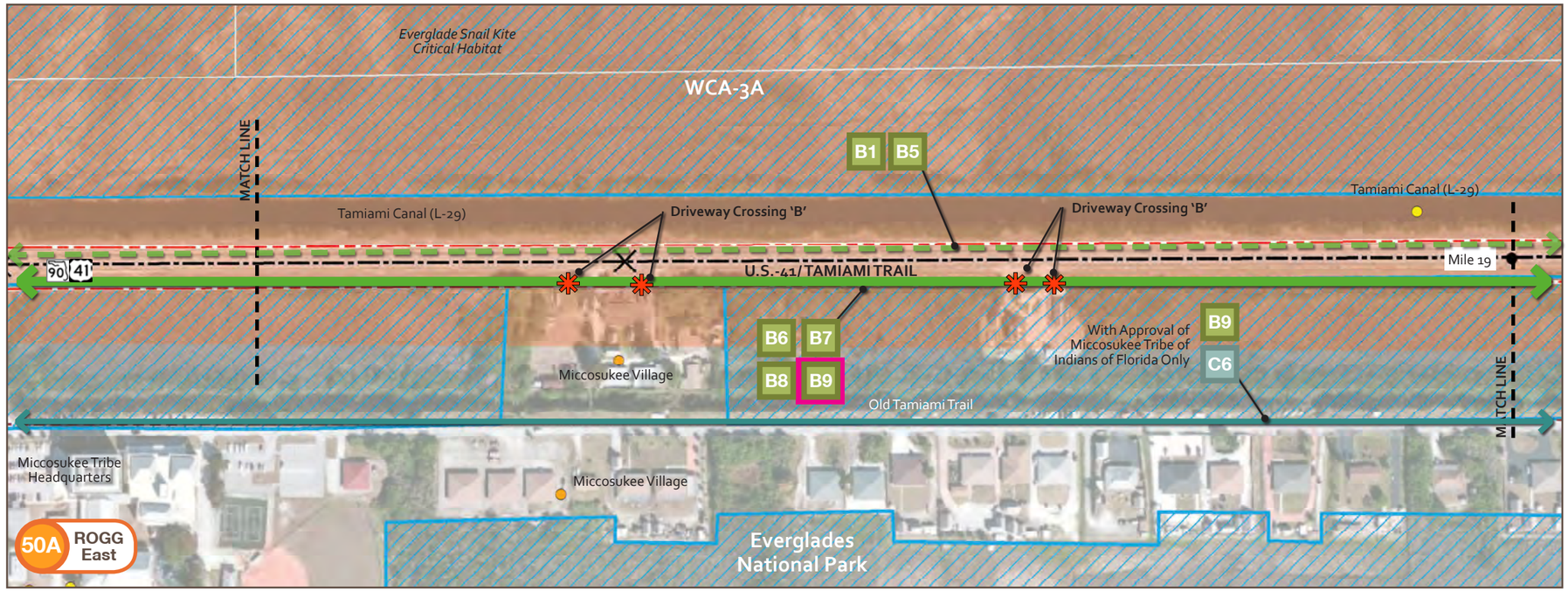

Legend

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- Critical Habitat
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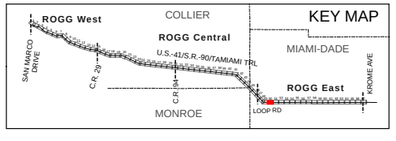
N

0 150 300 600 ft.



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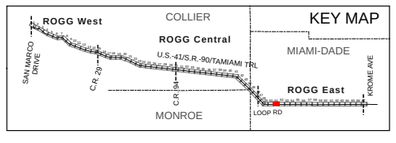

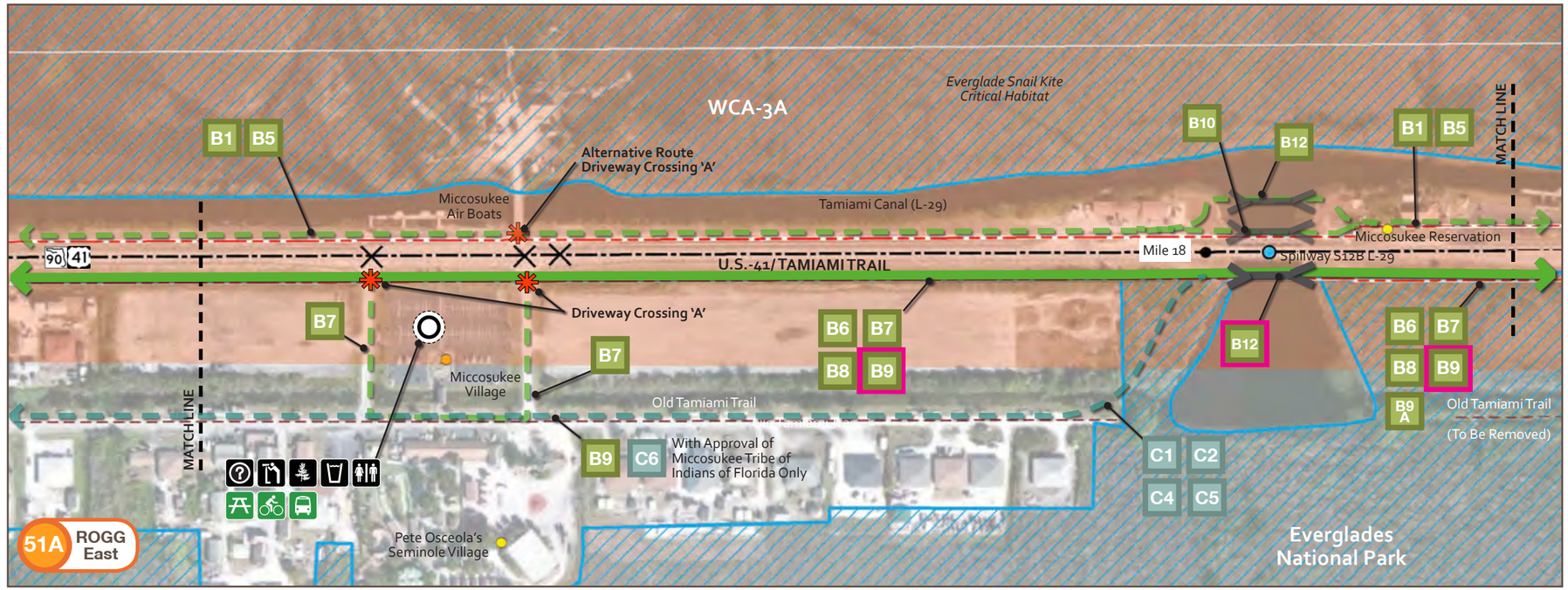

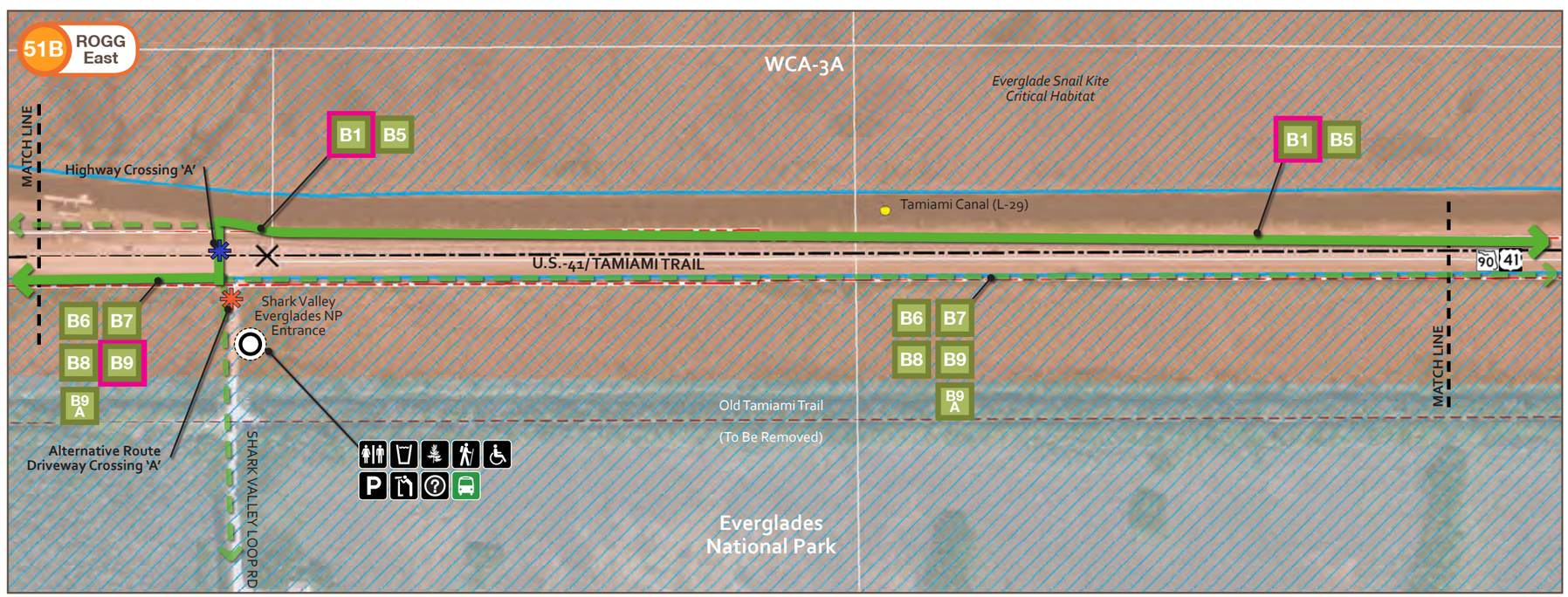

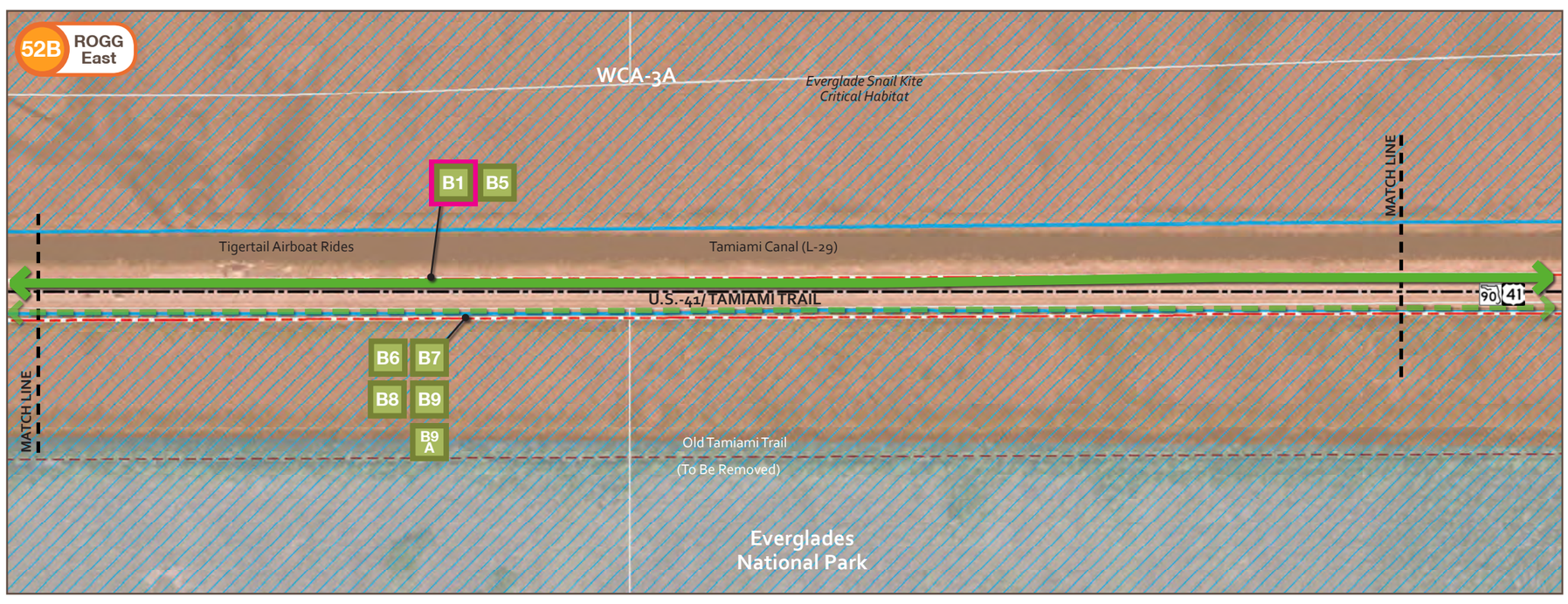

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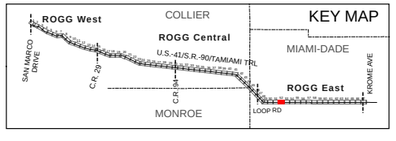

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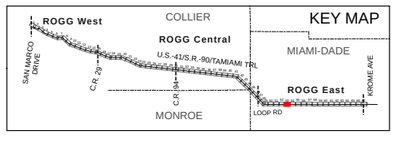

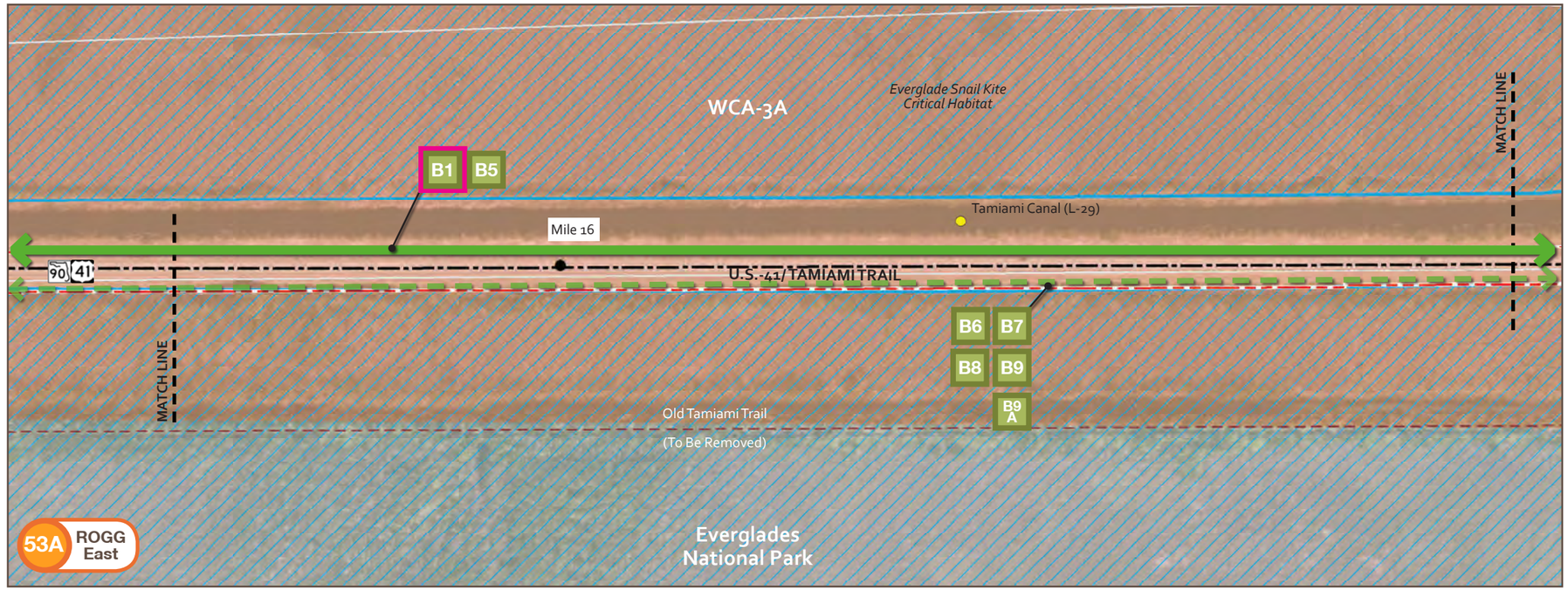

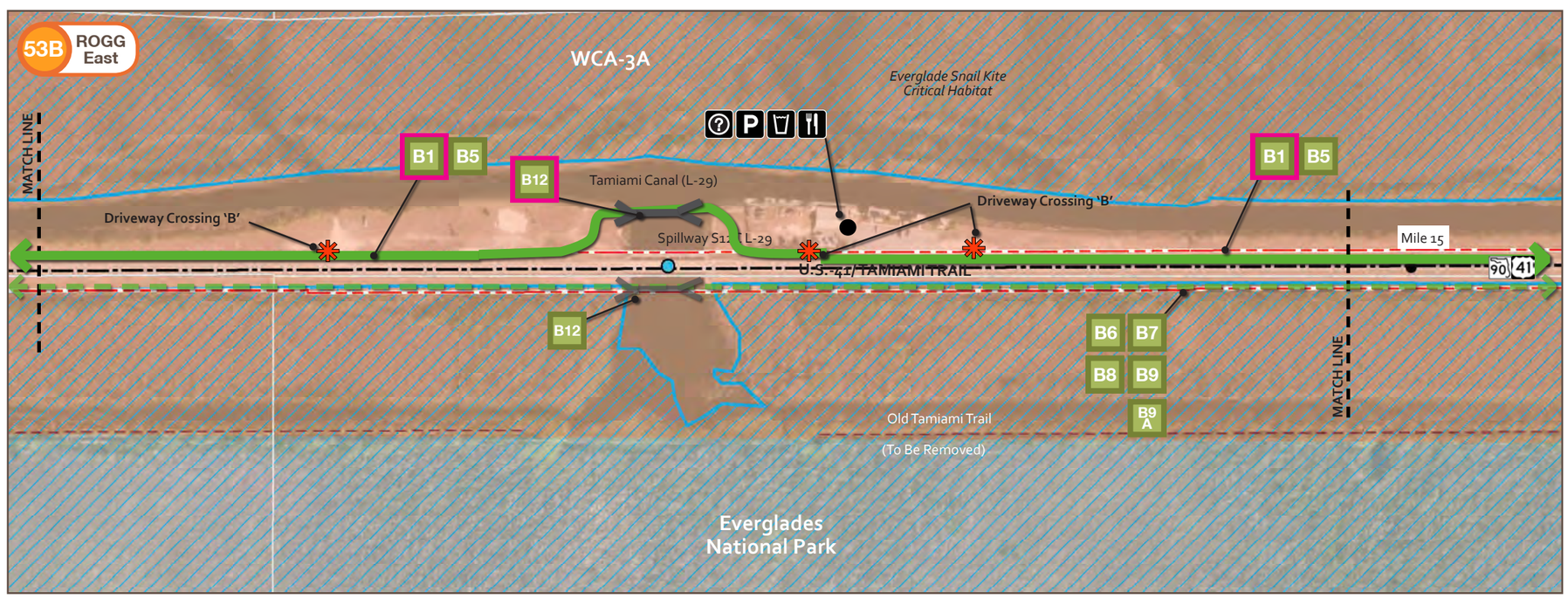

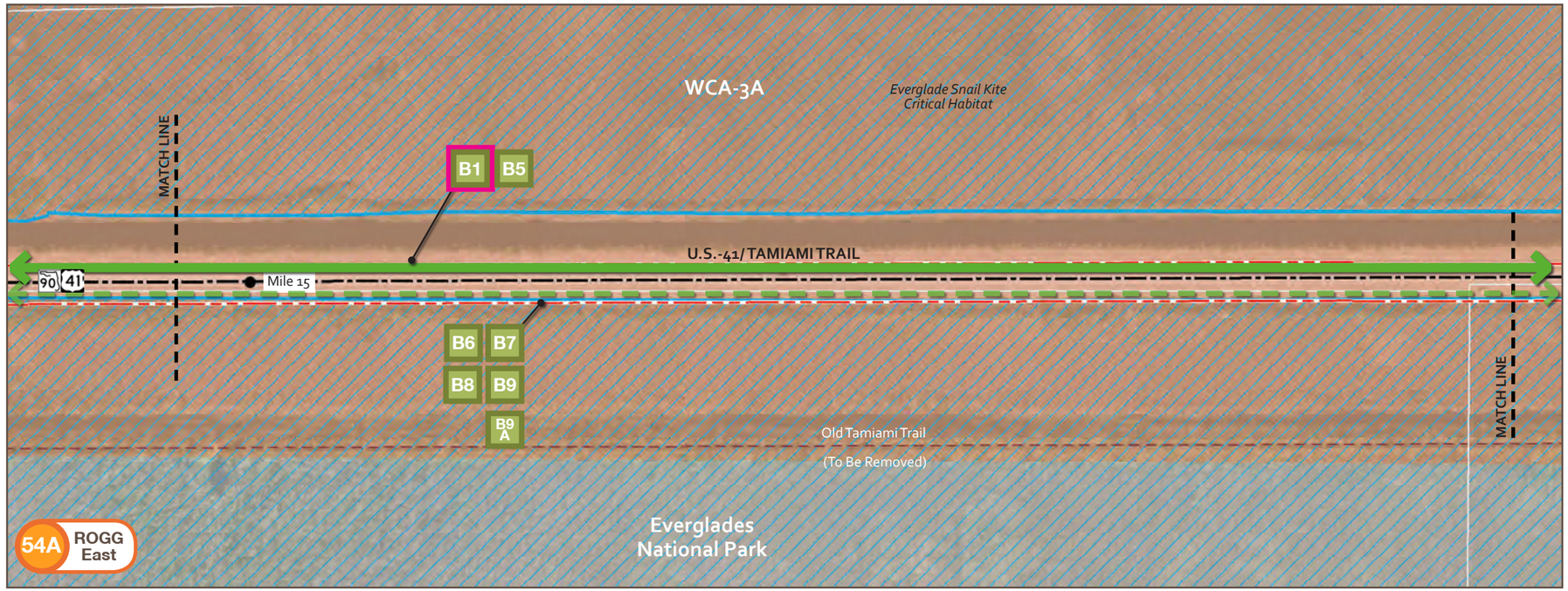

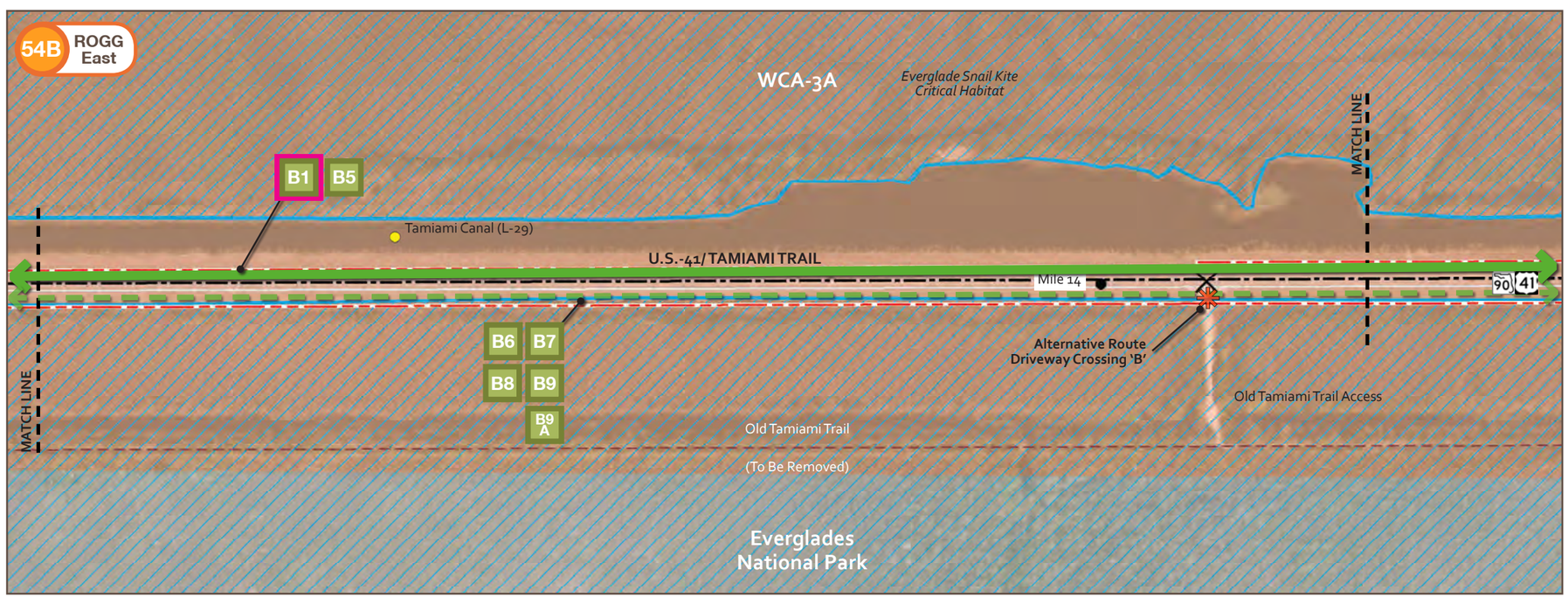

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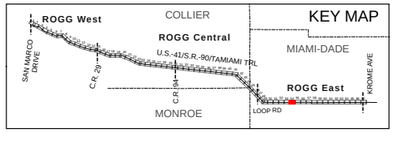
N

0 150 300 600 ft.



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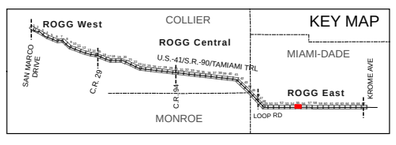

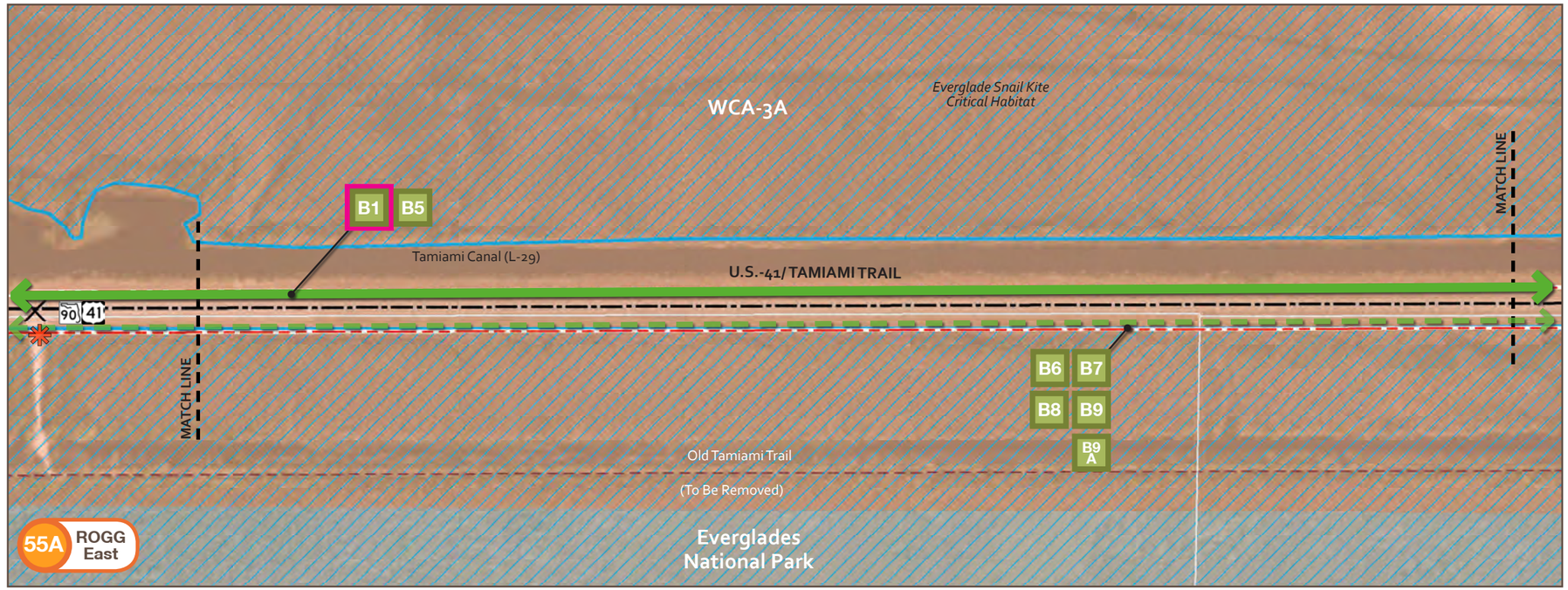

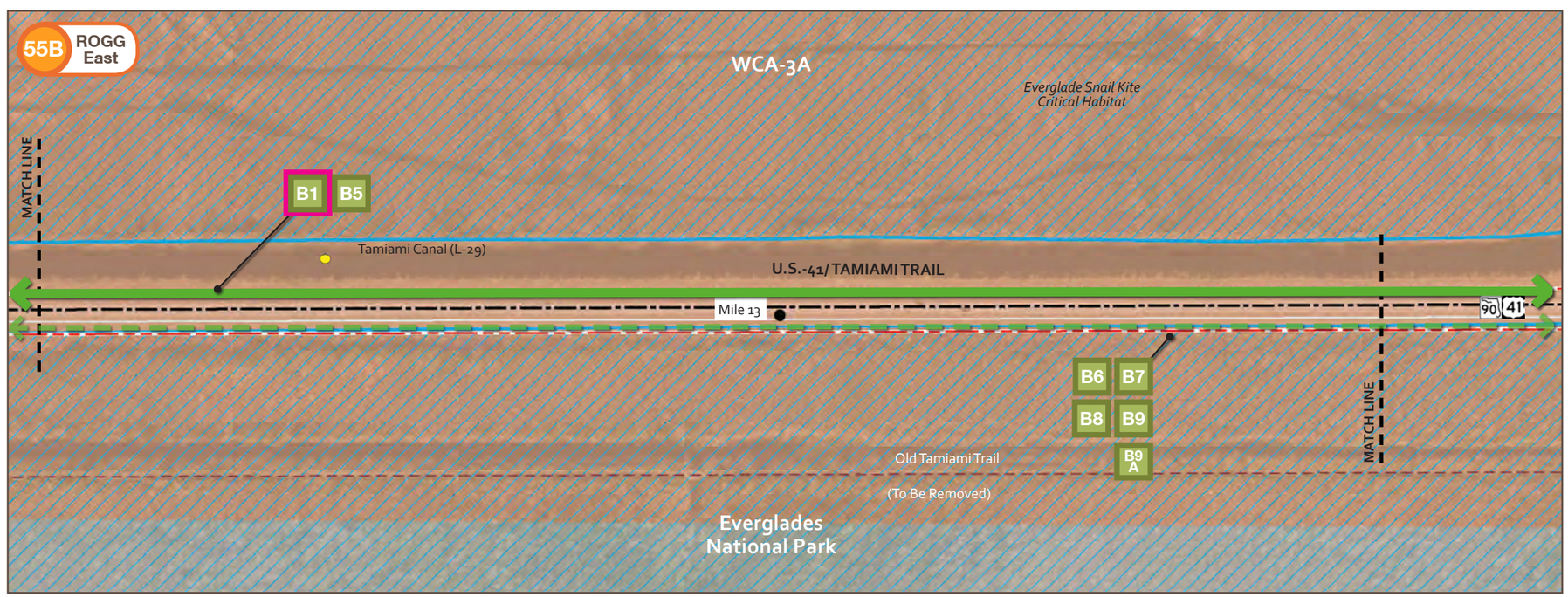

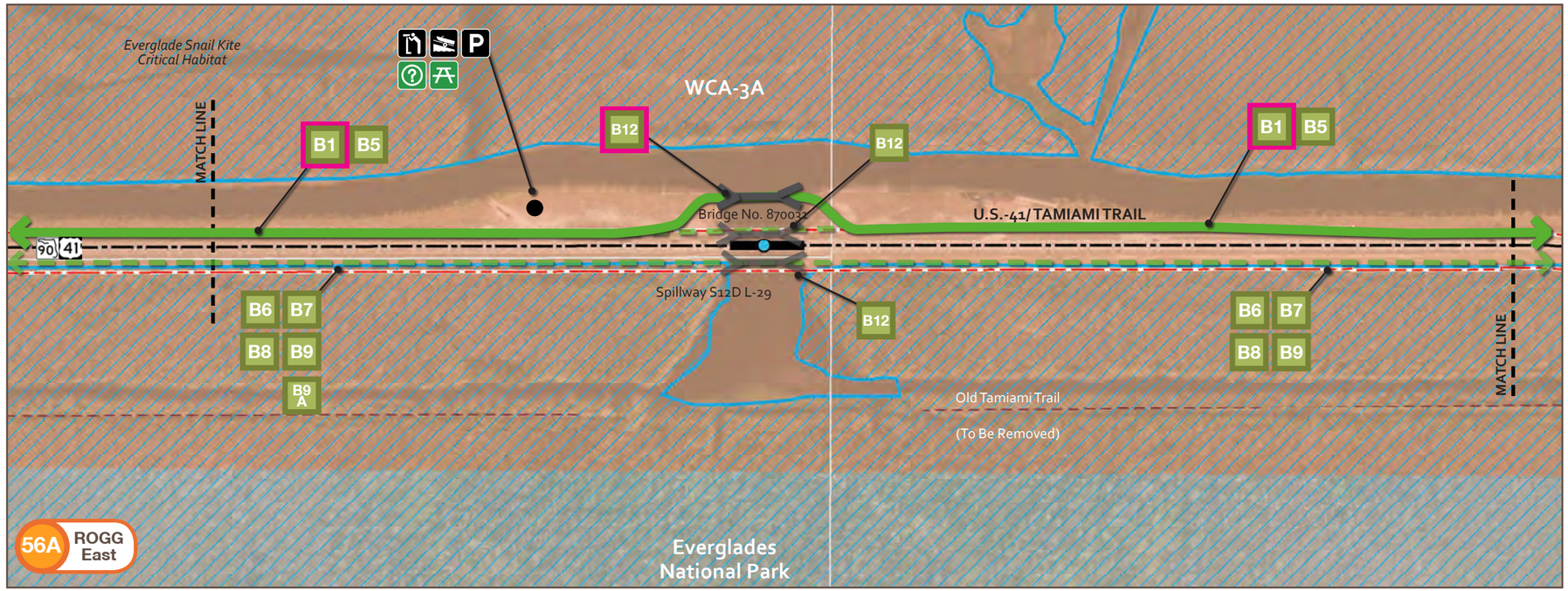

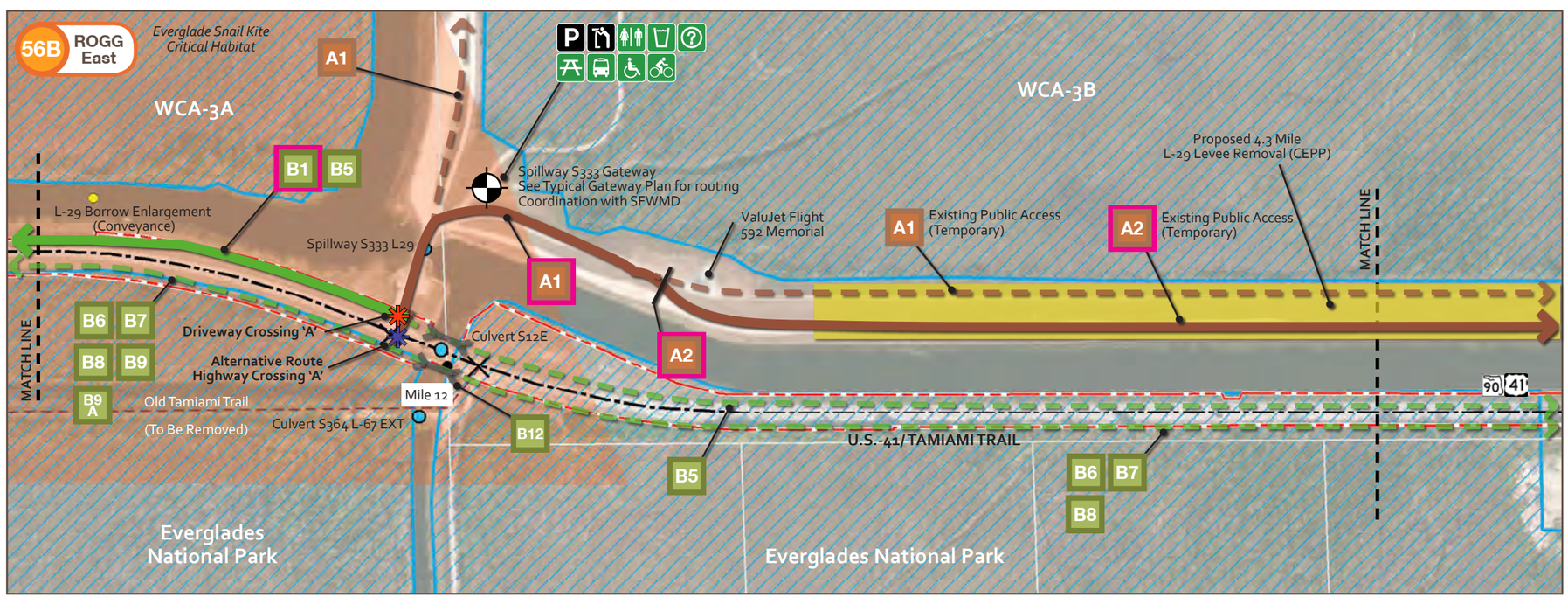

Legend

- Path Section - Regular Alternative (A#)
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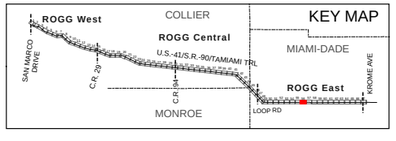
N

0 150 300 600 ft.



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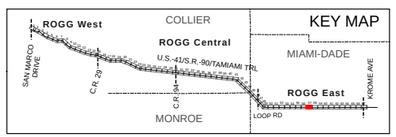

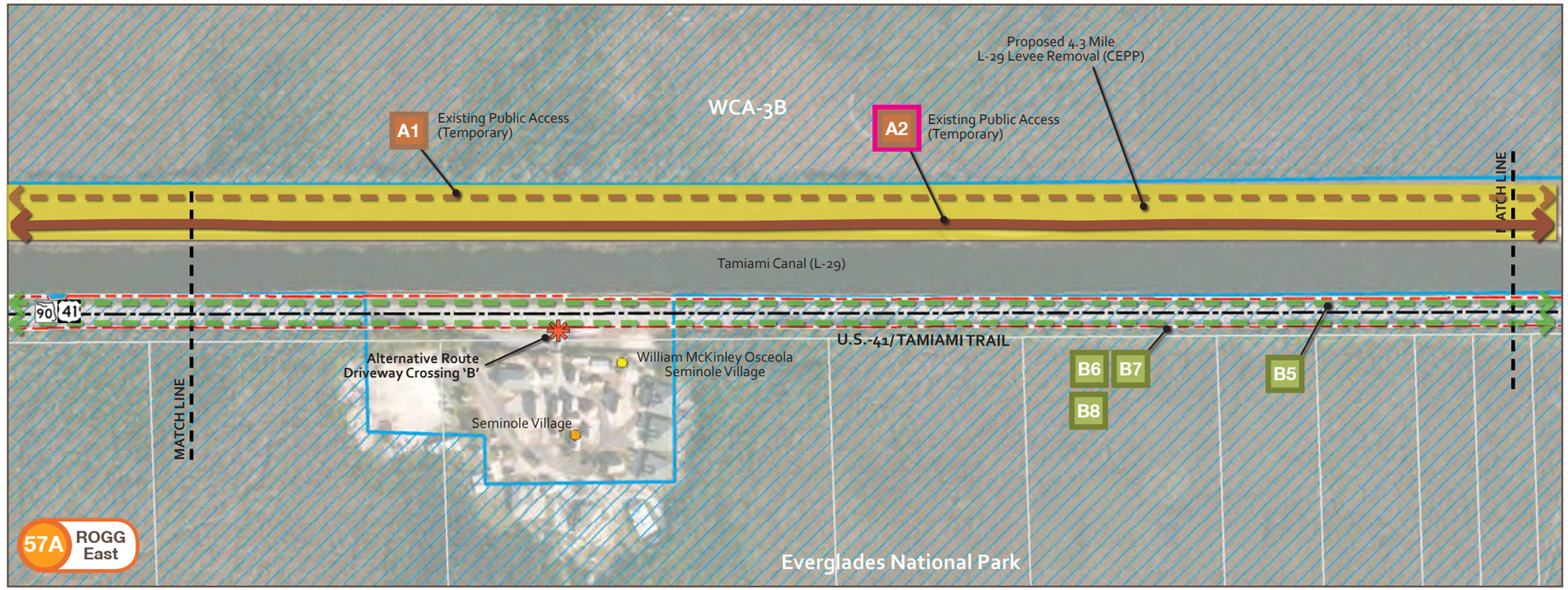

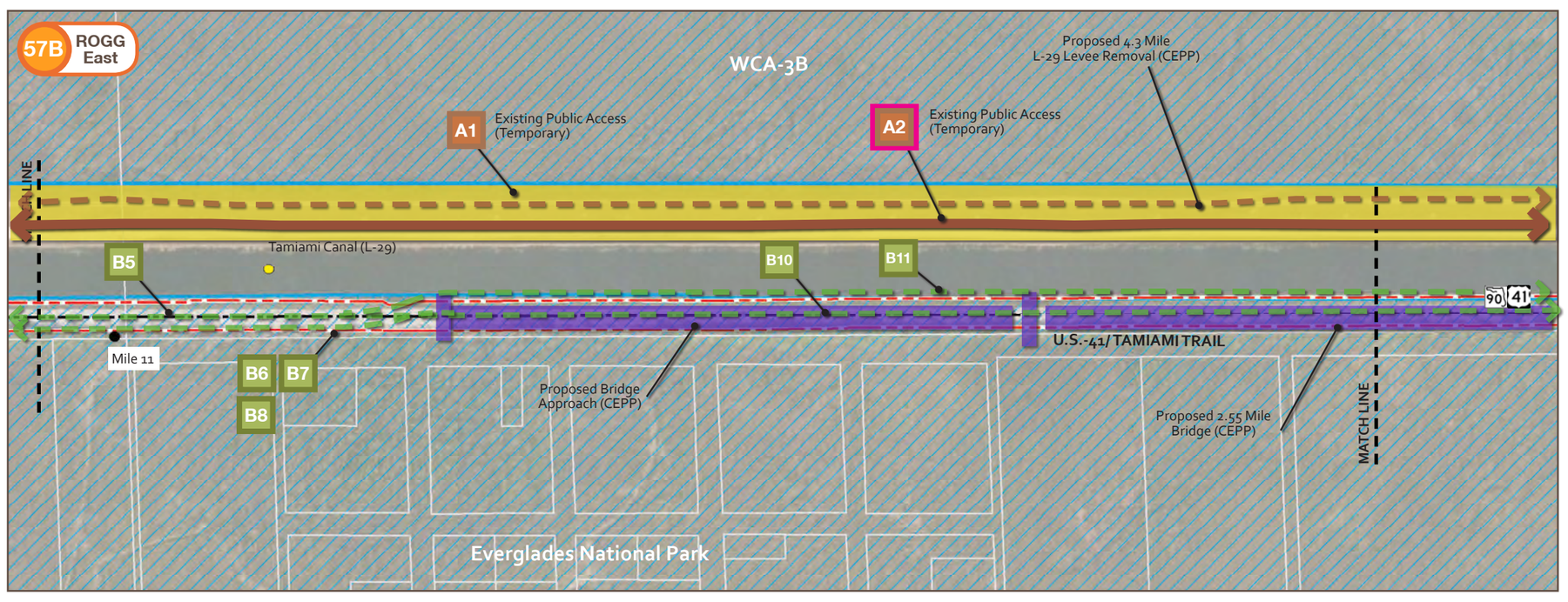

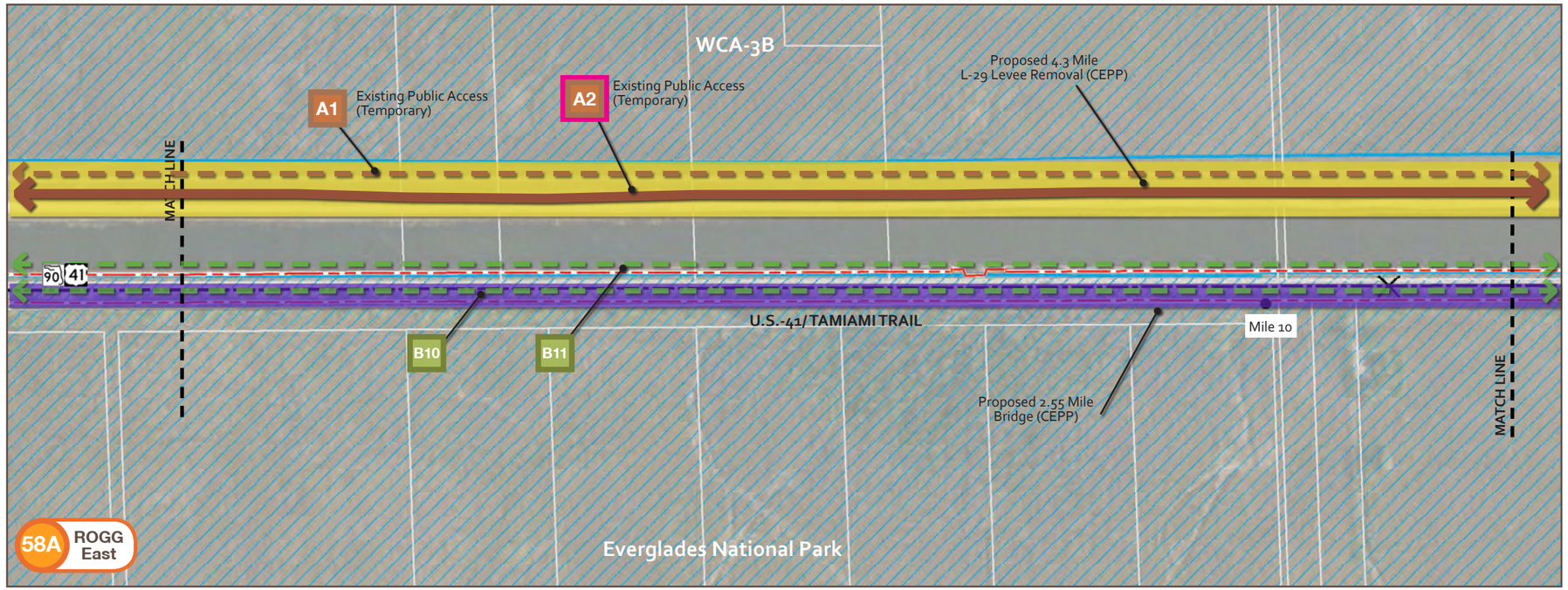

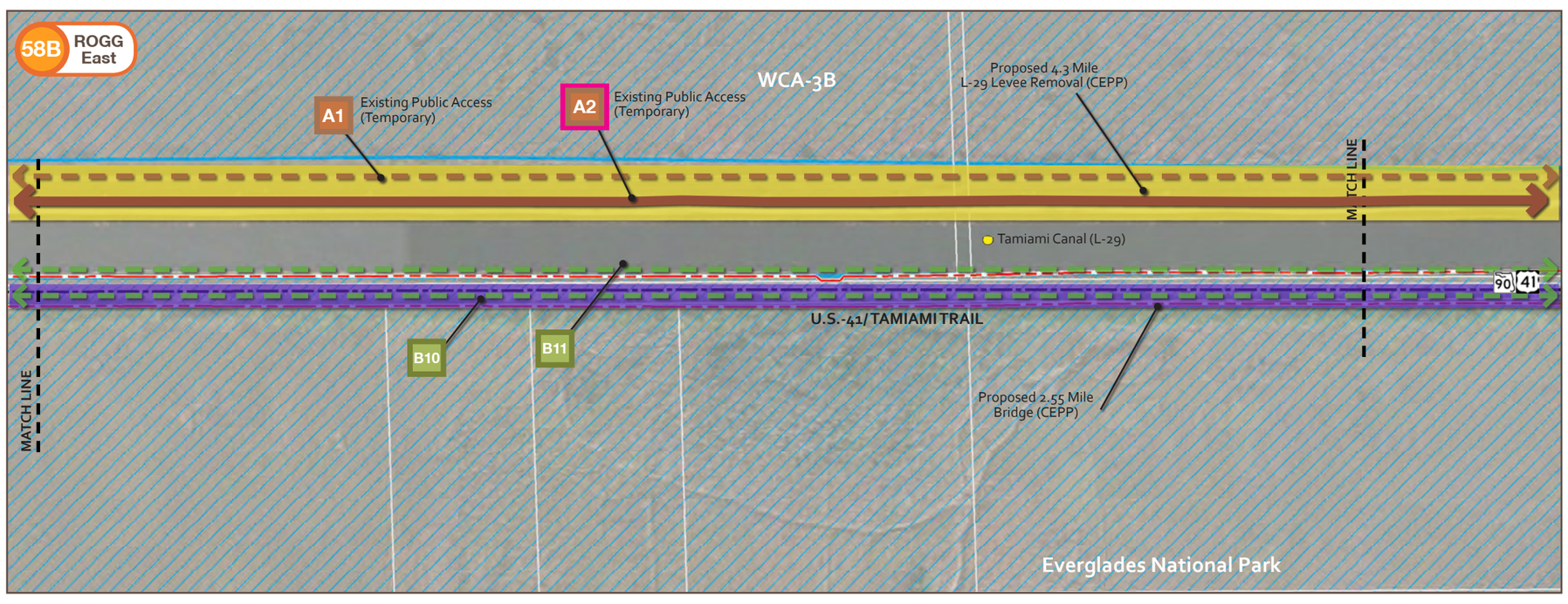

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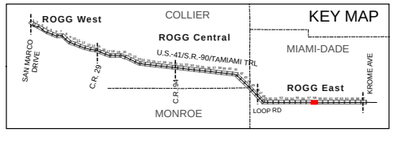
0 150 300 600 ft.



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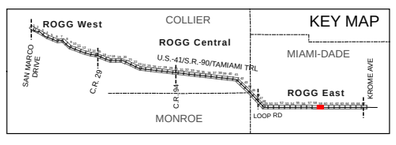

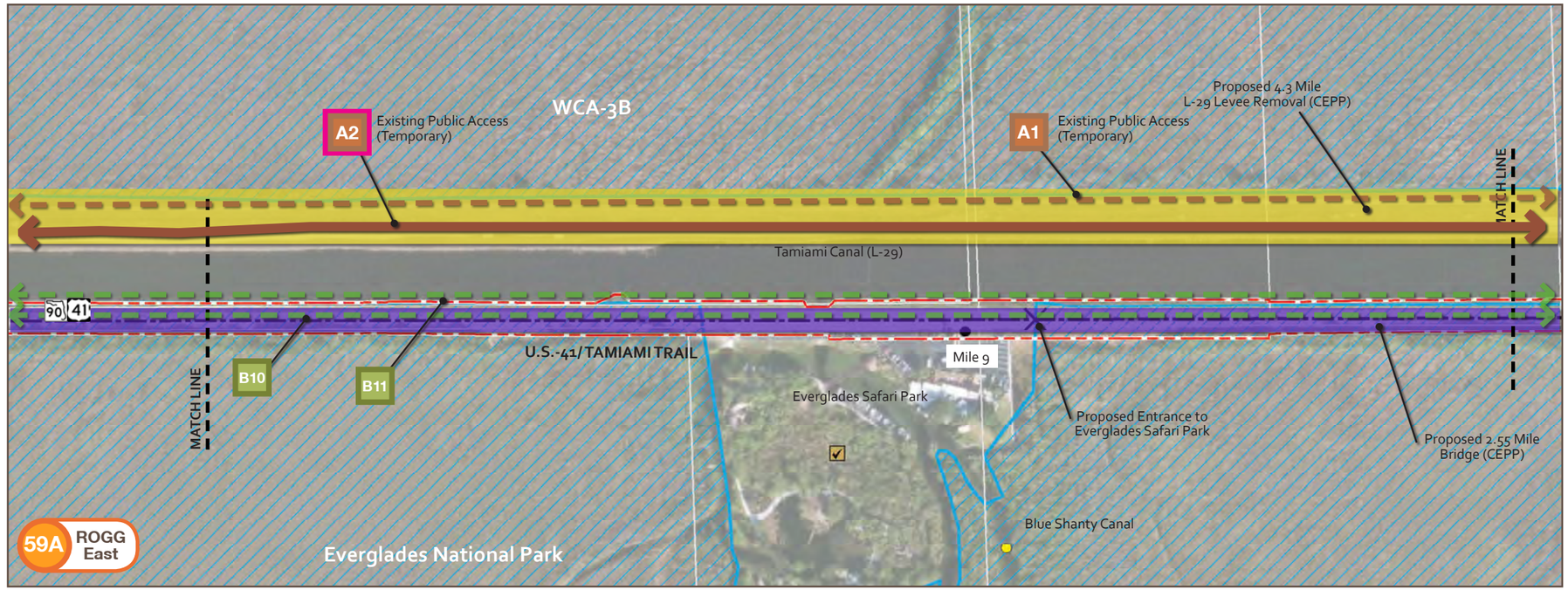

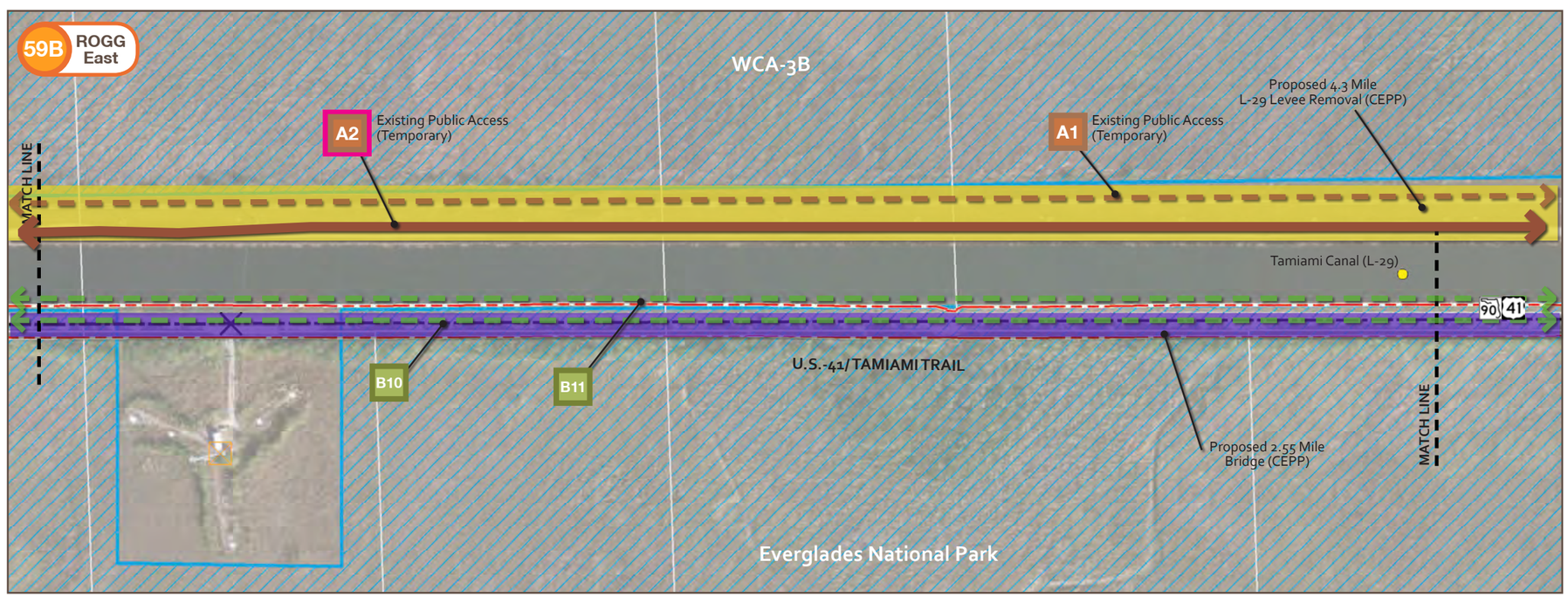

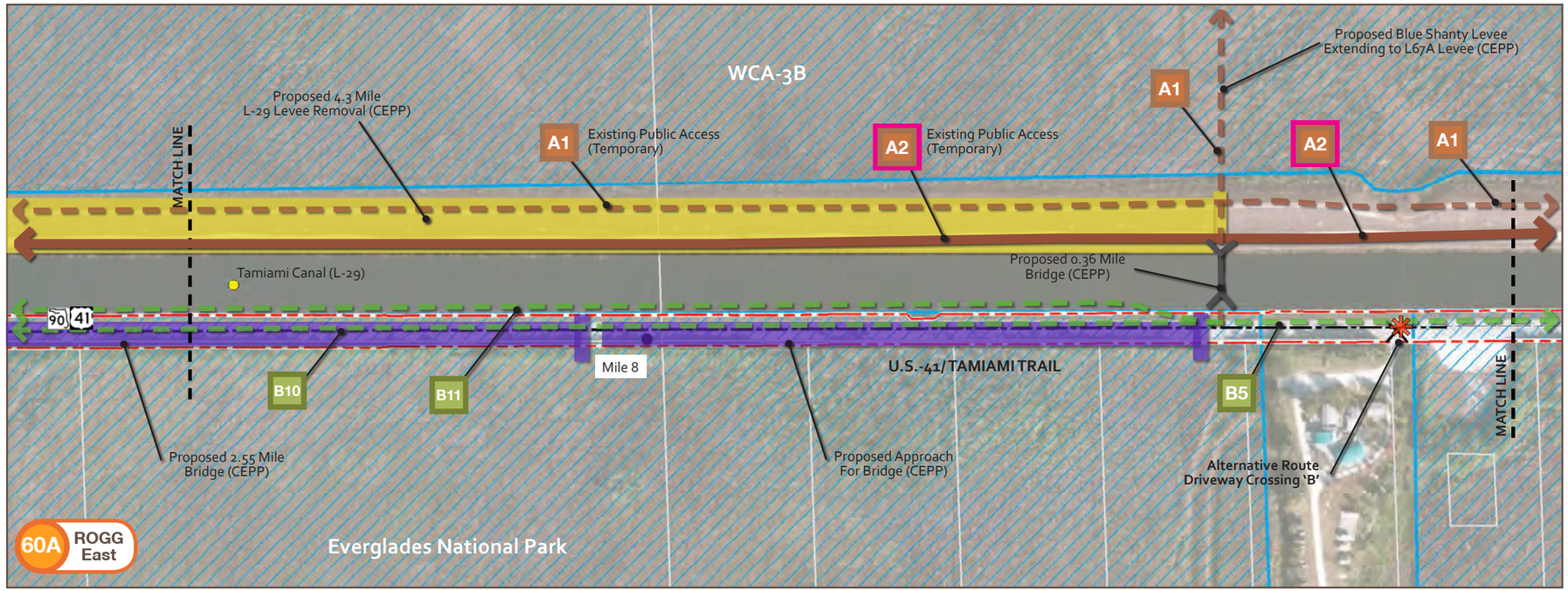

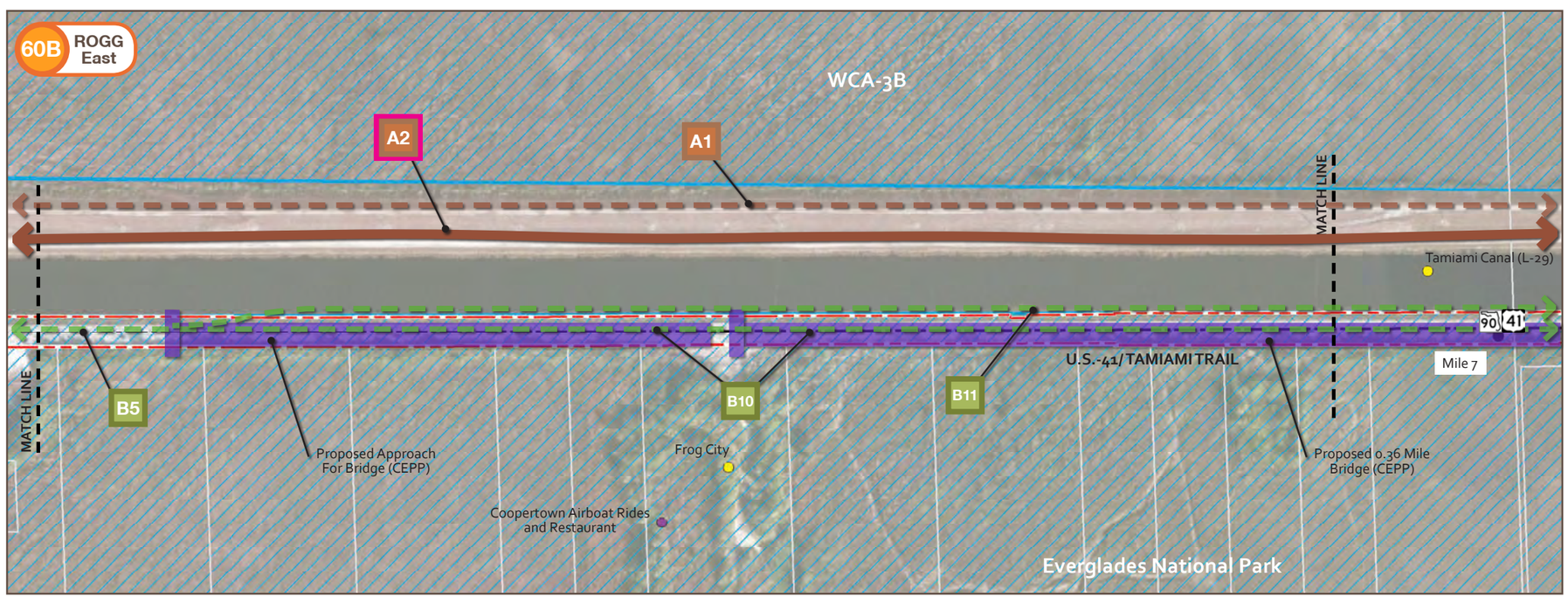

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- Alternative Route
- Gateway
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- Parcel Line
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- Proposed Conservation Save Our Rivers/FF
- Critical Habitat
- Wetland Area

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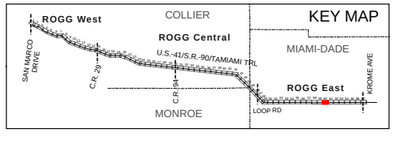

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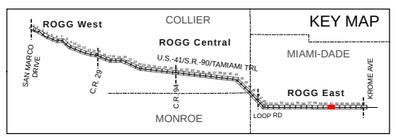

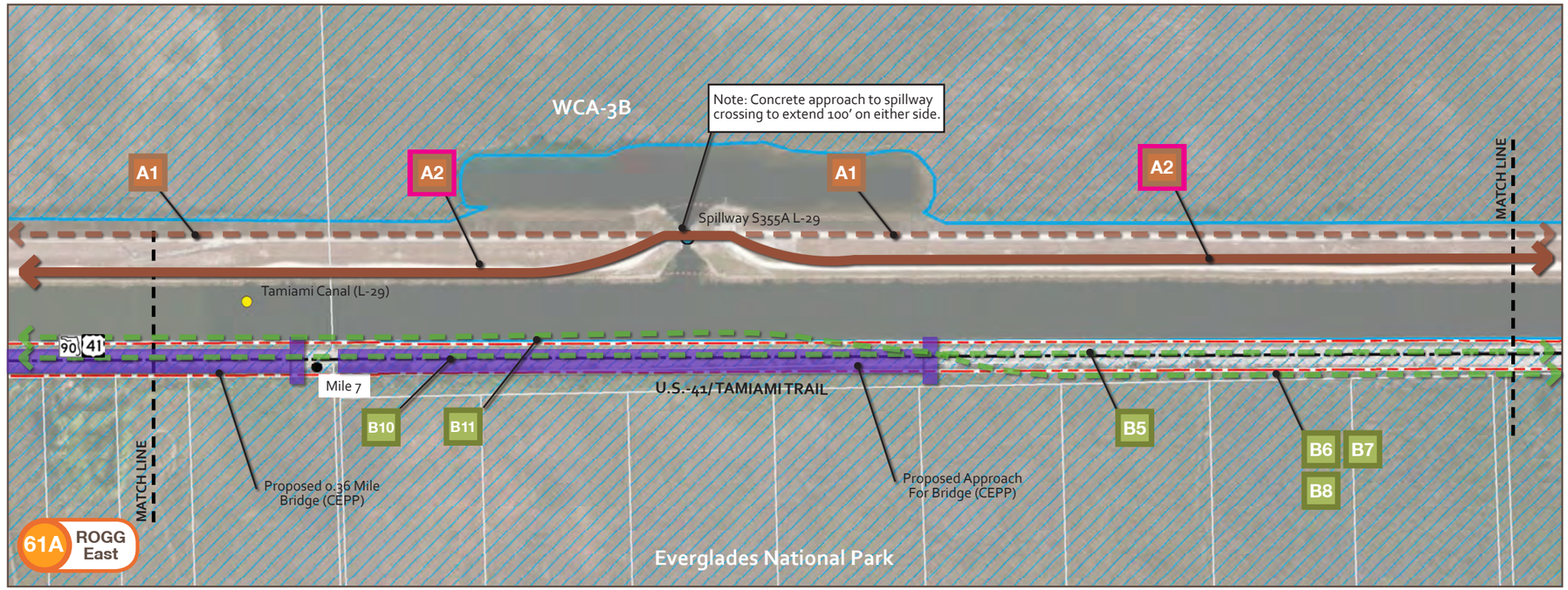

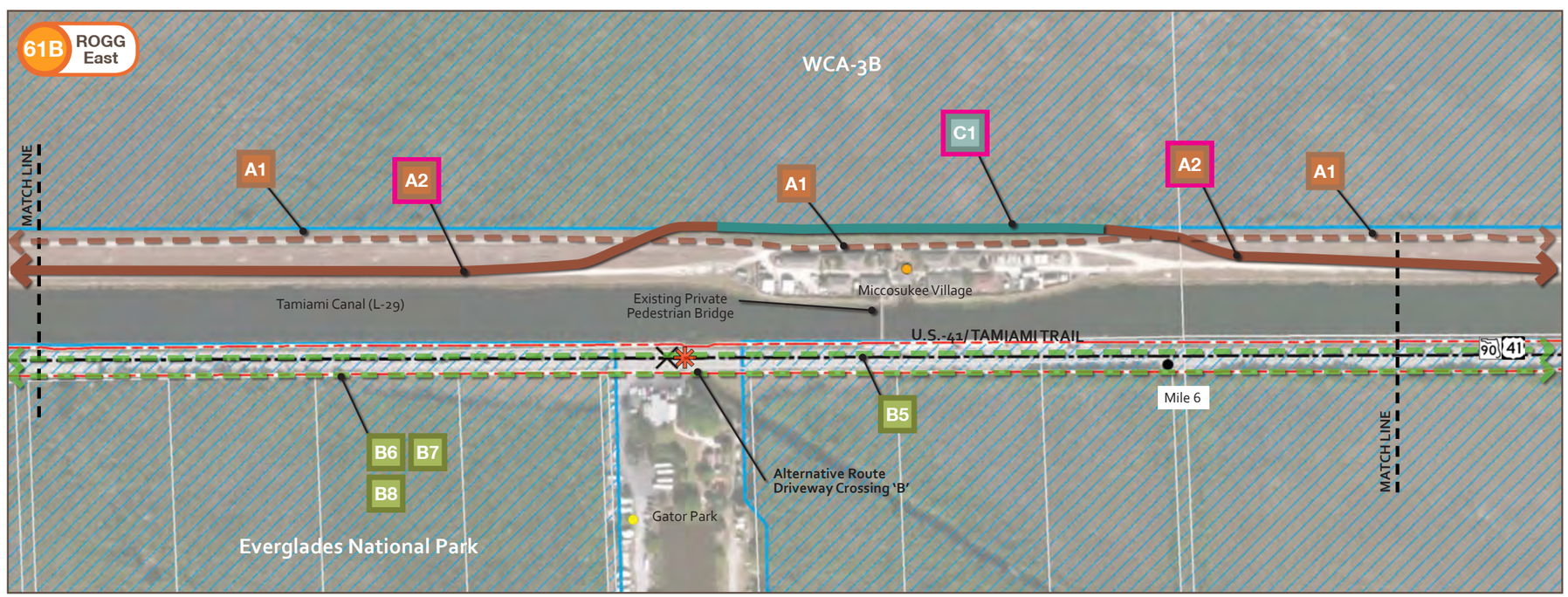

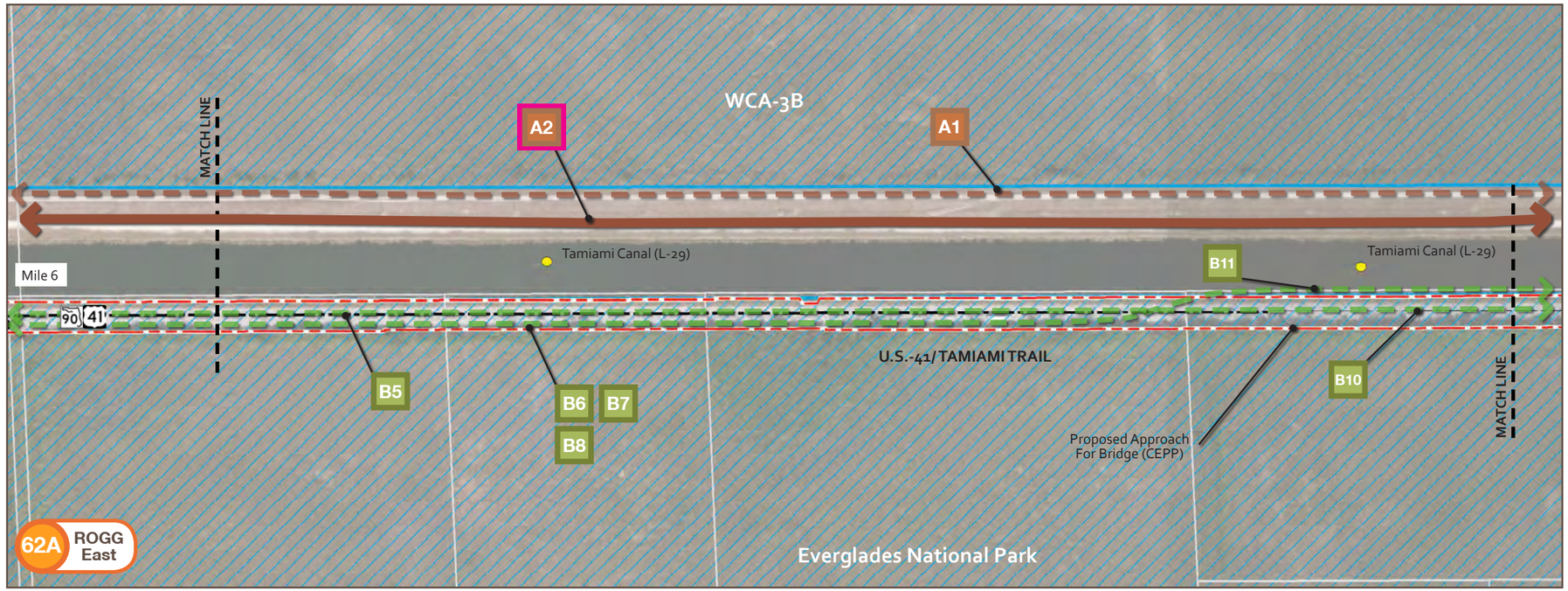

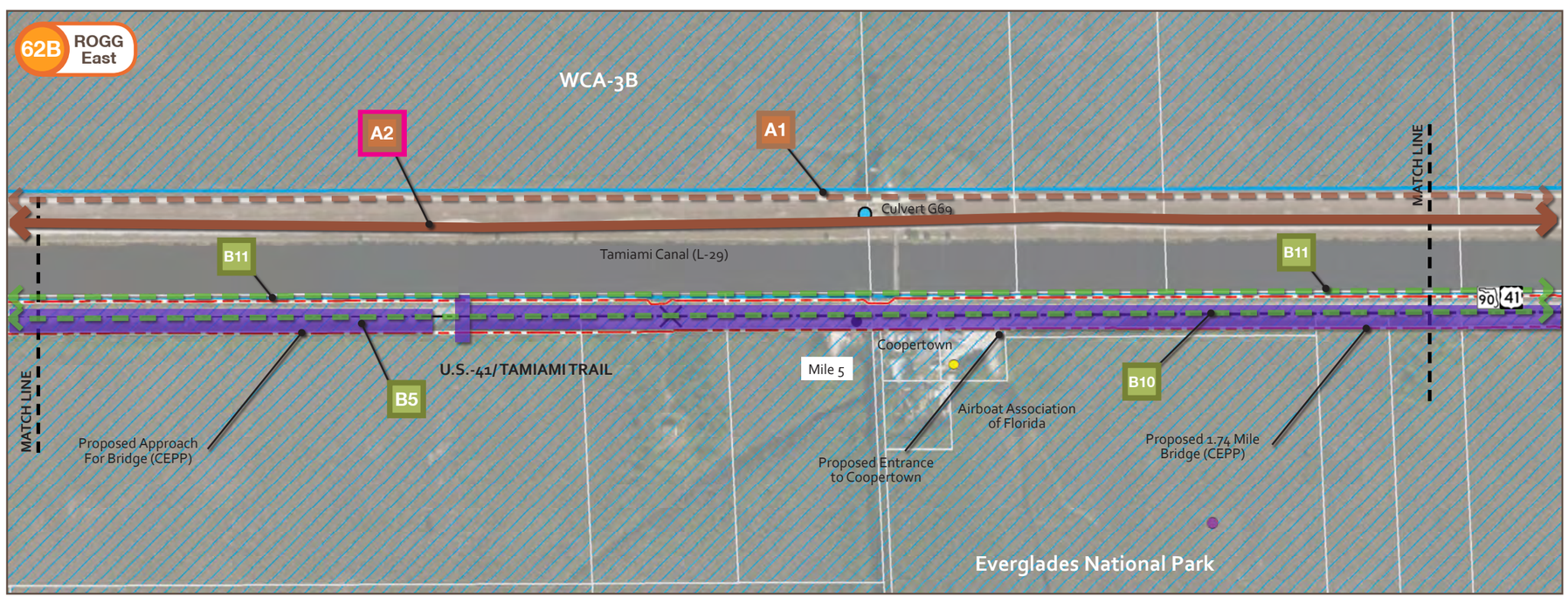

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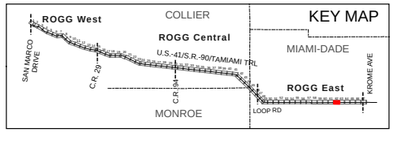

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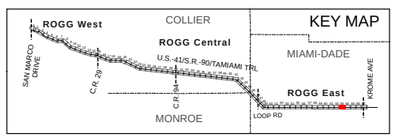

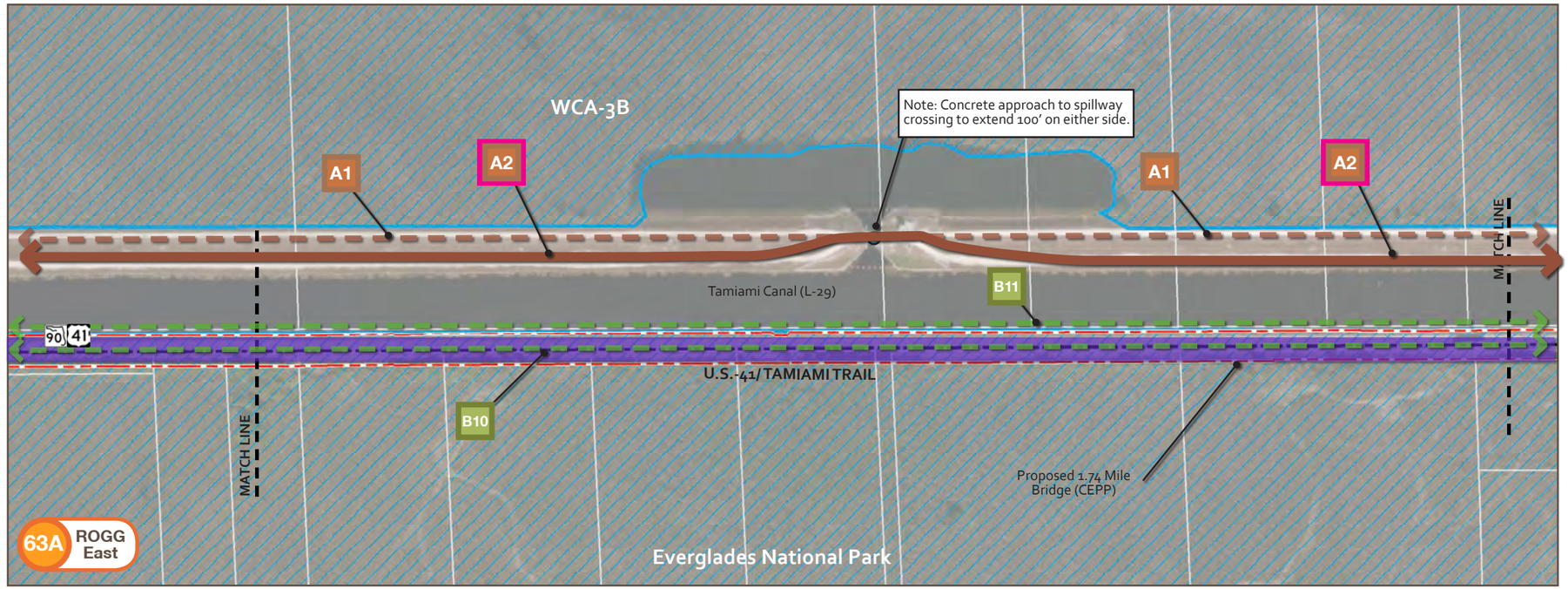

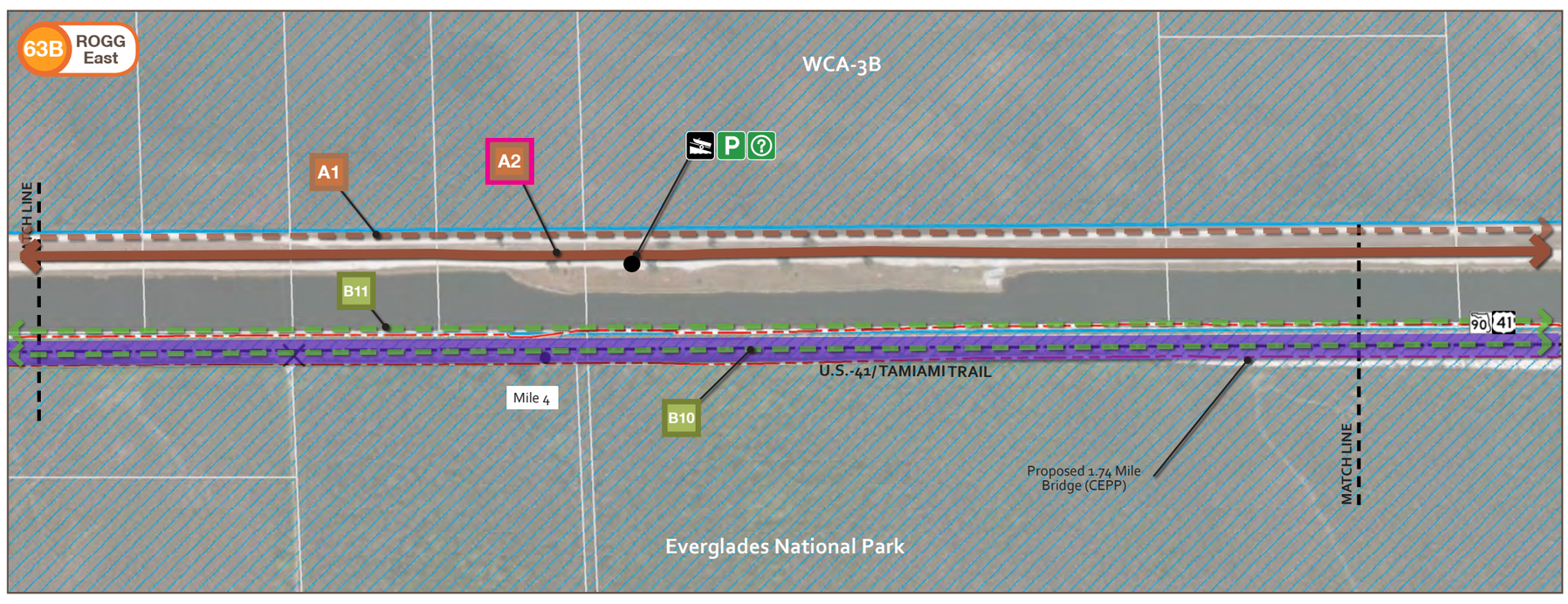

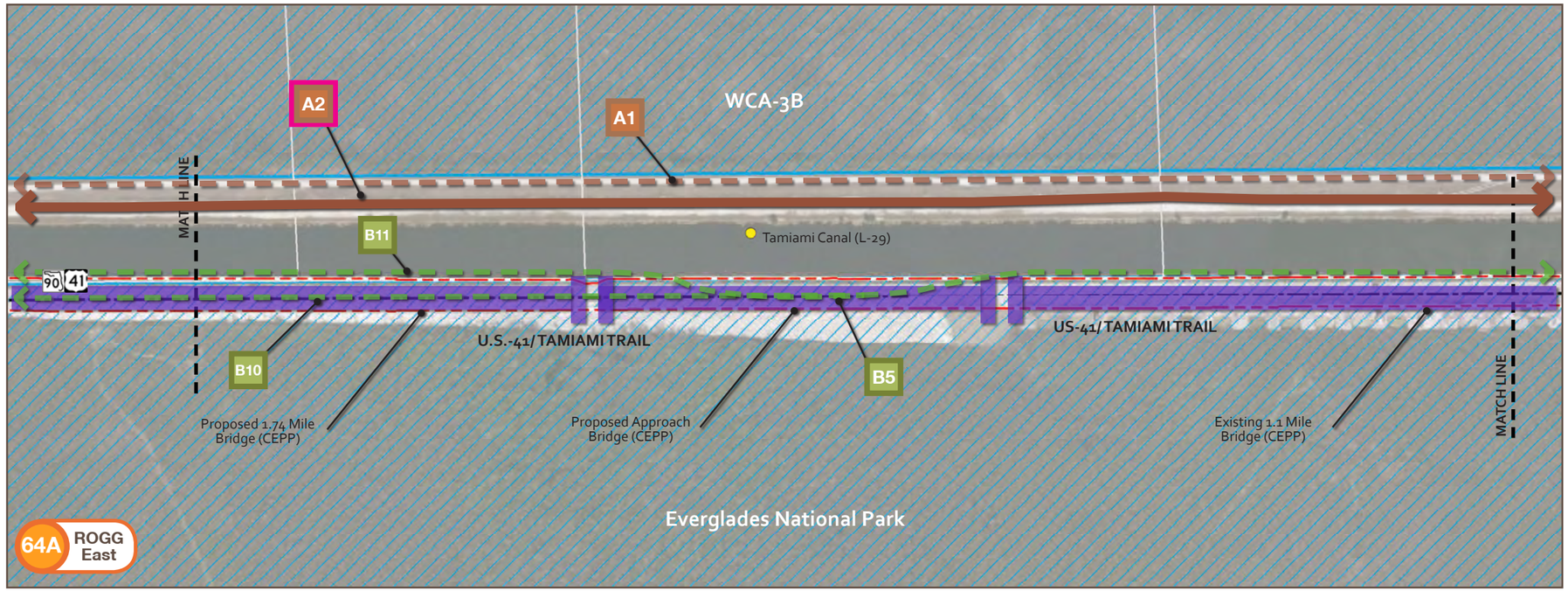

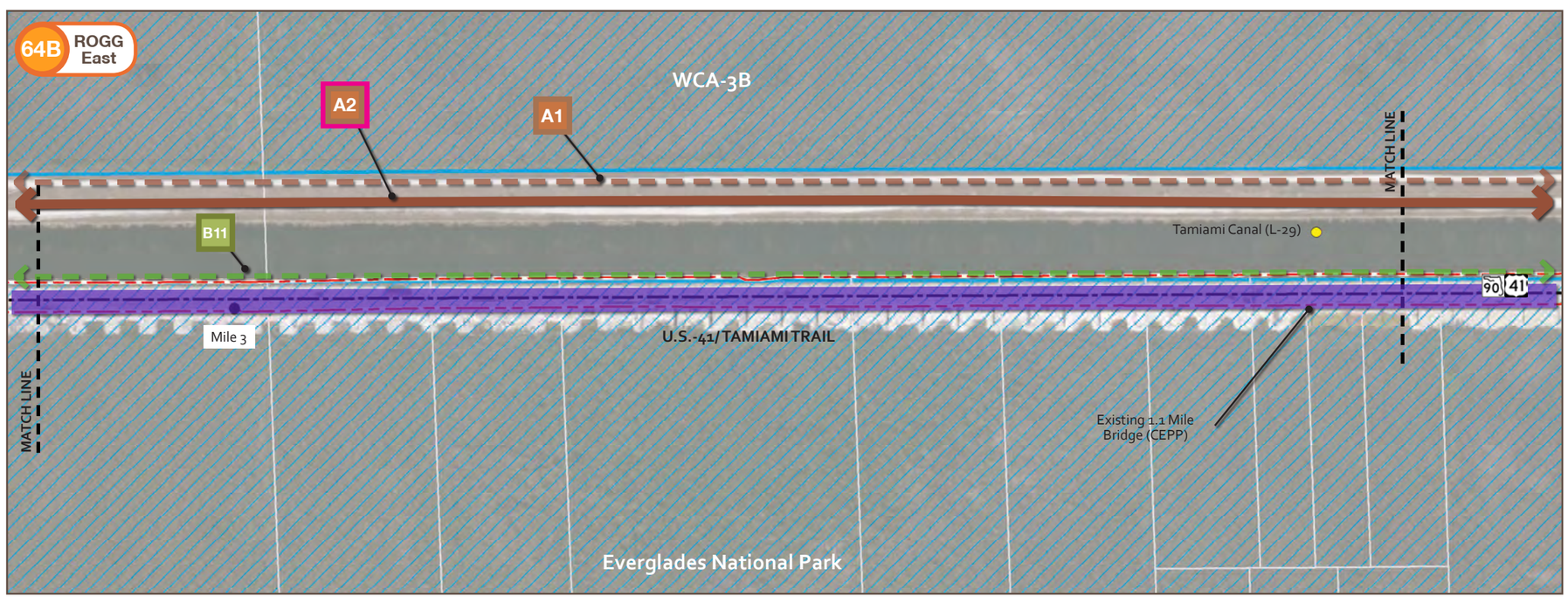

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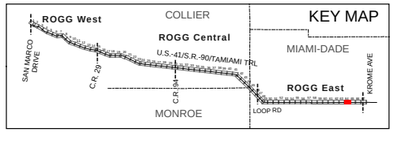

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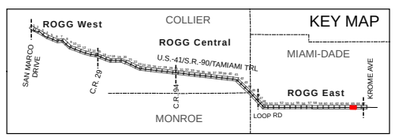

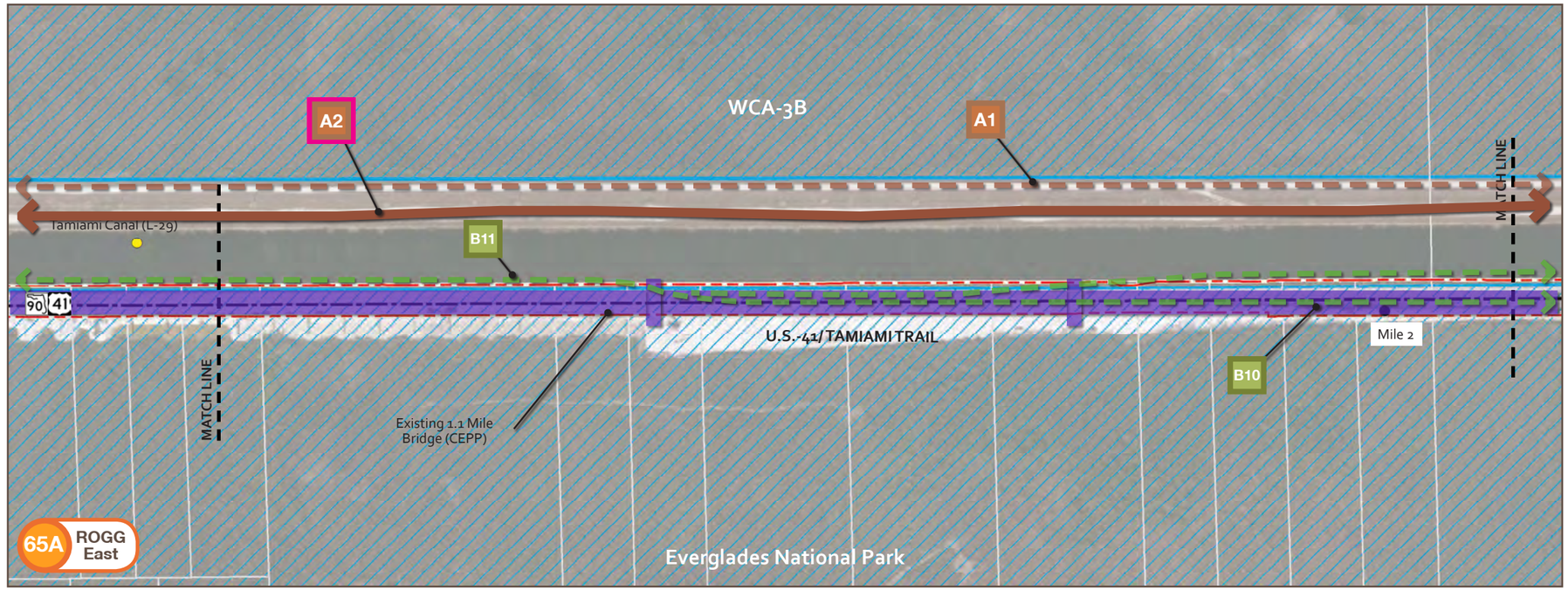

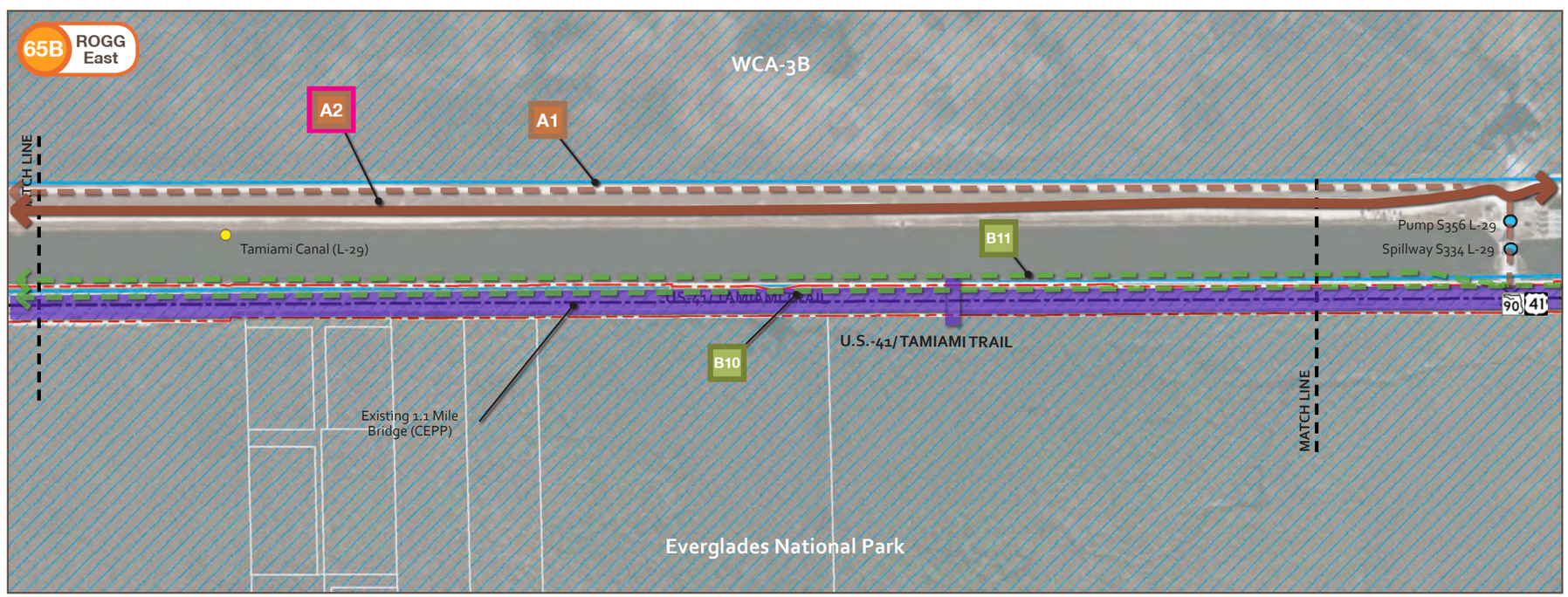

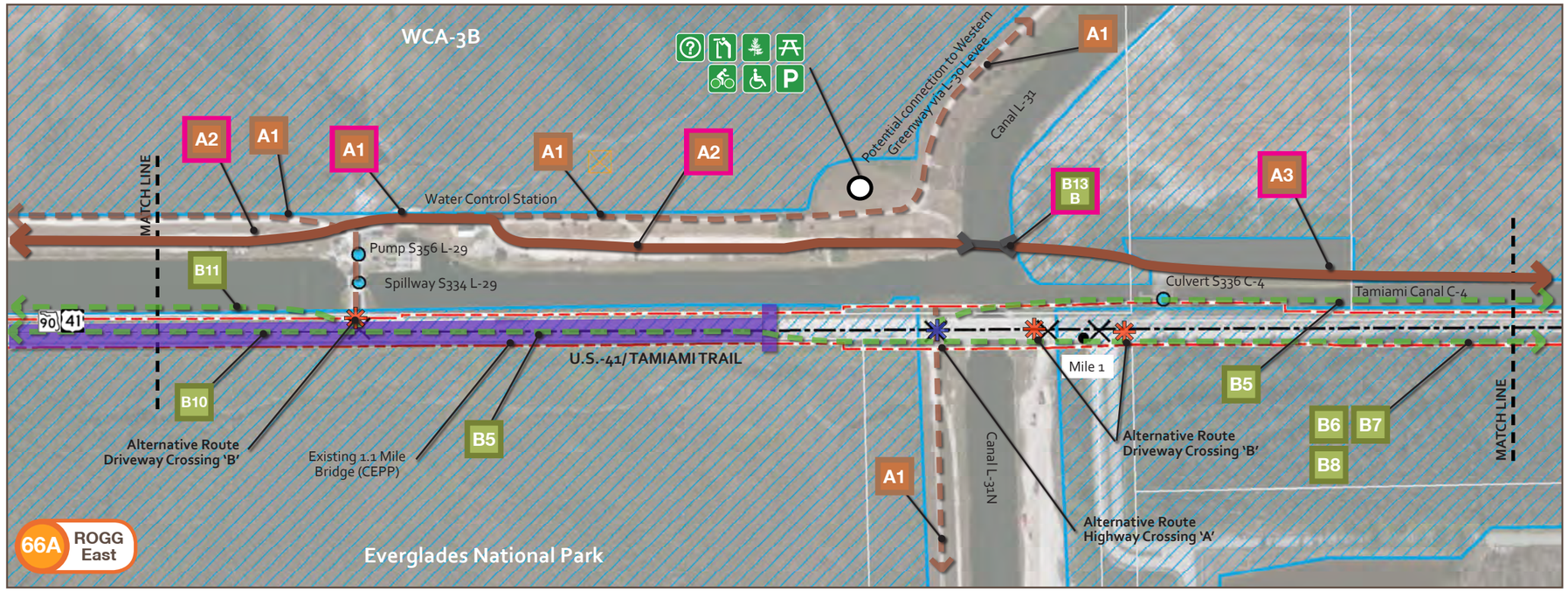

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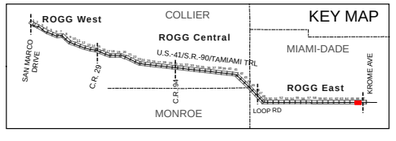

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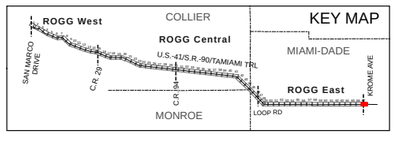
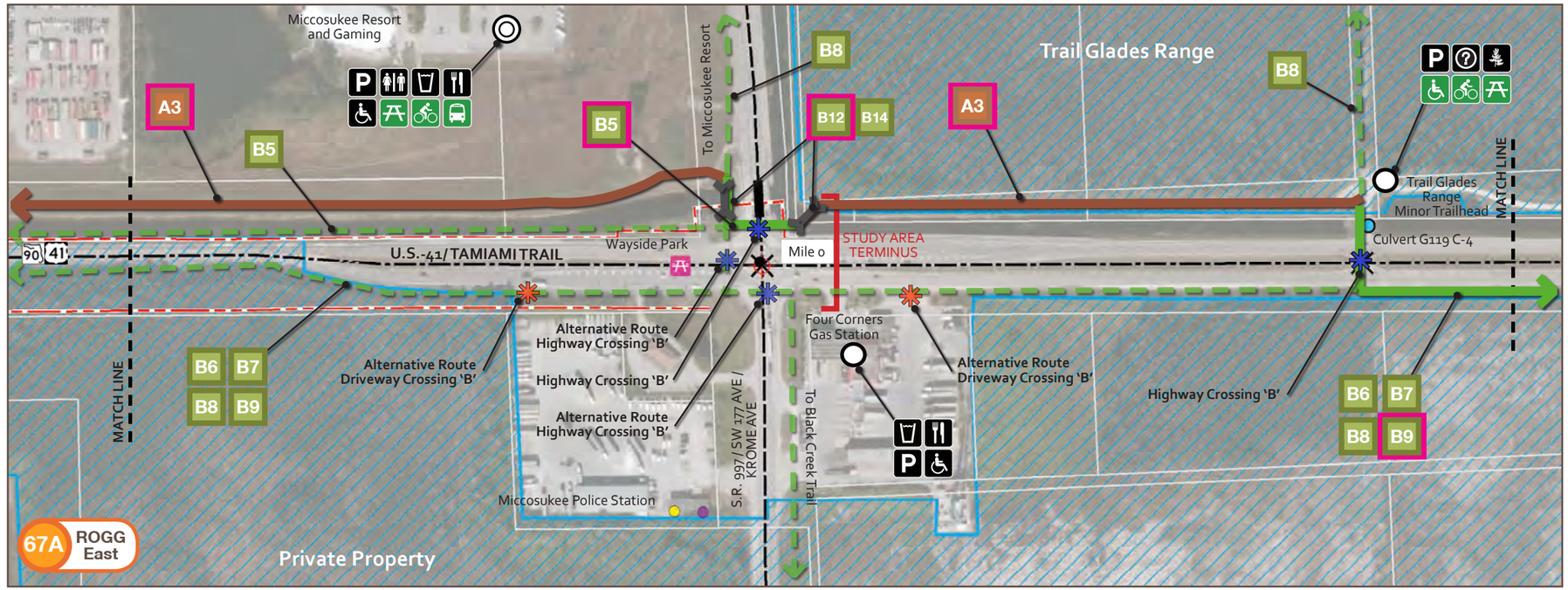
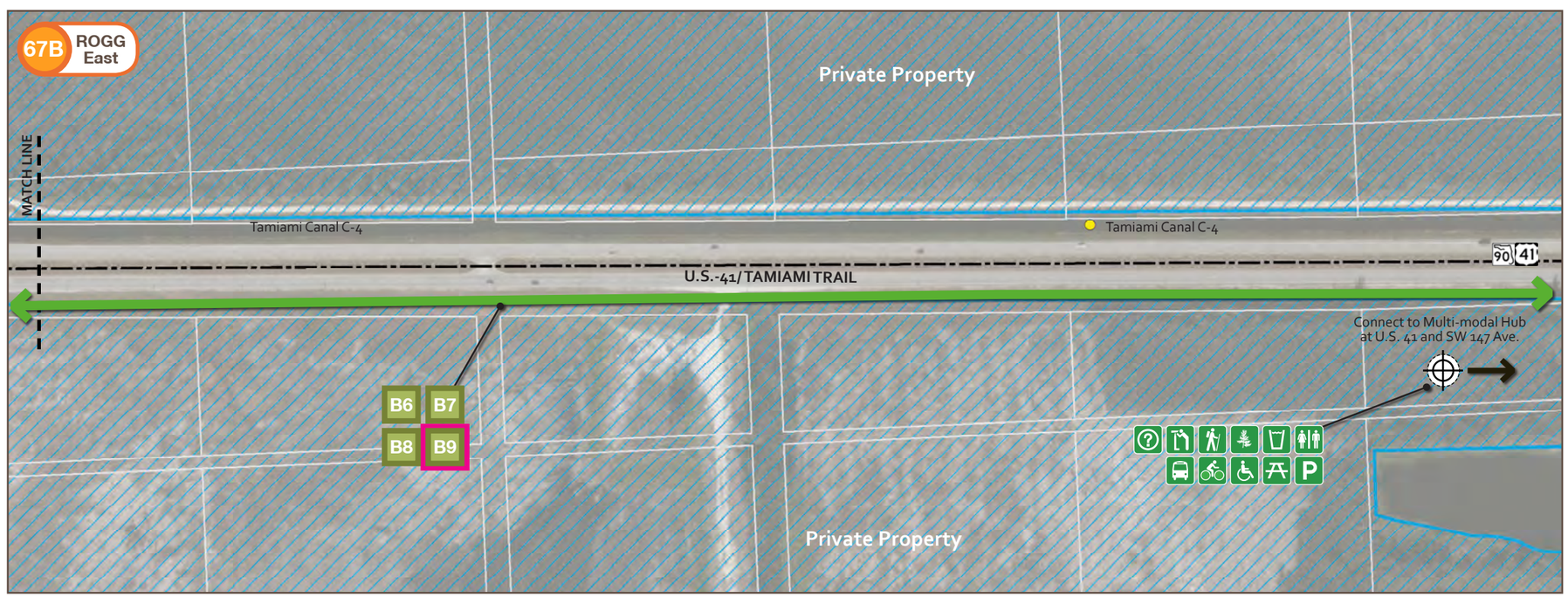
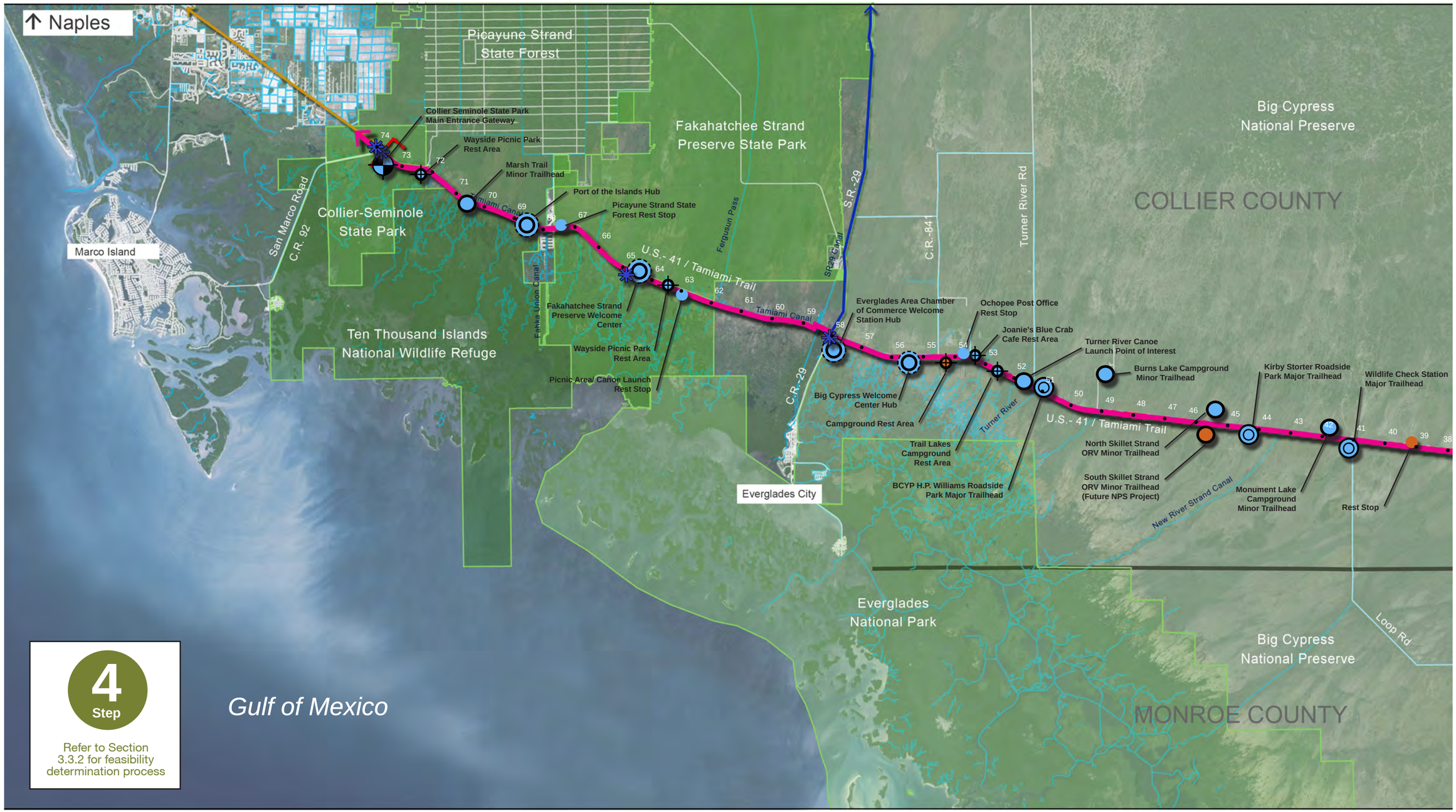






Looking east near Marsh Trail in ROGG West

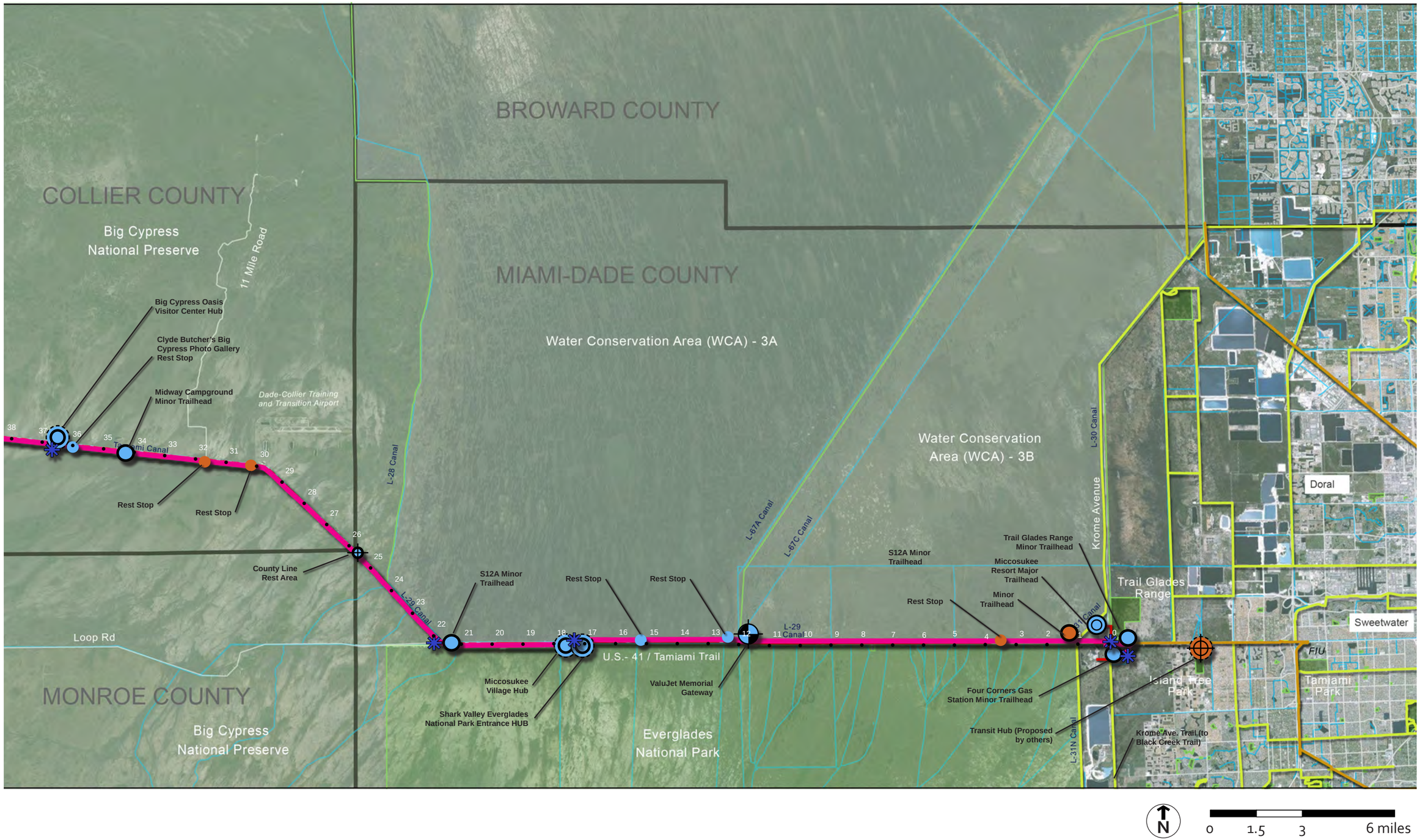
Study Area Map - Prefered Alternative Route and Trailheads



Legend

- Study Area Terminus
- Public Lands (Entity Name on Map)
- ROW
- County Line
- Existing Canal
- Miami-Dade County Greenway
- Broward County Greenway
- Collier County Canoe Trail
- Proposed OGT Priority Land Trail
- Preferred Alternative Route
- Highway Crossing
- Miles from Krome Avenue
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop

Existing / Proposed


BROWARD COUNTY
COLLIER COUNTY
Big Cypress
National Preserve
11 Mile Road
MIAMI-DADE COUNTY
Water Conservation Area (WCA) - 3A
Water Conservation
Area (WCA) - 3B
Big Cypress Oasis
Visitor Center Hub
Clyde Butcher's Big
Cypress Photo Gallery
Rest Stop
Midway Campground
Minor Trailhead
Dade-Collier Training
and Transition Airport
Tamiami Canal
Rest Stop
Rest Stop
County Line
Rest Area
L-28 Canal
S12A Minor
Trailhead
Rest Stop
Rest Stop
L-67A Canal
L-67C Canal
S12A Minor
Trailhead
Rest Stop
Trail Glades Range
Minor Trailhead
Miccosukee
Resort Major
Trailhead
Minor
Trailhead
Krome Avenue
L-30 Canal
Trail Glades
Range
Doral
Sweetwater
FIU
Island Tree
Park
Tamiami
Park
Loop Rd
U.S.- 41 / Tamiami Trail
L-29
Canal
Miccosukee
Village Hub
Shark Valley Everglades
National Park Entrance HUB
ValuJet Memorial
Gateway
Four Corners Gas
Station Minor Trailhead
Transit Hub (Proposed
by others)
L-31N Canal
Krome Ave. Trail (to
Black Creek Trail)
MONROE COUNTY
Big Cypress
National Preserve
Everglades
National Park
N
0
1.5
3
6 miles

3.4 ALTERNATIVE TRANSPORTATION ANALYSIS

"If the greenway movement can help us get back a bit of honest natural beauty and our heritage of historic place, we shall owe it much."

– Charles Little, Greenways for America, 1990

Introduction

Development of the ROGG will provide a wholly new and safe form of transportation that allows users to experience the Everglades in a personal and potential life impacting manner. Never before have visitors or residents of the Everglades experienced traveling parallel to the Tamiami Trail (U.S. 41) on a shared-use path by foot, bike or non-motorized means. Opportunities to explore and sightsee along the path will for once be unconstrained to the limited existing facilities. A better Everglades experience awaits those that will use the ROGG.

The purpose of this section is to document alternative transportation strategies and scenarios that are potentially provided by the ROGG or could work in conjunction with the pathway to ensure higher positive environmental, social and economic benefits. To summarize these alternative transportation strategies and scenarios, this section contains four elements:

- **Overview of Managed Transportation for the ROGG** – This element summarizes the managed elements of transportation within the ROGG Study Area such as transit service, parking management and pathway amenities.
- **Current Alternative Transportation Conditions** – This element describes the existing alternative transportation conditions for such items as transit service, bicycle infrastructure and parking facilities.
- **Alternative Transportation Analysis** – This element analyzes the potential challenges and opportunities posed with the development of ROGG and looks at three scenarios to gauge the impact of ROGG on U.S. 41.
- **Investment and Policy Options** – This element summaries potential investments and policy options that could work in conjunction with ROGG to provide ancillary benefits.

3.4.1 Overview of Managed Transportation for the ROGG

The ROGG, in addition to providing a high-quality recreational and visitor amenity in the Everglades region, offers numerous environmental and transportation benefits through providing a transportation alternative in the U.S. 41 corridor and potentially reducing vehicle use. Although the ROGG may not have substantial impacts on commuting demand in the metropolitan areas at either end of the Study Areas, strategic partnerships to develop transit service, manage parking, and promote bicycle and pedestrian access within the Naples and Miami urbanized areas can offset, and even reduce, vehicle-based travel demand along U.S. 41.

With this in mind, the introduction of these alternative transportation strategies may help to reduce need or demand to drive in order to reach the path access points. The analysis of the ROGG to reduce vehicle trips, presented in this section, suggests that it would actually increase trips without these measures in place. **In order to capture the full potential for environmental benefit, the ROGG's implementation will need to include a series of alternative transportation enhancements and policies, described briefly as follows:**

Transit Service

Because of the ROGG's alignment along U.S.41 through the Everglades, transit service intended to bring visitors to the shared-use path access points would not function in the same way as conventional urban area transit service. Instead, transit may provide focused shuttle service allowing access to major points of interest along the corridor. This may be focused on visitor services and may necessitate a partnership between public agencies and private organizations, some of which currently provide tours and more individualized access to Everglades attractions outside normal service areas for public providers.

In addition, strategic extensions of service currently provided by Miami-Dade Department of Transportation and Public Works (MDDTPW) and Collier Area Transit, or through partners, could fill in gaps between existing transit service areas and the endpoints of the ROGG Study Area. With both of these service providers offering bicycle racks as standard features on their buses, this could be a short-term and relatively low-cost way of expanding access to the ROGG and allowing a greater number of year-round residents to access the pathway without requiring an automobile.

Parking Management

Existing parking facilities along U.S. 41 have extended distances between locations, which has prompted many visitors to park along the highway. This is already a dangerous practice given the high vehicle speeds on U.S. 41 and the limited widths of the roadway shoulder. It is critical for parking to be managed in a way that facilitates continued dispersed recreational access but recognizes areas of greatest demand such as the Shark Valley Entrance to Everglades National Park. Strategic pricing is one of the most effective ways to achieve this, and when coupled with use of enhanced transit service to highly visited destinations, can reduce vehicle demand on U.S. 41 by keeping visitors from driving no further than needed.

Improved Cycling Amenities, Shared Bicycles and Shared Vehicles

Visitors to the ROGG will want to explore sections of its length, making cycling and driving attractive options over walking between destinations, especially outside of the cooler season when heat and humidity make walking long distances impractical and unappealing. However, with a scarcity of existing off-road parking, vehicles coming from outside of the ROGG Study Area have few options for parking. Coupling transit-based access from outside of the ROGG Study Area with available vehicles and bicycles for sharing within the corridor can further encourage visitors not to drive, but rather to use these vehicles as they desire to move from point to point along the corridor. Car2go (for shared vehicles) and Citi Bike Miami (for bicycles) are private organizations already providing these services in the Miami metropolitan area, and their point-to-point user model and successful experiences with marketing to visiting populations suggest that they could be strategic partners in developing a consolidated transportation management program for the ROGG.

Summary of Managed Transportation

The Trip Reduction Impact Analysis (TRIA) model, an analysis tool used to estimate potential for vehicle trip reduction through use of specific transportation management strategies, determined that while expected vehicle demand for accessing the ROGG could be offset using existing transportation programs and services, a more extensive and strategically organized set of transportation management measures could actually reduce traffic on U.S. 41 and improve the overall travel experience for ROGG users and travelers along U.S. 41.

Important note: Projected reduction is a combination of all of the measures described, and not simply an application of those that are the lowest cost or least difficult to organize. Each part is key: enhanced and targeted transit service along U.S. 41 paired with strategic expansions to bicycle and pedestrian networks in the Naples and Miami urbanized areas, allowing visitors to access the shared-use path without driving, management of parking at highly visited destinations for those who choose to drive, and alternatives to external driving access for times and distances where vehicle or bicycle access are desirable can help to ensure that visitors view transit-based access as a feasible and desirable approach.

Cyclists traveling along a shoulder of U.S. 41 near the Shark Valley entrance of Everglades National Park

3.4.2 Current Alternative Transportation Conditions

This section focuses on the current conditions of alternative transportation forms within the ROGG Study Area. For a review of existing highway conditions and their potential implications to the planning and design of ROGG see Section 2.1.7 of this report.

Transit Service

There are two transit service operations within biking or walking range of the ROGG Study Area. Collier Area Transit provides service throughout much of Collier County and includes shared express service with Lee County, potentially expanding transit access to Lee County and beyond. MDDTPW offers the greatest extent of public transit with several routes within bicycling distance of the ROGG Study Area. Both public transit service providers have the potential to include new or expanded service on extending nearby routes to access existing trailhead facilities such as Trail Glades Range in Miami-Dade County and Collier-Seminole State Park in Collier County. A third type of transit is also present, private shuttles. This option is readily available in both Collier County and Miami-Dade County and typically includes a charge for transportation with recreation activities or amenities provided such as kayaking, biking, airboating or hiking.

Collier Area Transit (CAT)

Each of the metropolitan areas at either end of the ROGG Study Area provides public transit service, though the extent and complexity of service varies with the population of each. Collier Area Transit (CAT) operates 16 fixed routes and complementary ADA paratransit in the Naples region, as well as a new connection to Lee County called LinC. Service is available seven days per week from 6:00 AM to 7:30 PM. In recent years, CAT has invested in several new technologies to make service easier and more convenient for passengers, including Next Bus technology which allows passengers to see on a map where the bus is located and when it will arrive at their stop, and electronic fareboxes which allow passengers to use electronic fare cards to pay instead of cash and coins. As is increasingly common throughout the United States, bicycle racks are available on all buses and can accommodate up to two bicycles.

CAT's Route 24 is the transit route that is closest in proximity to the ROGG Study Area, with an eastern terminus approximately 3.5 miles from the western end of the ROGG Study Area. Route 24 operates from the Collier County Government Center at U.S. 41 and Airport Road east to the Big Cypress Marketplace at Basik Drive on U.S. 41. The bus makes eight trips per day Monday through Saturday and six on Sunday. At one time, CAT did operate a route into Everglades City, but has not for several years. In addition, LeeTran in Lee County operates 23 fixed routes, including a commuter route operated jointly with CAT that connects to CAT service, therefore extending the transit network accessible within 3.5 miles of the ROGG Study Area into Lee County.

Miami-Dade Department of Transportation and Public Works (MDDTPW)

Miami-Dade Department of Transportation and Public Works (MDDTPW) is Florida's largest transit agency and one of the largest in the United States. It operates 90 routes of local and express bus service and one bus rapid transit line (the South Dade Busway), utilizing a fleet of 800 buses all equipped with bicycle racks. In addition, MDDTPW operates Metrorail, Florida's only rapid transit heavy rail service, connecting Kendall in Southwest Miami, Downtown Miami, the Miami International Airport, and Hialeah, and the southern terminus of South Florida's Tri-Rail commuter rail service. MDDTPW's overall network connects all portions of the urbanized area of Miami-Dade County, including locations frequented by visitors and tourists such as Miami Beach.

Several MDDTPW bus routes terminate within a few miles of the eastern terminus of the ROGG Study Area, including Routes 24, 40, 51, 56, 72 and 137. The routes with the most direct connections to downtown Miami and Metrorail terminate slightly further east but are still potential candidates for westward extension to connect with the ROGG. This includes Route 8, which operates along SW 8th Street (Tamiami Trail/ Calle Ocho) and terminates at SW 107th Avenue, approximately seven miles east of the ROGG Study Area. Route 11 operates along West Flagler Street and also terminates at SW 107th Avenue. Route 24 operates along SW 26th Street (Coral Way) as far west as SW 147th Avenue or approximately four miles from the ROGG Study Area.

Private Shuttle Services

At least ten private shuttle operators transport visitors from Naples to the ROGG Study Area; even more do so from Miami. A majority of the tours utilize vans to take visitors into the parks to kayak, bicycle, or hike with private guides. Most of these services are priced between $100 and $150 per person and typically include transportation and recreation activities in the cost.

Bicycle Infrastructure

Both Miami-Dade County and Collier County have made considerable efforts over the past several years to increase the miles of bike lanes and other bicycle infrastructure. Comprehensive bicycle networks are still in development. In addition, the Miami-Dade metropolitan area has recently welcomed bicycle sharing in Miami and Miami Beach. Currently, Collier County has a total of 94.6 miles of bike lanes and 31.7 miles of shared-use paths, with a majority of both types of facilities (approximately 80% in both cases) in the unincorporated parts of the county outside of the City of Naples proper. Miami-Dade County has approximately 210 miles of bike lanes and approximately 143 miles of shared-use paths. Collier County's 2012 Comprehensive Pathways Plan listed a portion of U.S. 41 as a pedestrian need area, although this portion does not connect to the ROGG Study Area. The Miami-Dade Bicycle and Pedestrian Plan Update documents SW 8th St.(U.S. 41) as having an existing paved shoulder as part of its bicycle facility inventory, which may contribute to the reason that the U.S. 41 corridor is listed as a "Very Low Need" route for new on-road bicycle facility needs.

Bikeshare

Citi Bike Miami is a bikeshare program serving the Miami Beach area with over 1,000 bicycles offered at approximately 75 stations. The program has logged more than 4.5 million rides since its inception in March, 2011. Although these bikeshare stations are focused on high-density urban cores in Miami-Dade County, similar models have taken advantage of visitor demand for access to parks and natural resources. One example is the Bixi bikeshare service in Montréal, which has located stations in the Parc Jean-Drapeau on one of the city's St. Lawrence River islands.

The Citi Bike program is operated by DECOBIKE LLC and is Miami's bike sharing and rental system. The Citi Bike Program is intended to provide locals and visitors with an additional transportation option for getting around the city.

The solar powered bike sharing system consists of a fleet of specially designed sturdy, very durable bikes that are locked into a network of docking stations sited at regular intervals around the city.

With a thousand bikes at a hundred stations and more on the way downtown, bikes are available to use 24 hours a day, 365 days a year.

There are two distinct ways to utilize the Citi Bike program, either as a Bike Share membership or as hourly rental.

Carshare

Carsharing is a model of car rental that allows people to rent cars for short periods of time, typically by the hour. Three car sharing companies are available in Miami-Dade County: Zipcar, Hertz On Demand, and Car2Go Miami. Zipcar members pay an annual fee to use Zipcars. Reservations are typically made ahead of time, and members pay an hourly fee, which includes gas and insurance. Zipcars are parked in one consistent location; there are about six locations in Miami where Zipcars are parked. Hertz hourly rentals are also available at about 13 locations in the greater Miami area. Car2Go is a service offered by Daimler which provides a flexible, no reservation car rental without assigned parking places. Members pay by the minute, and over 200 cars are available in the Miami area. Overall, carsharing is a relatively new but fast growing segment of the car rental industry which allows for flexibility in rental location, time commitment and costs.

Parking Facilities

At most sites along the corridor, parking is constrained due to the numerous environmental, spatial, and cultural limitations to construction or filling in wetlands. Parking facilities are full or overflowing in some areas, especially on weekends during peak season, typically November to April. On peak season days, the Shark Valley Entrance to Everglades National Park often features lines of cars parked parallel to U.S. 41 outside of the gate. Even when lots are not full, many visitors park along the edge of the road to view wildlife or take photographs. These conditions are having a negative impact to the surrounding environment due to the creation of erosion from vehicles disturbing non-stabilized soils near wetlands, unsafe conditions due to vehicles parking in emergency shoulders along U.S. 41 and backing out into travel lanes, and by creating a poor visitor's experience at the entrances of destinations.

Summary of Alternative Transportation Conditions

Alternative transportation conditions near the ROGG Study Area are comprehensive. Two public transit providers service areas within biking distance of either terminus of the ROGG Study Area. Through a combination of modifying current transit routes and/or extension of the potential ROGG service could be directly provided and in the case of Collier Area Transit, has historically been offered. Aside from the use of transit, other alternative transportation options are present including bikeshare and carshare providers. These providers are typically located in urban areas, but are accessible to users who may choose to visit the Everglades area.

Several examples exist of successful bikeshare providers operating in natural environments and may serve as a model for future programs along ROGG. Parking facilities remain constrained through the Study Area due to the limitations, primarily environmental, of creating additional impervious parking lots at destinations adjacent to wetlands. The greatest concerns regarding uncontrolled parking facilities are due to unsafe conditions created by visitors parking along U.S. 41 in close proximity to travel lanes, backing into travel lanes and blocking emergency pull-off access, in addition to environmental concerns of erosion and pollution impacting stormwater quality adjacent to sensitive wetlands.

CitiBike Station in Miami (Source: www.cycloshare.com)

Visitors walking on Tram Trail at Shark Valley Entrance, EVER

Mix of pedestrian and vehicle traffic on U.S. 41 at Shark Valley Entrance, EVER

3.4.3 Alternative Transportation Analysis

Three alternative transportation analyses were conducted as part of this feasibility study and master plan. Each analysis builds upon the previous starting with a scenario of minimum development consisting of construction of only the ROGG, ranging to construction of the pathway, supporting policies and management programs. In order to conduct these analyses, the consultant team first had to establish a projected number of users for the ROGG. The consultant team relied on user figures provided through the use of the FDOT Conserve by Bicycle and Pedestrian Study Benefits Calculator. This model estimates the number of potential pathway users based on input from five variables in regard to recreation users. These five variables are:

- Proximity of potential users (population),
- Quality of service that would be provided by the potential path facility,
- Aesthetics along the path facility,
- Points to interest,
- Facility Length.

An additional important factor in the estimation of potential pathway users is the separation of the path facilities from vehicle traffic. As documented in the Comparables Section, a best practice of pathway design is spatial or physical separation of path facilities from travel lanes. The distance of spatial separation also has an impact on the number of potential users with greater numbers projected for shared-use paths with the greatest distance between facilities. A range of 20 feet for a minimum distance to a maximum of 120 feet, which is the typical greatest distance achievable within the existing U.S. 41 ROW, were used.

Estimate of Annual Pathway Users/ Visitors

Distance of Separation (based on distance from U.S. travel lane)	Projected Annual User Volume for ROGG	Projected Trips per Mile
20 feet	337,950	4,506
Mean	**503,250**	**6,710**
120 feet	668,475	8,913

Data Source: FDOT Conserve by Bicycle and Pedestrian Study Benefits Calculator, 2014.

Based on projections by the FDOT Conserve by Bicycle and Pedestrian Study Benefits Calculator, over 500,000 users may visit a portion of ROGG annually. This estimate does not include visitors to existing facilities such as Everglades National Park, Big Cypress National Preserve, state parks and preserves, wildlife refuges, and private destinations. The daily bicycle and pedestrian traffic may average as many as 1,375 users per day or equal to more than 50% of the daily vehicle traffic during the non-peak months (May through October).

Methodology

Three scenarios were used to estimate potential impact of traffic on ROGG and surrounding transportation modes. These three scenarios consisted of the following:

1. The **Pathway Only** scenario (Scenario #1) assumes only the physical construction of the ROGG shared-use path and no other policy or alternative transportation enhancements.

2. The **Basic Initiatives** scenario (Scenario #2) assumes construction of the ROGG shared-use path as well as supportive policy measures such as extending transit routes along U.S. 41 and creating bikeshare and carshare programs.

3. The **Progressive Demand Management** scenario (Scenario #3) assumes construction of the ROGG shared-use path and supportive policies, as well as parking management strategies, premium transit, transit pass programs and tie-ins with the hospitality industries on both coasts.

Each analysis used a Trip Reduction Impact Analysis (TRIA) methodology to evaluate the trip reduction impacts of various transportation and parking policies and programs. This model makes order-of-magnitude comparisons between different policy alternatives and their effect on vehicle trips. The analyses is based on available research describing the effects of programs and policies in other regions, with judgment-based assignments of how effective a policy or program will be in a given application that considers the robustness of regional transit, distance between destinations, regional familiarity with transportation management programs, and other factors.

It is important to note that for a majority of the programs, available research typically has highly varied results; thus, the TRIA model is meant to illustrate orders of magnitude effects more than predict daily automobile counts. Scenario descriptions, basic assumptions, and results are detailed as follows. In the section following these descriptions, each program is described in more detail, including estimated cost and implementation measures.

Existing U.S. 41 Annual Average Daily Trips (AADT)

U.S. 41 Segment	Traffic	Trucks	Truck %
Hwy S.R. 92 to Hwy S.R. 29	2,700	251	9%
Hwy S.R. 29 to C.R. 839	2,400	288	12%
C.R. 839 to C.R. 94	2,477	263	11%
C.R. 94 to Krome Avenue	1,900	285	15%
Average U.S. 41 AADT	**2,369**	**272**	**11%**
Annual Traffic	**864,776**		

Data Source: FDOT FDOT Florida Traffic Online, access June, 2013 (http://www2dot.state.fl.us/FloridaTrafficOnline/viewer.html)

Existing Mode Share for U.S. 41 Traffic and Projected New Trips

Mode Share Type	Mode Share %	Mode Share Number
New annual visitors to ROGG	503,250	
Existing Bike Mode Share	0.7%	3,523
Existing Walk Mode Share	1.7%	8,555
Existing Motorized Vehicle Mode Share	97.6%	491,172
Potential New Annual Trips^	**213,553**	

Data Source: Vehicle occupancy is based on FDOT Travel Behavior Report, 2011 with an average occupancy for recreation/social trips of 2.3 persons per vehicle. Florida average vehicle occupancy for all uses is 1.58 persons.

^Note: Potential New Annual Trips is an order-of-magnitude projection that does not factor vehicle trips to existing destinations which could reduce the total potential new trips total.

Scenario 1: Pathway Only

Scenario 1 assumes the construction of ROGG shared-use path, but with no supportive alternative transportation policies that could encourage people to access the path in a mode other than their personal vehicle. Research has documented that for each additional mile of bike lane or bicycle facility constructed per 100,000 inhabitants, mode share increases 0.075% across the entire area. The same concept applies for pedestrian mode share, with volumes increasing between 46% and 400% when a new sidewalk or option for walking is installed or improved. These two effects combine to produce a 1% travel mode shift away from motorized vehicle use in the Study Area; however, this shift may not offset the demand generated by the presence of the shared-use path.

Scenario 1: Projected Bike Share Mode

	Total
Miami-Dade County Population	2,794,763
Collier County Population	320,087
Total Population	2,794,763
Miles of ROGG	75
Existing U.S. 41 Bike Mode Share*	0.7%
Add'l share for every ROGG mile/100,000	0.075%
Additional Bike Mode Share	0.2%
Total Bike Mode Share	**0.9%**

Data Source: Nelson, Arthur and David Allen (1997). 'If You Build Them, Commuters Will Use Them; Cross-Sectional Analysis of Commuters and Bicycle Facilities.' Transportation Research Record 1578.

Scenario 1: Projected Pedestrian/Walking Share Mode

	Total
Miami-Dade County Population	2,794,763
Collier County Population	320,087
Total Population	2,794,763
Miles of ROGG	75
Existing U.S. 41 Pedestrian Mode Share *	1.7%
Percentage Increase (minimum)	46%
Additional Bike Mode Share	0.8%
Total Bike Mode Share	**2.5%**

Data Source: TCRP Report 95' Traveler Response to Changes,' Chapter 16 'Bicycle and Pedestrian Facilities,' p. 16-37.

***Note:** In order to use mode share figures from the US Census, which are based on counties, demand is attributed to each county based on percentage of total tourism. Total tourism in Miami-Dade County and Collier County is a combined 15,473,000; with 89.8% or 13,900,000 visitors in Miami-Dade County and 10.2% or 1,573,000 in Collier County. Source: FHWA National Household Travel Survey, 2008 (http://www.fhwa.dot.gov/policy/2008cpr/chapt15.htm)

Scenario 2: Basic Initiatives

Building on Scenario 1 results, the second scenario includes several initiatives that can improve the utilization of other modes of travel, such as transit and bicycle. Four initiatives used in Scenario 2, with supportive research, are:

1. Bike Facilities and Services – such as bicycle parking, lockers, showers, and other amenities;
2. Bike Share – similar to the Citi Bike system in Miami;
3. Car Share – a system in which users can rent cars on an hourly basis;
4. Provide Transit – extend existing transit routes in Collier and Miami-Dade counties out to points of interest along the ROGG Study Area.

In Scenario 2, the estimated motorized vehicle trip reduction is approximately 8.9% with bike share contributing as much as half of the decrease. Note that the model does not account for the existence of services such as bike share in only one of the communities in the greater ROGG service area; the model can only analyze the presence or absence of a bike share system. Existing research is not nuanced enough to enable more detailed analysis of the location of bike share stations or breadth of program adoption. The model is multiplicative and not additive; in order to ensure the percentage reductions are not over-stated.

Scenario 2: Projected Mode Share Impacts

Basic Demand Management	Potential % Mode Share Increase
Bike Amenities and Services	0.1%
Bike Share	5.0%
Car Share	0.3%
Extend Existing Transit Routes	3.5%
Total:	**8.9%**

Data Source: TCRP Report 95' Traveler Response to Changes,' Chapter 16 'Bicycle and Pedestrian Facilities,' p. 16-37.

Scenario 2: Costs and Potential Responsible Agency for Basic Program Initiatives

Strategy	Cost	Responsible Agency
Bike Services	Small Project $50,000	Miami-Dade County, Collier County, National Park Service, Private Section- retail
Bike Share	$50,000-$75,000 per station	Deco Bikes, Miami-Dade County, City of Naples and/or Collier County, National Park Service
Car Share	Staff time to work with companies	Private car share companies
Extend Existing Transit (8 trips/day, 5 days/week)	$750,000 annually, Miami-Dade County $500,000 annually, Collier County	Miami-Dade Transit, Collier Area Transit, Private Partner

Scenario 3: Progressive Demand Management

In a continuation of Scenarios 1 and 2, the last scenario includes aggressive initiatives to manage travel demand along U.S. 41. Two of the programs that have the most potential to shift people away from using their automobiles are parking management and a transit pass program.

1. Premium Transit – high frequency, branded, and intensely marketed transit;
2. Transit Pass Program – partnership with cruise lines, hotels, and education institutions to create pass packages;
3. Parking Management – comprehensive, corridor-wide parking policies and pricing;
4. Marketing and Information – targeted marketing with a slogan and branding of the car-free greenway experience.

Combined with elements from Scenario 2, the programs in Scenario 3 have the potential to decrease the automobile mode share from its current 97.6% to less than 65%. This results in a net auto traffic decrease of nearly 15% on U.S. 41 when potential new trips generated by ROGG are included.

Scenario 3: Projected Mode Share Impacts

Progressive Initiatives	Potential % Mode Share Increase
Premium Transit	5.0%
Transit Pass Program	11.0%
Parking Management	12.3%
Marketing and Information	0.2%
Total:	**28.5%**

Scenario 3: Costs and Potential Responsible Agency for Progressive Demand Management

Strategy	Cost	Impact Potential	Responsible Agency
Premium Transit	$2 million - $4 million annually (varies by frequency and season)	High	Miami-Dade County, Collier County, Hospitality industry, Private concessionaires
Transit Pass Program	Staff time to plan and implement	Medium	Miami-Dade Transit, Collier Area Transit, National Park Service, Hospitality institutions
Parking Management	Staff time to work with companies	High	Miami-Dade County, Collier County, National Park Service, Property owners
Marketing and Information	$50,000-$150,0000 annually	Low-Medium	Multi-agency, public and private
Multi-modal Gateways	$15-$75 million	High	Miami-Dade County, Collier County, South Florida Water Management, National Park Service, Private Vendors

High Frequency Transit

Scenario 3: High Frequency Transit Impact on Mode Share

Transit Impact	Collier County	Miami-Dade County
Existing Transit Mode Share	1.8%	5.2%
Existing Transit Frequency of routes on/near U.S. 41 (in minutes)	90	45
New Frequency Low (20 min) % Change	350%	125%
New Frequency High (15 min) % Change	500%	200%
(% Change Mode Share (0.5 Elasticity) Low Frequency	3.07%	3.2%
% Change Mode Share (0.5 Elasticity) High Frequency	4.4%	5.2%
New % of All U.S. 41 Trips - High Frequency	1.1%	3.9%
Total New Transit Mode Share	**5.0%**	

Notes: Multi-modal Transit Hub not included in model due to lack of research to estimate impact.

Subsidized Transit Passes

Subsidized transit passes can potentially decrease mode share for motorized vehicles. Most areas with pass programs have a university or other type of central institution with a high potential for transit propensity. In this scenario, the pass program impact was reduced by 50% to account for the difference in community type.

Scenario 3: Subsidized Transit Pass Impact on Mode Share

Type of Impact	Impact
Existing Auto Mode Share	97.6%
Potential Reduction	-11.0%
New Auto Mode Share	86.6%
Existing Transit Mode Share	3.5%
Potential Increase	11.0%
New Transit Model Share	14.5%

Scenario 3: Examples of Impacts from Subsidized Transit Passes on Mode Share

Drive Alone to Work			
Municipalities	**Before**	**After**	**% Change**
Santa Clara (County)	76%	60%	-21%
Bellevue, Washington (Downtown)	81%	57%	-30%
Ann Arbor, Michigan (Downtown)	N/A	N/A	-4%
Boulder, Colorado (Downtown)	56%	36%	-36%
Average Percent Change	**3.5%**		**-23%**
Transit to Work			
Municipalities	**Before**	**After**	**% Change**
Santa Clara (County)	11%	27%	145%
Bellevue, Washington (Downtown)	13%	18%	38%
Ann Arbor, Michigan (Downtown)	20%	25%	25%
Boulder, Colorado (Downtown)	15%	34%	127%
Average Percent Change			**84%**

Data Sources: Santa Clara Valley Transportation Authority (1997). Eco Pass Pilot Program Survey Summary of Findings.; King County Metro (2000) FlexPass: Excellence in Commute Reduction, Eight Years and Counting. www.commuterchallenge.org/cc/newsmar01_flexpass.html; Christopher White, Jonathan Levine, and Moira Zellner (2002). Impacts of an Employer-Based Transit Pass Program: The Go Pass in Ann Arbor, Michigan. www.apta.com/research/info/briefings/documents/white.pdf; Appendix B: Pasadena Traffic Reduction Study, Nelson\Nygaard (2006)

Parking Management and Pricing

Studies have shown in similar conditions to those found in the ROGG Study Areas that charging for parking reduces motorized vehicle use. The amount of reduction depends on the amount charged and the conditions of how it is applied. The ROGG Study Area is analogous to an 'Activity Center,' but typically has more rural conditions. Therefore, percentages used have been reduced by 50% from source data to reflect the conditions found in the Study Area.

Marketing

Marketing and promotions can increase transit ridership between 3% and 11% in the long-term and 33%-50% for short-term, resulting in reduction to auto mode share by 1% in the short-term and 0.2% in the long-term. For ROGG a long-term 0.2% mode share reduction for motorized vehicle is assumed.

Data Source: TCRP Report 95 "Traveler Response to Changes," Chapter 11 "Transit Information and Promotion."

Scenario 3: Parking Management and Pricing Impact on U.S. 41

Parking Fee	% Reduction	Of Existing Auto Share
Low - $3	12.6%	12.3%
Medium - $4.50	18.5%	18.1%
High - $6	23.4%	22.8%
Mode Share Impacts		
Existing Auto Mode Share	97.6%	
Potential Reduction	-12.3%	
New Auto Mode Share	85.4%	
% Reduction (90% use transit, 10% use bike)		
90% to transit	11.0%	
10% to bike	1.2%	

Scenario 3: Example of Vehicle Trip Percent Reduction by Daily Parking Fee Amount

Work Setting	$3.00 Parking Fee	$4.50 Parking Fee	$6.00 Parking Fee
Low Density Suburb	15.1%	25.3%	36.1%
Activity Center	25.1%	37.0%	46.8%
Regional CBD/Corridor	31.8%	42.6%	50.0%

Data Source: Comsis Corporation, 1993 (in 2010 dollars); Victoria Transport Policy Institute (2008), Land Use Impacts on Transport, http://www.vtpi.org/landtravel.pdf

Potential Challenges and Opportunities

Induced Demand

On the basis of its funding through the Paul S. Sarbanes Transit in Parks Program, the planning of the ROGG must account for the magnitude of reduction in automobile traffic that might be expected to result from its completion. While there is reason to expect that the implementation of the path itself, as well as a number of related investments and policies, has the potential to generate a significant reduction in the existing vehicle traffic in the corridor, the potential for popularity of the path may create a net addition of traffic if no transportation alternatives are provided and incentivized.

Parking Lot Expansion

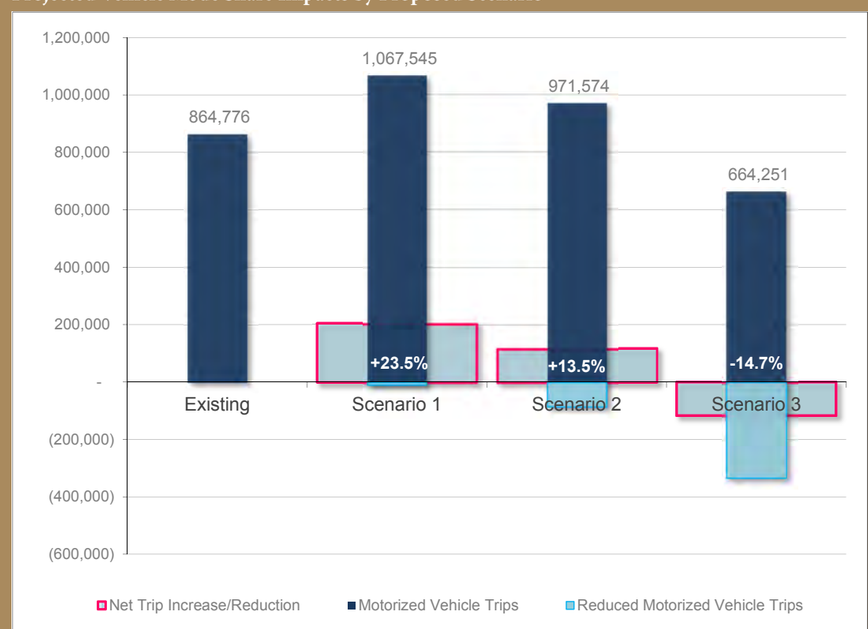
Though many existing parking lots are physically constrained, several are located where expansion may be possible in the future. For many, such as sites within Big Cypress National Preserve or near protected cultural resources and sites, expansion is highly unlikely. Several sites, however, are privately held and could potentially be expanded. More availability of parking would induce more drivers to drive private vehicles along U.S. 41. In nearby Osceola County, private RV park owners are converting their land to private parking lots. The RV business has experienced reduced profitability with many private parks empty except for during peak season times. This trend may impact the ROGG Study Area as several private RV parks may come under pressure to convert into parking lots. A matrix of parking lot expansion/development potential analysis is available in the report Appendix.

Summary of Alternative Transportation Analysis

Through the construction and implementation of progressive alternative transportation strategies the potential impact of additional motorized vehicle use linked to the development of the ROGG can be fully offset and further reduced to below current levels by approximately 15%. As noted, the development of ROGG may potentially increase the number of visitors to the Study Area which is perceived to be a beneficial element for most businesses and destinations along U.S. 41. This increase can be offset by incorporating amenities for users of ROGG, bikeshare, carshare and enhanced transit operations, leading to a reduction of 8.9% in AADT on U.S. 41.

The final scenario is a progressive approach at managing transit, parking and traffic on U.S. 41. and could realize a further 28.5% mode share reduction for motorized vehicles, resulting in an overall reduction of 39.5% from net levels. When additional trips generated by users of the ROGG are factored in, the overall results equals a 14.7% reduction in vehicle traffic on U.S. 41.

Projected Vehicle Mode Share Impacts by Proposed Scenario



3.4.4 Investment and Policy Options

In order to counteract the potential for gains in traffic by the ROGG's popularity and success, a number of related investments and policies might be considered. While these actions would advance the goal of reducing motorized vehicle traffic along U.S. 41, many would provide ancillary benefits to the community beyond the ROGG.

Transit Service Along U.S. 41

Scenarios 2 and 3 include transit as a primary element of programming. Since only 7% of cycling trips are over ten miles (Pedestrian and Bicycle Information Center http://www.bicyclinginfo.org/facts/statistics.cfm), many cyclists may make only short trips into the park, or drive their car to a central point such as Shark Valley Entrance at Everglades National Park or the Big Cypress National Preserve Oasis Visitor Center and launch their bike ride from one of these hub areas. A cycling-friendly transit option will play a critical role in mitigating the induced traffic of U.S. 41, along with a robust bikeshare program sited at convenient locations along the ROGG.

Scenario 2 assumes an extension of the existing transit routes into the ROGG Study Area, with no service or frequency improvements, no pass agreements, and no branding component. Scenario 3 assumes a fully branded, premium transit service that is part of the visitor experience of the ROGG. In other highly visited national and international destinations, such as the Grand Canyon National Park or Walt Disney World, visitors who are normally not transit users give up the independence of driving their own private vehicle and use special transit to navigate the sites. Marketing the transit service with a brand such as "ROGG Ride" or another slogan, can make a difference in visitor mode choice.

Yosemite Hybrid Shuttle (Source: Flickr user - dwb transport photos)

Service Design and Alignment

Premium transit service is best adopted in conjunction with parking management and multi-modal gateway strategies. The multi-modal gateway can serve as a terminus, with the "ROGG Ride" or transit service operating exclusively along U.S. 41 between hubs, instead of as a local bus route in Miami or Naples before traveling out to the corridor.

In order to ensure efficiency and speed, the bus would only make select stops at major sites along U.S. 41, primarily at tourist and cyclist destinations along the corridor. The stops would be integrated with trailheads and existing facilities and could be located at:

- Collier-Seminole State Park
- Fakahatchee Strand Preserve State Park Visitor Center
- Everglades Welcome Station/ S.R. 29
- Big Cypress Swamp Welcome Center
- HP Williams
- Monroe Station
- Big Cypress National Preserve - Oasis Visitor Center
- Shark Valley Entrance – Everglades National Park
- Spillway S333 L-29/ ValuJet Flight 592 Memorial
- Miccosukee Resort & Gaming

To be a viable option, transit service must be convenient, comfortable, fast, and easy to use. Reliability and comfort are key service design factors. On-time performance can be hampered by traffic congestion, especially along rural roads. Since signal priority and use of the shoulder are not options for most of the Study Area, as they are in many places to help speed buses along, planning enough cushion in the schedule to maintain schedule adherence is important.

Operators

A public transit operator alignment is likely too expensive for Miami-Dade Department of Transportation and Public Works or Collier Area Transit to operate and manage alone or may be outside their established service area. Moreover, private concessionaires are already operating bicycle and bus tours in the Study Area, charging premium fares. A public-private partnership would bring together the transit agencies, the parks, the tourism industry, and potentially the private operating sector to plan and operate a visitor-focused service. Both public and private agencies are critical to planning the service in order to ensure planning and marketing flexibility, to leverage private tourism funding, and to provide high-quality service at a price point that will attract maximum private vehicle drivers.

A new public transit service was developed by the City of Homestead in coordination with the National Parks Conservation Association, National Park Service staff and community stakeholders, that connects the city, the EVER Visitor Center and Anhinga Trail, and the Biscayne National Park Visitor Center via a trolley. Service was started in the winter of 2013 and operates during peak season (October to April).

City of Homestead National Parks Trolley to Biscayne and Everglades National Parks (Source: Miami Herald)

Vehicles offer the most visible branding opportunity for a service. Yosemite's shuttle states "FREE SHUTTLE" and "HYBRID" on the bus, along with its destination. Comfortable, modern buses are the most desirable for attracting new transit riders. All transit buses in the region are equipped with bike racks, but these typically only hold two or three bicycles. For this service to really serve path users, bikes should be accommodated in larger numbers, either with a trailer or as part of the vehicle itself.

Bike Rack on Public Transit: Brecon Beacons National Park, Wales
Source: Travel Breton Beacons

Case Studies

Transit in Zion National Park

Zion National Park has prioritized alternative transportation modes, making cycling easy and also making transit simple to understand and use. The Park operates 21 buses at seven minute headways all day long during peak tourism season (April-October). About half of the service operates in the nearby town of Springdale and half within the park itself.

The Park estimates that this reduces more than 50,000 vehicle miles per day and more than 10.5 million annually. Among the other benefits is traffic congestion relief, safer hiker/pedestrian crossings, and more naturalistic vistas. The park's transit system prevents more than 5 million pounds of CO_2 annually from being released into the atmosphere. The system costs approximately $2.5 million to operate annually; initial capital costs (in 2000) totaled $12 million.

Using the shuttle is incorporated into the visitor experience of Zion-National Park wtih 75% of the park's 2.5 million visitors riding the shuttle, according to FHWA Office of Operations. The park's website shares this quote from a visitor: "Being able to park your vehicle at your motel and not worry about traffic is a godsend."

Transit for Bicycles in Snoqualmie National Forest

Snoqualmie National Forest in Washington State is a popular hiking and cycling area. A private vendor, Agate Pass Transportation, operates a bus to shuttle bicycles and cyclists up to the Snoqualmie Pass, charging users $22 for a one-way trip. The shuttle makes three round trips per day, during spring, summer, and fall only. (Photo Below)

Frequency and Cost

High-frequency transit service is a strong factor in attracting ridership. For recreational trips that are somewhat longer, more than 35-miles to the Big Cypress National Preserve Oasis Visitor Center from either terminus, demand is not likely to be high enough to warrant higher than 20-minute frequencies. Based on broad estimates for transit operations and cost of current transit service, operating 30-minute frequencies during tourist season and at 60 minute frequencies during the remainder of the year would cost just under $3 million total.

Estimated Costs for Transit Service Operations on U.S. 41

Headways	Tourist Season		Off-Season	
	Buses	Cost	Buses	Cost
20 Minute	9	$3.14m	N/A	N/A
30 Minute	6	$2.1m	6	$1.5m
60 Minute	N/A	N/A	3	$750k

Assumptions/ Notes:
Operational costs are estimates only, based on National Transit Database operating costs per hour for Miami-Dade Transit ($125) and Collier Area Transit ($79). The costs are based on eight hours/day of service, seven days/week. Tourist season is assumed to be October-April (seven months). Buses are assumed to operate at 25 mph.
For cost assumption only, Miami-Dade Transit and Collier are assumed to operate from their respective termini to Big Cypress National Preserve - Oasis Visitor Center, which is in the center of the corridor (note that this means Miami-Dade Transit is operating 11 miles into Collier County). Miami-Dade Transit does not provide service outside of the Urban Development Boundary (UDB).

New buses are typically $400,000-$600,000, depending on the model and fuel type. Hybrid diesel vehicles are between $600,000 and $700,000. Electric buses make a bold environmental statement and are becoming popular for premium transit circulators as part of different cities' environmental branding. As they become more available, the price is beginning to drop, but most are still nearly $1 million each, with the additional cost of charging stations.

Potential Costs and Trip Reduction

For extension of the transit routes in Scenario 2, the transit mode share from American Community Survey (ACS) 5-year estimates (2007-2011) was 3.5% with no additional increase or assumed reduction in auto trips. For the premium transit service, research is available to support elasticity of transit rider response to increased frequency, though the other elements of premium transit, such as special branding and modern buses, are more difficult to isolate. Increased frequency increases transit mode share, with an average elasticity of 0.5, resulting in an auto trip reduction of 5%.

Transit Passes/Integrated Payment

In most pass programs, institutions provide passes to all of their employees, guests, students, or affiliates. The passes provide unlimited transit service, often across a number of transit providers. Because they make transit more affordable, available, and competitive, these passes increase transit ridership. Not only does the increased ridership relieve the roadway demand volumes, but it also helps the transit operator with stable revenue sources. Passes can be paid for through very modest student or employee fees, supplemented by employers or institutions, or in the case of ROGG, agencies and businesses in the hospitality sector. To the rider, the pass should feel like a fare-free system. Ideally, this pass program would integrate payment with the bikeshare and/or carshare programs. The ROGG Pass could be part of tourism packages offered by the hospitality industry or cruise lines.

Potential Costs and Trip Reduction

Subsidized passes can potentially decrease auto demand by 23%. Most areas with pass programs have a university or other type of central institution with a high potential for transit propensity. In this scenario, the pass program reduction was halved to account for the difference in communities, so auto trips were calculated to be reduced by approximately 11%. Pass programs cost staff time to develop and negotiate with private institutions that will purchase passes. Printing passes, data collection and record keeping are the only substantial costs of implementing the program.

Parking Management

Parking management is one of the most powerful ways to manage auto demand along a corridor. Parking management is a general term for strategies that encourage more efficient use of existing parking facilities, reduce parking demand, and/or shift travel to non-motorized vehicle modes. The supply of free or inexpensive parking at the final destination is a key decision factor cited for choosing to drive a personal auto rather than taking a bus, bike, walk, or carpool.

Along the U.S. 41 corridor, there exists a potential for additional free or low-priced parking to be created on privately-owned properties along the corridor if demand is great enough. This parking supply, if created, would likely entice even more auto trips along the U.S. 41. Opportunities may exist to influence or manage both the supply and pricing of parking along the corridor. There may also be opportunities to use part of the revenue generated by parking to help offset the costs of some of the other services, such as transit. Working with agencies and property owners along U.S. 41 to manage parking can create a win-win for the public sector that wants to manage traffic and the private sector that wants to generate revenue.

Working together to price parking and manage other travel options produces the best results. For instance, at Zion National Park, free parking is available in the shopping area in Springdale one-mile from the park entrance. Cars must pay $25 to enter and park inside the park boundaries and the lots are often full. ROGG has a similarly constrained environment where only a few areas could really be expanded for additional parking facilities.

For parking management to work, other options must be available to visitors. The dangerous practice of parking along the shoulder of U.S. 41 could potentially worsen if parking restrictions are laid out but no other options are marketed to visitors. The shuttle and multi-modal hubs, which include park and ride lots, become vitally important to the safety of corridor users.

- Strategic Pricing, setting parking rates to match desired volumes at different points along the corridor. Like in Zion National Park, free or cheap parking at the hubs at each end of the corridor, so visitors can park for free and take the shuttle instead;
- Shared Parking / Park Once is a strategy that seeks to shift parking demand into shared, public facilities rather than a proliferation of dedicated, accessory lots, reducing the volume of parking and local vehicle trips;
- Park-and-ride lots can intercept traffic outside of highly congested areas and transfer them to transit or carpools for the final leg of the journey;
- Parking enforcement and education can help manage the on-street supply and free spaces for short term parkers;
- Corridor- or area-wide parking cap keeps the supply at an acceptable level.

Potential Costs and Trip Reduction

In the absence of any major public parking decks or the formation of a parking authority, parking management typically requires only staff time to meet with and work with property owners and develop area-wide policies. Parking has the potential to reduce auto trips substantially. The amount of reduction depends on the land uses and density in the area as well as the price. For ROGG, the reduction was estimated to be up to 12%.*

Note: *Victoria Transport Policy Institute (2008), Land Use Impacts on Transport, http://www.vtpi.org/landtravel.pdf

Bicycle Programs and Amenities

Availability of bicycle facilities can make cycling an easy choice for visitors instead of an activity available only to the dedicated and experienced cyclist. Some amenities are important to have frequently along a shared-use path such as places to obtain / buy water and snacks and restrooms are the most necessary amenities. Others can be concentrated at the hubs or other activity areas along the Study Area, such as Shark Valley Entrance at Everglades National Park, the Big Cypress National Preserve - Oasis Visitor Center, and the S.R. 29 intersection to Everglades City. See Section 3.2.3 - Typical Trailheads for a list of bicycle amenities and features.

Bike Shop and Rentals one mile from Zion National Park, Springdale, Utah (Source: Zion Cycles)

Potential Costs and Trip Reduction

Bicycle parking costs between $150 and $300 per rack. Bike lockers can cost $1,500-$2,000 per unit. A full-service bike center, with air, parking, repairs, and concessions, is estimated to cost about $5,000 per square foot to construct. The McDonald's Bike Center in Chicago cost approximately $3.2 million and received FHWA and FTA funding to offset some costs. The presence of facilities at the end of bike trips can increase bike mode share. Research has found that mode share can increase between 8.6% and 22% if end-trip facilities such as bike parking or showers are provided. The ROGG model used the conservative figure of an 8.6% increase in bike mode share, resulting in an auto trip reduction of 0.1%.

Bikeshare

In January 2014, the City of Miami awarded a bike share contract to DecoBike (now Citi Bike) to expand from Miami Beach into Miami. The new Citi Bike Miami program will build upon the success of the current system in Miami Beach and added 750 new bikes at 70 new stations throughout downtown. Though no stations are planned in the ROGG Study Area, the city could establish bikeshare stations at strategic locations to connect with transit traveling to ROGG. To create even more opportunities for riders, the city, partnering with Miami-Dade County, could create bikeshare stations along the corridor, accommodating out-and-back riders, but more likely, riders who travel out using bicycles and back on transit, or vice versa.

Potential Costs and Trip Reduction

Bikeshare stations generally cost $50,000-$75,000 per station. Expansion also takes staff time and support from the surrounding community / stakeholders. Successful bike sharing programs have resulted in automobile to bike mode shifts between five percent to eight percent in the immediate service area. Impacts may be lower if conditions are not conducive to bicycling (few available bicycles in the system, insufficient network of dedicated bike routes, and/or climate conditions not conducive to bicycling). For the ROGG model, the lower end of the range was used (5%) due to the small network of dedicated bike routes in the ROGG Study Area.

Carshare

Shared vehicle programs are gaining wider and wider application across the country. Shared vehicles can be provided through a separate (typically private) car-sharing company or by the employer or property owner who owns, maintains, and manages the vehicle.

With three car sharing companies in Miami, the hard work of convincing companies to launch a program in a new city has been done on the eastern side of the Study Area. Car2Go is the most flexible of the three existing operators since cars do not have to be returned to a particular parking spot, though they do have to be within the limits set by Car2Go. Having an eastern transit hub at SW 157th Ave. and U.S. 41, approximately two miles east of the Krome Ave. eastern terminus of the ROGG Study Area, within the reach of Car2Go members and marketing Car2Go as an easy way to get to the 'ROGG Ride' or other transit service would be a first step in using car share to offset any potential increase of private motorized vehicle trips along U.S. 41.

Potential Costs and Trip Reduction

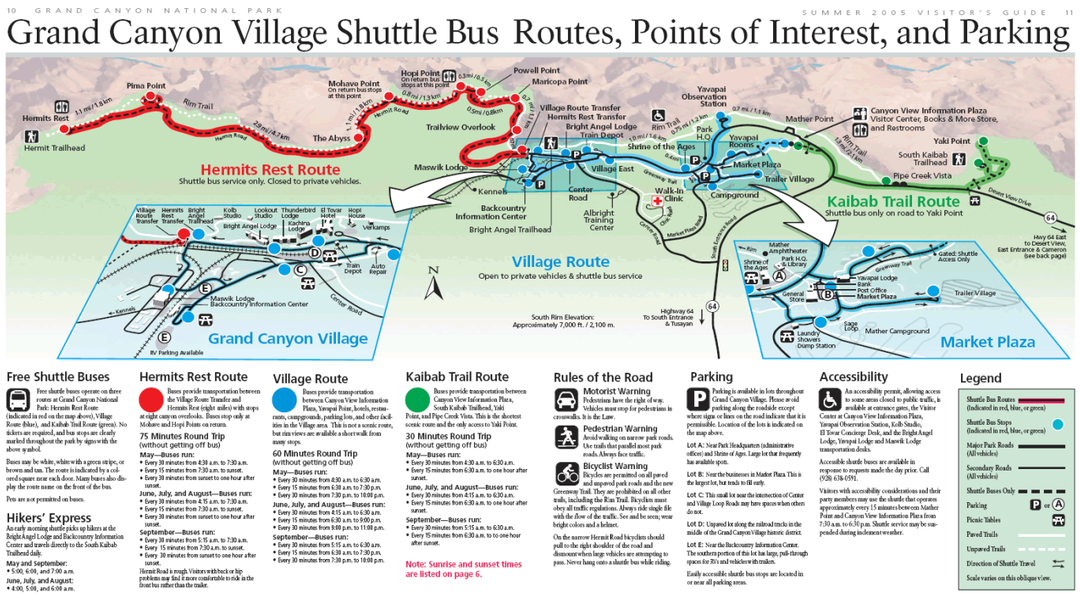
Expanding car share costs staff time to meet with private car share companies, but typically does not require additional funding from jurisdictions. Each car share car has been shown to replace 15 cars in an area, resulting in a net reduction of 14 cars. In the ROGG corridor, this results in only a small reduction of the auto mode share of approximately 0.3%.*

Note: *Transportation Research Board (2005), Car-Sharing: Where and How it Succeeds, Transit Cooperative Research Program Report 108. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_108.pdf

Marketing and Information

Marketing alternative transportation should be part of the initial marketing campaign of the path. Campaigns should ensure that accessing the ROGG via alternative modes is emphasized, as well. Clear, easy-to-read literature and a navigable website(s) is essential to capturing riders who are not accustomed to using transit and may not be comfortable reading a map and schedule.

Marketing transit services and cycling opportunities, however, requires more than just graphics and literature. Typically efforts involve a coordinated marketing campaign across government agencies (departments of parks, transit, transportation and tourism) as well as the tourism sector, including cruise companies and tourism companies who provide ancillary tours and services. A unified marketing campaign with tour packages that include alternative transportation vouchers or service creates a one-stop-shopping experience for visitors looking to minimize the logistics of finding destinations and transportation to get there.



Grand Canyon Shuttle Map
(Source: Mappery)

Potential Costs and Trip Reduction

Marketing campaigns can be small, only $10,000 or $20,000 for brochure printing, website development, or new materials development. A sophisticated and high-penetration campaign is likely to cost much more. Some regions have spent between $50,000 and $100,000 on alternative transportation campaigns for downtowns or even smaller, more targeted areas such as the ROGG Study Area.

A challenge facing existing research is pinpointing and isolating the beneficial effects of transit marketing campaigns. The range cited by recent research is between 3% and 11% transit ridership increase in the long-term, and up to 33% in the short-term. Marketing can reduce auto mode share by 1% in the short-term and 0.2% in the long-term.

Multi-modal Hubs and Gateways

Visitors travel from the urban areas in Miami-Dade and Collier Counties into Big Cypress National Preserve and the Everglades National Park along only a few corridors. With a high concentration of hotels, the airport, and other tourist destinations, the higher density at the Miami-Dade termini creates the potential for a unique gateway feature and multi-modal facility to accommodate a range of potential park visitors and house many of the programs and policies discussed in these scenarios that would support the ROGG. The ideal location for this facility is near the intersection of SW 157th Ave. and U.S. 41.

On the Naples side, there is a lower concentration of tourism destinations as large as in Miami-Dade County and a lower density overall. One site for a multi-modal hub is not as clear as on the eastern side, but locating a parcel to house a park and ride and serve as a hub for cyclists, transit riders, and other path users should be a next step. Establishing a point of access for visitors as they enter the parks and preserves would serve a number of functions:

1. **Multi-modal Hub** – The hub could be a major transit transfer stop for local services and ROGG Ride, or other branded park circulator. Visitors could drive and park at the hub and utilize the transit service to access the parks directly. Parking facilities could also accommodate car share. A bike station would be a central part of the hub, with a bikeshare station and other bicycle amenities such as a repair shop.
2. **Gateway** – A gateway would also serve as a visual and experiential signal of a transition from one landscape (urban) to another (natural). A gateway can greatly add to the identity of a place and to the visitor experience.
3. **Visitor Center/ Hub** – A visitor center or hub would serve information, education, and tourism functions, providing central marketing for all of the activities and destinations available in the area. The hub would also provide opportunities for retail tailored to cyclists, hikers, birders, and a range of other recreation needs.

Potential Costs and Trip Reduction

Cost for site acquisition and construction of multi-modal hubs range widely depending on the local real estate market, current material pricing, and a host of other factors. Some cities have constructed minimal facilities for less than $5 million and more elaborate facilities can run into the tens of millions. A broad budgeting estimate for a multi-modal hub is $10 million to $40 million. No research has been conducted that could help estimate the impact of a multi-modal gateway on vehicle trips. This element was not included in the TRIA model, but is a key part of successful implementation of bike and transit facilities as well as parking management.

Summary Investment/ Policy Options

Development of the ROGG has the potential for gains in traffic due to popularity and success. There are, however, several strategies that can be implemented to counteract these potential gains and actually help reduce existing impacts. Many of the strategies go beyond just helping to reduce traffic on U.S. 41, many could provide ancillary environmental and economic benefits for the entire south Florida regions. These strategies include:

- Transit along U.S. 41,
- Parking Management,
- Bicycle Programs and Amenities,
- Bikeshare,
- Carshare,
- Marketing and Information,
- Multimodal Hubs and Gateways.

Alternative Transportation Summary

Alternative transportation conditions near the ROGG Study Area are comprehensive. Currently two public transit providers provide service within biking distance of either terminus of the ROGG Study Area. Aside from the use of transit, other alternative transportation options are present including bikeshare and carshare providers. Several examples exist of successful bikeshare providers operating in natural environments and may serve as a model for future programs along ROGG. Parking facilities remain constrained through the Study Area due to the limitations, primarily environmental, of creating additional impervious parking lots at destinations adjacent to wetlands.

TRIA calculations for the ROGG determined that vehicle demand for accessing the path could be offset using existing transportation programs and services, a more extensive and strategically organized set of transportation management measures could actually reduce traffic along U.S. 41 and improve the overall travel experience for ROGG users and travelers along U.S. 41. This comprehensive approach could result in an overall reduction in vehicle trips of 39.5% from net levels. When additional trips generated by users of the ROGG are factored in, the overall results equal a 14.7% reduction in vehicle trips on U.S. 41.

Several strategies can be implemented to counteract potential gains contributed to the ROGG and actually help reduce existing impacts. Most strategies will go beyond just helping to reduce traffic on U.S. 41, many could provide ancillary environmental and economic benefits for the entire south Florida region. The next section will quantify some of these benefits for a full implementation scenario with the development of ROGG and alternative transportation strategies.

3.5 BENEFITS OF PATHWAY

"Walk and be happy, walk and be healthy. The best way to lengthen out our days is to walk steadily and with a purpose."

– Charles Dickens, British novelist, 1812-70

Introduction

Development of the ROGG, along with implementation of the alternative transportation strategies, constitutes additional up-front costs in infrastructure and capital facilities, as well as annual costs for delivery, maintenance and promotion. The benefits that come from a managed approach, however, extend those that the shared-use path would provide on its own and strengthen the case for the ROGG as a key component of an integrated visitor experience to the Everglades area. These benefits underscore the ROGG's potential to be a regional amenity that promotes environmental health and increases the accessibility and quality of amenities in the Everglades. Besides bringing the Miami-Dade and Naples communities closer to one of the nation's greatest natural resources, the benefits that south Florida may experience from the development of the ROGG and corresponding alternative transportation strategies can be quantified in order to assess the value the path may have compared to costs.

For the purpose of this benefits analysis, maximum thresholds can be achieved through adoption of alternative transportation program outlined in Scenario 3. Benefits resulting from the development of the ROGG fall into three categories:

- Social Benefits
- Environmental Benefits
- Economic Benefits

These three categories form the three pillars of sustainable development as defined in the Johannesburg Declaration by the United Nations, 2005. This declaration created *"a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development; economic development, social development and environment protection at local, national, regional and global levels."*

It is these three pillars of sustainable development that will be quantified in this section. The following is a summary of pathway benefits documented:

- **Social Benefits –** This section quantifies a series of social benefits linked to the development of the ROGG shared-use path and corresponding alternative transportation strategies that impact the daily quality of life for citizens and users. Two social benefits with extensive research include accessibility and healthy lifestyles.

- **Environmental Benefits –** This section examines environmental benefits linked to development of the ROGG shared-use path and alternative transportation strategies such as vehicle trip reduction, vehicle miles traveled reduction and emission reduction.

Alternative Transportation Strategies

Scenario 1:
Pathway Only

Scenario 2:
Basic Initiatives

Scenario 3:
Progressive Demand Management

Benefits Graphics

The info-graphics on the following pages illustrate the benefits resulting from various ROGG development scenarios. The symbols above indicate whether the benefits are a result of the pathway only, basic initiatives, or progressive demand and management.

- **Economic Benefits –** This section estimates a series of economic benefits associated with the development of the ROGG shared-use path and alternative transportation strategies. Benefits include; potential tourism expenditures; and sales tax revenues supported by pathway user spending.

Calculating benefits, like calculating future path users, traffic, and costs, is based on previous research and assumptions made based on best available data. Results are estimates of benefits that could arise if all alternative transportation strategies are implemented along with the development of the ROGG.

3.5.1 Social Benefits

Social benefits are those which improve the daily quality of life for citizens. The development of ROGG and accompanying alternative transportation strategies has the potential to provide many social benefits for the South Florida region, however, not all are quantifiable by calculations. Two categories are quantifiable based on readily available data and include:

- Accessibility
- Health and Wellness

Each of the above categories will be estimated for the ROGG and will show any projected direct benefits the region based on the development of the path and alternative transportation strategies.

Accessibility

As established in Section 3.4 - Alternative Transportation Analysis, between 337,000 and 668,000 visitors may use the ROGG shared-use path to experience the Everglades or to simply recreate. With a mean of just over 500,000 visitors, the ROGG may be the most visited public facility along U.S. 41 for observing and experiencing the Everglades and Big Cypress Swamp.

Health and Wellness

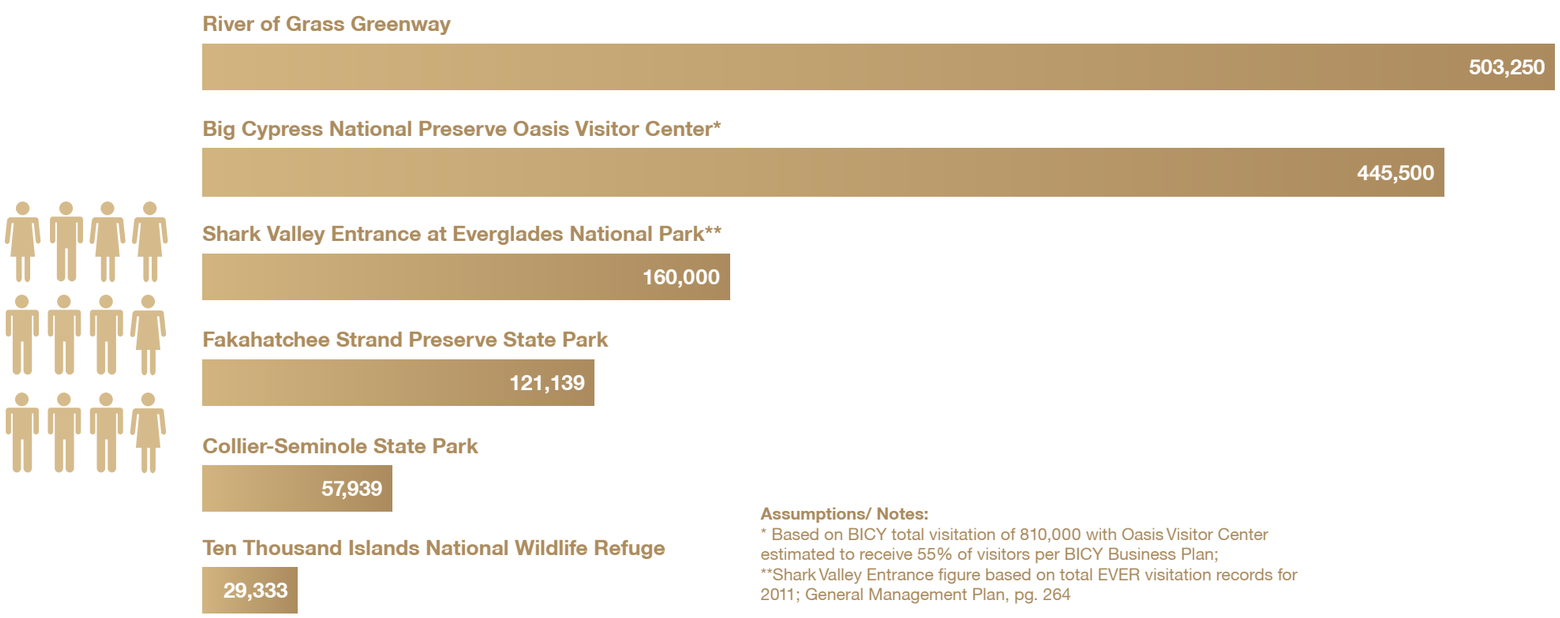
Public agencies are striving to make citizens more aware of the health benefits of regular exercise, especially as healthcare costs continue to increase faster than nearly all other categories of household spending. As with environmental benefits, health benefits are more difficult to quantify and link directly to activities on the proposed ROGG.

Using the estimates for total number of visitors and the mode shares resulting from each Alternative Transportation scenario, as well as average trip length and travel time for pedestrians and cyclists, calories burned and pounds lost were estimated. Scenario 3 predicts more walking and cycling than the other scenarios, with an estimated total pounds lost of 8,581 annually or 214,525 pounds over the next 25-years.

Social Benefits

Accessibility

Annual Visitation Estimates by Destination



Assumptions/ Notes:
* Based on BICY total visitation of 810,000 with Oasis Visitor Center estimated to receive 55% of visitors per BICY Business Plan;
**Shark Valley Entrance figure based on total EVER visitation records for 2011; General Management Plan, pg. 264

Health and Wellness

Estimated Calories Burned and Pounds Lost Annually^

Scenario 1:
Pathway Only

kcal burned - 6,751,080
lbs lost - 1,928

Scenario 2:
Basic Initiative

kcal burned - 17,232,961
lbs lost - 4,923

Scenario 3:
Progressive Demand Management

kcal lost - 30,035,707
lbs burned - 8,581

Assumptions/ Notes:
^ Approximately 3,500 calories per pound lost.

3.5.2 Environmental Benefits

Environmental benefits are those which reduce human impacts upon the natural world while improving the daily quality of life for citizens. The development of ROGG shared-use path and the accompany alternative transportation strategies has the potential to provide extensive environmental benefits for the community that advance both Miami-Dade County and Collier County's environmental goals. Four categories are quantifiable based on readily available data and include:

- Annual Average Daily Vehicle Trips (AADTs)
- Vehicle Miles Traveled (VMTs)
- Emissions
- Fossil Fuel Use

Each of the above categories will be estimated for the ROGG and will show any projected direct benefits to the region based on the development of the path and full alternative transportation strategies.

Annual Average Daily Vehicle Trips (AADTs)

When development of the ROGG is combined with the implementation of alternative transportation strategies, maximum reduction in Annual Average Daily Vehicle Trips (AADTs) may be realized. AADTs are the total volume of traffic on a given roadway, in this case U.S. 41, over one year divided by 365. With full implementation, AADTs may be reduced by 332,074 for a net reduction of all traffic on U.S. 41 by 114,913 vehicle trips annually.

Vehicle Miles Traveled (VMTs)

With a reduction in AADTs, a corresponding effect is a reduction in Vehicle Miles Traveled (VMTs) which represents all miles traveled on a given roadway, U.S. 41. VMTs may be reduced by a net 24.9 million miles annually for a total reduction of 8.6 million miles annually.

Emissions

The total reduction of VMTs was used in calculating any emissions reduction expected from the development of ROGG and Alternative Transportation Strategies. For the average passenger car this represents the reduction in emission pollutions for the following components:

- Hydrocarbons: ((2.8g/mi x 8,618,475 mi) / 454g) = **53,513 lb. of hydrocarbons reduced annually;**
- Carbon Monoxide: ((20.9g/mi x 8,618,475 mi.) / 454g) = **396,753 lb. of carbon monoxide reduced annually;**
- Oxides of Nitrogen: ((1.39g/mi x 8,618,475 mi.) / 454g) = **26,386 lb. of oxides of nitrogen reduced annually;**
- Carbon Dioxide: (0.916 lb./mi. x 8,618,475 mi) = **7,894,523 lb. of carbon dioxide or 3,947 tons reduced annually.**

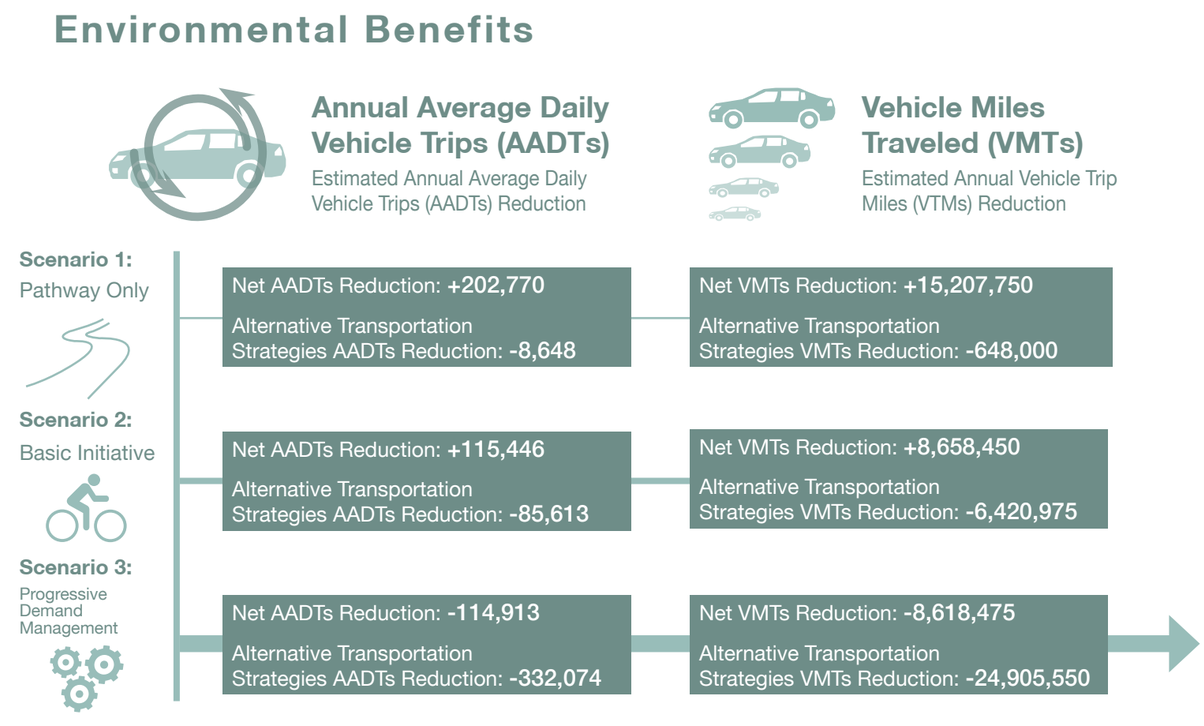
All figures are based on averages. Source: US Environmental Protection Agency, April, 2000; Emission Facts

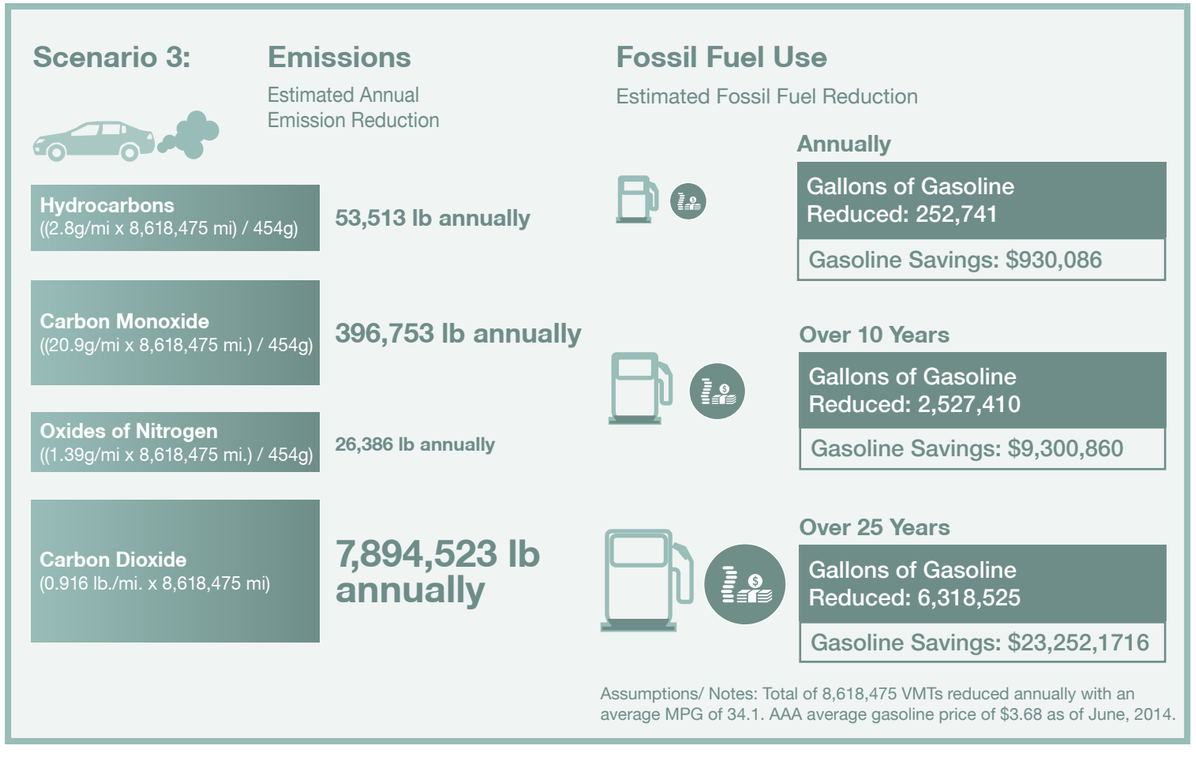
Fossil Fuel Use

Using the same total VMTs reduction figure, an estimated fuel savings can be calculated. Using US DOT National Highway Traffic Safety Administration (NHTSA) - Summary of Fuel Economy Performance report, the average vehicle (combination of car and pick-up) miles per gallon (MPG) was 34.1 for the month of June, 2014.

At this rate, the full implementation of ROGG shared-use path and Alternative Transportation strategies would reduce fossil fuel consumption by 252,741 gallons annually. This is equal to approximately 21.8 tanker trucks worth of gasoline with an annual savings of $930,086.

Note: Average gas price of $3.68 is for the month of June, 2014 as calculated by American Automobile Association (AAA).





3.5.3 Economic Benefits

Economic sustainability can be measured in a number of ways, but generally is defined as the ability of an economy to maintain a healthy level of activity and development for many generations. Of the three types of benefits analyzed, economic benefits are perhaps the easiest to quantify. The following categories were selected to be quantified through readily available data:

- Potential tourism expenditures
- Potential Florida State sales tax revenue
- Potential Miami-Dade County sales tax revenue
- Potential Collier County hotel tax revenue
- Potential Miami-Dade County hotel tax revenue

The methodology for determining each of these benefits, and their corresponding results are in the following sections. Detailed tables are included in the Appendix.

Tourism Expenditures

Everglades National Park conducted a comprehensive visitor spending impact study in 2008 which was utilized in quantifying economic benefits associated with ROGG and full implementation of Progressive Demand Management Alternative Transportation strategies.

The Impacts of Visitor Spending on Local Economy - Everglades National Park 2008 study results are based on a systematic, random sample of 1,741 visitor groups during the peak winter and spring months. Survey results showed that the average visitor group consisted of 2.7 people per trip.

Forty-four percent of all visiting groups were day trips from within the State of Florida, 38% included a hotel or lodging stay and 5% consisted of camping. Many visitors to Everglades National Park had multiple reasons for visiting Florida or the South Florida region, however, 23% of day trips were for the sole purpose of visiting EVER, 34% of all camping trips were for solely visiting EVER, and 20% of all hotel/lodging stays were solely for the purpose of visiting EVER. The following information summarizes these figures when applied to potential mean visitor estimates for ROGG.

The Everglades National Park Impacts of Visitor Spending on Local Economy Study gathered information from survey respondents on spending habits in a number of categories such as hotel, restaurant, gas, souvenir and admission fees. For the hotel/lodging stay visitor group, the average total trip expenditure was $1,108.84 in 2008 dollars. Adjusted for inflation total trip expenditures would be $1,196.55 in 2013 dollars. Visitor groups camping outside of EVER were the next highest spenders with $654.10 in total trip expenditures in 2008, adjusted to $705.84 in 2013 dollars. Campers staying within EVER spent a trip total of $116.78 per visitor group, adjusted to $126.02 in 2013 dollars. Day trippers spent an average of $107.40 per visitor group in 2008, adjusted to $115.89 in 2013 dollars. Local Trips visitor groups spent an average of $83.58 per trip, adjusted to $90.19 in 2013 dollars.

The average overnight hotel/lodging stay for visitors to EVER was 3.5 nights with an average hotel/lodging per night expenditure of $154.02 per visitor group per night in 2008 dollars, adjusted to $166.20 in 2013 dollars.

Potential Florida State Sales Tax Revenue

The State of Florida collects a 6% sales tax on expenditures (7% on hotel stay charges), excluding necessary groceries. When applied to potential visitor group expenditures for ROGG the State of Florida may collect $5,435,583 annually or approximately $135.8 million in sales tax revenue over a 25-year period (not adjusted for inflation).

Potential Miami-Dade County Sales Tax Revenue

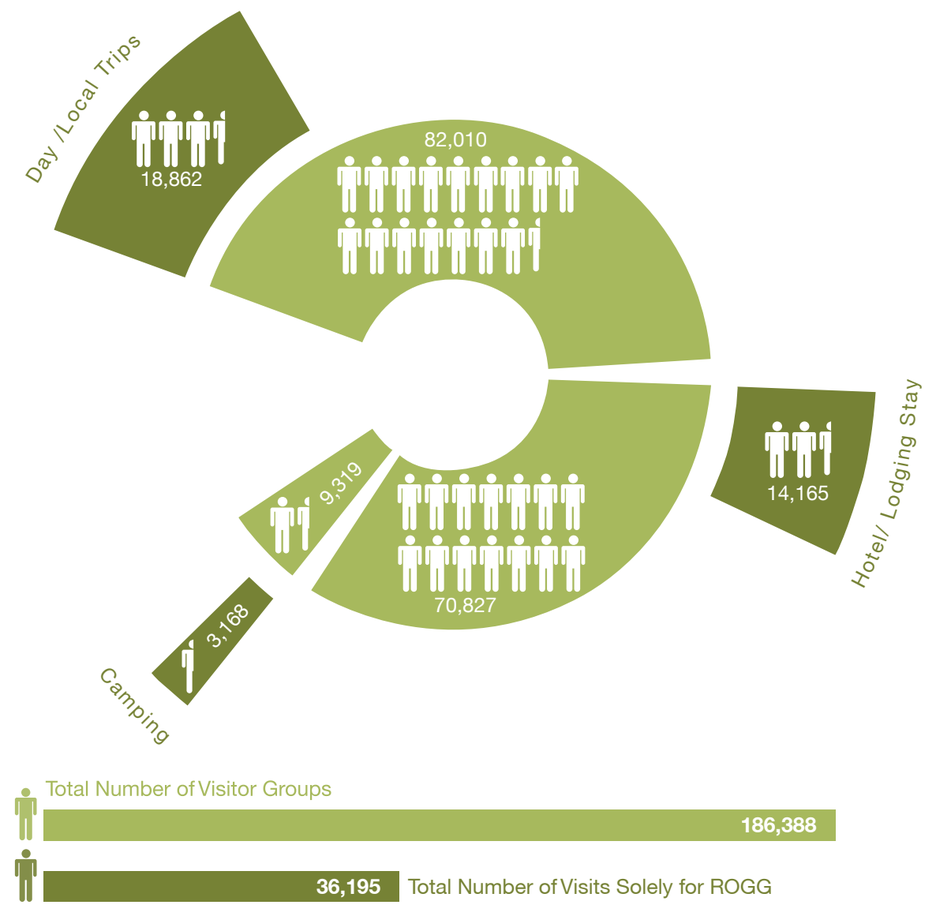
Directly related to the estimated sales tax collected by the State of Florida, Miami-Dade County has a 1% sales tax on all non-grocery related expenses. In order to capture the estimated amount of tourism expenditures within the Miami-Dade County portion of ROGG, South Florida tourism percentages are applied. Of the 15,473,000 (2011) visitors, 89.8% visited Miami-Dade County and 10.2% visited Collier County. These percentages are applied to county sales tax revenues.

Miami-Dade County may collect an estimated $813,522 annually, or approximately $20 million over a 25-year period, in sales tax from ROGG visitor groups related travel expenditures.

Economic Benefits

Tourism Expenditure

Estimated Annual ROGG Visitor Groups



Assumptions/ Notes: Average visitor group is 2.7 persons.. Type of Visitors displayed do not equal Total Visitor Groups due to exclusion of OVN or Other Visitor Nights in which visitors did not provide spending details.

Economic Impact of Big Cypress National Preserve

A 2015 National Park Service (NPS) report documented 1,112,290 visitors to Big Cypress National Preserve in 2015 spent $87,185,700 in communities near the park. Visitor spending supported 1,323 jobs in the local area and had a cumulative benefit to the local economy of $124,524,400.

"Big Cypress National Preserve welcomes visitors from across the country and around the world," said acting Superintendent J. D. Lee. "We are delighted to share the story of this place and the experiences it provides. Visiting one of the four units of the National Park Service in south Florida is a great way to introduce visitors to this part of the country and all that it offers. National Park Service tourism is a significant driver in the national economy, returning $10 for every $1 invested in the National Park Service, and it's a big factor in our local economy as well. We appreciate the partnership and support of our neighbors and are glad to be able to give back by helping to sustain local communities."

A 2014 study shows that the four south Florida national park units – Big Cypress National Preserve, Everglades, Biscayne and Dry Tortugas National Parks – had a combined visitation of 2,894,366. The four park units supported a total of 3,380 jobs and generated more than $231 million in the communities within the region.

The peer-reviewed visitor spending analysis was conducted by U.S. Geological Survey economists Catherine Cullinane Thomas and Christopher Huber and National Park Service economist Lynne Koontz. The report shows $15.7 billion of direct spending by 292.8 million park visitors in communities within 60 miles of a national park. This spending supported 277,000 jobs nationally; 235,600 of those jobs are found in these gateway communities. The cumulative benefit to the U.S. economy was $29.7 billion.

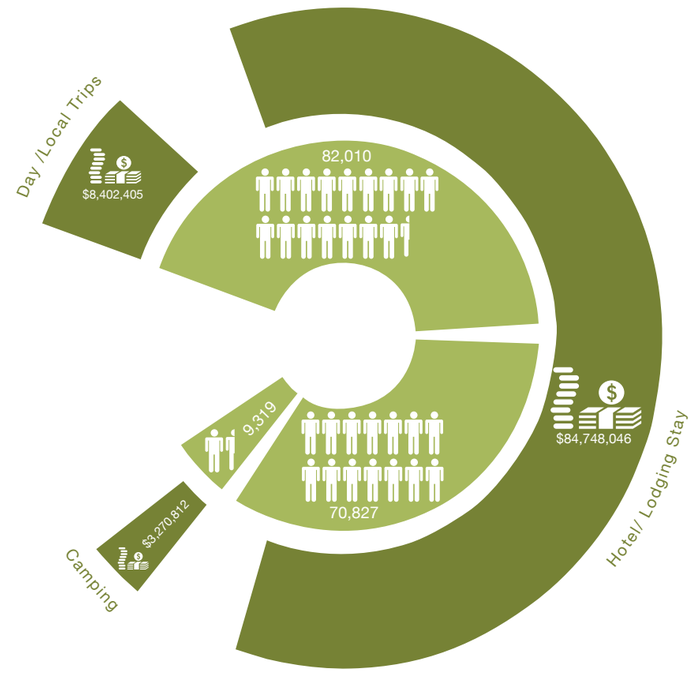
According to the 2014 report, most park visitor spending was for lodging (30.6 percent) followed by food and beverages (20.3 percent), gas and oil (11.9 percent), admissions and fees (10.2 percent) and souvenirs and other expenses (9.9 percent).

To download the report visit http://www.nature.nps.gov/socialscience/economics.cfm

Source: National Park Service

Tourism Expenditure

Estimated Annual ROGG Visitor Groups Total Trip Expenditures



186,388 Total Number of Visitor Groups

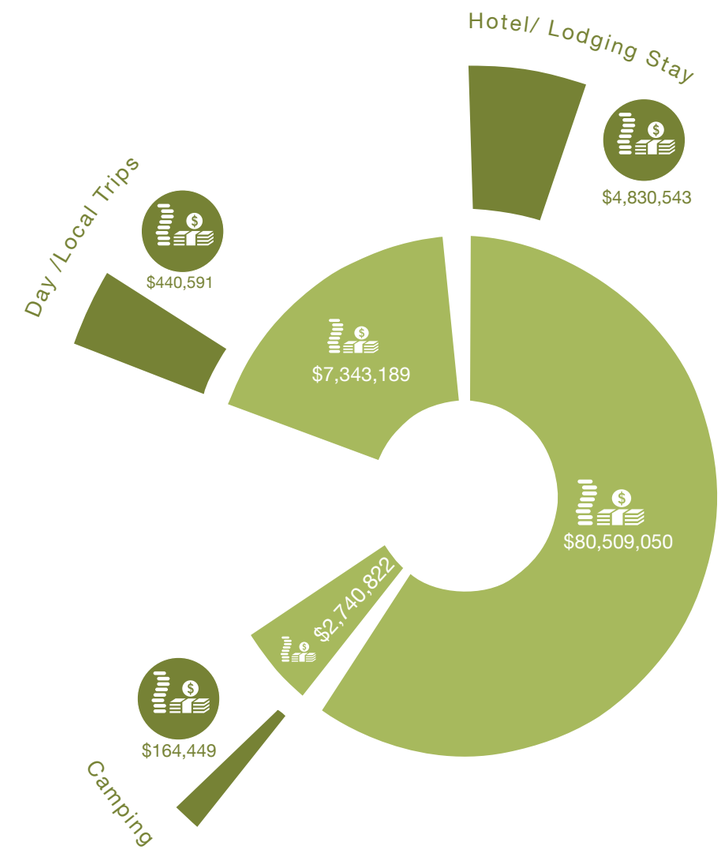
Total Direct Expenditures

$96,421,263

Assumptions/ Notes: Average visitor group is 2.7 persons..All amounts have been adjusted for inflation. Camping is 40% in other facility and 60% in park facility. Excludes OVN trips from Visitor Groups.

Potential Florida State Sales Tax Revenue

Estimated Annual Florida State Sales Revenue (Direct Expenditures)



Total Visitor Group Annual Taxable Direct Expenditures

$90,593,061

Total Florida State Annual Sales Tax Revenue

$5,435,583

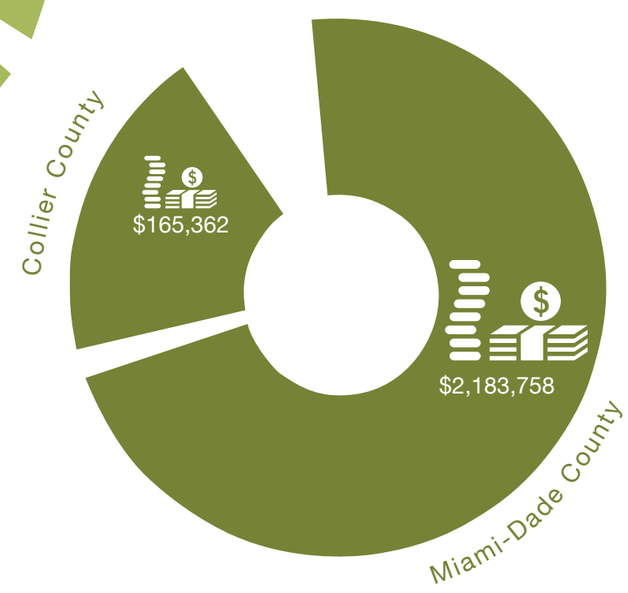
Assumptions/ Notes: State of Florida collects a 6% sales tax as of 2014 on non-grocery expenses and a 7% tax on Hotel stay charges.

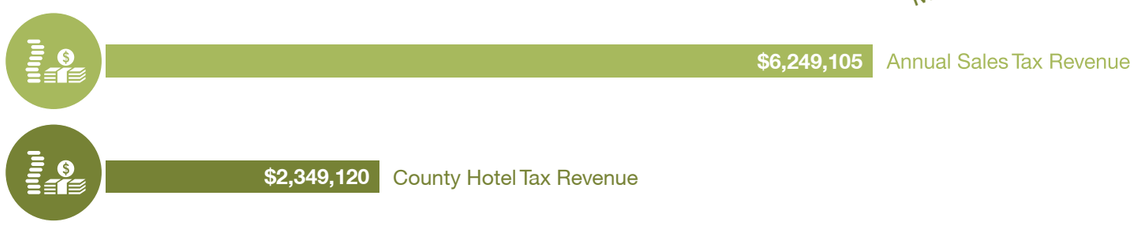
Potential Total Tax Revenue

Estimated Annual Jurisdictional Tax Revenue

Annual Sales Tax Revenue

County Hotel Tax Revenue





Assumptions/ Notes: State of Florida collects a 6% sales tax as of 2014 on non-grocery expenses and a 7% tax on Hotel stay charges.

Potential Collier County Hotel Tax Revenue

In addition to state and county sales tax revenue, Collier County collects a 4% hotel tax for over-night stays or short-term rentals. In order to capture the estimated amount of tourism expenditures within the Miami-Dade County portion of ROGG, South Florida tourism percentages are applied. Of the 15,473,000 (2011) visitors, 89.8% visited Miami-Dade County and 10.2% visited Collier County. These percentages are applied to county sales tax revenues.

Collier County may collect an estimated $165,362 annually, or approximately $4 million over a 25-year period, in hotel tax revenue from ROGG visitor group hotel expenditures and generate over 25,000 hotel night stays.

Note: A typical Hotel Trip Visitor Group stays for an average of 3.5 nights per trip. One hotel room is estimated for each visitor group of 2.7 persons per night.

Potential Miami-Dade County Hotel Tax Revenue

Miami-Dade County collects a 6% hotel tax for over-night stays and short-term rentals. In order to capture the estimated amount of tourism expenditures within the Miami-Dade County portion of ROGG, South Florida tourism percentages are applied. Of the 15,473,000 (2011) visitors, 89.8% visited Miami-Dade County and 10.2% visited Collier County. These percentages are applied to county sales tax revenues.

Miami-Dade County may collect an estimated $2,183,758 annually, or approximately $54.6 million over a 25-year period, in hotel tax from ROGG visitor group hotel expenditures and generate over 222,000 hotel night stays.

Note: A typical Hotel Trip Visitor Group stays for an average of 3.5 nights per trip. One hotel room is estimated for each visitor group of 2.7 persons per night.

Pathway Benefits Summary

The estimated social, environmental and economic benefits associated with the development of the ROGG is strengthened when combined with the full implementation of all proposed alternative transportation strategies throughout the ROGG Study Area. Working in conjunction, the south Florida region could experience the following benefits at full build out of all 75 proposed miles:

- 503,250 visitors to the ROGG;
- Burning of 30 million calories due to the accessibility of ROGG for recreation and exercise;
- Loss of approximately 214,000 pounds over a 25-year period due to increased physical activity;
- Reduction of approximately 114,000 vehicle trips annually;
- Reduction of 8.6 million vehicle miles annually;
- Savings of 6.3 million gallons of gasoline worth over $23 million over a 25-year period;
- Reduction of 3,947 tonnes of CO^2 annually;
- Generation of approximately $96 million in direct visitor expenditures annually;
- Generation of approximately $8.6 million in state and local sales tax and hotel tax revenue annually, or over $214 million in revenue in a 25-year period.

Estimates are based on best available data and are meant to provide a magnitude of potential benefits.

3.6 SUMMARY

"The tendency nowadays to wander in wilderness is delightful to see. Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life."

- John Muir, Our National Parks, 1901

Public Involvement

Public involvement during the ROGG Feasibility Study and Master Plan effort included extensive outreach methods and events. Three primary groups where engaged during the planning process:

Public Participants

The planning team conducted three (3) week-long corridor workshops in three geographically unique areas in or near each segment of the ROGG Study Area from January through March, 2013. Each advertised workshop was well attended and included a public kick-off presentation, multi-day public planning sessions and a final public open house with all work products on display for review and input. Broad levels of input were provided by participants.

Websites

Two websites were hosted throughout the planning process; one a townhall-style public engagement website and the other, an informational depository of project products, notes and contacts. With over 5,600 visitors viewing the engagement website over 34,000 times and contributing over 900 comments and 200 ideas, the public engagement website was a success in gathering broad input from throughout south Florida and the country.

Public Agencies

Through a series of meetings and conference calls with public agencies with direct ownership and/or management responsibilities of lands within the ROGG Study Area, the planning team was able to learn and document opportunities and constraints of publicly generated concepts unique to each agency's mission and operations. Information gathered from these meetings had impacts on the feasibility of concepts, routing alternatives and guidance in the identification of alternative transportation strategies.

Former Rep. James Oberstar visiting the 2013 ROGG West Corridor Workshop at Edison State College, Collier Campus, Naples, FL.

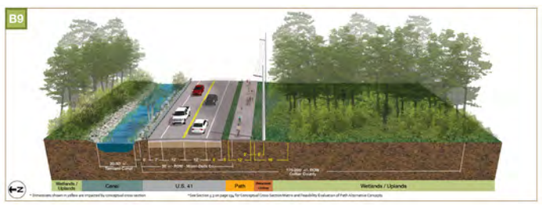
Participants at the 2013 ROGG Central Corridor Workshop at Everglades City Hall, Everglades City, FL.

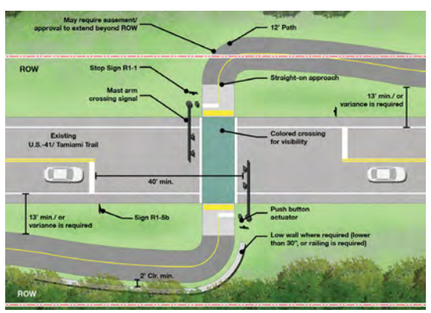
Participants and Planning Team working at 2013 ROGG East Corridor Workshop at Florida International University Miami-Dade County, FL.

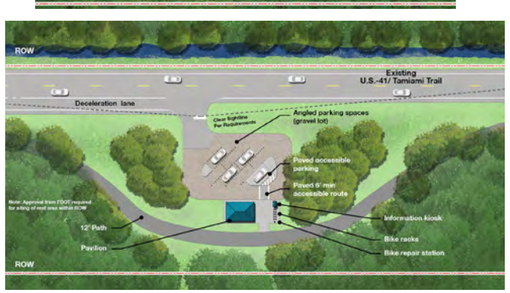
Pathway Components

A shared-use path as complex as ROGG is made up of hundreds of individual components, each specifically designed to met a need, constraint or opportunity. Through extensive public involvement, dozens of concepts were identified for review and refinement. Typical components have been grouped by either location within the cross-section of the U.S. 41 ROW or by function of the component and includes the following:

- Typical Cross-Sections (shown below)
- Crossings (shown below)
- Trailheads (shown below)
- Hubs and Gateways
- Wayfinding





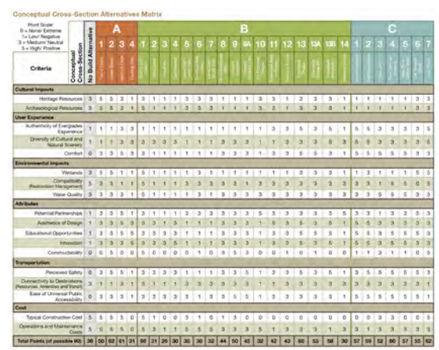


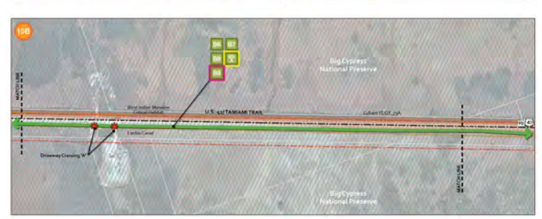
Feasibility Evaluation

Determining feasibility should be an objective and transparent process based on reliable research and analysis for comprehensive criteria. In the case of the ROGG, extensive research informed the determination of feasibility on a point scale system with the highest scoring cross-section having a high degree of feasibility. Six categories were identified and include:

- User Experience
- Environmental Impacts
- Cultural Impacts
- Attributes
- Transportation
- Cost

Within these six categories, 18 individual criterion elements were evaluated for each conceptual typical cross-section.

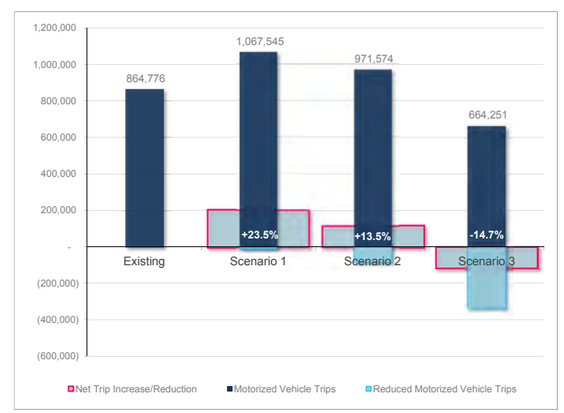




Alternative Transportation

Alternative transportation conditions near to the ROGG Study Area are comprehensive and include two public transit service providers within biking distance of either terminus of the ROGG Study Area. Aside from the use of transit, other alternative transportation options are present including bikeshare and carshare providers. Several examples exist of successful bikeshare providers operating in natural environments and may serve as a model for future programs along ROGG. Parking facilities remain constrained through the Study Area due to the limitations, primarily environmental, of creating additional impervious parking lots at destinations adjacent to wetlands.

Calculations determined that a more extensive and strategically organized set of transportation management measures could actually reduce traffic along U.S. 41 and improve the overall travel experience for ROGG users and travelers along U.S. 41. This comprehensive approach could result in an overall reduction of 39.5% from net levels. When additional trips generated by users of the ROGG are factored in, the overall results equal a 14.7% reduction in vehicle traffic on U.S. 41.



Several strategies can be implemented to counteract potential gains contributed to the ROGG and actually help reduce existing impacts. Most strategies will go beyond just helping to reduce traffic on U.S. 41, many could provide ancillary environmental and economic benefits for the entire south Florida regions.

Pathway Benefits

The estimated social, environmental and economic benefits associated with the development of the ROGG is strengthened when combined with the full implementation of all proposed alternative transportation strategies throughout the ROGG Study Area. Working in conjunction, the south Florida region could experience the following benefits at full build out of all 76.47 proposed miles of shared-use path:

- 503,250 visitors to the ROGG;
- Burning of 30 million calories due to the accessibility of ROGG for recreation and exercise;
- Loss of approximately 214,000 pounds over a 25-year period due to increased physical activity;
- Reduction of approximately 114,000 vehicle trips annually;
- Reduction of 8.6 million vehicle miles annually;
- Savings of 6.3 million gallons of gasoline worth over $23 million over a 25-year period;
- Reduction of 3,947 tonnes of CO^2 annually;
- Generation of approximately $96 million in direct visitor expenditures annually;
- Generation of approximately $8.6 million in state and local sales tax and hotel tax revenue annually, contributing approximately $214 million in revenue over a 25-year period.

Estimates are based on best available data and are meant to provide a magnitude of potential benefits.

Jurisdictional Tax Revenue Estimates

Jurisdiction	Annual Sales Tax Revenue	County Hotel Tax Revenue
State of Florida	$5,435,583	-
Collier County	-	$165,362
Miami-Dade County	$813,522	$2,183,758
Annual Totals:	**$6,249,105**	**$2,349,120**

Part 04
IMPLEMENTATION

"Not often in these demanding days are we able to lay aside the problems of the time, and turn to a project whose great value lies in the enrichment of the human spirit. Today we make the achievement of another great conservation victory."

– President Harry S. Truman, 1947

Introduction

Implementation is often one of the most complicated phases for projects. In this case, the Feasibility Study and Master Plan is not an implementation plan, however, based on comparable research and input from Steering Committee members and the public, recommendations for implementation strategies have been developed. Subsequent phases of planning, design and engineering will include detailed implementation planning. The following section outlines recommendations for the ROGG:

1. Cost Estimates – Analyzes the estimated costs associated with the construction of the ROGG shared-use path. Estimates identified include: capital construction costs as well as estimates of associated contingency recommendations, design costs and project setup and management costs.

2. Benefit-Cost Analysis – Analyzes benefits for society to the costs of construction operation and maintenance of the path and accompanying amenities. Information includes capital construction cost estimates for each segment of ROGG as a basis for analysis.

3. Implementation Phasing – Outlines recommended phasing of projects and segments of ROGG through three major categories representing within high priority (ten years), medium priority (ten to twenty years) and (low priority) over twenty years for likely planning and development phases.

4. Funding Opportunities – Documents potential funding sources from federal, state, local and non-profit agencies and partners. Additional advocacy and support groups are identified along with a comprehensive table of funding source contacts, uses and matching amounts.

5. Project Management Working Groups – Outlines four major working groups for the project management of the ROGG from immediate next steps through construction and operations. Objectives of each working group and potential partners are identified.

4.1.1 Capital Cost Estimates

When addressing capital costs for large-scale greenway and shared-use path projects, it is important to consider a number of contributing factors. As shown in the Comparables Section of this report, many large-scale pathways in the United States are rails-to-trails projects or trails built on former railroad alignments. In many cases, limited improvements, other than pavement of the trail and retrofitting of existing bridges, were needed in order to provide access to the path. Over the last three decades many of these opportunities have been realized and enjoyed throughout the country. Many of the remaining opportunities for pathways can be considered more challenging to develop and require extensive efforts on behalf of many partners. Development of ROGG, with the complexities of the ongoing Everglades restoration efforts, cultural significance and isolation, is one of these complex opportunities.

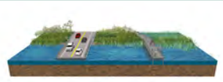
Capital cost estimates for the ROGG corridor are organized into the three corridor segments identified throughout the report; West, Central and East. Estimates have been calculated based on information generated through the identification of a preferred route alternative during the visioning process (Chapter 3). Pathway length, in miles, as well as the type and number of amenities and crossings have been determined for each of the three path segments. Trails of similar scale to ROGG have historically been developed over multiple phases as funding and support allows.

Capital cost estimates were generated using information from previous projects of similar scope, line item estimates from the FDOT Listing of Master Pay Items (2014) and information from private vendors. Magnitude of cost estimates provided in this section identify capital construction costs as well as estimates of associated contingency recommendations, design costs and project setup and management costs. Later phases of work, before any portion of the path is constructed, will include additional cost estimating to include mitigation costs.

The following tables provide a summary of the magnitude of cost estimate for each ROGG segment, including a list of preferred alternative route type and corresponding image, total length of path type, and total cost for the path type. In addition, a description and estimated typical capital construction costs for path amenities and crossings are identified by segment.

ROGG West Cost Estimates
(C.R. 92 / San Marco Rd to S.R. 29)

Preferred Alternatives

ROGG West Preferred Route Alternatives	Path Length in Miles	Cost
B7: Lane Shift- South Side	0.29	$590,000
B9: Expand Shoulder	12.88	$10,862,000
B12: Separate Bridge	0.32	$17,372,000
B13: Boardwalk Bridge 	0.04	$392,000
B13A: Boardwalk Bridge	0.21	$2,109,000
C2: High Boardwalk	1.43	$12,227,000
Path Total	**15.73**	**$43,924,000**
Crossings Total	**17**	**$659,000**
Total	**$44,583,000**	

Typical Trailheads

Trailheads	Number	Cost
Trailhead Improvements at Existing Locations	5	$576,000
New Trailheads	-	-
Trailheads Total	**5**	**$576,000**

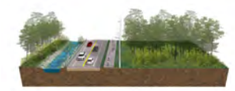
Totals

Total Costs	Cost
Total Path Construction Costs	**$44,583,000**
Total Trailhead Construction Costs	**$576,000**
ROGG West Total Construction Cost	**$45,160,000**
Design Contingency - 25%	$11,290,000
General Requirements - 15%	$6,774,000
A&E Design & Inspection - 10%	$4,516,000

2014 Cost Estimate. Figures are rounded to nearest 000

ROGG Central Cost Estimates
(S.R. 92 to Miami-Dade County Line)

Preferred Alternatives

ROGG Central Preferred Route Alternatives	Path Length in Miles	Cost
B8: Fill in Maintained ROW	0.63	$1,012,000
B9: Expand Shoulder 	29.34	$24,737,000
B12: Separate Bridge	0.28	$15,294,000
B13: Boardwalk Bridge	0.02	$173,000
B13A: Boardwalk Bridge	0.37	$3,710,000
C2: High Boardwalk	1.07	$9,138,000
C3: New Berm	0.49	$520,000
Path Total	**32.20**	**$54,584,000**
Crossings Total	**39**	**$524,000**
Total	**$55,108,000**	

Typical Trailheads

Trailheads	Number	Cost
Trailhead Improvements at Existing Locations	12	$565,000
New Trailheads	5	$1,448,000
Trailheads Total	**17**	**$2,013,000**

Totals

Total Costs	Cost
Total Path Construction Costs	**$55,108,000**
Total Trailhead Construction Costs	**$2,013,000**
ROGG Central Total Construction Cost	**$57,121,000**
Design Contingency - 25%	$14,280,000
General Requirements - 15%	$8,568,000
A&E Design & Inspection - 10%	$5,712,000

2014 Cost Estimate. Figures are rounded to nearest 000

ROGG East Cost Estimates

(Collier County Line to Krome Ave. (S.R. 997))

Preferred Alternatives

ROGG East Preferred Route Alternatives	Path Length in Miles	Cost
A1: Top of Levee	0.07	$42,000
A2: Levee Bench	10.96	$7,014,000
A3: North of Canal	1.01	$671,000
B1: Barrier and Canal	8.35	$5,708,000
B5: Lane Shift - North Side	0.01	$10,000
B8: Fill in Maintained ROW	4.14	$6,626,000
B9: Expanded Shoulder	3.65	$3,081,000
B12: Separate Bridge	0.22	$11,734,000
C1: Low Boardwalk	0.13	$914,000
Total	**28.54**	**$35,800,000**
Crossings Total	**21**	**$645,000**
Total	**$36,445,000**	

Typical Trailheads

Trailheads	Number	Cost
Trailhead Improvements at Existing Locations	7	$837,000
New Trailheads	2	$266,000
Total	**9**	**$1,103,000**

Totals

Total Costs	Cost
Total Path Construction Costs	**$36,445,000**
Total Trailhead Construction Costs	**$1,103,000**
ROGG East Total Construction Cost	**$37,548,000**
Design Contingency - 25%	$9,387,000
General Requirements - 15%	$5,632,000
A&E Design & Inspection - 10%	$3,755,000

2014 Cost Estimate. Figures are rounded to nearest 000

Typical Construction Costs

Construction costs of large-scale shared-use paths can vary due to a number of influencing factors such as construction method, materials, need for bridges, topography, mitigation needs for potential impacts and desired width of the facility. As an alternative transportation mode, the construction costs of a path is best compared to typical costs of other transportation facilities in order to better understand the scale of costs. The following table identifies typical roadway and path/trail costs as estimated by FDOT (2014 costs) for projects in rural conditions, similar to those found in the ROGG Study Area:

Type of Facility	Typical per Mile Cost
New two-lane roadway with 5' paved shoulders	$6,590,650
New four-lane roadway with 5' paved shoulders	$10,715,850
Milling and Resurfacing a four-lane roadway with 5' paved shoulders	$2,251,800

Source: FDOT LRE System (June, 2014)

Summary

ROGG West

The most prominent preferred route alternative found in the ROGG West Segment is the 'B9: Path on Expanded Shoulder' alternative. This alternative is the preferred route for over 85% of the segment but makes up only 26% of the total pathway construction cost in the ROGG West segment. Conversely, the need to bridge existing canals increases construction costs significantly while only providing short lengths of pathway. For instance, the 'B12: Separate Bridge' alternative is the preferred alternative for less than 1/3 of a miles or about 2% of the total ROGG West segment length, but comprises 39% of the segment's cost. Additionally, the 'C2: High Boardwalk' alternative represents approximately 9% of the segments' length, but allocates 28% of the costs in ROGG West.

While the contrast between these path type alternatives and their associated costs appears imbalanced, the desire to reduce impacts to existing conditions and enhance user experiences requires path alternatives with higher costs. Additionally, amenities associated with the preferred route represent less than 3% of the total segment construction costs due to the proximity of existing facilities that may serve as trailheads.

ROGG Central

Similar to ROGG West, the most prominent preferred route path type found in the ROGG Central Segment is the 'B9: Path on Expanded Shoulder' alternative. This alternative is the preferred route for over 91% of the segment's projects, and makes up 45% of the total pathway construction cost. The 'B12: Separate Bridge' alternative is the preferred alternative for approximately 1/4 miles, or less than 1% of the total segment's project's length but accounts for 28% of construction costs. Additionally, the 'C2: High Boardwalk' alternative represents 3% of the corridor path and 17% of total pathway construction costs.

While not as prominent as ROGG West, the short length/high cost ratios associated with bridge alternatives are also present in ROGG Central. This segment contains the largest amount of highway and driveway crossings and amenities associated with the preferred route, representing approximately 5% of the total segment construction costs.

ROGG East

ROGG East contains the largest diversity of route alternatives, with the most prominent preferred route path type being the 'A2: Levee Bench' alternative. This alternative is the preferred route for over 38% of the segment length and makes up 20% of the total pathway construction cost. Significant portions of this segment also contain the 'B1: Barrier and Canal' alternative (29% of segment length, 16% of pathway cost), 'The B8 Fill in Maintained ROW' alternative (15% of segment, 19% of pathway cost), and the 'B9: Expanded Shoulder' alternative (13% of segment length, 9% of pathway cost).

Much like ROGG West, 'B12: Separate Bridge' alternative is the preferred alternative for approximately 1/4 mile, or less than 1% of the total segment length but makes up 33% of total pathway construction costs. Amenities associated with the preferred route represent 5% of the total segment construction costs.

4.1.2 Benefit-Cost Analysis

A Benefit-Cost Analysis (BCA) is a primary tool used for regulatory analysis of alternatives to determine net benefits to society. It is important to identify the limitations of BCAs such as; not all benefits can be expressed in monetary units; and the most efficient alternative may not be the one with the largest monetized net-benefit.

To begin a BCA, a baseline must first be established. In this case a 'no action' baseline is used that consists of no additional actions to construct or improve the ROGG. The basis of this analysis is transparency of the evaluation which allows for replication of each step, similar to the transparency used for the Benefits Analysis in Chapter 3. As such, the BCA attempts to quantify a comprehensive array of benefits to society, however, the earlier Benefits Analysis provides a broader view of benefits for all parties, e.g. society, public agencies, revenue generating entities, etc.

Both benefits and costs are strictly expressed in monetary units. A ratio of benefits to cost is a byproduct of the analysis, however, this ratio should not be used solely in determining alternatives with the highest net benefit. This is due to some benefits not being able to be expressed in monetary units such as educational benefits, conservation benefits, aesthetics, or other non-societal benefits such as additional tax revenues.

BCAs function on a concept of valuing benefits and costs equally as a 'willingness-to-pay' concept which is a notion of measuring what individuals are willing to forgo to enjoy a particular benefit. For example, users of ROGG will likely contribute to additional tax revenues, as documented in the Benefits Analysis, through the collection of new sales hotel tax revenues, however, this is not a societal benefit. An appropriate benefit is the willingness of users to forgo monetary value in order to have an experience exploring the natural environment, exercising or sightseeing. This is a general recreational benefit the ROGG can provide to future users which has an accepted monetary value for most individuals.

In order to more accurately analyze the costs and benefits of an alternative spread over a long period of time, certain factors such as inflation and loss of other positive returns on investments must be accounted. As such, the costs and benefits of ROGG will be discounted on two levels as established by the Federal Office of Management and Budget (OMB). Using the simple principle that people place a higher value on current consumption than on future consumption, a range of discounts for scenarios has been established. The highest level of discount is 7% which typically accounts for expected return on private investment. The lowest discount level used is 3% which typically accounts for inflation and other factors for public investments which do not eliminate public funding for private investment. Though both discounts will be analyzed, the lower, 3% discount rate, is the likely scenario for ROGG.

For the purpose of this BCA, the entire build-out of all 76.47 miles of ROGG within the study area and development of Scenario 3 - Progressive Demand Management elements will be analyzed. For simple study purposes, the construction period has been set at 24 months, however, development will likely occur in phases over a longer period of time which many increase the BCA ratio as costs would be spread over more years while benefits increase. The analysis period used is 20 years which is the typical lifespan of a trail tread or surface.

Capital Costs

Capital construction costs for the shared-use path was estimated to be approximately $140 million as identified in Section 4.1 of this report. In addition, there are capital costs of constructing eight Bike Share Stations along the length of the route and capital expenses of buses/shuttles which have been included as part of the inclusion of Alternative Transportation Scenario 3 (see Section 3.4). The total capital costs for the development of ROGG and corresponding projects is estimated to be approximately $145.25 million. The capital costs are applied over the hypothetical 24-month construction period for the project, beginning in December, 2016 and ending in November 2018.

The capital costs for the project discounted at 7% yield a total of $122.72 million and at 3% yields a total of $134.92

Total Capital Costs Analysis

Path Costs	Alt. Transportation Costs
$140M	$5.25M
Total Capital Costs - $145.25M	
Discounted at 7% - $122.72M	
Discounted at 3% - $134.92M	

Operating & Maintenance Costs

Most shared-use paths require annual and periodic operating and maintenance (O&M) in order to keep the facility in good condition for users. These costs include; mowing, litter control, spot repairs, etc. In order to gain a comprehensive view of O&M costs, alternative transportation expenses should be included. These costs include transit/shuttle service on a 30 minute head time and additional marketing needs. Maintenance is projected to begin in December 2018, and is estimated at $2,500 per mile for spot pavement repairs per year, as well as $5,000 per mile per year for other maintenance needs for the path, $3 million annually for transit/shuttle service and $50,000 annually in additional marketing. Multiplying the trail O&M by the estimated 76.47 miles of the project yields the annual O&M costs throughout the analysis period.

The total O&M costs over the analysis period is estimated to be $72.40 million. Discounting at 7%, the cost is $31.31 million and $49.29 million when discounted at 3%.

Total Operating & Maintenance Costs Analysis

Annual O&M - $0.57M
Annual Transit Service - $3M
Annual Marketing Alt. Transportation - $50k
Total O&M Costs Over 20 Yrs. $72.25M
Discounted at 7% - $31.24M
Discounted at 3% - $49.18M

Safety Benefit

Development of ROGG and corresponding alternative transportation options would likely result in a decline in auto users to the Everglades, as more people arrive at the path using alternative transportation options. This would reduce the number of vehicle miles traveled on roads, which, in turn, reduces the likelihood of crashes and associated deaths, injuries and property damage. Data from the Bureau of Transportation Statistics Accident Rates for crash and fatalities per 100,000,000 VMT was used to calculate crash reduction factors.

These crash reduction factors were then converted to the Maximum Abbreviated Injury Score (MAIS) accident types in order to apply US DOT guidance on the value of avoiding an accident. The conversion is based on the National Highway Traffic Safety Administration's KABCO-Abbreviated Injury Scale (NHTSA KABCO-AIS) Conversion Table (July 2011).

For the purpose of this analysis, no growth in trips or associated VMT avoided is assumed over the analysis period. As discussed in Chapter 3, a total of 8,618,475 VMT may be reduced each year from public use of the path and alternative transportation. Applying crash reduction factors to the VMT reduced and converting to MAIS accident type results in estimates of annual fatalities and injuries avoided. Estimates show two fatalities, 130 injuries and 320 accidents may be avoided over a twenty-year period. The total annual value for accident severity is based on US DOT guidance and the National Highway Safety Council estimates for the value of avoiding an accident. Applying the crash costs to the projections of crash reductions by injury type yields annual savings. These results aggregate over the analysis period yields a total safety benefit of $42.62 million.

Discounted at 7%, the benefit amount to $18.43 million and at 3% it amounts to $29.01 million.

Safety Benefits Analysis

Safety Costs Avoided over 20 Years	$42.62 M
Discounted at 7%	$18.43 M
Discounted at 3%	$29.01 M

Health Benefits

According to the United States Centers for Disease Control and Preventions (CDC) 2008 Physical Activity Guidelines for Americans, a typical adults needs 150 minutes of moderate intensity aerobic activity (i.e. brisk walking), or 75 minutes of vigorous intensity aerobic activity (i.e. jogging or running), every week. CDC defines brisk walking as a pace of three miles per hour or more for an average adult which means up to 7.5 miles of walking. For cycling, the Livestrong organization has identified the average speed for adults to be 11 miles per hour or approximately 13.75 miles in a 75 minute period.

Based on user projects estimated in Section 3.5, ROGG is estimated to have 503,250 visitors per year at full build out of all 76.47 proposed miles. In order to estimate one-time per visitor health benefit for exercising on the ROGG, the total number of visitors was divided by the number of weeks in a year to estimate of the number of weekly visitors, approximately 9,678, that would be meeting individual activity guidelines. It is assumed that each visitor walks or cycles on the ROGG to the extent defined by the CDC as meeting Physical Activity Guidelines for American, therefore, each visitor would experience a one-time per visitor monetary medial savings. This would be similar to 9,678 users visiting the ROGG each week of year (9,678 weekly users x 52 weeks a year = 503,250 annual visitors).

According to the U.S. Bureau of Labor Statistics Consumer Price Index Detailed Reports for medical costs, adjusted for inflation to 2014 costs, each person that meets CDC defined activity guidelines may experience a direct health care cost savings of $322 annually. Applying the escalated value of the health benefit to the number of visitors results in a total benefit of $62.33 million.

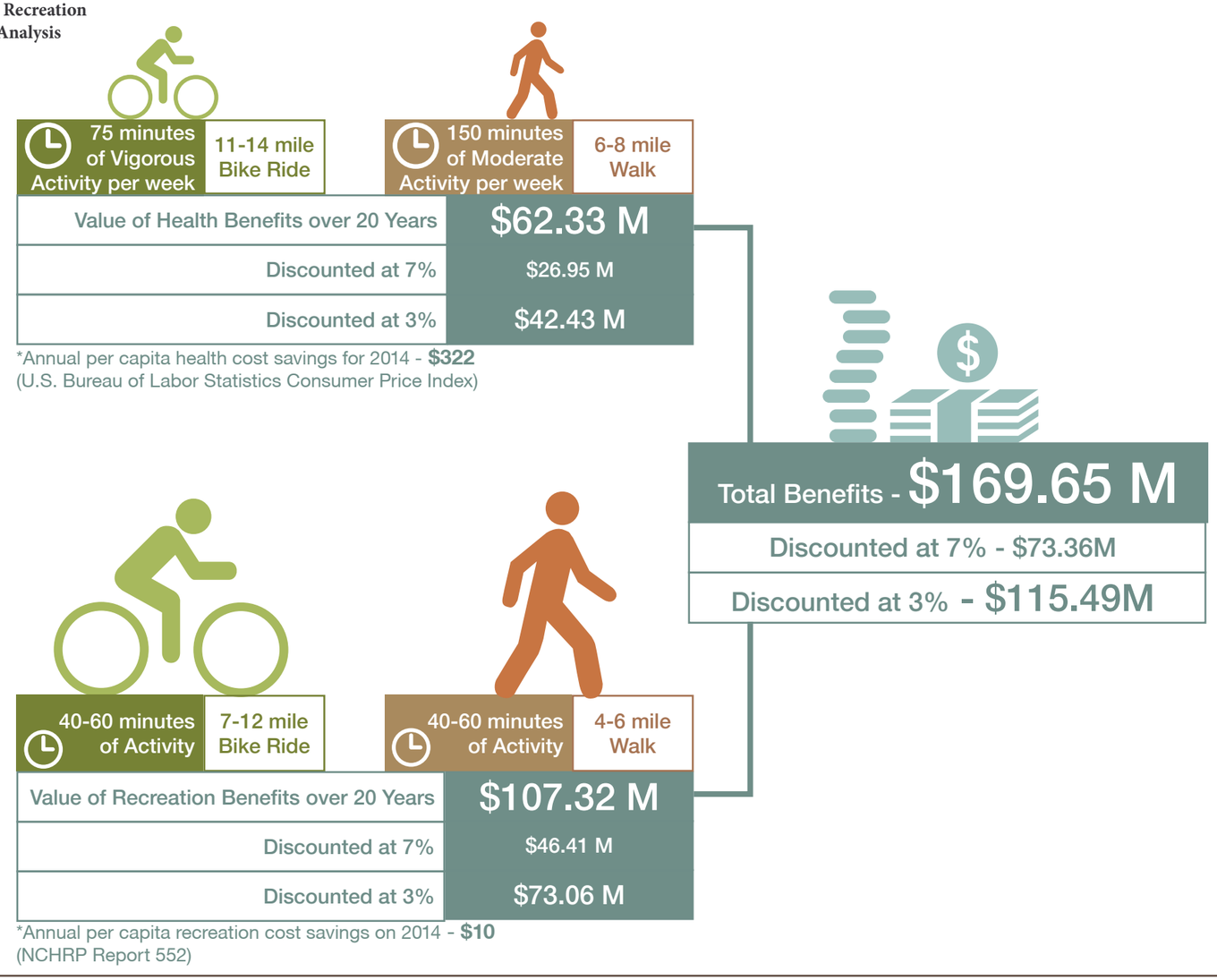
Discounting at 7% yields a savings of $26.95 million and at 3% it results in a saving of $42.43 million.

Recreation Benefits

Based on multiple hedonic studies of the value of recreation, National Cooperative Highway Research Program (NCHRP) Report 552 estimates that cyclists value the experience of a typical 40-60 minute bike ride at $10 (2006). This was escalated to $10.66 for 2014 costs using the GDP Price Index Deflater (2014 GDP Price Index Estimate - 1.0781) and applied to the number of visitors to ROGG (walkers and cyclists). The analysis assumes that walkers value their recreational time and experience the same as cyclists, and is conservative in assuming that each visitor would only spend on average 40-60 minutes using the ROGG. Applying the escalated value of the recreational benefit to these new users results in a total health benefit of $107.32 million.

Discounting at 7% yields a net benefit valued at $46.41 million and at 3% it results in a net benefit valued at $73.06 million.

Health & Recreation Benefits Analysis



Congestion Costs Avoided

As visitors utilize alternative transportation to access the ROGG, or use ROGG to access destinations along U.S. 41, a reduction in the number of cars on U.S. 41 may be experienced. The diversion of trips to the ROGG and other corresponding alternative transportation is estimated to result in a reduction in vehicle miles traveled (VMT) as identified in Scenario Three - Progressive Demand Management of the Alternative Transportation Analysis in Section 3.4 of this report. The estimate of reduced VMT utilized for this study is 8,618,475 annually upon completion of the ROGG and other alternative transportation elements. In order to remain conservative in the net benefit estimate, no increase in trips is assumed in the analysis period. Cost savings to the general public are provided by less congestion during peak use of U.S. 41.

The National Highway Traffic Safety Administration estimates the marginal congestion costs per VMT to be $0.056 cents (in 2010) or $0.060 cents (in 2014) for an automobile. Applying congestion cost to the annual reduction in VMT results in a total of $10.32 million in congestion costs savings.

Discounting at 7% yields a total congestion cost net savings of $4.46 million and at 3% it results in a net saving of $7.02 million.

Congestion Costs Avoided Analysis

Congestion Costs Avoided over 20 Years	
Discounted at 7%	
Discounted at 3%	

*External Costs from Additional Automobile Use ($/vehicle-mile) for 2014 - **$0.06** (https://www.federalregister.gov/articles/2012/10/15/2012-21972/2017-and-later-model-year-light-duty-vehicle-greenhouse-gas-emissions-and-corporate-average-fuel#t-176)

Vehicle Costs Avoided

As noted in the congestion cost savings, a reliance on using the ROGG and other alternate transportation modes such as bikeshare, shuttle and transit, fewer vehicle trips may be completed by visitors, resulting in less wear and tear on vehicles. Future visitors may not incur as much vehicle maintenance and fuel costs, along with other parking expenses, for trips to the region to visit the ROGG or other destinations. By using the estimated VMT reduction provided by Alternative Transportation Analysis - Scenario Three - Progressive Demand Management, the annual cost savings of avoided vehicle expenses can be estimated.

The average auto operating cost per mile applied in this analysis is $0.204 (for 2013). This is based on AAA Your Driving Costs, 2013 and includes variable costs, such as, gas, maintenance, tires, and half of typical vehicle depreciation. Escalating to 2014 using the GDP deflater, the average auto operating cost per mile is $0.207. Applying the vehicle operating costs to the estimated VMT reduction results in the auto costs avoided of $35.72 million. Parking fees, which are not typically collected in the corridor, except for park entrance fees, were not included in this estimate.

Discounting at 7% yields a total vehicle cost net savings of $15.45 million and at 3% it results in a net saving of $24.32 million.

Vehicle Costs Avoided Analysis

Vehicle Costs Avoided over 20 Years	$35.72 M
Discounted at 7%	$15.45 M
Discounted at 3%	$24.32 M

*Average Auto Operating Costs per mile for 2014 - **$0.207** (AAA, Your Driving Costs, 2013)

Emissions Avoided

In addition to reduced congestion costs and avoided vehicle cost, a reduction in VMT has one more significant monetary savings for society; avoided vehicle emission costs. As VMT may be reduced upon implementation of the Progressive Demand Management scenario for Alternative Transportation, the amount of Nitrogen Oxide (NOx), hydrocarbons (HC), and Carbon Dioxide (CO_2) in the region may be reduced. 1997 Emission Rates for hydrocarbons (1.37) and nitrogen oxides (1.39) was derived from the Florida State Urban Transportation Model Structure (FSUTMS) by FDOT.

The emission rates in grams per mile for HC and NOx are multiplied by an appropriate conversion factor to calculate the volume in short tons per mile for each pollutant type. The tons of emissions avoided per VMT reduced are multiplied by the estimated annual VMT avoided. The resulting short tons are multiplied by the economic value of the emissions damage cost and escalated to 2014 using the GDP deflater. The total savings over a 20-year period is estimated to be $2.45 million.

Discounting at 7% yields a total emission avoided savings of $1.07 million and at 3% it results in a saving of $1.67 million.

Vehicle Emissions Avoided Analysis

Emission Damage Costs	Value of Emissions, 2014	Unit
Carbon Monoxide	**$ 0**	$/ton
VOC	**$ 1,813**	$/ton
Nitrogen Oxides	**$ 7,147**	$/ton
Particulate Matter	**$ 326,935**	$/ton
Sulfur Dioxide	**$ 42,240**	$/ton
Carbon Dioxide	*varies*	$/metric ton
Hydrocarbons	**$ 2,040**	$/ton

Source: Corporate Average Fuel Economy for MY2017- MY2025 Passenger Cars and Light Trucks (August 2012), page 922, Table VIII-16, "Economic Values Used for Benefits Computations (2010 dollars)" http://www.dot.gov/sites/dot.gov/files/docs/TIGER_BCARG_2014.pdf

Emissions Avoided over 20 Years	$2.45 M
Discounted at 7%	$1.07 M
Discounted at 3%	$1.67 M

Summary

Through an analysis of associated costs and benefits, a comprehensive picture can be identified of the overall benefit that ROGG would have for the South Florida region. The benefit-cost analysis table below provides a summary of the capital costs for developing the ROGG and accompanying alternative transportation, as well as, the operational and maintenance costs projected over a 20-year period. A range of benefits has been analyzed and the monetary benefits to society have estimated. Each cost and benefit has been discounted for a range of factors that include comparison to private investment performance and public investment and inflationary impacts. For purposes of this study, a 3% discount rate is the most likely scenario as private financing is typically for such types of projects.

At a 3% discount rate the development and on-going operational and maintenance costs for ROGG and accompanying alternative transportation elements would be near a net positive project, meaning that society could gain more monetary benefits than investments needed to construct and maintain the facility. Important notes include; the benefit-cost analysis does not include all benefits to society, only those that can be monetized and estimated; costs include capital construction costs only and do not factor potential needs for acquisition of land or mitigation costs. These elements may be included in future phases of analysis, engineering or design.

Benefit-Cost Analysis Summary

Costs	7% Discount Rate	3% Discount Rate
Capital Costs	**$ 122.72M**	**$ 134.92M**
Operations & Maintenance	**$ 31.31M**	**$ 49.29M**
Total Costs	**$ 154.02M**	**$ 184.20M**
Benefits	**7% Discount Rate**	**3% Discount Rate**
Health	**$ 26.95M**	**$ 42.43M**
Recreation	**$ 46.41M**	**$ 73.06M**
Safety	**$ 18.43M**	**$ 29.01M**
Congestion Avoided	**$ 4.46M**	**$ 7.02M**
Vehicle Costs Avoided	**$ 15.45M**	**$ 24.32M**
Emissions Avoided	**$ 1.06M**	**$ 1.67M**
Total Net Benefits	**$ 112.76M**	**$ 177.51M**
Benefit-Cost Ratio	**0.73**	**0.96**

4.2 FUNDING OPPORTUNITIES

"Everglades National Park is at once a limited and vast sampling of a region full of contrast.... This park, which is chiefly of biological interest, requires a different perspective on the part of the visitor."

– Charles W. Tebeau, Man in the Everglades, 1968

Introduction

Funding potential future development and operation of the ROGG will require financial support from a variety of federal, state, local and private sector sources, this can be referred to as employing a "funding quilt" approach which is in essence knitting together a variety of different funding sources to finance the development of a single project element. In order to develop the ROGG project, the following steps should be taken:

1. Subdivide the ROGG into Phases: ROGG priority projects should be identified and subdivided into several phases of construction and development. It is easiest to work in increments of three to ten miles in terms of off-road path development or future phases of work such as Project Develop and Environment (PD&E) studies or other environmental studies.

    - Logical Endpoints: It is important to have logical endpoints for each project, wherever possible. Logical endpoints can consist of connections to existing greenways or bicycle and pedestrian facilities, existing or planned trailheads, community facilities, state or federal parklands and facilities, or tribal lands and facilities. Logical endpoints provide a functionality for each segment or phase that is independent of the entire project offering.

    - Cost of Each Phase: Generally speaking, it will be easiest to fund project segments that are in the $5-$10 million range. This will make it easier in terms of raising needed funds, appealing to the widest range of construction contractors, obtaining bonding and insurance for construction, and managing project construction.

2. Project Development Sponsors: Future development of the ROGG will need to attract a variety of federal, state, regional and local project sponsors. The project spans a significant distance from Naples to Miami, and crosses multiple local, regional, state, federal and tribal jurisdictions. The following should be considered eligible project development sponsors:

    - Federal agencies
    - State of Florida
    - South Florida Water Management District
    - Collier County and municipal governments
    - Miami-Dade County and municipal governments
    - Private sector foundations and non-profits

3. Pursue "Low-Hanging Fruit": Project phases should be ordered in terms of those that are easiest or easier to accomplish versus those that are more or most challenging to build.

4. Target Funding Types: The ROGG can be effectively broken into three major elements of project funding: a) acquiring right-of-way or land for construction; b) completing path facility (the travelway) construction, which includes design, environmental studies, permitting of construction, construction and construction inspection; and c) completing construction of trailheads and project amenities. Different sources of funding will support the elements separately and in some cases altogether.

    - Right-of-Way Acquisition: The majority of the preferred route is within FDOT Right-of-Way. Portions of the preferred route may be on the bench of the L-29 Levee are within SFWMD easements, some of which transverse private properties. In these cases, new easements may be required in order to route a publicly accessible route across these properties, however, it should be noted that public access is currently provided across these properties with existing elements.

    - Path Facility Construction: Path construction may be off-road on the bench of existing levees and historic roadways, along existing canals or on independent right-of-ways defined exclusively for path development.

    - Trailheads and Amenities: Specifically designated areas along the study area may be improved to include trailhead amenities that support path users at existing facilities.

Example of Greenway Funding

Razorback Regional Greenway, Northwest Arkansas

The Razorback Regional Greenway in Northwest Arkansas is a 36-mile greenway that extends across two counties and through six cities. The project was jointly sponsored by the Northwest Arkansas Regional Planning Commission (MPO) and the Walton Family Foundation (private sector foundation), and consisted of a federally funded and non-federally funded project. The greenway took approximately three years to build, from concept to finished construction. The work involved completing design and engineering construction documents for approximately 21 miles of trail, obtaining environmental permits (in accordance with the National Environmental Policy Act (NEPA)), obtaining the greenway right-of-way for public and privately owned lands (130 separate parcels of privately owned land), and construction of a ten to twelve foot wide off-road concrete trail, with several on-road segments in the form of cycle tracks and bicycle lanes. Below is a summary of the funding sources, the amounts contributed and the source.

Federally Funded Segments – 16 miles in total length	
USDOT FHWA TIGER 2 Grant Award	$15,000,000 (80% of total funding)
Walton Family Foundation Matching Grant	$3,750,000 (20% matching funds)
Walton Family Foundation Grant	$1,477,500 (supplemental funding)
Non-Federally Funded Segments and Work – approximately 5 miles in total length	
Walton Family Foundation	$6,047,000 (Trail Construction)
The Care Foundation (local health)	$600,000 (Trailhead Construction)
Home Depot Corporation Grant	$108,000 (Trail Construction)
Environmental Protection Agency	$500,000 (Environmental Restoration – 319 funds)
Transportation Alternatives Grant	$400,000 (Trailhead Construction)
Mercy Hospital Corporation	$200,000 (value of donated land)
City of Fayetteville	$100,000 (Trail Construction)
Walton Family Foundation	$400,000 (value of donated land)
Total Project Funding	**$28,355,000**

4.2.1 Federal Funding Sources

This section begins with a listing of federal funding sources that are traditionally used to build greenway and shared-use path projects throughout the United States. Federal funding is typically made available to local project sponsors as pass-through funding from State agencies, either in the form of grants or direct appropriations. Federal funding will usually require a local match of between five to 50%. The following is a list of possible Federal funding sources that could be used to support construction of the ROGG elements.

Fixing America's Surface Transportation (FAST) Act

The largest source of federal funding for pedestrian and bicycle projects is the USDOT's Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916.

FAST Act, signed into law on December 4, 2015 authorizes funding for federal surface transportation programs including highways and transit. It is not possible to guarantee the continued availability of any listed FAST Act programs, or to predict their future funding levels or policy guidance. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs.

In Florida, federal monies are administered through FDOT and the Metropolitan Planning Organizations (MPOs). Most, but not all of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements, safety and education programs, and projects must relate to the surface transportation system. There are a number of programs identified within FAST Act that are applicable to pedestrian and bicycle projects.

Transportation Alternatives Program (TAP)

Transportation Alternatives Program (TAP) is the funding source under FAST that consolidates three formerly separate programs: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TAP funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TAP does not provide a guaranteed set-aside for this activity.

Average annual funds available through TAP over the life of MAP-21, a precursor to FACT Act equaled $814 million nationally, which was based on a two percent set-aside of total MAP-21 allocations. Note that state DOTs may elect to transfer up to 50% of TAP funds to other highway programs, so the amount listed on the website represents the maximum potential funding. Remaining TAP funds (those monies not re-directed to other highway programs) are disbursed through a separate competitive grant program administered. Local governments, school districts, tribal governments, and public lands agencies are permitted to compete for these funds.

In Florida, this program is operated by the FDOT through the Environmental Management Office (EMO). This is a cost reimbursement program that must follow certain procedures in order to qualify for funding. During FY 2014, approximately $50 million was made available for eligible activities. There are nine eligible activities that can be funded through this program:

1. Construction, planning and design of on-road and off-road facilities for bicyclists, pedestrians and other non-motorized transportation.
2. Construction, planning and design of infrastructure-related projects to provide safe routes for non-automobile drivers.
3. Conversion of abandoned railroad corridors for non-motorized use.
4. Construction of turnouts, overlooks and viewing areas.
5. Inventory, control and removal of outdoor advertising.
6. Historic preservation and rehabilitation of historic transportation facilities.
7. Vegetation management in transportation rights of way.
8. Archaeological activities eligible under Title 23.
9. Environmental mitigation activities.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. Fifty percent of each state's STP funds are allocated by population to the MPOs; the remaining fifty percent may be spent in any area of the state. In Florida, this program is operated by the Florida Department of Transportation. During FY 2014 approximately $500 million has been made available to fund eligible activities.

Highway Safety Improvement Program (HSIP)

Highway Safety Improvement Program (HSIP) provides $2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. FAST preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities have increased on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. In Florida, during FY 2014, approximately $124 million was available for eligible activities.

Congestion Mitigation/Air Quality (CMAQ) Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no non-attainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile.

Purely recreational facilities generally are not eligible. Communities located in attainment areas that do not receive CMAQ funding apportionments may apply for funding to implement projects that will reduce travel by automobile. In Florida, during FY 2014, approximately $13 million was made available for eligible activities.

Federal Lands and Tribal Transportation Program (FLTTP)

The FLTTP funds projects that improve access within federal lands (including national forests, national parks, national wildlife refuges, national recreation areas, and other federal public lands) on federally owned and maintained transportation facilities. Five federal programs are eligible for this funding: National Park Service, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Army Corps of Engineers and the Bureau of Land Management.

Federal Transit Administration (FTA): Alternative Transportation in Parks and Public Lands (ATPPL)

A Federal Transit Administration (FTA) grant was used to fund the preparation of this plan for the ROGG. In addition to planning funds, the purpose of this program is to enhance the protection of national parks and federal lands and increase the enjoyment of those visiting them. The goals of the program are to conserve natural, historical, and cultural resources; reduce congestion and pollution; improve visitor mobility and accessibility; enhance visitor experience; and ensure access to all, including persons with disabilities. The program funds capital and planning expenses for alternative transportation systems such as shuttle buses and bicycle trails in national parks and public lands. This funding source makes National Park System lands explicitly eligible and includes bicycle, pedestrian and non-motorized watercraft projects in the definition of alternative transportation.

National Scenic Byways Discretionary Grant Program

The National Scenic Byways Discretionary Grants program provides merit-based funding for byway-related projects each year, utilizing one or more of eight specific activities for roads designated as National Scenic Byways, All-American Roads, State scenic byways, or Indian tribe scenic byways. The activities are described in 23 USC 162(c). This is a discretionary program; all projects are selected by the US Secretary of Transportation.

Eligible projects include construction along a scenic byway of a facility for pedestrians and bicyclists and improvements to a scenic byway that will enhance access to an area for the purpose of recreation. Construction includes the development of the environmental documents, design, engineering, purchase of right-of-way, land, or property, as well as supervising, inspecting, and actual construction.

The Tamiami Trail was at one time a National Scenic Byway (designated in 2000) but lost this designation in 2008 due to lack of local support. If the designation were to occur in the future, the roadway would be eligible for funding under this program for roadway improvements that would accommodate bicycle and pedestrian travel.

Eligible Types of Projects:

1. State and Tribal Programs - An activity related to the planning, design, or development of a State or Indian tribe scenic byway program.
2. Corridor Management Plans - Development and implementation of a corridor management plan to maintain the scenic, historical, recreational, cultural, natural, and archaeological characteristics of a byway corridor while providing for accommodation of increased tourism and development of related amenities.
3. Safety Improvements - Safety improvements to a State Scenic Byway, Indian tribe scenic byway, National Scenic Byway, or All-American Road to the extent that the improvements are necessary to accommodate increased traffic and changes in the types of vehicles using the highway as a result of the designation as a State scenic byway, Indian tribe scenic byway, National Scenic Byway, or All-American Road.
4. Byway Facilities - Construction along a scenic byway of a facility for pedestrians and bicyclists, rest area, turnout, highway shoulder improvement, overlook, or interpretive facility .
5. Access to Recreation - An improvement to a scenic byway that will enhance access to an area for the purpose of recreation, including water-related recreation.
6. Resource Protection - Protection of scenic, historical, recreational, cultural, natural, and archaeological resources in an area adjacent to a scenic byway.
7. Interpretive Information - Development and provision of tourist information to the public, including interpretive information about a scenic byway.
8. Marketing Program- Development and implementation of a scenic byway marketing program.

Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to "improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide." The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure: *"Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health"*.

The Partnership is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including TIGER grants). Florida jurisdictions can track Partnership communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrowly limited in scope to pedestrian improvement efforts.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Florida Recreation Development Assistance Program (FRDAP) and the LWCF as a grant program. Maximum annual grant awards for county governments, incorporated municipalities, public authorities, and federally recognized Indian tribes are $200,000. The local match may be provided with in-kind services or cash.

U. S. Army Corps of Engineers (USACE), Jacksonville (FL) District

The U.S. Army Corps of Engineers (USACE), Jacksonville District, established in 1884, is the second largest civil works district in the U.S. Army Corps of Engineers, with an area of responsibility encompassing Florida and the Caribbean. The Jacksonville District is one of 42 districts in the United States, Europe and Asia, and one of five within the South Atlantic Division. The Jacksonville District provides planning, engineering, construction and operations products and services to meet the needs of the Armed Forces and the nation.

The USACE Jacksonville District mission includes five broad areas:

- Water resources
- Environment
- Infrastructure
- Homeland security
- Warfighting

Within these mission areas, programs and projects include:

- Ensure navigable harbors and channels
- Provide flood damage reduction
- Restore ecosystems
- Protect wetlands
- Stabilize shorelines
- Provide recreational opportunities
- Respond to natural disasters and in emergency situations
- Provide technical services to other local, state, federal and international agencies on a reimbursable basis.

The Jacksonville District operates recreation and trail facilities in the Lake Okeechobee and Okeechobee Waterway. The District is also heavily involved in the ecosystem restoration of the Everglades. Funding of recreation and trails comes through programmatic activities of the District. The Jacksonville District also manages and maintains the flood control levee system that is part of the preferred route for ROGG

U.S. Environmental Protection Agency (EPA): 319 Program Funds

The EPA is responsible for implementing the Clean Water Act. The 1987 amendments to the Clean Water Act (CWA) established the Section 319 Nonpoint Source Management Program. Section 319 addresses the need for greater federal leadership to help focus state and local nonpoint source efforts. Under Section 319, states, territories and tribes receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects. Clean Water Act Section 319(h) funds are provided

only to designated state and tribal agencies to implement their approved nonpoint source management programs. State and tribal nonpoint source programs include a variety of components, including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and regulatory programs. Each year, EPA awards Section 319(h) funds to states in accordance with a state-by-state allocation formula that EPA has developed in consultation with the states.

4.2.2 State of Florida Funding Sources

The State of Florida is another source of funds for future development of the ROGG. The state is recipient of many federal grants that could be used to support future development of the ROGG. The state has also enacted unique legislation that offers funding, independent of federal sources that can be used to support future development of the ROGG. The following information lists the various state agencies that provide grant funding in support of greenway development.

Florida Department of Transportation (FDOT)

The vast majority of funding available for Greenway development throughout the State of Florida has already been defined and described under federal sources. Additionally, FDOT enacted a 2012 Strategic Highway Safety Plan that makes bicycle and pedestrian safety one of eight areas of emphasis. The State Safety Office within FDOT operates the bicycle and pedestrian safety campaign. While this is an area of emphasis, there is no independent source of funding, other than what is described under federal sources for facility improvements.

Of significance to the ROGG is the ROGG U.S. Highway 41 PD&E Pathway study, which makes recommendations for improvements to C.R. 92/ San Marco Rd. for a future shared-use path. These recommendations offer funding for improvements that can become part of the ROGG.

South Florida Water Management District (SFWMD)

The SWFMD is a regional governmental agency that oversees water resources in the southern half of Florida, covering 16 counties from Orlando to the Florida Keys and serving a population of 8.1 million residents. It is the oldest and largest among Florida's water management districts. It was created in 1949 to balance and improve water quality, flood control, natural systems and water supply. A key initiative is the restoration of the Everglades. The District is working to improve the Kissimmiee River and the floodplain, Lake Okeechobee and South Florida's coastal estuaries.

The District's annual budget is funded by a combination of property taxes and other sources, such as state appropriations, federal and local revenues, licenses, permit fees, grants, agricultural taxes, fund balances and investment income. The agency is a special taxing district with the authority to collect ad valorem (property) taxes from landowners within the 16-county jurisdiction.

Florida Water and Land Conservation Initiative (Amendment I)

The Florida Water and Land Conservation Initiative, also known as "Amendment 1," was approved by Florida voters on November 4, 2014. The specifics of the Amendment have not been worked out at the time this report was written. The Florida legislature will define how the program will operate. The original purpose of the Initiative would be to dedicate 33 percent of net revenue from the existing excise tax on documents in support of the Land Acquisition Trust Fund. When the Fund is established the goal will be to acquire and improve conservation easements, wildlife management areas, wetlands, forests, fish and wildlife habitats, beaches and shores, recreational trails and parks, urban open space, rural landscapes, working farms and ranches, historical and geological sites, lands protecting water and drinking water resources, and lands in the Everglades Agricultural Areas and the Everglades Protection Area. The Fund was designed to manage and restore natural system and to enhance public access and recreational use of conservation lands.

Florida Department of Environmental Protection (FDEP): Florida Recreation Development Assistance Program (FRDAP)

The Florida Recreation Development Assistance Program (FRDAP) is administered by the DEP. This is a competitive grant program providing funds to local communities for public outdoor recreation. The application cycle for 2015 had a deadline for applications due February 27, 2015. The program provides financial assistance for acquisition or development of land for public outdoor recreation. Eligible participants include all county governments, municipalities in Florida and other legally constituted local governmental entities, with the responsibility for providing outdoor recreational sites and facilities for the general public.

Florida Office of Greenways and Trails (OGT)

The OGT operates within FDEP and is responsible for establishing a statewide system under the Florida Greenways and Trails Act. The OGT works with the Florida Greenways and Trails Council (FGTC) to define Florida's vision for a connected trails system and determine eligibility for land purchases. OGT manages more than 88,000 acres of land, including the Marjorie Harris Carr Cross Florida Greenway and eight (8) state trails. OGT also acquires property through the Florida Greenways and Trails Acquisition Program, which is funded annually at $4.5 million under Florida Forever. OGT also applies for and receives funding from the Federal transportation enhancements program to develop trails, trailheads and bridges. To be eligible for state funds for land acquisition, a trail project must be located within or adjacent to the state-determined Recreation Prioritization lands, have at least 80% of landowners willing to sell, and have a management entity. ROGG is identified as a priority trail by OGT on the 2015 Priority Trails map.

Florida Department of State Division of Historical Resources, Historic Preservation Grants

The Division of Historical Resources provides grants to support the preservation of important historic/ archaeological sites as well as the creation of historic and cultural trails. A state-funded grants program for the identification, protection, or rehabilitation of historic and archaeological sites and the provision of the public information about these sites. Projects are evaluated on the criteria of historic significance, endangerment, and appropriateness of preservation effort, administrative capability, economic benefits, adequacy of technical and financial resources, educational potential, and public good resulting from the project. The Division can provide technical assistance and information about sites and areas that could be incorporated into greenways and trails. The National Register of Historic Places Program, administered by the National Park Service and the State Historic Preservation Officer with the Florida Department of State, Division of Historical Resources, assists local governments and nonprofit organizations in preparing nominations and provides funding for protecting historic and cultural resources through the Florida Historic Preservation Grants Program. Several sites and landscapes along the ROGG would qualify for funding through this program.

Florida Communities Trust (FCT)

The Florida Communities Trust (FCT) assists communities in protecting important natural resources, providing recreational opportunities and preserving Florida's traditional working waterfronts through the competitive criteria in the Parks and Open Space Florida Forever Grant Program and the Stan Mayfield Working Waterfronts Florida Forever Grant Program. These local land acquisition grant programs provide funding to local governments and eligible non-profit organizations to acquire land for parks, open space, greenways and projects supporting Florida's seafood harvesting and aquaculture industries. The source of funding for Florida Communities Trust comes from Florida Forever proceeds.

Florida Department of Agriculture and Consumer Services: State Forest Recreation and Urban Forestry Grants

The Florida State Forest system supports recreation use in the form of hiking trails, off-road bicycling and equestrian trails. Using old roadbeds and fire lanes as trails, State forests enable users to experience the beauty of Florida's resources in a natural way. The Department also implements an Urban Forestry Grants program, making 50-50 matching funds available to local governments, educational institutions, Native-American tribal governments, and legally owned nonprofit organizations through five award categories:

1. Local government program development
2. Demonstration or site specific projects
3. Nonprofit administration
4. Information and education
5. Urban forestry or arboricultural training.

Maximum grant award is $10,000, and requires a match of equal value.

Florida Department of Environmental Protection (FDEP): Coastal Management Grants: Coastal Partnership Initiative

The Coastal Partnership Initiative, (CPI) grant program was developed to promote the protection and effective management of Florida's coastal resources at the local level. The Florida Coastal Management Program (FCMP) makes National Oceanic & Atmospheric Administration (NOAA) funds available, on a competitive basis, to eligible local governments. Eligible local governments are defined as Florida's 35 coastal counties and all municipalities within their boundaries that are required to include a coastal element in their local comprehensive plan. Florida's public colleges and universities, regional planning councils, national estuary programs and nonprofit groups may also apply if an eligible local government agrees to participate as a partner.

Each year, the FCMP publishes a "Notice of Availability of Funds" in the Florida Administrative Register to solicit CPI applications from eligible entities. CPI grants provide support for innovative local coastal management projects in four program areas:

- Public Access
- Working Waterfronts, and
- Coastal Stewardship

Eligible entities may apply for grants for community projects such as habitat restoration, park planning and improvements, waterfront revitalization, and improving communities' resiliency to coastal hazards. For detailed application procedures, funding eligibility and review procedures, read Rule 62S-4, Florida Administrative Code.

4.2.3 Local Government Funding Sources

Local governments in Collier County and Miami-Dade County can plan for the funding of ROGG facilities improvements through Capital Improvement Programs (CIP). CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each category is described below. A variety of possible funding options available to Florida jurisdictions for implementing pedestrian and bicycle projects are also described below. However, many will require specific local action as a means of establishing a program, if not already in place.

Collier Metropolitan Planning Organization (MPO)

The Collier MPO is the federally mandated and federally funded transportation policy-making organization, and is comprised of local governing bodies and public transportation authorities in Collier. The Collier MPO is committed to providing the urban area with a continuing, cooperative and comprehensive transportation planning process to assure that highway facilities, mass transit, bicycle/pedestrian and other intermodal facilities are properly located and developed in relation to the overall community.

With respect to implementing the ROGG, the Collier MPO can play a vital role in helping to program funds and lead implementation efforts within the County.

Collier County Comprehensive Pathways Plan: The most current plan was adopted in December 2012. Action Step: Ensure that the completed River of Grass Greenway Master Plan is incorporated into the County Pathways Plan and is formally adopted by the MPO. This makes the ROGG an eligible project for funding.

Collier County Long Range Transportation Plan: The 2035 LRTP was adopted in December 2010, amendments to the Plan were adopted in 2012 and 2013. Action Step: Ensure that the completed River of Grass Greenway Master Plan is incorporated into the County LRTP and is formally adopted by the MPO.

Collier County Transportation Improvement Program: The Collier MPO Transportation Improvement Program (TIP) is a short-range plan that discusses transportation projects that have been funded (programmed) during a five year period. The TIP is a five-year financially feasible multi-modal program of transportation projects within the Collier County Metropolitan Planning Area. The projects in the TIP are presented in Year of Expenditure (YOE) dollars, which takes into account the inflation rate over the five years in the TIP. Projects include sidewalks, transit improvements, bicycle facilities, congestion management system/ intelligent transportation system, highway improvements, and transportation alternative program activities to be funded by 23 C.F.R. 450.324(c). Action Step: Ensure that the completed River of Grass Greenway Master Plan is incorporated into the County TIP and is formally adopted by the MPO.

Miami-Dade Metropolitan Planning Organization (MPO)

The Miami-Dade County MPO is the federally mandated and federally funded transportation policy-making organization, and is comprised of local governing bodies and public transportation authorities in the City of Miami and Miami-Dade County. The MPO was created as required under Section 163.01, Chapter 163, Florida Statutes, and established by Interlocal Agreement between Miami-Dade County and the Florida Department of Transportation (FDOT). A major role of the MPO is to ensure conformance with federal regulations requiring that highways, mass transit and other transportation facilities and services are properly developed and deployed in relation to the overall plan of urban development and to approve plans for regional and state transportation network accessibility. In addition, federal guidelines require that the use of Federal Aid for transportation be consistent with MPO endorsed plans and programs.

The FDOT adopts the MPO's Long Range Transportation Plan (LRTP) as the plan for implementing transportation system improvements in Miami-Dade County. Federal, state and local transportation planning funds are utilized on an ongoing basis to insure the effectiveness of the MPO process. The MPO Board meets monthly in the Miami-Dade County Commission Chamber. All meetings of the Governing Board are open to the public. With respect to implementing the ROGG the Miami-Dade County MPO can play a vital role in helping to program funds and lead implementation efforts within the County.

Miami-Dade County 2040 Long Range Transportation Plan: The 2040 LRTP update includes in-depth consideration of intermodal improvement opportunities, freight movement, Intelligent Transportation System technologies, and Congestion Management. Congestion management includes the implementation of strategies designed to reduce vehicle trips, shift trips from single-occupancy vehicles to high-occupancy vehicles, and maximize the effectiveness and efficiency of the existing transportation system. Action Step: Ensure that the completed ROGG Master Plan is incorporated into the County LRTP non-motorized projects and is formally adopted by the MPO.

Miami-Dade Bicycle/Pedestrian Plan: The Plan is currently undergoing an update. Action Step: Ensure that the completed ROGG Master Plan is incorporated into the list of prioritized improvements and the series of recommendations based on needs assessments and basis of public involvement areas.

Miami-Dade Transportation Improvement Program: The Transportation Improvement Program (TIP) specifies transportation improvements for the next five years. All projects receiving federal funds must be included in this plan. Other major projects which are part of the area's program of improvements, but which do not receive federal funds, are included here as part of the planning process. Categories of improvements include Highway, Transit, Aviation, Seaport, and Non-Motorized improvements with a combined cost in excess of $8.1 billion. All of the projects and priorities in this TIP are consistent with those in the adopted 2035 Transportation Plan. Action Step: Ensure that the completed ROGG Master Plan is incorporated into the County TIP and is formally adopted by the MPO.

Miami-Dade Unified Planning Work Program: The Unified Planning Work Program (UPWP) describes transportation planning activities managed by the Miami-Dade MPO. The program outlines the planning, projects, budget, and activities that support the comprehensive and multi-modal transportation improvement program approved for Miami-Dade County. Activities in UPWP are completed in cooperation with various participating Miami-Dade County Departments, regional agencies, and FDOT. This work is guided by policies of the State of Florida and Miami-Dade MPO Governing Board. Action Step: Submit planning proposal during annual 'call for ideas.'

4.2.4 Private and Non-profit Funding Sources

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

Everglades Foundation

The Everglades Foundation is dedicated to protecting and restoring America's Everglades. Through the advancement of scientifically sound and achievable solutions, the Foundation seeks to reverse the damage inflicted on the ecosystem and provide policymakers and the public with an honest and credible resource to help guide decision-making on complex restoration issues. One project that the Foundation is involved with is the removal of the Tamiami Trail roadway. The Foundation provides grants for projects and programs that will help ensure the restoration and preservation of the Greater Everglades Ecosystem.

Knight Foundation

The Knight Foundation supports transformational ideas that promote quality journalism, advance media innovation, engage communities and foster the arts. The Foundation believes that democracy thrives when people and communities are informed and engaged. The Foundation helps our communities to succeed through our Community and National Initiatives program. They invest in civic innovations that attract, retain and harness talent; that expand opportunity by increasing entrepreneurship and economic mobility; and that build places that accelerate the growth of ideas and bring people from diverse social and economic backgrounds together.

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To ensure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Walmart State Giving Program

The Walmart Foundation financially supports projects that create opportunities for better living. Grants are awarded for projects that support and promote education, workforce development/economic opportunity, health and wellness, and environmental sustainability. Both programmatic and infrastructure projects are eligible for funding. State Giving Program grants start at $25,000, and there is no maximum award amount. The program accepts grant applications on an annual, state by state basis January 2nd through March 2nd.

Rite Aid Foundation Grants

The Rite Aid Foundation is a foundation that supports projects that promote health and wellness in the communities that Rite Aid serves. Award amounts vary and grants are awarded on a one-year basis to communities in which Rite Aid operates. A wide array of activities are eligible for funding, including infrastructural and programmatic projects.

Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development.

American Greenways Eastman Kodak Awards

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design, and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants may be used for the following:

- Develop new, action-oriented greenways projects;
- Assist grassroots greenway organizations;
- Leverage additional money for conservation and greenway development; and
- Recognize and encourage greenway proponents and organizations.

American Hiking Society: National Trails Fund

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Over 40 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a $200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails that will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about $35,000 each. Since its inception in 1989, The Conservation Alliance has contributed $4,775,059 to environmental groups across the nation, saving over 34 million acres of wild lands.

The Conservation Alliance Funding Criteria:

- The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- All projects should be quantifiable, with specific goals, objectives, and action plans and should include a measure for evaluating success.
- The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years).
- Funding emphasis may not be on general operating expenses or staff payroll.

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, non-profit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation awards matching grants under its Keystone Initiatives to achieve measurable outcomes in the conservation of fish, wildlife, plants, and the habitats on which they depend. Awards are made on a competitive basis to eligible grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants generally range from $50,000-$300,000 and typically require a minimum 2:1 non-federal match.

Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals.

Florida Blue Foundation

The Florida Blue Foundation focuses on programs that use an outcome approach to improve the health and well-being of residents. The Health of Vulnerable Populations grants program focuses on improving health outcomes for at-risk populations. The Healthy Active Communities grant concentrates on increased physical activity and healthy eating habits. Eligible grant applicants must be located in Florida, be able to provide recent tax forms and, depending on the size of the non-profit, provide an audit.

Alliance for Biking & Walking: Advocacy Advance Grants

Bicycle and pedestrian advocacy organizations play the most important role in improving and increasing biking and walking in local communities. Advocacy Advance Grants enable state and local bicycle and pedestrian advocacy organizations to develop, transform, and provide innovative strategies in their communities. With sponsor support, the Alliance for Biking & Walking has awarded more than $500,000 in direct grants, technical assistance, and scholarships to advocacy organizations across North America since the Advocacy Advance Grant program's inception. In 2009 and 2010, these one-year grants were awarded twice annually to startup organizations and innovative campaigns to dramatically increase biking and walking. The Advocacy Advance Partnership with the League of American Bicyclists (LAB) also provides necessary technical assistance, coaching, and training to supplement the grants.

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Private Individual Donations

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Fundraising/Campaign Drives

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

4.2.5 Support/Advocacy Organizations

The following is a list of organizations that can help to advocate for the future development of the River of Grass Greenway. While these organizations don't provide funding, they are valuable as advocates and organizations that can "lobby" in support of a specific funding application.

Parks Foundation of Miami-Dade County

The Parks Foundation of Miami-Dade was established to foster the recreational, educational, environmental and cultural life of Miami-Dade County community by encouraging and soliciting support for Miami-Dade county's park system. The Parks Foundation works to enhance the quality of life of Miami-Dade residents and visitors by securing dedicated funding to preserve and promote parks and parks programming throughout Miami-Dade.

1000 Friends of Florida

1000 Friends of Florida spearheads workable strategies to preserve the state's remarkable "special places". Among the initiatives that Friends supports includes: Everglades planning and conservation, Florida Greenways and Trails "Close the Gap Campaign," Florida Greenways and Trails System (FGTS) planning and development, and Florida Forever.

Florida Greenways and Trails Foundation (FGTF)

The Florida Greenways and Trails Foundation (FGTF) is Florida's chief advocacy organization for non-motorized trails and greenways. The Foundation supports greater use of trails for recreation, fitness and health, reducing carbon emissions, attracting leisure travelers, building community, beautification and multi-modal transportation. The Foundation has been actively supporting and advocating for Florida's statewide trail and greenway network and spearheading a "close the gaps" campaign.

East Coast Greenway Alliance (ECGA)

The East Coast Greenway Alliance (ECGA) is the non-profit organization spearheading the development of the East Coast Greenway. Based in Durham, NC, the ECGA also employs field staff in each of its four regions. The Alliance promotes the vision for connecting local trails into a continuous route, provides strategic assistance for

River of Grass Greenway (ROGG) Potential Funding Sources Matrix

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	Federal Funding Sources							
Federal (FAST)	Transportation Alternatives Program (TAP)	Funding for a variety of alternative transportation projects; administered by the FHWA to States for Federal, State and Local government, and private organization projects; funding varies by state and by project; distributed annually; $820 million available in 2014.	http://www.fhwa.dot.gov/map21/factsheets/tap.cfm	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Surface Transportation Program (STP)	Flexible funding for projects that preserve of improve conditions on a variety of public infrastructure projects; administered by the FHWA to States for Federal, State and Local government, and private organization projects; funding varies by state and by project; distributed annually; $10.1 billion available in 2014.	http://www.fhwa.dot.gov/map21/factsheets/stp.cfm	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Transportation Enhancement Activities (TEAs)	Funding for projects that enhance the transportation experience through 12 eligible TE Activities; administered by FHWA to States for Federal, State and Local government projects; funding varies by state and project, funds available are dependent on TAP and STP funds.	http://www.fhwa.dot.gov/environment/transportation_enhancements/	Yes	Yes	Yes	Yes	Varies
Federal (FAST)	Hazard Elimination and Railway-Highway Crossing Program	Funding for improving safety at public grade crossings; administered by the FHWA to States based on calculated apportionments to the Highway Safety Improvement Program; available on projects management by Federal agencies and State and Local governments; distributed annually; funding varies per project; $220 million available.	http://www.fhwa.dot.gov/map21/factsheets/rhc.cfm	Yes	Yes	Yes	Yes	90:10
Federal (FAST)	Recreation Trails Program (RTP)	Funding for recreation trails and trail related facilities; administered by the FHWA directly to Federal Agencies and the States; available to Federal, State and Local government, and private organization trail projects; distributed annually; funding varies based on State; $85,000,000 available in 2014.	http://www.fhwa.dot.gov/environment/recreational_trails/	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Highway Safety Improvement Program (HSIP)	Funding for projects that improve safety of highways to reduce traffic fatalities and injuries on public roads- must be data-driven; administered by the FHWA and distributed to State DOTs and MPOs; distributed annually; funding varies; $2.41 billion available in 2014.	http://www.fhwa.dot.gov/map21/factsheets/hsip.cfm	Yes	Yes	Yes	Yes	90:10
Federal	Transportation Investment Generating Economic Recovery Program (TIGER)	Funding for capital projects including road, rail, transit, bike/ped, port and multi-modal projects achieving critical national objectives; administered by USDOT, and available to any public entity; distributed annually; $1 million minimum for rural areas, $10 million for urban areas; $200 million maximum (cannot exceed $125 million in one State); $500 million available.	http://www.dot.gov/tiger	Yes	Yes	Yes	Yes	80:20
Federal (FAST)	Congestion Mitigation and Air Quality Program (CMAQ)	Funding for transportation-environmental projects; administered by FHWA and FTA; available to State DOTs and MPOs; funded annually; $2.2 billion available.	http://www.dot.gov/cmaq	Yes	Yes	Yes	Yes	Varies
Federal (FAST)	Associated Transit Improvements	Funding for projects that enhance public transportation or functionally related to transit facilities; administered by the Federal Transit Administration and available to MPOs and other Public Transit providers; grant amounts and eligible projects vary.	http://www.fta.dot.gov/documents/chap53MAP21.pdf	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Federal Lands Transportation Program	Funding for transportation and infrastructure owned and maintained by NPS or other Federal Agency; administered by FHWA; distributed annually; funding varies per project.	http://www.fhwa.dot.gov/map21/guidance/guidefltp.cfm	Yes	Yes	Yes	Yes	None

River of Grass Greenway (ROGG) Potential Funding Sources Matrix (continued)

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	Federal Funding Sources							
Federal (FAST)	Federal Lands Access Program (FLAP)	Funding for safe and adequate transportation access within Federal Lands; administered by FHWA to States with Federal Lands managed by NPS or other Federal Agency; distributed annually; funding varies per project; $250 million available.	http://www.fhwa.dot.gov/map21/factsheets/flap.cfm	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Tribal Transportation Program (TTP)	Funding for safe and adequate transportation access within Indian Reservations; administered by Federal Lands Highway exclusively to Tribal Governments; distributed annually; funding varies per project; $450 million available.	http://flh.fhwa.dot.gov/programs/ttp/	Yes	Yes	Yes	Yes	None
Federal	National Recreation Trails (NRT)	Organization that provides designation for trail projects as a National Recreation Trail; connects projects with available funding; does not provide direct funding or grants.	http://www.americantrails.org/ee/index.php/nationalrecreationtrails	n/a	n/a	n/a	n/a	None
Federal	Land and Water Conservation Fund (LWCF)	Funded from offshore drilling fees and administered by the NPS directly to the States; available to Federal, State and Local government conservation projects; distributed annually; grant amounts vary; $43.38 million available in 2014.	Manual: http://www.nps.gov/ncrc/programs/lwcf/manual/lwcf.pdf Website http://www.nps.gov/ncrc/programs/lwcf/funding.html	Yes	Yes	Yes	Yes	50:50
Federal	Community Development Block Grant (CDBG)	Administered by the Department of Housing and Urban Development; variety of grants available under various program areas designed to develop and enhance communities; available to State and Local governments; distributed annually; grant amounts vary.	http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs	Yes	Yes	Yes	Yes	Varies
Federal	Economic Development Administration (EDA) Public Works	Funding program for projects under the EDA's Public Works and Economic Adjustment Assistance Programs; certain economic distress criteria must be met; available to State and Local Governments, non-profits and designated Economic Development District Organizations; Quarterly distribution cycles per FY.	Criteria: http://www.eda.gov/how-to-apply/files/Eligibility-Requirements-and-Criteria.pdf Website: http://www.eda.gov/funding-opportunities/	No	Yes	Yes	Yes	50:50
Federal	National Coastal Wetlands Conservation Grant Program	Administered by the U.S. Fish and Wildlife Service to U.S. States to protect, restore or enhance coastal wetlands; distributed annually; up to $1,000,000.	Chris Darnell, 703-358-2236, chris_darnell@fws.gov http://www.fws.gov/coastal/coastalgrants/	Yes	Yes	Yes	Yes	75:25
Federal	National Scenic Byways Discretionary Grant Program	Funds for National scenic byway related projects; activities described in 23 USC 162(c); Projects selected by US Secretary of Transportation; 125 grants awarded out of 261 applicants in 2012; total program funding amount was $37,054,987.	http://www.bywaysonline.org/grants/	Yes	Yes	Yes	Yes	80:20 (maximum Federal share)

River of Grass Greenway (ROGG) Potential Funding Sources Matrix (continued)

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	State (Florida) Funding Sources							
State (Florida)	Florida Department of Transportation (FDOT)	Part of FDOT's 2012 Strategic Highway Safety Plan; funding for improvements to Tamiami Trail between Collier Blvd and San Marco Dr, that can become part of ROGG; Funding available for legislation, regulation and policy, enforcement program, communication program, and outreach program.	Florida Department of Transportation District Six LAP Administrator, Aiah Yassin 1000 N.W. 111 Avenue Miami, FL 33172 (305) 470-5197	n/a	Yes	n/a	n/a	75:25 (For second year projects) 50:50 (For third year projects)
State (Florida)	Florida Water and Land Conservation Initiative (Amendment I)	Goal- to acquire and improve conservation easements, wildlife management areas, wetlands, forests, fish and wildlife habitats, beaches and shores, recreational trails and parks, urban open space, rural landscapes, working farms and ranches, historical and geological sites, lands protecting water and drinking water resources, and lands in the Everglades Agricultural Areas and the Everglades Protection Area; to manage and restore natural system and to enhance public access and recreational use of conservation lands; the amendment will generate $18 billion in dedicated funds for environmental conservation annually.	Florida's Water and Land Legacy 1700 North Monroe Street, Suite 11-286 Tallahassee, FL 32303 (850) 629-4656 http://floridawaterlandlegacy.org/	Yes	Yes	Yes	Yes	
State (Florida)	Florida Office of Greenways and Trails (OGT)	Acquires property through the Florida Greenways and Trails Acquisition Program, which is funded annually at $4.5 million under Florida Forever; applies for and receives funding from the Federal transportation enhancements program to develop trails, trailheads and bridges.	Florida Department of Environmental Protection Office of Greenways and Trails 3900 Commonwealth Blvd, MS795 http://www.dep.state.fl.us/gwt/	Yes	Yes	Yes	Yes	
State (Florida)	U.S. Army Corps of Engineers, (USACE) Jacksonville (FL) District	$66 million in funds available for South Florida ecosystem restoration project, which includes Everglades.	http://www.saj.usace.army.mil/Contact.aspx	Yes	Yes	Yes	Yes	
State (Florida)	Florida Department of State Division of Historical Resources, Historic Preservation Grants	Preservation of cultural trails; Technical assistance and information about sites that could be incorporated into greenways and trails; Small Matching Grants (up to $50,000) and Special Category Grants ($50,000-500,000).	Florida Division of Historical Resources 500 South Bronough Street Tallahassee, FL 32399-0250 (850) 245-6333 http://dos.myflorida.com/historical/grants/	Yes	Yes	Yes	Yes	Small Matching Grant- 50:50 (cash-on-hand which must constitute a minimum of 25% of the total match) Special Category Grants- Either $50,000 or 50:50, whichever is higher(cash-on-hand which must constitute a minimum of 25% of the total match)
State (Florida)	Florida Department of Environmental Protection: Florida Recreational Development Assistance program (FRDAP)	Administered by the Department of Environmental Protection; competitive grant program for public outdoor recreation; acquisition and development of land for public outdoor recreation use; Maximum grant request is $200,000; Must develop site within three years.	Department of Environmental Protection Division of Recreation and Parks Office of Information and Recreation Services 3900 Commonwealth Boulevard Mail Station #585 Tallahassee, FL 32399-3000 http://www.dep.state.fl.us/Parks/OIRS/default.htm	Yes	Yes	Yes	Yes	None ($50,000 or less) 75:25 ($50,001 - $150,000) 50:50 ($150,001 - up to $400,000)

River of Grass Greenway (ROGG) Potential Funding Sources Matrix (continued)

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	State (Florida) Funding Sources							
State (Florida)	Florida Communities Trust (FCT)	Grants administered through the through the competitive criteria in the Parks and Open Space Florida Forever Grant Program and the Stan Mayfield Working Waterfronts Florida Forever Grant Program; program is funded by 22% of the Florida Forever (FF) funds, $66 million each year; maximum application grant is $6.6 million per year.	Florida Office of Environmental Protection, Director, Office of Operations/Land and Recreation (850) 245-2062 http://www.dep.state.fl.us/lands/fl_communities_trust/	Yes	Yes	Yes	Yes	75:25 (for counties with population of 75,000 or more)
State (Florida)	Florida Department of Agriculture and Consumer Services: State Forest Recreation and Urban Forestry Grants	Supports recreation use in the form of hiking trails, off-road bicycling and equestrian trails; supports recreation use in the form of hiking trails, off-road bicycling and equestrian trails; maximum grant award $10,000, and requires a match of equal value; five award category: local government program of development, demonstration or site specific projects, nonprofit administration, information and education, urban forestry or arboricultural training.	Florida Department of Agriculture and Consumer Services Purchasing Office Mayo Building, Room SB-8 Tallahassee, FL 32399-0800 (850) 617-7181 http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/For-Communities/Urban-Forestry/Florida-Urban-and-Community-Forestry-Grant-Program	Yes	Yes	Yes	Yes	50:50
State (Florida)	Florida Department of Environmental Protection (FDEP): Coastal Management Grants: Coastal Partnership Initiative (CPI)	National Oceanic & Atmospheric Administration funds available, on a competitive basis, to eligible local governments; FCMP publishes a CPI Brochure and a "Notice of Availability of Funds" in the Florida Administrative Register to solicit CPI applications from eligible entities; CPI grants support four program areas: resilient communities, public access, working waterfront, coastal stewardship; grant amount- $10,000-$15,000 for planning, design and coordination activities, $10,000-$30,000 for construction projects, habitat restoration, invasive exotic plant removal, land acquisition.	Florida Coast Management Program 3900 Commonwealth Boulevard Tallahassee, FL 32399 (850) 245-2161 http://www.dep.state.fl.us/cmp/grants/	Yes	Yes	Yes	Yes	None
	Local Government Funding Sources							
Local (Collier MPO)	Collier Metropolitan Planning Organization (MPO)	Funded by federal grant programs; Obtain funds and lead implementation efforts within the County for ROGG; Multiple planning and transportation plans in place to incorporate ROGG into the County landscape; Funds available for FY 2014/15: Transportation Improvement Plan ($58,447), Long Range Planning ($526,166), total funds available ($1,435,522).	http://www.colliermpo.com/	Yes	Yes	Yes	Yes	
Local (Miami-Dade MPO)	Miami-Dade Metropolitan Planning Organization (MPO)	Funded by federal grant programs; can obtain funds from FDOT; ensure ROGG's incorporation into County's Transportation Improvement Plan (TIP) and Long Range Transportation Plan (LRTP).	http://www.miamidadempo.org/Programs.asp	Yes	Yes	Yes	Yes	
	Private and Non-Profit Funding Sources							
Non-Governmental/ Non-Profit	Alliance for Biking & Walking: Advocacy Advance Grants	Provide short-term Rapid Response Grants to state and local organizations to win or increase funding for biking and walking - $1,000 to $3,000 with no deadline or formal grant cycle; also have "Big Idea" Grants for unforeseen opportunities to secure funding for large, innovative projects -` $10,000.	Brighid O'Keane Advocacy Director brighid@advocacyadvance.org 202.621.5452 http://www.advocacyadvance.org/grants	n/a	n/a	n/a	n/a	None

River of Grass Greenway (ROGG) Potential Funding Sources Matrix (continued)

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	Private and Non-Profit Funding Sources							
Non-Governmental/ Non-Profit	American Hiking Society: National Trails Foundation	Provides annual grants to 501(c)(3) organizations that are members of the Hiking Alliance; projects improve hiking access or safety on a particular trail; grants range from $500 to $5,000.	1424 Fenwick Lane Silver Spring, MD 20910 1-301-565-6704 (Main) http://www.americanhiking.org/national-trails-fund/	Yes	Yes	Yes	Yes	None
Non-Governmental/ Non-Profit	The Conservation Alliance	Provides bi-annual grants for 501(c)(3) organizations seeking to protect threatened wild places for habitat and recreation values; must be nominated to apply; maximum $50,000.	925 NW Wall St., Suite 202 Bend, OR 97701 (541) 389-2424 info@conservationalliance.com http://www.conservationalliance.com/contact-us/	Yes	Yes	Yes	Yes	None
Non-Governmental/ Non-Profit	East Coast Greenway Alliance (ECGA)	Partnership helps locate and apply for grants to fund greenway and trail projects that develop the East Coast Greenway; does not directly award grants.	5315 Highgate Dr, ste 105 Durham, NC 27713 Phone: 919-797-0619 Fax: 919-797-0619 andy@greenway.org (MD, DC) niles@greenway.org (VA) http://www.greenway.org/	n/a	n/a	n/a	n/a	n/a
Non-Governmental/ Non-Profit	National Environmental Education Foundation (NEEF)	Provides bi-annual grants to 501(c)(3) non-profits in collaboration with a public land site to support NEEF core educational programs; grants up to $5,000.	4301 Connecticut Avenue NW, Suite 160 Washington, DC 20008 (202) 833-2933 http://www.neefusa.org/	n/a	n/a	n/a	Yes	None
Non-Governmental/ Non-Profit	National Fish and Wildlife Foundation (NFWF)	Provides grants to public, educational and non-profit organizations that align with a specific conservation program; grants vary and can be applied for bi-annually; intended to utilize Federal and non-federal funding.	http://www.nfwf.org/whatwedo/grants/Pages/home.aspx#.VUj7zPlVhBe	Yes	Yes	Yes	Yes	$2 of non-federal funding for every $1 of federal funding
Non-Governmental/ Non-Profit	The Trust for Public Land (TPL)	Partnership helps locate and apply for grants to fund public land projects; does not directly award grants.	https://www.tpl.org/	n/a	n/a	n/a	n/a	n/a
Non-Governmental/ Non-Profit	The Robert Wood Johnson Foundation	Funding for public agencies, universities and public charities engaged in projects that aim to improve health and healthcare; grant amounts vary; awarded through calls for proposals; primarily research oriented.	(877) 843-RWJF (7953) http://www.rwjf.org/en/how-we-work/grants.html	Yes	n/a	n/a	n/a	n/a
Non-Governmental/ Non-Profit	American Greenways Eastman Kodak Awards	Annual funding to non-profit and public agencies, with priority given to non-profits; $500-$2,500; supports activities and expenses needed to complete a greenway project.	1655 N. Fort Myer Drive Suite 1300 Arlington, VA 22209-2156 Phone: 22209-2156 Fax: 7035254610 http://www.rlch.org/funding/kodak-american-greenways-grants	Yes	Yes	Yes	Yes	None
Non-Governmental/ Non-Profit	Bank of America Charitable Foundation, Inc.	Annual funding for 501(c)(3) organizations that provide community revitalization; grant amounts vary- $200 million given in 2013.	http://about.bankofamerica.com/en-us/global-impact/find-grants-sponsorships.html#fbid=WUufmiEs5Ce	Yes	Yes	Yes	Yes	None

River of Grass Greenway (ROGG) Potential Funding Sources Matrix (continued)

Fund Type	Source	Funding Description	Contact/ Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding / Match
	Private and Non-Profit Funding Sources							
Non-Governmental/ Non-Profit	Rite Aid Foundation Grants	Annual funding for 501(c)(3) organizations that provide health and wellness for children; grant amounts vary.	https://kidcents.riteaid.com/?_ga=1.9554 3262.313544249.1430841623	Yes	Yes	Yes	Yes	Step Up Fund (additional funding option): 50:50 for up to $5,000
Non-Governmental/ Non-Profit	Walmart State Giving Program	Bi-annual cycles for either focus giving areas or community engagement & focus giving; $25,000-$250,000; administered from the Walmart Foundation to 501(c)(3) organizations.	http://foundation.walmart.com/apply-for-grants/state-giving	No	No	No	Yes	None
Non-Governmental/ Non-Profit	Everglades Foundation	Annual cycles with focus on restorative initiatives; contributes more than $1,200,000 towards restoration efforts annually.	http://www.evergladesfoundation.org	Yes	No	No	No	None
Non-Governmental/ Non-Profit	Knight Foundation	Funds community engagement and civic innovation- creation of public spaces, engages and educated citizens about healthcare; Knight Cities challenge offers $5,000,000 for new ideas that would make cities more successful- Tallahassee, FL is one of the Knight Community that the foundation funds for.	http://knightfoundation.org	Yes	Yes	Yes	Yes	None
Non-Governmental/ Non-Profit	Rails-to-Trails Conservancy (RTC)	Funds organizations and local governments that are implementing projects to build and improve rail-trails; RTC will award a total of $85,000 per year for the next five years to qualifying projects.	http://www.railstotrails.org	Yes	n/a	n/a	n/a	n/a
Non-Governmental/ Non-Profit	Friends of the River of Grass Greenway (FROGG)	Promotes the establishment, preservation, and safe use by the general public of a non-motorized transportation and recreation corridor across the Everglades between Naples and Miami.	http://www.evergladesrogg.org	Yes	Yes	Yes	Yes	None

states, counties, and municipalities that build local trail sections, officially designates trails as part of the ECG trail system, posts signage, and makes maps and guides to facilitate use of the Greenway. The ECGA does not own any of the Greenway trail system, but plays a vital role in ensuring its continuity and in monitoring trail conditions to ensure consistency in trail quality. ECGA will support local trail agencies in securing the funds to maintain their trails.

Friends of Florida State Parks

The Friends of Florida State Parks is a non-profit organization that helps to preserve the natural resources of the state. Friends supports the preservation and protection of state parks, educating visitors about the value of state parks, encourages community engage and active use of state parks and provides financial support to supplement state funding.

Florida Bicycle Association (FBA)

The Florida Bicycle Association (FBA) is a 501C3 organization that educates and advocates for bicycling across the Sate of Florida. The FBA offers a statewide communications network, educational framework for bicyclists and motorists and in general a voice for the interests of cyclists.

The Trust for Public Land (TPL)

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

Rails-to-Trails Conservancy (RTC)

Rails-to-Trails Conservancy (RTC) transforms unused rail corridors into vibrant public spaces. RTC launched a new fund program in 2015 to support organizations and local governments that are implementing projects to build and improve rail-trails. Under the Doppelt Family Trail Development Fund (DFTDF), RTC will award a total of $85,000 per year for the next five years to qualifying projects through a competitive process. A wide range of projects are eligible under two grant types: Community Support Grant (3-4 grants awarded in the $5000 - $10,000 range), and Project Transformation Grant (1-2 grants awarded in the $15,000 - $ 50,000 range). Projects on rail-trail and rails-with-trails will be given a preference but is not a requirement to qualify for the grant. The trail must serve or plan to serve multiple user types and be considered a trail, greenway, multi-use trail or shared-use path.

Friends of the River of Grass Greenway (FROGG)

The organization's mission is to promote the establishment, preservation, and safe use by the general public of a non-motorized transportation and recreation corridor across the Everglades between Naples and Miami. FROGG strategizes, seeks support from all entities, writes grants, updates partners, does presentations, establishes new partnerships, and organizes the annual Everglades Ride.

Volunteer Work

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

In-Kind Contributions

Many grant programs require a local match to help demonstrate the community's commitment to the project. Often this "match" requirement can be met with what is referred to as an "in- kind" contribution. In-kind contributions are non-monetary donations of labor, equipment and materials to the overall cost of completing a project that can be translated to a dollar value used to meet the matching requirement. Volunteer labor for tasks such as clearing, grading, and construction can go a long way towards meeting local match requirements when applying for grants.

Business leaders must also be recruited to support this plan. Businesses may be able to provide in-kind support through trail building, financial contributions or possibly adopting sections of trail. Businesses are a key part of the community fabric and should be included in building and maintaining the greenways and blueways trail system. Trails add to desirability of a community and can enhance a business' ability to attract customers to an area.

4.3 IMPLEMENTATION PHASING

"Open space means many different things. It may be a city park or playground; it may be the beauty of the open road; it may be the challenge of the trackless wilderness. Open space—handsome, meaningful, open space available for enjoyment—is not only a dimension of geography but a dimension of life."

– George B. Hartzog, Jr., Director of the National Park Service, 1966

4.3.1 Phasing Strategy

In order to categorize feasible and functional projects into levels of priority, three primary phases of implementation have been defined. Project selection and priority categorization are based on the feasibility of each project, the potential for partnerships and funding, and overall functionality and connectivity. Timeframes have been estimated for each level of priority, however, these are estimated ranges only. Changes in conditions may result in the advancement or delay of a specific project or segment of the path beyond the timeframe described. The projects identified in this section are categorized into the following levels of priority:

High Priority Projects (10 yrs or less)

Projects in this level have a high level of feasibility due to a combination of partnership and funding opportunities from local, state and federal agencies, as well as important connections to hubs and access points. Previous and ongoing planning efforts and environmental studies also contribute to the feasibility of projects in this category. Likely advancement of these projects may occur in the next ten years.

Medium Priority Projects (10-20 yrs)

Projects in this level represent opportunities to further the projects and connections established in the priority project phase. These projects may include a moderate level of potential partnerships and funding and provide connections to additional hubs, amenities and points of access. Likely advancement of these projects may occur in the next ten to twenty years.

Low Priority Projects (20+ yrs)

Projects in this level represent opportunities with significant challenges. These projects have limited potential for partnership and funding opportunities, and in some cases require long distances to connect to significant hubs or access points or contain a number of site specific challenges. Likely advancement of these projects may occur beyond a twenty year horizon.

Potential Transit/Shuttle Routes

Also included in this section are potential transit or shuttle routes and hubs that connect segments of the path and significant destinations within the corridor with locations outside the study area. These routes can enhance access to the project segments and amenities and provide connections to neighboring counties and municipalities. These routes and stops form the basis of transit and shuttle recommendations found in Section 3.4 - Alternative Transportation Analysis - Scenario Three: Progressive Demand Management.

4.3.2 Segment Priority Projects

This section provides an overview of recommended project and path segment phasing prioritization. Maps for each ROGG segment (West, Central and East) identify specific projects and path segments by priority level, along with a brief description of the project and potential partners. A full corridor map is included at the end of this section to highlight all high priority projects, as well as cost estimates for high-priority projects.

ROGG West

High priority projects in ROGG West focus primarily on a pathway segment that connects Collier Seminole State Park to the Fakahatchee Strand Preserve State Park's planned Welcome Center. Additional projects associated with this segment include the Port-of-The-Islands Hub, and trailhead enhancements for the Marsh Trail in the Ten Thousand Islands National Wildlife Refuge.

ROGG Central

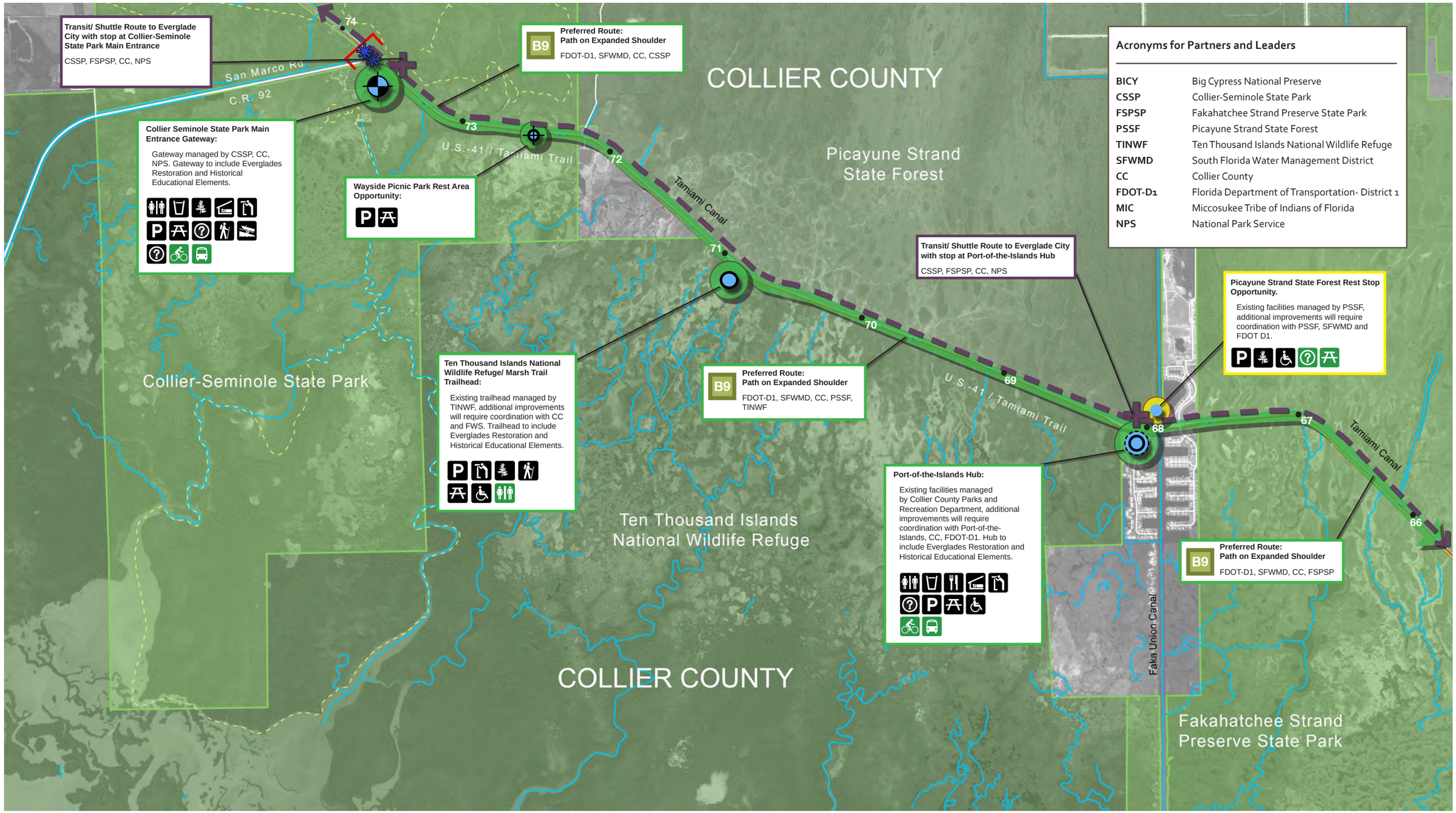
High priority projects in ROGG Central include the Everglades Area Chamber of Commerce at S.R. 29. All other projects in this corridor are classified as long-term low priority projects.

ROGG East

Priority projects in ROGG East focus primarily on a pathway segment that connects the Everglades National Park Shark Valley Entrance and the ValuJet Gateway area to a planned Miami-Dade County Department of Transportation and Public Work's Park n' Ride. Opportunity projects within ROGG East include additional typical amenities found along the high priority and medium priority segments. Other projects in this corridor are classified as long-term low priority projects.

Typical Minor Trailhead (Big Cypress National Preserve Midway Campground - ROGG Central)

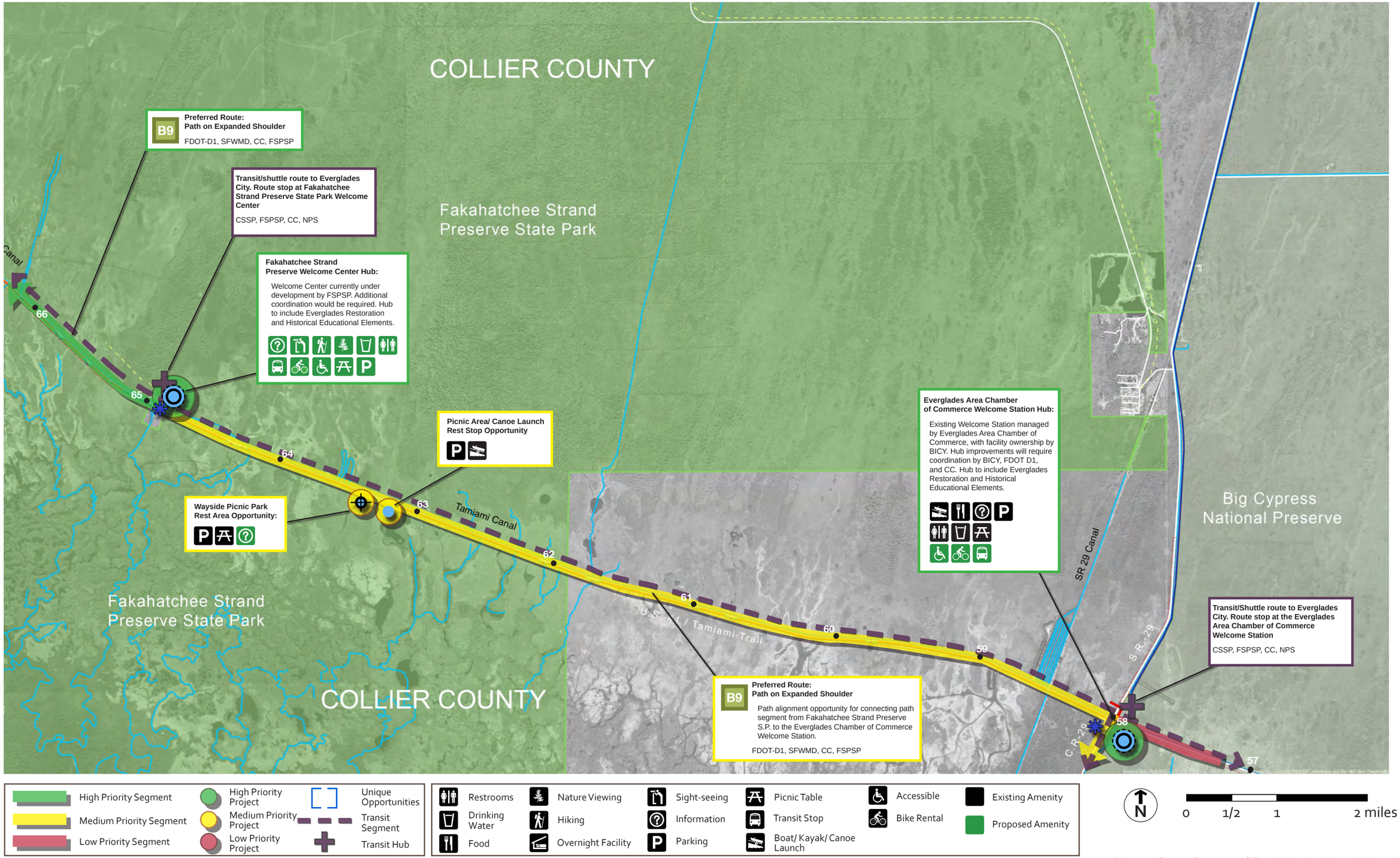
ROGG West Study Area Map - Priority Projects



Legend

- Study Area Terminus
- Public Lands (Entity Name on Map)
- ROW
- County Line
- Existing Canal
- Miami-Dade County Greenway
- Broward County Greenway
- Collier County Canoe Trail
- Proposed OGT Priority Land Trail
- Preferred Alternative Route
- Highway Crossing
- Miles from Krome Avenue
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop

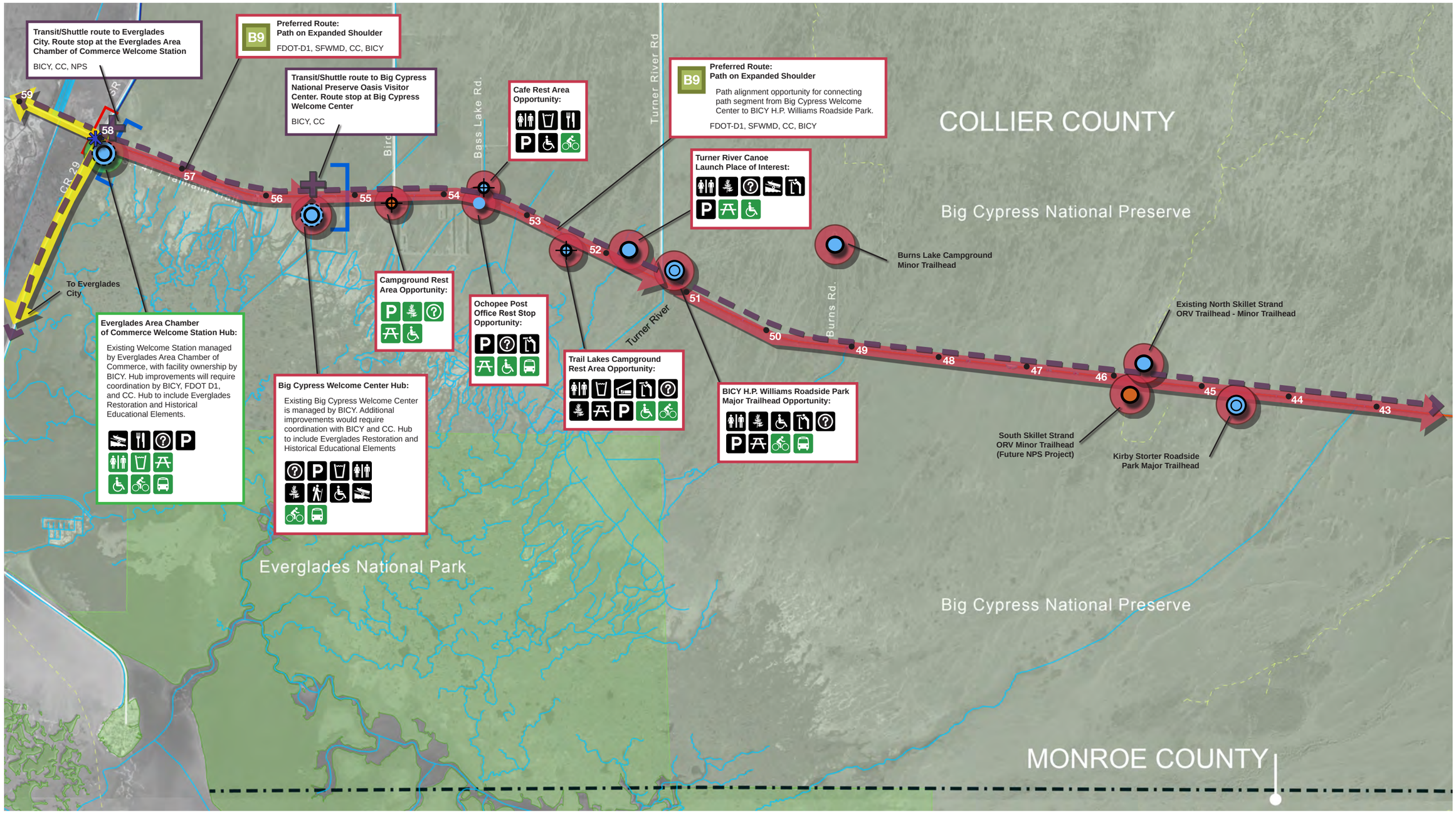
Existing / Proposed


COLLIER COUNTY
Preferred Route:
Path on Expanded Shoulder
B9
FDOT-D1, SFWMD, CC, FSPSP
Transit/shuttle route to Everglades City. Route stop at Fakahatchee Strand Preserve State Park Welcome Center
CSSP, FSPSP, CC, NPS
Fakahatchee Strand Preserve Welcome Center Hub:
Welcome Center currently under development by FSPSP. Additional coordination would be required. Hub to include Everglades Restoration and Historical Educational Elements.
Fakahatchee Strand Preserve State Park
Picnic Area/ Canoe Launch Rest Stop Opportunity
Wayside Picnic Park Rest Area Opportunity:
Tamiami Canal
Everglades Area Chamber of Commerce Welcome Station Hub:
Existing Welcome Station managed by Everglades Area Chamber of Commerce, with facility ownership by BICY. Hub improvements will require coordination by BICY, FDOT D1, and CC. Hub to include Everglades Restoration and Historical Educational Elements.
Big Cypress National Preserve
SR 29 Canal
S.R. 29
U.S. 41 / Tamiami Trail
C.R. 29
Transit/Shuttle route to Everglades City. Route stop at the Everglades Area Chamber of Commerce Welcome Station
CSSP, FSPSP, CC, NPS
Preferred Route:
Path on Expanded Shoulder
B9
Path alignment opportunity for connecting path segment from Fakahatchee Strand Preserve S.P. to the Everglades Chamber of Commerce Welcome Station.
FDOT-D1, SFWMD, CC, FSPSP
COLLIER COUNTY
66
65
64
63
62
61
60
59
58
57
High Priority Segment
Medium Priority Segment
Low Priority Segment
High Priority Project
Medium Priority Project
Low Priority Project
Unique Opportunities
Transit Segment
Transit Hub
Restrooms
Drinking Water
Food
Nature Viewing
Hiking
Overnight Facility
Sight-seeing
Information
Parking
Picnic Table
Transit Stop
Boat/ Kayak/ Canoe Launch
Accessible
Bike Rental
Existing Amenity
Proposed Amenity
N
0
1/2
1
2 miles

Typical canal crossing (ROGG West)

Shared-Use Path on Expanded Shoulder (ROGG West)

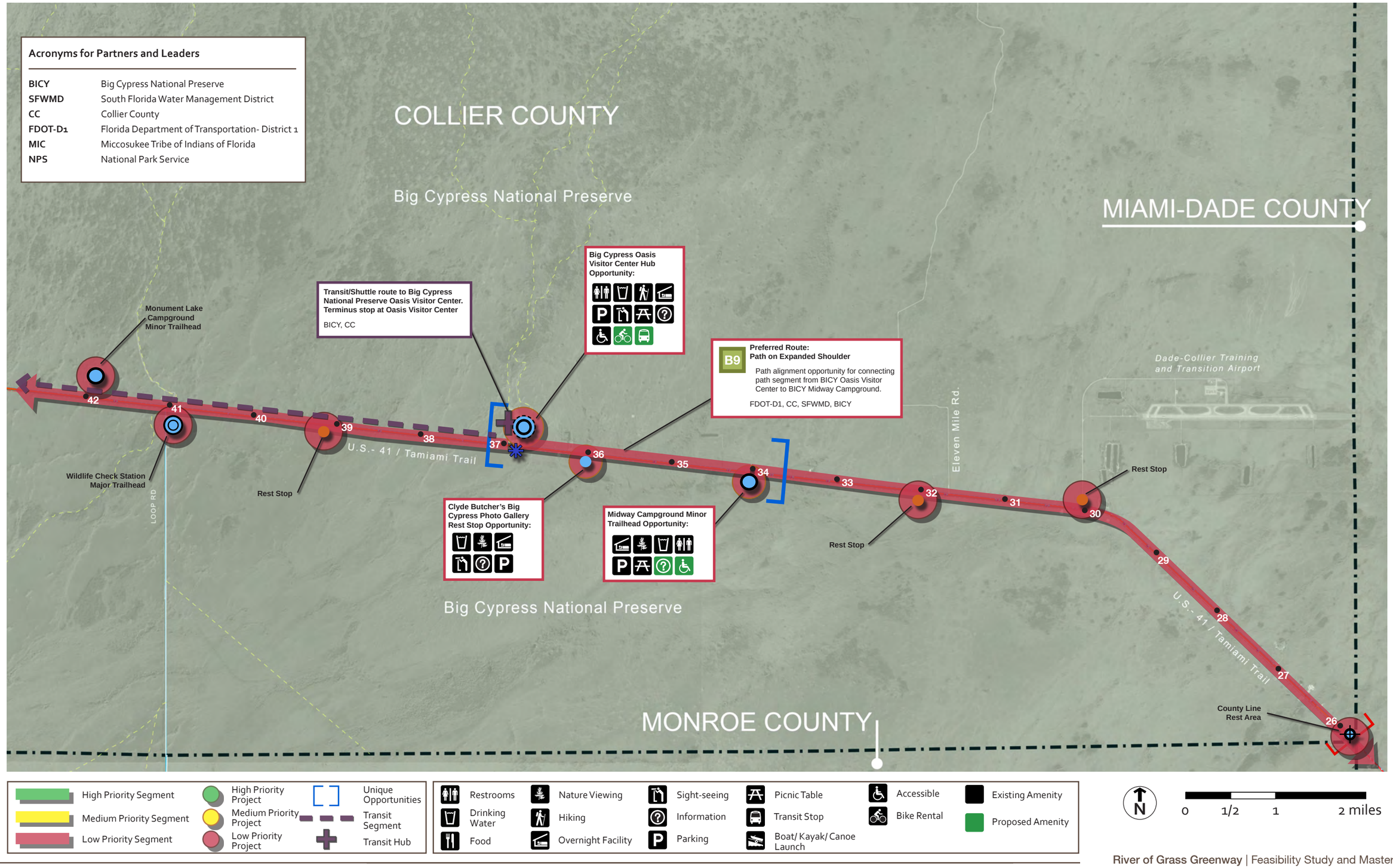
ROGG Central Study Area Map - Priority Projects



Legend

- Study Area Terminus
- Public Lands (Entity Name on Map)
- ROW
- County Line
- Existing Canal
- Miami-Dade County Greenway
- Broward County Greenway
- Collier County Canoe Trail
- Proposed OGT Priority Land Trail
- Preferred Alternative Route
- Highway Crossing
- Miles from Krome Avenue
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop

Existing / Proposed


Acronyms for Partners and Leaders
BICY Big Cypress National Preserve
SFWMD South Florida Water Management District
CC Collier County
FDOT-D1 Florida Department of Transportation- District 1
MIC Miccosukee Tribe of Indians of Florida
NPS National Park Service
COLLIER COUNTY
Big Cypress National Preserve
MIAMI-DADE COUNTY
Dade-Collier Training and Transition Airport
Monument Lake Campground Minor Trailhead
Wildlife Check Station Major Trailhead
LOOP RD
Rest Stop
Transit/Shuttle route to Big Cypress National Preserve Oasis Visitor Center. Terminus stop at Oasis Visitor Center
BICY, CC
Big Cypress Oasis Visitor Center Hub Opportunity:
B9
Preferred Route: Path on Expanded Shoulder
Path alignment opportunity for connecting path segment from BICY Oasis Visitor Center to BICY Midway Campground.
FDOT-D1, CC, SFWMD, BICY
Clyde Butcher's Big Cypress Photo Gallery Rest Stop Opportunity:
Midway Campground Minor Trailhead Opportunity:
U.S.- 41 / Tamiami Trail
Eleven Mile Rd.
Rest Stop
Rest Stop
Big Cypress National Preserve
U.S.- 41 / Tamiami Trail
County Line Rest Area
MONROE COUNTY
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
High Priority Segment
Medium Priority Segment
Low Priority Segment
High Priority Project
Medium Priority Project
Low Priority Project
Unique Opportunities
Transit Segment
Transit Hub
Restrooms
Drinking Water
Food
Nature Viewing
Hiking
Overnight Facility
Sight-seeing
Information
Parking
Picnic Table
Transit Stop
Boat/ Kayak/ Canoe Launch
Accessible
Bike Rental
Existing Amenity
Proposed Amenity
N
0
1/2
1
2 miles

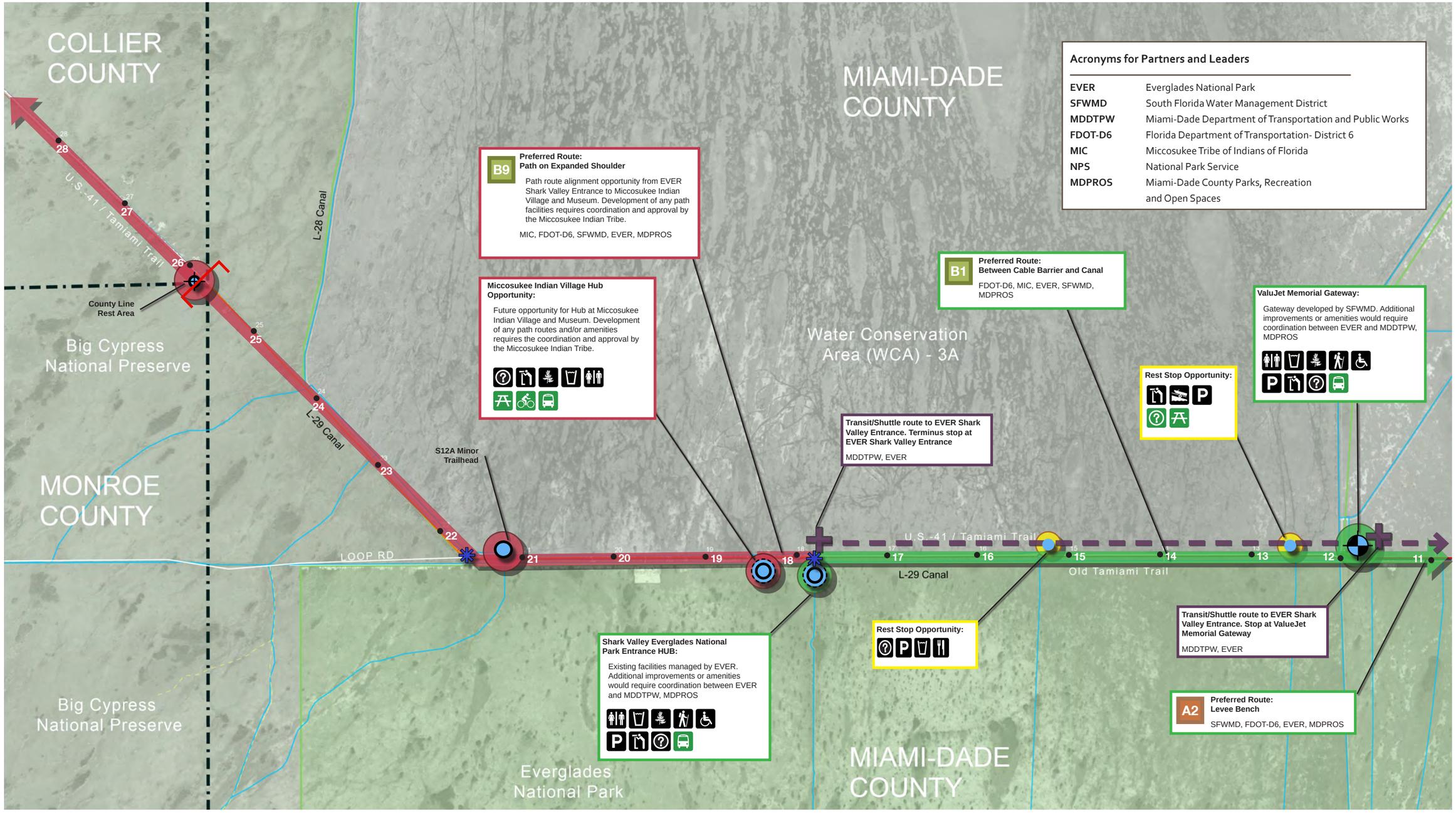
Typical crossing (to Big Cypress National Preserve Oasis Visitor Center - ROGG Central)

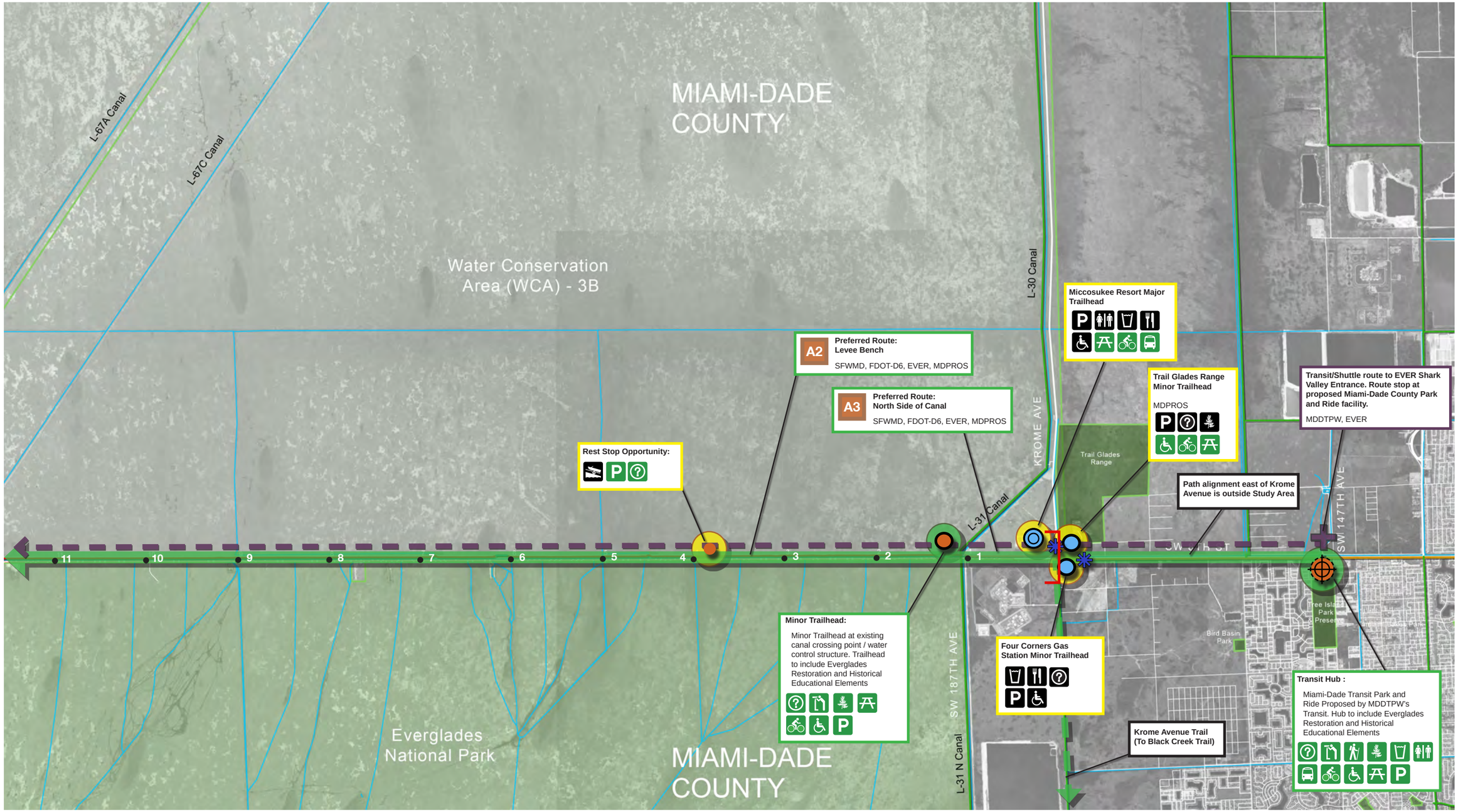
Before

After (with National Park Service proposed turn-lanes)

Typical canal crossing (ROGG Central)

ROGG East Study Area Map - Priority Projects





High Priority Segment
Medium Priority Segment
Low Priority Segment
High Priority Project
Medium Priority Project
Low Priority Project
Unique Opportunities
Transit Segment
Transit Hub

Restrooms
Drinking Water
Food
Nature Viewing
Hiking
Overnight Facility
Sight-seeing
Information
Parking
Picnic Table
Transit Stop
Boat/ Kayak/ Canoe Launch
Accessible
Bike Rental
Existing Amenity
Proposed Amenity

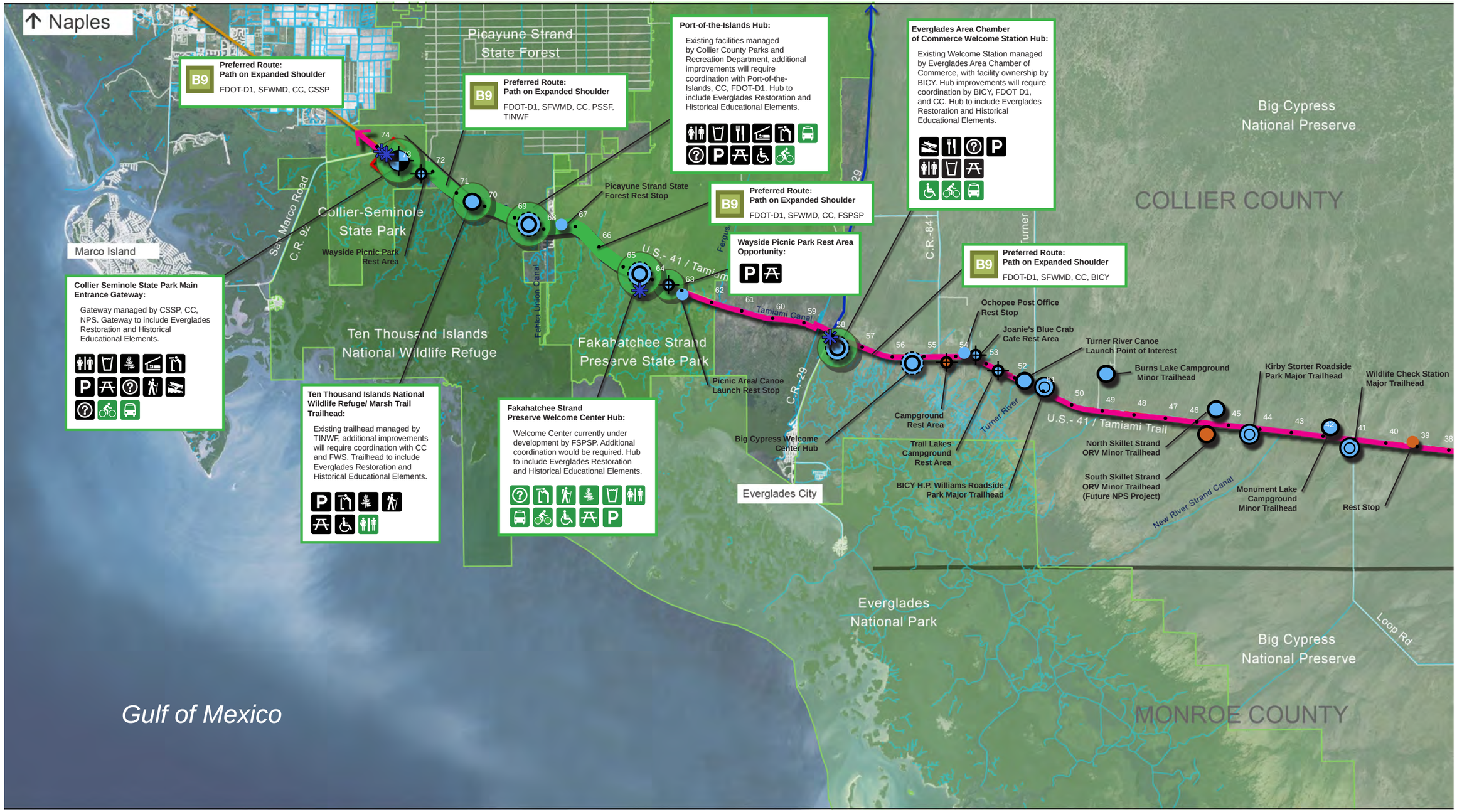
N

0 1/2 1 2 miles

Path between cable barrier and Tamiami Canal (ROGG East)

Path on levee bench (L-29 Levee - ROGG East)

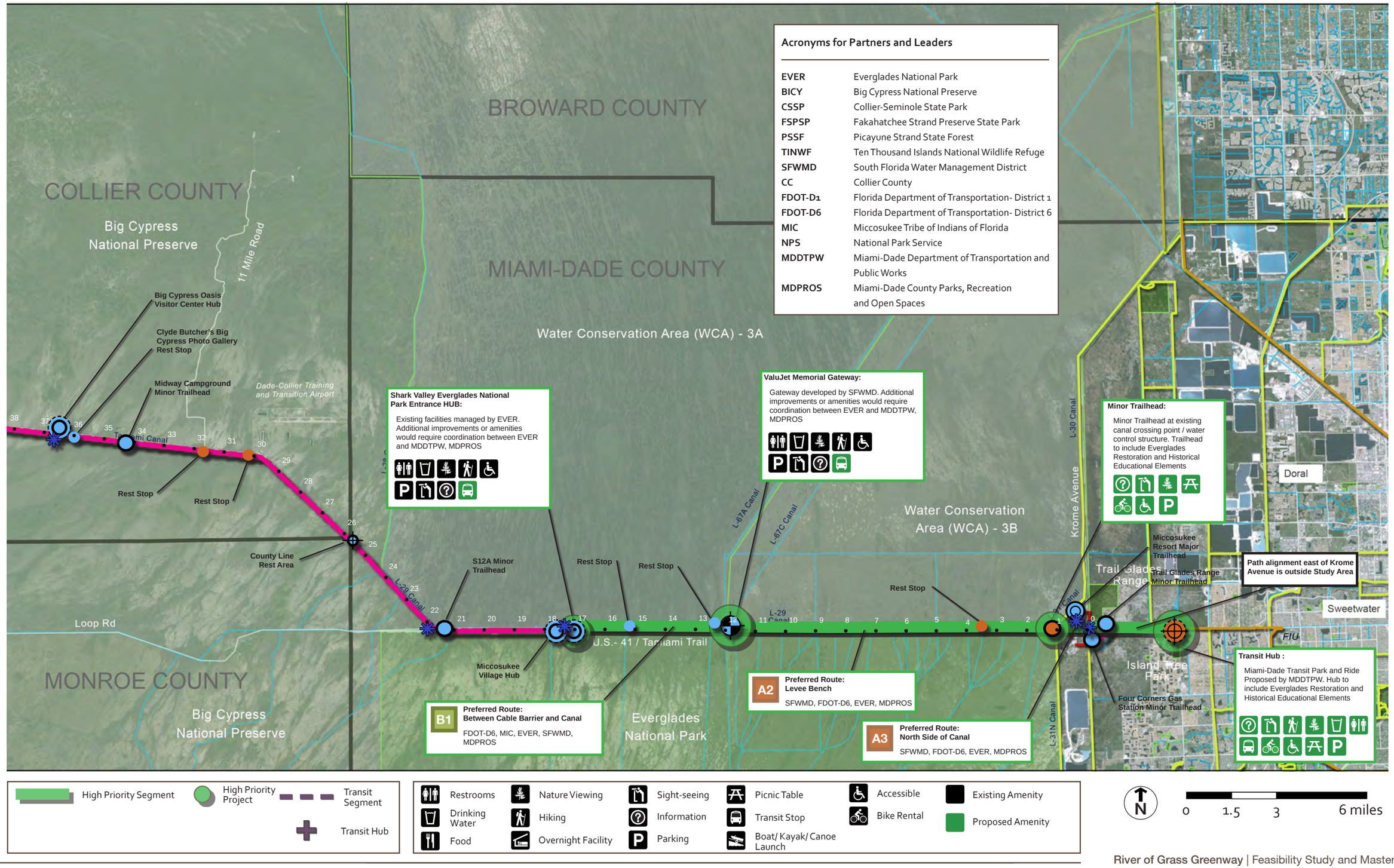
Study Area Map - High Priority Projects



Legend

- Study Area Terminus
- Public Lands (Entity Name on Map)
- ROW
- County Line
- Existing Canal
- Miami-Dade County Greenway
- Broward County Greenway
- Collier County Canoe Trail
- Proposed OGT Priority Land Trail
- Preferred Alternative Route
- Highway Crossing
- Miles from Krome Avenue
- Gateway
- Transit Hub
- Hub
- Major Trailhead
- Minor Trailhead
- Rest Area
- Rest Stop

Existing / Proposed


Acronyms for Partners and Leaders
EVER Everglades National Park
BICY Big Cypress National Preserve
CSSP Collier-Seminole State Park
FSPSP Fakahatchee Strand Preserve State Park
PSSF Picayune Strand State Forest
TINWF Ten Thousand Islands National Wildlife Refuge
SFWMD South Florida Water Management District
CC Collier County
FDOT-D1 Florida Department of Transportation- District 1
FDOT-D6 Florida Department of Transportation- District 6
MIC Miccosukee Tribe of Indians of Florida
NPS National Park Service
MDDTPW Miami-Dade Department of Transportation and Public Works
MDPROS Miami-Dade County Parks, Recreation and Open Spaces
BROWARD COUNTY
COLLIER COUNTY
Big Cypress National Preserve
11 Mile Road
MIAMI-DADE COUNTY
Water Conservation Area (WCA) - 3A
Big Cypress Oasis Visitor Center Hub
Clyde Butcher's Big Cypress Photo Gallery Rest Stop
Midway Campground Minor Trailhead
Dade-Collier Training and Transition Airport
Tamiami Canal
Rest Stop
Rest Stop
County Line Rest Area
Loop Rd
MONROE COUNTY
Big Cypress National Preserve
Shark Valley Everglades National Park Entrance HUB:
Existing facilities managed by EVER. Additional improvements or amenities would require coordination between EVER and MDDTPW, MDPROS
S12A Minor Trailhead
Rest Stop
Rest Stop
L-28 Canal
L-29 Canal
L-67A Canal
L-67C Canal
Miccosukee Village Hub
U.S.- 41 / Tamiami Trail
B1 Preferred Route: Between Cable Barrier and Canal
FDOT-D6, MIC, EVER, SFWMD, MDPROS
Everglades National Park
ValuJet Memorial Gateway:
Gateway developed by SFWMD. Additional improvements or amenities would require coordination between EVER and MDDTPW, MDPROS
Water Conservation Area (WCA) - 3B
Rest Stop
A2 Preferred Route: Levee Bench
SFWMD, FDOT-D6, EVER, MDPROS
A3 Preferred Route: North Side of Canal
SFWMD, FDOT-D6, EVER, MDPROS
L-31N Canal
L-30 Canal
Krome Avenue
Minor Trailhead:
Minor Trailhead at existing canal crossing point / water control structure. Trailhead to include Everglades Restoration and Historical Educational Elements
Doral
Miccosukee Resort Major Trailhead
Trail Glades Range
Trail Glades Range Minor Trailhead
Path alignment east of Krome Avenue is outside Study Area
Sweetwater
FIU
Island Free Park
Four Corners Gas Station Minor Trailhead
Transit Hub :
Miami-Dade Transit Park and Ride Proposed by MDDTPW. Hub to include Everglades Restoration and Historical Educational Elements
High Priority Segment
High Priority Project
Transit Segment
Transit Hub
Restrooms
Drinking Water
Food
Nature Viewing
Hiking
Overnight Facility
Sight-seeing
Information
Parking
Picnic Table
Transit Stop
Boat/ Kayak/ Canoe Launch
Accessible
Bike Rental
Existing Amenity
Proposed Amenity
N
0 1.5 3 6 miles

4.3.3 High Priority Project Cost Estimates

The following tables provide capital cost estimates for high priority projects found within each of the three ROGG segments. These cost estimates build off of the previous cost estimates found in Section 4.1, but are exclusive to the length of segments and the typical amenities found within the high priority projects and segments. These estimates also include additional improvements needed at existing locations serving as gateways and hubs in high priority areas.

As with previous implementation cost estimates, all costs were generated using information from previous projects of similar scope, line item estimates from the Florida DOT Listing of Master Pay Items (2014 costs), and information from private vendors. The cost estimates in these tables only include direct construction costs, however a summary at the end of each segment identifies estimates for associated contingency costs.

ROGG West High Priority Project Cost Estimates

Priority Segments	Path Length in Miles	Cost
Path Segment from Collier Seminole State Park Entrance to Fakahatchee Strand Preserve Welcome Center		
Total	**8.86**	**$28,575,100**
Highway Crossing A	3	$407,600
Driveway Crossing A	2	$22,400
Driveway Crossing B	7	$76,400
Crossing Total		**$506,400**

Path Trailheads	Number	Cost
Minor Trailhead	1	$168,800
Rest Area	1	$106,500
Total		**$275,300**

Additional Improvements	Cost
Collier-Seminole State Park Entrance Gateway	**$40,900**
Port-of-the-Islands Hub	**$70,900**

Priority Project Total Costs	Cost
Total Path Capital Construction Costs	**$29,081,500**
Total Trailhead Construction Costs	**$275,300**
ROGG West Priority Project Total Construction Cost	**$29,356,800**
Design Contingency - 25%	$7,339,200
General Requirements - 15%	$4,403,500
A&E Design & Inspection - 10%	$2,935,900

2014 Cost Estimate. Figures are rounded to nearest 1,000

ROGG Central High Priority Project Cost Estimates

Priority Segments	Path Length in Miles	Cost
None present in ROGG Central		

Additional Improvements	Cost
Everglades Area Chamber of Commerce Hub	**$217,900**

Priority Project Total Costs	Cost
Total Amenity Construction Costs	**$217,900**
ROGG Central Priority Project Total Construction Cost	**$217,900**
Design Contingency - 25%	$54,500
General Requirements - 15%	$32,700
A&E Design & Inspection - 10%	$21,800

2014 Cost Estimate. Figures are rounded to nearest 1,000

ROGG East High Priority Project Cost Estimates

Priority Segments	Path Length in Miles	Cost
Path Segment from Shark Valley Everglades National Park Entrance to Miami-Dade Transportation and Public Works Park and Ride		
Total	**20.71**	**$23,157,700**
Highway Crossing A	1	$135,900
Highway Crossing B	2	$214,200
Driveway Crossing A	1	$11,200
Driveway Crossing B	3	$32,800
Crossing Total		**$394,100**

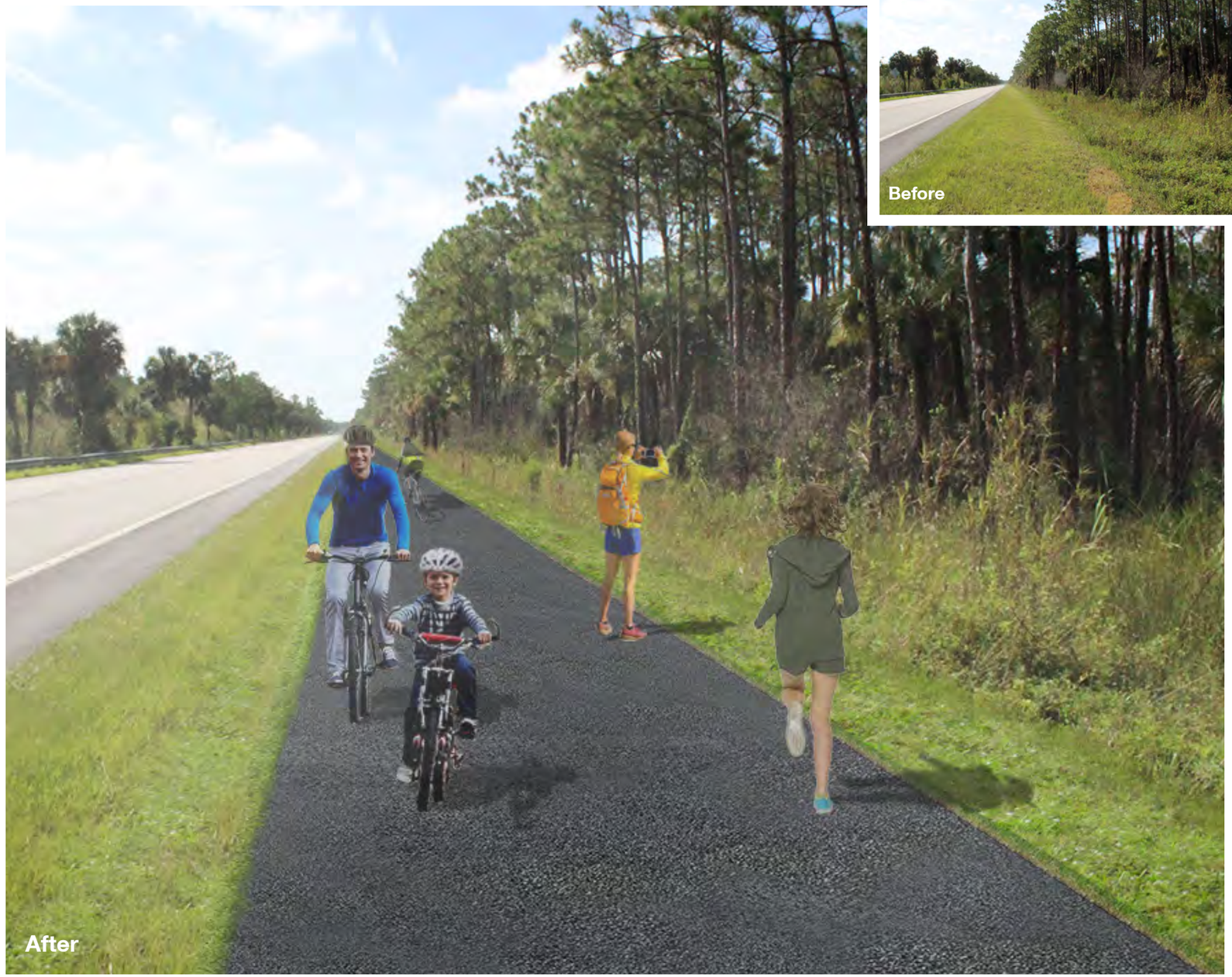
Path Trailheads	Number	Cost
Minor Trailhead	1	$168,800
Total		**$168,800**

Additional Improvements	Cost
Shark Valley Everglades National Park Entrance HUB	**$40,000**

Priority Project Total Costs	Cost
Total Path Capital Construction Costs	**$23,551,800**
Total Trailhead Construction Costs	**$168,800**
ROGG East Priority Project Total Construction Cost	**$23,720,600**
Design Contingency - 25%	$5,930,200
General Requirements - 15%	$3,558,100
A&E Design & Inspection - 10%	$2,372,100

2014 Cost Estimate. Figures are rounded to nearest 1,000

B9 - Shared-Use Path on Expanded Shoulder (ROGG Central)



Summary

Implementation phasing provides a structured plan for the achievement of functional and feasible project opportunities. While ROGG East and ROGG West have substantially more high priority projects, and costs proportional to these projects, the segments present the greatest opportunities to improve safety and access to primary destinations within the Study Area. These projects also present a high level of potential for funding and partnerships, thus increasing the feasibility for the selected segments and amenities to proceed to future phases within the next ten years.

ROGG Central presents many projects that can achieve the corridor vision. The implementation of transit connections can also help supplement those projects that may be in the low priority phase and provide additional access to ROGG West and ROGG East.

Overall, the high priority project phase of implementation includes over 29.5 miles of pathway segments and improvements to seven existing path trailheads, providing safe, functional access for ROGG users to destinations and attractions within the corridor.

4.4 PROJECT MANAGEMENT WORKING GROUPS

"People need immediate places to refresh, reinvent themselves. Our surroundings built and natural alike, have an immediate and continuing effects on the way we feel and act, and on our health and intelligence."

– Tony Hiss, The Experience of Place, 1990

Introduction

What makes a great regional shared-use path? Through the analysis of successful paths throughout the United States and the world, common themes can be identified that make them great. Whether it is through carefully planned connections to a regional network of paths or to the very fabric of a community through the use of educational and interpretation elements; a great path is not only aesthetically pleasing, but must provide a unique and profound experience, contribute economically to the community and have minimum impact to the environment through sustainable practices.

These common traits of successful regional paths are:

- **Connections:** physical, social /cultural, economic;
- **Experience of Place:** celebrate landscape & people; health, wellness & active living;
- **Great Design:** accessible, safe, efficient, interesting, state-of-the-art;
- **Management:** clean, safe and maintained;
- **Economic Benefits:** eco-tourism, job creation, business-friendly, a good neighbor;
- **Sustainable:** minimal impact, maximum benefit, affordable and easy to operate.

These successes do not typically occur on their own. Tremendous efforts and coordination must typically be exhausted in order to successfully incorporate even a single element listed above, let alone all six. In order to achieve a high level of success, distinct working groups, each made up of skilled and interested individuals and partner agencies, can be identified. These working groups can focus on elements of a regional path development such as defined goals, objectives and timelines. The following section briefly describes the elements of a regional path development and the corresponding working group recommendations.

4.4.1 Elements of Regional Path Development

Project management is a critical element of any successful shared-use path project. From the early stages of planning through construction and operation of the path, project management consists of the comprehensive oversight of each phase of work. For ROGG and other large-scale planning, design and construction projects, project management must be outlined into expected phases of work. Each phase of work entails a unique group of partners and skill-sets which together allow for the successful completion and operation of a regionally significant path.

These phases of a regional path development include:

- Funding,
- Planning, Engineering and Design,
- Rights-of-Way Permitting and Easements,
- Environmental Permitting,
- Construction,
- Official Opening / Dedication,
- Operations and Management,
- Marketing, Promotion and Education.

It is important to note that these phases of path development are not being identified for the entirety of the Study Area as a single 76.47 mile development, but instead as individual projects and segments of the ROGG as sections move forward with sufficient support and funding.

Each phase of path development has a unique set of objectives which can be identified and tailored as individual projects proceed. **[The ordering of these phases of development are linear in process, however, overlap of phases is common and in most cases required.]** Following are brief descriptions of each phase of development and listing of common objectives:

1 **Funding:** as outlined in Section 4.2, is a complex phase of path development as leaders of this phase must typically work with plans and designs of the path and amenities to tailor applications to meet funding source goals and objectives. Common objectives of this phase include:

- Identify phasing and priority projects per common funding source goals and objectives,
- Coordinate with applicable MPOs and OGT,
- Identify project sponsors,
- Define sources of funding quilt,
- Apply for funds,
- Expend funds according to terms.

2 The design phase is perhaps the most complex phase of work in terms of coordination, innovation and guidance. This Phase combines three important parts which work together, at many times overlapping one another. These parts include; planning, engineering and design; environmental permitting; and approval of Rights-of-Ways Permitting and Easements.

Planning, Engineering and Design: can be a complex phase in the development of a shared-use regional path. Depending upon available funding sources, multiple phases of planning, engineering and design will likely be required over a significant period of time, therefore, increasing the need for continued coordination with land owners, permitting agencies and design standards. Common objectives of this phase include:

- Identify and refine preferred route(s) and development strategy(ies),
- Conduct environmental analyses,
- Refine phasing and priorities,
- Define location of facilities and amenities,
- Define duties and responsibilities, and identify maintenance partners,
- Develop wayfinding and signage guidelines and standards,
- Develop construction documents,
- Obtain required permits.

Environmental Permitting: is an additional phase that overlaps with planning, engineering and design, as well as with seeking approvals for ROW and easements. **[Some requirements for environmental permitting, such as Environmental Assessments (EAs), may be required or best completed prior to or as part of future planning or engineering efforts.]** Highly skilled and organized team members will be needed to complete tasks during this phase. Common objectives of this phase include:

- Meet compliance with National Environmental Policy Act (NEPA), [PD&E Study],
- Complete Environmental Assessment (EA) or other environmental documentation of impact: plants, animals, archaeological, ecosystem,
- Develop mitigation plan(s) and strategy(ies) to offset impact,
- Obtain Federal, state and local construction permits.

Rights-of-Ways (ROW) Permitting and Easements is commonly an overlapping phase with planning, engineering and design and environmental permitting. Many aspects involving access to, from or through public or private lands will need to be addressed as part of the planning and design of the path. In some cases, existing easements that ROGG may need to utilize for public access will require renegotiations with landowners. Common objectives of this phase include:

- Identify needed ROW and easements use
- Negotiate with landowners and secure access
- File record plats with local government
- Match ROW and easement use to construction documents
- Communicate with landowners regarding construction

3 **Construction:** is typically the phase in which most observers will begin to see the pathway progress physically, however, as noted with the previous phases, much has to be completed prior to this phase of work. Several options exist for management of this phase, however, it is highly recommended for the organization(s) that oversee this phase of work include a construction manager with experience in path related construction projects. This will ensure the common objectives listed below are completed in an efficient and timely manner for each project:

- Oversee competitive bidding and awarding of contracts
- Ensure design standards and permit requirements are followed
- Define timelines and budgets of individual projects
- Resolve in-field problems with contractor(s)
- Lead weekly field inspection and reporting

4 **Official Opening:** is the time for great celebration as the ribbon is finally cut and the project is open for the public to enjoy. This phase, however, does include important objectives which typically require a different skill set than previously identified phases. Common objectives of this phase include:

- Host signature event that can be staged along with phased construction: groundbreaking, ribbon cutting, etc.
- Recognize project sponsors, funders, volunteers, design and construction team
- Open path segment for public use

Operations and Management: is a long-term phase which should begin with the first phase of work (Funding) and ramp up as designs are completed and construction is underway. Once the ribbon is cut on a project or piece of the path, preventative and sustainable management practices should begin.

Costs, goals and sponsorship are major elements of management which will define this phase. Common objectives of this phase include:

- Develop guidelines and standards of facilities and operations and maintenance,
- Continue to coordinate w/ FDOT to execute a maintenance MOU with partners,
- Acquire equipment and maintain labor force,
- Maintain costs and funding source(s),
- Evaluate performance measurements and success.

Marketing, Promotion and Education: will become what the general public experience and interacts with the most with the ROGG. Successful marketing and promotion will typically have a greater return on investment for the region and will help justify operational and management expenses and needs. Educational efforts will help define the project as an integral part of experiencing the Everglades. Common objectives of this phase include:

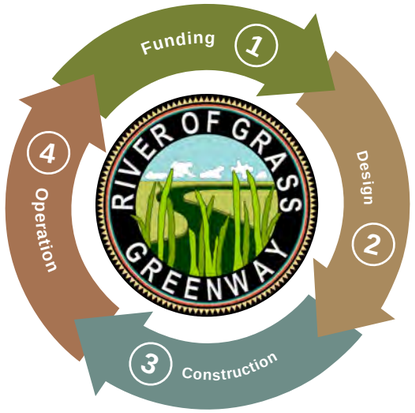
- Promote benefits: economic, tourism, ecological,
- Market to Florida and out-of-state markets,
- Develop educational strategies and partners,
- Develop communications plan and outreach strategies,
- Create and promote educational programming,
- Develop path-wide branding strategies such as; apparel, signage and events.

4.4.2 Working Groups

Establishing a core group of partners for each phase of the development of ROGG is ideal, however, with many of the phases overlapping one another, the overall structure of these groups can be simplified into four primary teams called working groups: Funding, Design; Construction and Operations.

The four core working groups are illustrated in the diagram below as the team that will fully embrace the development of ROGG and are responsible for key phases of development.

ROGG Working Group Model



Though each working group would consist several unique partners, there are a few public agencies which will need to have a leadership role in the development of ROGG. Two primary leaders may be required provided the scale and location of a preferred route for ROGG, FDOT and OGT. As the primary for the preferred alternative option and the primary agency in charge of design requirements of trails in the State of Florida, FDOT will need to have a leadership role for the permitting design and construction of ROGG. OGT may also be a primary leader in advancing the ROGG project given the scale and potential benefits to the state and South Florida region and the Office's expertise in regional shared-use paths. In addition to these primary leadership needs, individual land managers along the U.S. 41 corridor will need to have key roles in each phase of the project near their managed site(s). Due to their limited resources, however, many are not able to lead development efforts.

4.5 SUMMARY

"I have a basic belief that outdoor recreation in a natural environment is good for people and is good for society at large. Anything that will bring more people to outdoor recreation, I therefore consider a friend"

– Richard Sprat, USDA Forest Service, 1986

Introduction

The vision established for the ROGG through extensive public involvement and refinement of concepts has demonstrated to be feasible. It is a challenging vision due to the complexities of the Everglades, but one that will provide great benefits to the public. Born out of the notion to provide public access to one of the most unique and well-studied landscapes in the world, ROGG seeks to build upon the allure of a vast, long-distance hiking and biking experience for a variety of users.

By offering a safe and uniquely personal way for visitors to experience the Everglades, ROGG will bring continue to bring great awareness to the fragile ecosystem and restoration efforts throughout the region. As documented in the benefits analysis and benefit-cost analysis, ROGG may provide an answer to part of the solution to reduce the environmental impacts associated with providing vehicle-only access to the Everglades. Shared-use paths have proven to be an effective means to reducing impacts while encouraging access to sensitive areas.

Drawing upon the historical corridor of the Tamiami Trail, (U.S. 41) the proposed ROGG links seven national and state parks, preserves, forests, and wildlife refuges. Many of these natural areas have received intensive focus in recent decades as part of the Comprehensive Everglades Restoration Plan (CERP), the largest ecological restoration project in the world. Through these alternate transportation connections, which ROGG will serve as one, the shared-use path will provide an opportunity for millions of residents and visitors of South Florida to experience the Everglades landscape and culture in a sustainable manner.

4.5.1 Benefit-Cost Analysis

Construction costs of large-scale paths and trails can vary due to a number of influencing factors such as construction method, materials, need for bridges, topography, mitigation needs for potential impacts and desired width of the facility. As an alternative transportation mode, the construction costs of a path is best compared to typical costs of other transportation facilities in order to better understand the scale of costs. The following table identifies typical roadway and path/trail costs as estimated by FDOT (2014 costs) for rural conditions, similar to those found in the ROGG Study Area:

Type of Facility	Typical per Mile Cost
New two-lane roadway with 5' paved shoulders	$6,590,650
New four-lane roadway with 5' paved shoulders	$10,715,850
Milling and Resurfacing a four-lane roadway with 5' paved shoulders	$2,251,800

Through an analysis of associated costs and benefits, a comprehensive picture can be identified of the overall benefit that ROGG would have for the South Florida region. [The benefit-cost analysis provides a summary of the capital costs of developing the ROGG and accompanying alternative transportation, as well as, the operational and maintenance costs projected over a 20-year period.] Each cost and benefit has been discounted for a range of factors that include comparison to private investment performance and public investment and inflationary impacts. For purposes of this study, a 3% discount rate is the most likely scenario as private financing is typically for such types of projects.

Benefit-Cost Analysis Summary

Costs	7% Discount Rate	3% Discount Rate
Capital Costs	$ 122.72M	$ 134.92M
Operations & Maintenance	$ 31.31M	$ 49.29M
Total Costs	**$ 154.02M**	**$ 184.20M**
Benefits	7% Discount Rate	3% Discount Rate
Health	$ 26.95M	$ 42.43M
Recreation	$ 46.41M	$ 73.06M
Safety	$ 18.43M	$ 29.01M
Congestion Avoided	$ 4.46M	$ 7.02M
Vehicle Costs Avoided	$ 15.45M	$ 24.32M
Emissions Avoided	$ 1.06M	$ 1.67M
Total Net Benefits	**$ 112.76M**	**$ 177.51M**
Benefit-Cost Ratio	**0.73**	**0.96**

At a 3% discount rate, the development and on-going operational and maintenance costs for ROGG and accompanying alternative transportation elements may results in a net positive project, meaning that in general society would gain more monetary benefits than investments needed to construct and maintain the facility. **Important notes include; the benefit-cost analysis does not include all benefits to society, only those that can be monetized and estimated; costs include capital construction costs only and does not factor potential needs for acquisition of land or mitigation costs. These elements may be included in future phases of analysis, engineering or design.**

4.5.2 Funding Opportunities

Funding potential future development and operation of the ROGG will require financial support from a variety of federal, state, local and private sector sources. This can be referred to as employing a "funding quilt" approach, which is in essence knitting together a variety of different funding sources to finance the development of a single project element. In order to develop the ROGG project, the following steps should be taken:

1. Subdivide the ROGG into phases
    - Establish logical endpoints
    - Identify cost of each phase
2. Work with project development sponsors:
    - Federal agencies
    - South Florida Water Management District
    - State of Florida
    - Collier County and municipal governments
    - Miami-Dade County and municipal governments
    - Private sector foundations and non-profits
3. Pursue low-hanging fruit
4. Target funding types:
    - Right-of-way acquisition
    - Path facility construction
    - Trailheads and amenities

4.5.3 Implementation Phasing

In order to categorize feasible and functional projects into levels of priority, three primary phases of implementation have been defined. Project selection and priority categorization are based on the feasibility of each project, the potential for partnerships and funding, and overall functionality and connectivity. Timeframes have been estimated for each level of priority, however, these are estimated ranges only. Changes in conditions may result in the advancement or delay of a specific project or segment of the path beyond the timeframe described. The projects identified in this section are categorized into the following levels of priority:

High Priority Projects (10 yrs or less)

Projects in this level have a high level of feasibility due to a combination of partnership and funding opportunities from local, state and federal agencies, as well as important connections to hubs and access points. Previous and ongoing planning efforts and environmental studies also contribute to the feasibility of projects in this category. Likely advancement of these projects may occur in the next ten years.

Medium Priority Projects (10-20 yrs)

Projects in this level represent opportunities to further the projects and connections established in the priority project phase. These projects may include a moderate level of potential partnerships and funding and provide connections to additional hubs, amenities and points of access. Likely advancement of these projects may occur in the next ten to twenty years.

Low Priority Projects (20+ yrs)

Projects in this level represent opportunities with significant challenges. These projects have limited potential for partnership and funding opportunities, and in some cases require long distances to connect to significant hubs or access points or contain a number of site specific challenges. Likely advancement of these projects may occur beyond a twenty year horizon.

Potential Transit/Shuttle Routes

Also included in this section are potential transit or shuttle routes and hubs that connect segments of the path and significant destinations within the corridor with locations outside the study area. These routes can enhance access to the project segments and amenities and provide connections to neighboring counties and municipalities. These routes and stops form the basis of transit and shuttle recommendations found in Section 3.4 - Alternative Transportation Analysis - Scenario Three: Progressive Demand Management.

Priority Projects and Segments

Implementation phasing provides a structured plan for the achievement of functional and feasible project opportunities that can help build towards the ROGG Vision. While ROGG East and ROGG West are the focus for high priority projects, these segments present the greatest opportunities to improve safety and access to primary destinations within the Study Area. These projects also present a high level of potential for funding and partnerships, thus increasing the feasibility for the selected segments and amenities to proceed to future phases within the next ten years.

ROGG Central presents many opportunity projects that can enhance low priority projects and move closer to achieving the corridor vision. The implementation of transit connections can also help supplement those projects that may be in the medium or low priority phases and provide additional access to ROGG West and ROGG East.

The high priority project phase of implementation includes over 32 miles of pathway segments and additions or improvements to seven existing path trailheads, providing safe, functional access for existing ROGG users to destinations and attractions within the corridor.

4.5.4 Project Management Working Groups

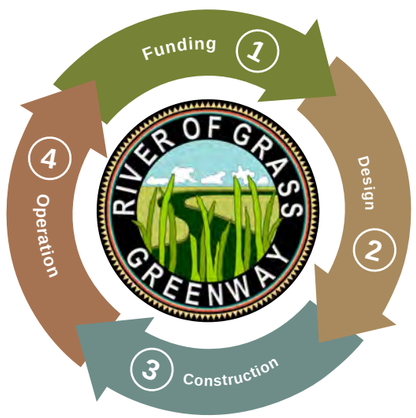
What makes a great regional shared-use path? Through the analysis of successful paths and trails throughout the United States and the world, common themes can be identified that make them great. Whether it is through carefully planned connections to a regional network of paths or to the very fabric of a community through the use of educational and interpretation elements; a great shared-use path is not only aesthetically pleasing, but must provide a unique and profound experience, contribute economically to the community and have minimum impact to the environment through sustainable practices. These common traits of successful regional paths are:

- **Connections:** physical, social /cultural, economic;
- **Experience of Place:** celebrate landscape & people; health, wellness & active living;
- **Great Design:** accessible, safe, efficient, interesting, state-of-the-art;
- **Management:** clean, safe and maintained;
- **Economic Benefits:** eco-tourism, job creation, business-friendly, good neighbor;
- **Sustainable:** minimal impact, maximum benefit, affordable and easy to operate.

From the early stages of securing funding through construction and operation of the path, project management consists of the comprehensive oversight of each phase of work. For ROGG and other large-scale planning, design and construction projects, project management must be outlined into expected phases of work. Each phase of work entails a unique group of partners and skill-sets which together allow for the successful completion and operation of a regionally significant path. These phases of a regional path development include:

- Funding
- Planning, Engineering and Design
- Right-of-Way Permitting and Easements
- Environmental Permitting
- Construction
- Official Opening / Dedication
- Operations and Management
- Marketing, Promotion and Education

ROGG Working Group Model



APPENDIX

Appendix A : Bibliography

The ROGG Master Plan report includes summaries and references to other documents. The following list provides information for these documents and should be utilized if desired.

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Appendix B : Species Scientific Names

Common and Scientific Names of Plant and Wildlife Species Referenced in the River of Grass Greenway Feasibility Study

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
American alligator	*Alligator mississippiensis*	**Florida panther**	*Puma concolor coryi*	roseate spoonbill	*Ajaja ajaja*
American crocodile	*Crocodylus acutus*	**Florida sandhill crane**	*Grus canadensis pratensis*	royal palm	*Roystonea regia*
apple snail	*Pomacea paludosa*	**gopher tortoise**	*Gopherus polyphemus*	saltgrass	*Distichlis spicata*
armadillo	*Dasympus novemcinctus*	**golden eagle**	*Aquila chrysaetos*	saltmarsh cordgrass	*Spartina alterniflora*
arrowhead	*Sagittaria spp.*	**groundsel**	*Baccharis halimifolia*	saltmeadow cordgrass	*Spartina patens*
bald eagle	*Haliaeetus leucocephalus*	**gulf cordgrass**	*Spartina spartinae*	saltwort	*Batis maritima*
beak sedge	*Rhynchospora spp.*	**gumbo limbo**	*Bursera simaruba*	sand cordgrass	*Spartina bakeri*
Big Cypress fox squirrel	*Sciurus niger avicennia*	**hydrilla**	*Hydrilla verticillata*	sand live oak	*Quercus geminata*
black mangrove	*Avicennia germinans*	**inkberry**	*Exothea paniculata*	satinleaf	*Chrysophyllum oliviforme*
bladderwort	*Utricularia spp.*	**Jamaica dogwood**	*Piscidia piscipula*	saw palmetto	*Serenoa repens*
blue maidencane	*Amphicarpum muhlenbergianum*	**limpkin**	*Aramus guarauna*	sawgrass	*Cladium jamaicense*
Brazilian pepper	*Schinus terebinthifolius*	**little blue heron**	*Egregga caerulea*	snowy egret	*Egretta thula*
broomsedge	*Andropogon spp.*	**live oak**	*Quercus virginiana*	south Florida bluestem	*Schizachyrium rhizomatum*
bulrush	*Scirpus spp.*	**love grass**	*Eragrostis sp.*	south Florida slash pine	*Pinus elliottii var. densa*
Burmese python	*Python bivittatus*	**maidencane**	*Panicum hemitomon*	southeastern American kestrel	*Falco sparverius paulus*
buttonwood	*Conocparus erectus*	**marsheldger**	*Iva fructescens*	southern wild rice	*Zizaniopsis miliacea*
cabbage palm	*Sabal palmetto*	**mastic**	*Mastichodendron foetidissimum*	spatterdock	*Nuphar advena*
Cape sabal seaside sparrow	*Ammodramus maritimus mirabilis*	**melaleuca**	*Melaleuca quinquenervia*	spike rush	*Eleocharis spp.*
Carolina willow	*Salix caroliniana*	**muhly grass**	*Muhlenbergia capillaris*	strangler fig	*Ficus aurea*
cattail	*Typha spp.*	**myrtle oak**	*Quercus myrtifolia*	swamp bay	*Persea palustris*
cocoplum	*Chyrsobalanus icaco*	**needle rush**	*Juncus roemerianus*	sweetbay	*Magnolia virginiana*
cogongrass	*Imperata cylindrica*	**osprey**	*Pandion halieatus*	tricolored heron	*Egretta tricolor*
cypress	*Taxodium sp.*	**perennial glasswort**	*Sarcocornia ambigua*	water hyacinth	*Eichhornia crassipes*
dahoon	*Ilex cassine*	**pickerelweed**	*Pontederia cordata*	water hyssop	*Bacopa caroliniana*
eastern indigo snake	*Drymarchon corais couperi*	**poisonwood**	*Metopium toxiferum*	waterlily	*Nymphaea odorata*
Everglades mink	*Neovison vison evergladensis*	**pond apple**	*Annona glabra*	wax myrtle	*Myrica cerifera*
Everglade snail kite	*Rostrhamus sociability plumbeus*	**pop ash**	*Fraxinus caroliniana*	West Indian manatee	*Trichechus manatus*
feral pig	*Sus scrofa*	**rabbit**	*Sylvilagus spp.*	white ibis	*Eudocimus albus*
fire ant	*Solenopsis invicta*	**raccoon**	*Procyon lotor*	white mangrove	*Laguncularia racemosa*
Florida black bear	*Ursus americanus floridanus*	**red mangrove**	*Rhizophora mangle*	white-tailed deer	*Odocoileus virginianus*
				wood stork	*Mycteria americana*

Appendix C : Natural Resource Permitting Requirements

National Environmental Policy Act Coordination

For projects that utilize federal funding or require federal approval, objectives of the National Environmental Policy Act (NEPA) must be met. Each federal agency has their preferred methodology for documenting the NEPA process, but generally the process includes the identification of project purpose and need as well as defining goals and objectives. From there, a range of project alternatives are developed, one of which becomes "preferred" at the conclusion of the study. Next, the issues or environmental problems that need to be addressed to meet the goals and objectives of the project are identified, which is done through a variety of tools such as screening forms and/or public scoping meetings depending on the agency involved and the project complexity. If the issues identified will likely result in environmental impacts, the alternatives are assessed for options to mitigate, eliminate or reduce impacts. The class of action determination is predicted (Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement) to assist with decisions about the level of effort necessary to process the project. Data is collected and analyzed by an interdisciplinary team of NEPA professionals to predict the impacts of the identified alternatives on environmental resources.

For potential impacts to resources resulting from the identified project alternatives, the extent of the effect is identified in the NEPA document through a discussion of context, intensity (degree), duration, timing (short-term vs. long-term), and relative severity of the impact (minor, moderate, or major). Following the initial assessment, the results are reviewed with the public and comments gathered to assist in further analysis. Public participation is an essential component of the NEPA process. Adjacent property owners and agency representatives are typically invited to share their opinions during the scoping process and/or prior to project closure. In addition, press releases are provided to the media to ensure that the general public is given an opportunity to provide input. Revisions to the reviewed alternatives are prepared, if necessary. The final NEPA document is published in the Federal Register. Coordination with regulatory agencies is part of the NEPA process, but construction authorization/permits are required subsequent to completion of the NEPA review.

Natural Resource Permits

Current regulations and permitting requirements for each regulatory agency are summarized below. A pre-application meeting is encouraged with representatives of each regulatory agency to review proposed activities before permit applications are developed. During the meeting, critical items such as project need, level of environmental analysis, alternatives, and potential mitigation options are typically discussed.

USACE Requirements

In Florida, the SFWMD and the USACE have developed a comprehensive, integrated joint environmental permitting process that includes simultaneous state and federal review of the initial application for projects that affect wetlands and/or other surface waters. This application is referred to as the "Joint Application for Environmental Resource Permit (ERP)/U.S. Army Corp of Engineers (USACE) Federal Dredge and Fill Permit". Ultimately, project approval is demonstrated through an ERP issued by the SFWMD and either a Nationwide Permit (NWP) or Individual Permit (IP) issued by the USACE. The IP process requires formal public coordination through a public notice. Comments received from members of the public and other federal agencies need to be addressed prior to permit issuance. Additional information is required by the USACE to process IP applications beyond the joint ERP application including, but not limited to the following:

- Ecological inventory of wetland and upland plant and wildlife species on the subject property, with particular emphasis on federally listed threatened and endangered (T & E) species;
- Wetland avoidance and minimization argument
- Alternatives analysis
- Draft public notice
- U.S. Environmental Protection Agency 404(b)(1) guidelines
- An assessment of potential impacts to other resources including Essential Fish Habitat, Cultural and Historical Resources, Air Quality, Park and Recreational Lands and farmland
- An analysis quantifying the functional loss resulting from the impacts and ecological gain generated by the proposed project, and
- An evaluation of public comment.

In Florida, functional loss and gain for wetland impacts and wetland mitigation are quantified through a Uniform Mitigation Assessment Method (UMAM) as outlined in Chapter 62-345 F.A.C. The Final Rule for Compensatory Mitigation for Losses of Aquatic Resources details appropriate methods of compensatory mitigation to ensure there is "no net loss" of wetlands after permitted impacts are executed. In all likelihood, implementation of ROGG would require mitigation for authorized wetland impacts, and as part of this process, demonstration of how functional loss of federally-jurisdictionally wetlands would be offset through a proposed mitigation plan.

SFWMD Requirements

An ERP is required before beginning any construction activity that would affect wetlands, alter surface water flows, or contribute to water pollution. The ERP process in Florida was updated by rule (Chapter 62-330 F.A.C.) in 2013 to standardize application forms and review processes for projects as part of the Statewide Environmental Resource Permit (SWERP) rulemaking process. Under this rule, projects that require more than negligible amounts of wetland impacts are generally processed and evaluated through the ERP Individual Permit process, which includes the submittal to and review by SFWMD for documentation concerning wetland impacts and mitigation as well as stormwater management. To evaluate proposals for projects that include the establishment of impervious surface, SFWMD requires signed and sealed construction drawings demonstrating that the proposed project design meets requirements for stormwater management, the protection of wetlands and/or floodplains. This may require that stormwater runoff be treated on-site prior to discharge off-site or prior to attenuation in wetlands. The joint ERP application also requires a narrative of sufficient detail to demonstrate project purpose and need, existing environmental conditions including details regarding wetland dependent listed wildlife species, functional assessment of direct and secondary wetland impacts and any proposed compensatory mitigation, an evaluation of floodplain impacts and any proposed compensatory storage. Projects that contain wetlands are required to maintain a 15-foot minimum, 25-foot average upland buffer between the edge of disturbance and the extent of wetland jurisdiction to minimize secondary impacts.

The loss of wetland function can be compensated through restoration, enhancement and/or preservation of habitat elsewhere or through the purchase of mitigation credit at an approved mitigation bank. Regulatory requirements for stormwater management, wetlands extent, assessment and mitigation, and floodplains are included in the Environmental Resource Permitting Manual that can be found at www.sfwmd.gov.

Public input is an important part of the SFWMD permitting process. The SFWMD posts information about permit applications on its website. Members of the public can search for pending applications by application/permit number, project name, permit type, or county and provide substantial objection to permits within a certain timeframe of issuance. A substantial objection is a written statement that identifies the objector, concerns hydrologic or environmental impacts, and relates the objection to applicable rule criteria. A substantial objection is considered "timely" when it is received within 14 days of notification of the application. Resolution of objections received by the SFWMD is required by the applicant or the permit may be processed for denial.

Miami-Dade County Requirements

MDRER regulates impacts to wetlands under Chapter 24 of the Miami-Dade County Code of Ordinances. There are six classifications of permits issued by the MDRER for wetland impacts. These classifications are made based upon a combination of location, type of wetland, ownership, and type of impact. Generally, proposed projects that require greater than 1 acre of impacts to wetlands require approval by the Board of County Commissioners in a public forum. Public comment is received, analyzed, and addressed by the Board of County Commissioners prior to permit consent or denial.

Section 24-48.4 describes detailed mitigation requirements for any project that has an adverse environmental impact. Mitigation is expected to maximize the preservation of natural resources, and be provided in accordance with the stated provisions of Section 24. Generally, the Miami-Dade County wetland permitting process is similar to the state and/or federal process. However, if in-kind mitigation is not proposed to occur within the County, an exception has to be requested and processed. This is typically done only if a hardship can be demonstrated by the applicant.

Collier County Requirements

Collier County's comprehensive plan contains an overlay district for the Area of Critical State Concern (ACSC). Rule 28-25.006 Site Alteration of the Florida Administration Code states that within this area, no mangrove trees or salt marsh grasses shall be destroyed of otherwise altered. Site alteration is limited to 10% of the total site size, and installation of nonpermeable surfaces shall not exceed 50% of any such area. However, a minimum of 2,500 square feet may be altered on any permitted site.

Monroe County Requirements

Monroe County's Comprehensive Plan contains several policies which govern development activity within wetlands. Specifically, Policy 102.1.1 states that the County shall protect submerged lands and wetlands. The open space requirement shall be one hundred (100) percent of the following types of wetlands:

- Submerged lands
- Mangroves
- Salt ponds
- Fresh water wetlands
- Fresh water springs
- Undisturbed salt marsh and buttonwood wetlands

USFWS Requirements

The ROGG Study Area includes vast expanses of publicly owned land that are noted for their diversity of rare and endangered plant and animal species that are protected by the FFWCC, the USFWS and/or CITES. If ROGG is deemed feasible, and as the footprint of disturbance is refined for construction permitting, surveys for occurrences of rare and/or protected plant and animal species would be necessary. Impacts and mitigation are determined on a species-by-species basis, and impacts may be to an individual animal or nest structure, nesting habitat, foraging habitat or all suitable habitat.

If impacts to WOUS are unavoidable, the USACE will coordinate with other agencies having jurisdiction such as the USFWS, SHPO and/or the EPA as a part of the ESA Section 7 Consultation process. **Table A3-1** provides a summary of each of these methods for obtaining USFWS Consultation on projects.

Under Section 7, federal agencies must consult with the USFWS when any action the agency carries out, funds, or authorizes (such as through a permit) may affect a listed endangered or threatened species. Dependent upon what types of listed species may occur in the proposed action area and what effect the proposed action may have on those species, the USFWS will determine whether or not the proposed action is likely to affect listed species. If it appears that the proposed action may affect a listed species, the preparation of a Biological Assessment is required to assist in its determination of the project's effect on a species and formal consultation with the USFWS is required.

The analysis of the USFWS is measured against the definition of jeopardy. Under the ESA, jeopardy occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. In some cases, the USFWS finds that an action may adversely affect a species, but not jeopardize its continued existence. When this happens, the USFWS prepares an incidental take statement for the proposed project as part of a Biological Opinion (BO). The statement includes the amount or extent of anticipated take due to the proposed action, reasonable and prudent measures to minimize the take, and terms and conditions that must be observed when implementing those measures.

FFWCC Requirements

The FFWCC regulates potential impacts to species listed by the State of Florida. If impacts to a state-listed species are unavoidable, the FFWCC reviews the potential impacts through pertinent protected wildlife species permit processes. For some federally listed species, the FFWCC defers to the USFWS permits issued as part of a BO. These permit applications typically require surveys and/or documentation of the habitat and/or individuals of the species that would be impacted by the proposed activity as well as the extent of impact anticipated. Depending on the species involved, the permits require mitigation to offset the potential impacts, which can include acquisition and protection of additional habitat occupied by the species, payment to the FFWCC, and/or relocation of the target species. The FFWCC has published guidelines for many of the species they regulate that outline the management requirements and/or thresholds of potential impact for which permitting efforts are required.

Table A3-1- ESA Methods for Obtaining USFWS Consultation

	Section 7 of the Endangered Species Act	**Section 10 of the Endangered Species Act**
Name:	Interagency Coordination	Habitat Conservation Plan
Lead Agency:	USACE (for wetland impacts requiring a 404 Permit, other agencies might take the lead where these is a different federal nexus requiring approval from the federal government)	USFWS
Time-frame:	The USFWS has 135 days from the time of a "complete application" to provide comments to the USACE pursuant to Section 7 policies.	There is no stated timeframe for completion of the HCP.
Additional Review:	Statewide USACE office	The regional office (Atlanta) of the USFWS, with oversight by other entities within the Department of the Interior.
Mechanics:	A Biological Opinion (BO) is provided to the USACE. The BO will include reasonable and prudent measures (mandatory), and conservation measures (optional, but they may be required by the USACE).	Requirements for implementation of management actions pursuant to Section 10 are included in the HCP.

Appendix D : Acronyms

The following acronyms are listed as they appear in the text.

ACSC – Area of Critical State Concern
AECOM – AECOM Technical Services, Inc.
AADT – Annual average daily traffic
AASHTO – American Association of State Highway and Transportation Officials
ADA – American with Disabilities Act
BICY – Big Cypress National Park
BGEPA – Bald and Gold Eagle Protection Act
BO – Biological Opinion
BOR – Basis of Review
C&D – Chesapeake and Delaware Canal
C&SF Project – Central and Southern Florida Project
CC – Collier County
CEPP – Comprehensive Everglades Planning Project
CERP – Central Everglades Planning Project
CFA – Core Foraging Area
CITES – Convention on International Trade in Endangered Species
CRAS – Cultural Resource Assessment Survey
C.R. – County Route
CSSP – Collier-Seminole State Park
CWA – Clean Water Act
EA – Environmental Assessment
EAA – Everglades Agricultural Area
ECG – East Coast Greenway
EFH – Essential Fish Habitat
EIS – Environmental Impact Statement
EVER – Everglades National Park
EPA – Environmental Protection Agency
ERP – Environmental Resource Permit
ESA – Endangered Species Act
EST – Environmental Screening Tool
ETAT – Environmental Technical Advisory Team
ETDM – Efficient Transportation Decision Making
F.A.C. – Florida Administrative Code
FDEP – Florida Department of Environmental Protection
FDOT – Florida Department of Transportation
FDOT-D1 – Florida Department of Transportation - District 1
FDOT-D6 – Florida Department of Transportation - District 6
FFWCC – Florida Fish and Wildlife Conservation Commission
FHWA – Federal Highway Administration
FNST – Florida National Scenic Trail
FROGG – Friends of the River of Grass Greenway
FSPSP – Fakahatchee Strand Preserve State Park
FTA – Federal Transit Administration
GIS – Geographic Information System
GMP – General Management Plan
HCP – Habitat Conservation Plan
IP – Individual Permit
LOST – Lake Okeechobee Scenic Trail
MBTA – Migratory Bird Treaty Act
MDDTPW – Miami-Dade Department of Transportation and Public Works
MDPROS – Miami-Dade Parks, Recreation and Open Space Department
MDRER – Miami-Dade County Department of Regulatory and Economic Resources
MIC – Miccosukee Tribe of Indians of Florida
Mod Waters – Modified Water Deliveries Project
MPO – Metropolitan Planning Organization
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
NRCS – National Resources Conservation Service
NPC – Naples Pathways Coalition
NPCA – National Parks Conservation Association
NPS – National Park Service
NRPH – National Register of Historic Places
OGT – Office of Greenways and Trails
NWR – National Wildlife Refuge
OFW – Outstanding Florida Waters
ORV – Off Road Vehicle
PD&E – Project Development and Environment
PL – Public Law
PIP – Public Involvement Plan
PIR – Project Implementation Report
PSSF – Picayune Strand State Forest
RADS – Roadside Animal Detection System
ROGG – River of Grass Greenway
ROW – Right of Way
RTCA – River, Trails and Conservation Assistance
SEIR – State Environmental Impact Report
SFWMD – South Florida Water Management District
SHPO – State Historic Preservation Office
S.R. - State Route
STA – Stormwater Treatment Area
SWERP – Statewide Environmental Resource Permit
TCP – Traditional Cultural Property
TIGER – Transportation Investment Generating Economic Recovery
TINWF - Ten Thousand Islands National Wildlife Refuge
TRIP – Transit in Parks
TRIPTAC – Transit in Parks Technical Assistance Center
U.S.41 – Tamiami Trail / S.R. 90
UMAM – Uniform Mitigation Assessment Method
USACE – United States Army Corps of Engineers
USFWS – U.S. Fish and Wildlife Service
VMT - Vehicle Miles Traveled
WCA – Water Conservation Area
WCA 3A – Water Conservation Area 3A
WCA 3B – Water Conservation Area 3B
WOUS – Waters of the United States

Appendix E : Comprehensive List of Influencing Documents

The following is a list of documents within the categories of governing codes and ordinances, master/management plans, transportation studies, environmental and cultural resource documents, and design guidelines and methodologies that were reviewed as part of the ROGG feasibility assessment and/or are anticipated to apply to the master plan for ROGG. This list should be viewed as a starting point for future detailed reviews for the all or portions of the ROGG that are determined to be feasible as additional codes, studies, or other guidelines may be promulgated or be determined to apply to any future construction activities with ROGG.

Governing Codes and Ordinances:

- Clean Air Act of 1970, as amended
- Clean Water Act of 1972, as amended
- Coastal Zone Management Act of 1972, as amended
- Collier County Growth Management Plan
- Collier County Land Development Code
- Endangered Species Act of 1973
- Energy Independence and Security Act of 2007
- EO 11593: Protection and Enhancement of the Cultural Environment
- EO 11988: Floodplain Management
- EO 11990: Protection of Wetlands
- Florida Administrative Code
- Florida Statutes
- Miami-Dade County Comprehensive Development Master Plan
- Miami-Dade County Land Development Regulations
- Miami-Dade County Zoning Codes and Ordinance
- National Environmental Policy Act of 1969, as amended
- National Historic Preservation Act of 1966, as amended
- National Parks Omnibus Management Act of 1998
- Noise Control Act of 1972
- NPS Organic Act
- Section 106 of the National Historic Preservation Act of 1966
- SFWMD Basis of Review for Environmental Resource Permit Applications
- Water Resources Development Act of 1992

Master Plans and Management Plans:

- Everglades National Park / Master Plan (1979)
- NPS Everglades National Park – East Everglades Addition Land Protection Plan (1991)
- NPS Big Cypress National Preserve General Management Plan and Final Environmental Impact Statement (1991)
- NPS Big Cypress National Preserve Water Resources Management Plan (1996)
- FDEP Fakahatchee Strand Preserve State Park Unit Management Plan (2000)
- NPS Big Cypress National Preserve Long-Range Interpretive Plan (2002)
- FFWCC – A Conceptual Management Plan for The Everglades Complex of Wildlife Management Areas (Everglades/Francis S. Taylor, Holey Land and Rotenberger Wildlife Management Areas) (2002)
- FDEP Collier – Seminole State Park Unit Management Plan (2004)
- Miami-Dade County Aesthetics Master Plan (2008)
- Miami-Dade County Parks and Open Space System Master Plan (2008)
- NPS Everglades National Park Visitor Study (2008)
- USACE Regional Draft Report for the Conceptual Recreation Plans for the Master Plan of the Comprehensive Everglades Restoration Program (2008)
- Florida Division of Forestry Ten-Year Resource Management Plan for the Picayune Strand State Forest (2008)
- NPS Big Cypress National Preserve Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement (2010)
- Collier County Parks and Recreation Master Plan (2011)
- NPS Everglades National Park Superintendent's Compendium (2012)
- NPS Big Cypress National Preserve Superintendent's Compendium (2012)
- NPS Everglades National Park Draft General Management Plan / East Everglades Wilderness Study / Environmental Impact Statement (GMP) (2013)

Transportation Studies:

- North Dade Greenways Master Plan (1997)
- Miami-Dade MPO Bicycle Facilities Plan (2001)
- FHWA / FTA Federal Lands Alternative Transportation Systems Study (2001)
- FDOT US 41 PD&E Study from CR 951 to CR 92 (2008)
- Miami-Dade MPO Bicycle and Pedestrian Plan Update (2009)
- Florida Scenic Highways Project Evaluation Report (2009)
- FDOT De-Designation of the Tamiami Trail National Scenic Byway (2009)
- ETDM Summary Report for Project #12596 – River of Grass Greenway; Programming Screen (Published January 2010, April 2010, March 2011)
- Automated Bicycle Rental System and Parking Plan Study (2011)
- FDOT Environmental Determination for Tamiami Trail PD&E (2011)
- FDOT AADT Report (2011)
- Collier MPO Comprehensive Pathways Plan (2012)

Environmental and Cultural Resource Documents:

- Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (1999)
- USFWS Biological Opinion for the Modified Water Deliveries to Everglades National Park Project, Experimental Water Deliveries Program, and the C-111 Project (1999)
- USFWS Biological Opinion for the Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement for the Big Cypress National Preserve (2000)
- NPS Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement for Big Cypress National Preserve (2000)
- NPS Scenic Corridor Visitor Safety Highway Improvements Environmental Assessment (2001)
- USFWS Biological Opinion for the Tamiami Trail Portion of the Modified Water Deliveries to Everglades National Park Project (2006, 2008 modification, 2010 modification)
- URS Corporation (for FDOT) Cultural Resource Assessment Study for US-41 PD&E from Collier Boulevard to San Marco Drive (2007)
- NPS Pilot Spreader Swale Project Environmental Assessment (2008)
- Tamiami Trail Modifications Final Integrated Limited Reevaluation Report and Environmental Assessment (2008)
- Documentation and Evaluation of Coopertown (8DA6767) and the Airboat Association of Florida (8DA6768) and an Assessment of Effects of Modifications to Tamiami Trail (2009)
- NPS Big Cypress National Preserve Commercial Services Plan & Environmental Assessment (2009)
- USFWS Final Fish and Wildlife Coordination Act Report for the Decompartmentalization Physical Model Project (2009)
- USFWS Biological Opinion for the Picayune Strand Restoration Project (2009)
- USFWS Final Fish and Wildlife Coordination Act Report for the L-30 Seepage Management Pilot Project (2009)
- Collier County Guide to Historic Sites in Collier county (2010)
- NPS Environmental Assessment for the Loop Road Improvements, Big Cypress National Preserve (2010)
- USFWS Biological Opinion for the Draft Final General Management Plan for the Big Cypress National Preserve – Addition (2010)
- USFWS Biological Opinion for the Everglades Restoration Transition Plan, Phase 1 (2010, 2012 modification)
- USFWS Biological Opinion for the Tamiami Trail Modifications: Next Steps Project (2010)
- USFWS Coordination Letter for the Roadside Animal Detection System (RADS) Project at US Highway 41 – Turner River (2010)
- NPS Tamiami Trail Modifications: Next Steps / Final Environmental Impact Statement (2011)
- USACE Ethnographic Study and Evaluation of Traditional Cultural Properties of the Modern Gladesmen Culture (2011)
- USFWS Biological Opinion for the Krome Avenue Widening from US 27 to US 41 (2011)
- USACE / SFWMD Central Everglades Planning Project Proposed Final Array (2012)
- NPS Environmental Assessment for the Designated ORV Trail Heads and Turn Lanes, Big Cypress National Preserve (2012)
- Comprehensive Everglades Planning Project (CEPP): Proposed Final Array (PDT #18) (2012)
- USFWS Biological Opinion for the Big Cypress National Preserve ORV Trail Heads and US 41 Turn Lanes Construction (2012)
- Central Everglades Planning (CEPP) Project Draft Integrated Project Implementation Report (PIR) and Environmental Impact Statement (EIS) (2013)
- Copeland Prairie Mitigation Plan (2013)

Design Guidelines and Methodologies:

- DO 87A: NPS Transportation Guidebook and Park Road Standards (1984)
- USFWS Habitat Management Guidelines for Wood Stork in the Southeast Region (1990)
- NPS Guidelines for Evaluating and Documenting Rural Historic Landscapes (1999)

- AASHTO Guide for the Development of Bicycle Facilities (1999)
- Florida Department of Transportation: Bicycle Facilities Planning and Design Handbook (2000)
- USFWS Cape Sable Seaside Sparrow Species Conservation Guidelines (2003)
- Manual on Uniform Traffic Control Devices for Streets and Highways (2003 ed. And 2009 ed.)
- AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities (2004)
- Americans with Disabilities Act Accessible Guidelines (2004 ed. and 2009 ed.)
- USACE / SFWMD Central and Southern Florida Project Comprehensive Everglades Restoration Plan Program Management Plan Master Recreation Plan (2004)
- USFWS Draft Species Conservation Guidelines for American Crocodile (2004)
- USFWS Draft Snail Kite Management Guidelines (2006)
- USFWS National Bald Eagle Management Guidelines (2007)
- USFWS Florida Panther (Puma concolor coryi) Recovery Plan (2008)
- Miami-Dade Trail Design Guidelines and Standards (2010)
- USFWS Wood Stork Core Foraging Analysis Methodology (2010)
- AASHTO Guide for the Development of Bicycle Facilities (2012)
- USFWS Panther Habitat Assessment Methodology (2012)
- FDOT Project Traffic Forecasting Handbook (2012)
- FDOT Plans Preparation Manual (2013)

Appendix F : Meeting Notes

The following is a compilation of the meeting notes taken throughout the planning process. The notes are organized into the following categories:

- Steering Committee Meetings and Events
- Workshops
- Agency Meetings
- Open House Meetings

Steering Committee Meetings and Events

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Meeting Notes
Task 2.5

Subject:	River of Grass Greenway (ROGG) – Project Kick-Off
Project No:	60272285
Date:	September 24, 2012 (Revised 1/3/13)
Time:	12:30 p.m. – 4:30 p.m.
Location:	Big Cypress Swamp Welcome Center - Auditorium 33000 Tamiami Trail East, Ochopee, FL 34141
Attendees:	Lucie Ayer LucillaAyer@colliergov.net Bob DeGross Bob_DeGross@nps.gov Jaime Doubek-Racine Jaime_Doubek-Racine@nps.gov Jay Exum Jay.Exum@aecom.com Heather Ferrand Heather.Ferrand@freshfromflorida.com Chuck Flink chuck.flink@altaplanning.com Franz Gimmler franzg@ix.netcom.com Ellen Heath Ellen.Heath@ecom.com Mark Heinicke MHEINIC@miamidade.gov David Henderson davidh@miamidade.gov Fred Herling fred_herling@nps.gov Patricia Huff snookcity@gmail.com Reed Jarvi Reed.jarvi@colliergov.net Bijaya Kattel bjkattel@sfwmd.gov Nick Kuhn Nick.Kuhn@aecom.com Randy Mejeur Randy.Mejeur@aecom.com Russ Muller Russell.Muller@dot.state.fl.us Ellen Oettinger eoettinger@nelsonnygaard.com Renee M. Rau Renee.Rau@dep.state.fl.us Ken Ray Ken.Ray@aecom.com Stewart Robertson, P.E. Stewart.Robertson@kimley-horn.com Joe Webb jwebb@miamidade.gov Sarah Webber swebber@johnsoneng.com Kirby Wilson Kirby.Wilson@dep.state.fl.us

Purpose:
A project kick-off for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held. Attendees were informed of project scope and milestones, data needs, and participation opportunities, while information was gathered regarding guiding principles, project boundaries and schedule.

Presentation:

1. Meeting started at 1:00 p.m. with the introduction of the Project Team (MDPROS) and Prime Consultant's team, followed by the introduction of the Steering Committee (SC) members.

2. Project Binders were provided to all attendees.
3. Patty Huff briefed attendees of the background of ROGG.
   - Concerned citizens and cyclists helped establish the Naples Pathway Coalition (NPC) in 2002 as a pedestrian/bicycle safety advocacy group.
   - In 2006 an executive committee of NPC was formed for the River of Grass Greenway project with Maureen and Patty as co-directors. In addition, a sub-group was formed called Friends of the River of Grass Greenway (FROGG) to further promote the project
4. Nick Kuhn (AECOM) presented roles and responsibilities
5. Nick Kuhn (AECOM) conducted an exercise to identify guiding principles focused on the opportunities ROGG may provide for the South Florida community (listed below)
   - Kirby Wilson: Bring in target groups that don't currently come to the area, including those needing ADA-accessible facilities and cyclists, to increase the overall number of visitors
   - Renee Rau: Diversify user groups and opportunities; create a hub for cycling.
   - Russ Muller: Emphasize historical aspects of Tamiami Trail, including Lee Cypress and logging history. Have a spoke to the east side. Some people are walking in the roadway, so safety needs to be improved
   - Fred Herling: Display the contrast of all the different parks. This is an opportunity to slow people down and see things on a human scale and showcase the region's engineering history
   - Heather Ferrand: Provide opportunities for users to see transitions between different parks and different landscapes
   - Stewart Robertson: Create connectivity to Shark Valley through loops. Balance the needs of the Everglades restoration with the opportunity for connectivity
   - Bob DeGross: Provide a safe opportunity for recreation that isn't currently provided. Encourage alternative transportation modes to reduce the use of fossil fuels. Create more opportunities for health and wellness improvements.
   - Lucie Ayer: Could be a demonstration project to get more funding. Research is important
   - Joe Webb: Show that this project could be an economic benefit. Create an "eco-adventure" destination
   - BJ Kattel: Provide an opportunity to be closer to the reservations and learn more, from an anthropological perspective
   - David Henderson: Access is the main idea. Stress the local economic impacts of connecting these two large urban areas
   - Patty Huff: The trail will be a destination and will bring economic opportunity, create a safer infrastructure for cyclists, and provide more access to the history of the region
   - Jerry Krenz: Remain open to environmentally compatible options. Scenic byways may push back if the design impacts the existing corridor. The carrying capacity of each site is a concern
   - Jaime Doubek-Racine: Showcase Old Florida. Enhance the habitat of the panthers. Bring in tribal leadership as a guiding principle. The tribal presence should be part of the logo design

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because we have no elected officials on the Committee and it is strictly providing input not approval of any of the project deliverables.

12. The meeting concluded with conversation about the upcoming kick-off workshop agenda, set for September 24 from 12:30 p.m. to 4:30 p.m., at Big Cypress Welcome Center; refreshments will be served. An Outlook invite with a detailed agenda and address of meeting location will be sent by Mark Heinicke to confirm meeting location logistics/reservation. The Kick-Off workshop is really intended for SC members, but no one will be excluded. Several additional opportunities exist for participation for non-SC members at future Stakeholder/Advisory Group meetings with Jaime, any of the three advertised Planning Area Work Sessions, any of the three Public Presentations, or any of the five Final Presentations.
13. Jay Exum then discussed the bus Corridor Tour set for September 25th. Members coming from the Naples area will meet at one location on U.S. 41 for a shuttle pick-up at 7 a.m. Tour will begin at Trail Glades Sports Shooting Range on U.S. 41 in Miami-Dade County at 9 a.m. Naples participants will be dropped off at meeting place at 3:30 p.m. Miami-Dade area participants will be dropped off at 5:30 p.m. at Trail Glades Sports Shooting Range. We will tour the entire 75 mile corridor by bus with approximately 10 stops at key points for further review. Lunch will be served. (AECOM will provide transportation [shuttles] from Naples area and Trail Glades Sports Shooting Range and lunch). An invite with a detailed agenda and address of meeting locations will be sent by Friday, September 7th.
14. We briefly discussed the future Planning Area Working Sessions that will be hosted in three geographical parts of the corridor (ROGG West, Central and East). ROGG West runs from Route 92 to Route 29, ROGG Central runs from Route 29 to Collier/Miami-Dade County line, ROGG East from Collier/Miami-Dade County line to Krome Ave. At each working session, the Consultant team will be working on a series of topics ranging from trail routing to amenities and design standards. SC members are strongly encouraged to participate as time allows. Working Sessions are tentatively scheduled for late January and through February 2013. The SC members will be updated once locations and hours have been set. Each working session will end with a Saturday late morning open house.
15. After a few quick questions, the call adjourned at 12 p.m.

Action Items:

- Mark Heinicke is to send an Outlook invite for the upcoming Kick-off Workshop and Corridor Tour by Friday September 7, 2012

Exceptions:
Any person taking exception to any statement written above or with anything to add to the statements written above please notify the undersigned within 5 days of the issued date of these meeting notes for corrections. If there are no exceptions taken, these notes shall be considered an accurate record of the meeting.

Signed: Ken Ray
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Meeting Notes
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    - Jaime Doubek-Racine: Showcase Old Florida. Enhance the habitat of the panthers. Bring in tribal leadership as a guiding principle. The tribal presence should be part of the logo design

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    - Renee Rau: Developing a large interpretive theme throughout the trail should incorporate cultural, historical, and environmental components
6. Franz Gimmler lead a discussion of the project mission statement:
    - The group discussed the terms "nonmotorized" and "multimodal", deciding that the word "transportation" could not be dropped from the mission statement
    - Fred Herling suggested that "feasibility" be included in the statement.
    - Heather Ferrand suggested that the missions statement focus on the service of an amenity and not on the trail itself
    - Sarah Webber stated that we cannot use the word "tribal" in the mission statement without the permission of the tribes
    - In general, the group agreed that the mission statement did not need much change from its original wording
7. Project boundaries were presented by Nick Kuhn (AECOM).
8. Data received and needed was provided by Nick Kuhn (AECOM).
9. Participation opportunities were outlined by Nick Kuhn (AECOM) for the SC including a Corridor Tour, Working Sessions, Steering Committee meeting format. A MindMixer example website was presented and SC members were asked to provide additions to the draft Advisory Group list within the Project Binder.
10. A summary of stops for the Corridor Tour were shown with aerials.
11. Next steps were presented for immediate and long-term task items.

General Notes:

1. All steering committee communications to be through MDPROS Project Manager Mark Heinicke.
2. Question (Renee Rau): What is role of Florida OGT? Answer by Jaime (NPS-RTCA): They are part of the Advisory Committee.
3. Lucie Ayer expressed concern about the number of stakeholders and participants. She stated that the project team needs to do a better job defining the Project Team, Advisory Committee, Steering Committee, etc. Make the process simpler. Both Nick Kuhn (AECOM) and Jaime (NPS-RTCA) assured her that they have a detailed outreach plan to ensure that all parties remain included.
4. Lucie Ayer requested clarification about the purpose of the study. She mentioned that the funding program is through Transit in the Parks and that it seems the greenway is not the only aspect that should be looked at. Nick responded that the grant application describes the greenway as a potential solution for traffic in the parks; Jaime stated that transit options were mentioned in the application, but that this group is looking at the feasibility of a greenway. Mark (MDPROS) mentioned Task 2.21 includes a summary of alternative transportation capacity, use and reduction of impacts.
5. Chuck Flink (Alta/Greenways) asked the stakeholders for input on how much local support they are currently hearing for a greenway. Patty stated that they have a number of letters supporting the feasibility study. Bob stated that they support this study, but that the greenway is still an "if" for many stakeholders, more than a "when".

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6. Guiding principles as described by SC members:

Transportation:

- Reduce automobile impacts to parks
- Increase capacity for Future Transit Connection
  - tie to existing trails
  - expand access to off-road bike access
- Encourage alternative transportation modes
- Enhance access to natural resources
- Connects rural to large urban areas / urban integration
- Increase safety for bicycling
- Allow Fakahatchee Strand Preserve State Park to be a bike hub
- Enhance safety of use / reduce conflict on U.S. 41
- Provide connection to Shark Valley from west Miami-Dade
- Tie in to existing blueways, water access points to estuaries, marine experiences
- Diversity user cyclists groups
- Connects east coast greenway for eco-destination
- Maintain features / designs of all elements (road, conveyance, etc.)
- Bring other user groups to resource
  - ADA

Environmental:

- Assess ways to enhance panther habitat
- Improve water quality
- Expand opportunities for Blueway connections and experiences
- Avoid / minimize wetland impacts
- Enhance exposure to natural environment through “slower pace” use along the trail
- Enhance perspective of unique, and distinct natural communities across the ROGG
- Assure consistency with CERP
- Expand environmental education opportunities
- Expand access to resources and experiences
- Embrace diverse array of perspectives on environmental alternatives for flexibility in approach while maintaining the scenic highway ambience
- Make sure no single array is overly impacted. Include carrying capacity assessment of trail heads / destinations
- Contrast speed of life in parks versus South Florida
  - Exploration

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Educational:

- Provide opportunities for research on unique aspects of large-scale trail systems such as ROGG
- Research can include opportunities for anthropological aspects, including educational aspects
- Highlight Everglades restoration across the corridor

Cultural:

- Historical aspects of Tamiami Trail
- Lee Cypress – logging relevance to cities
- Interpret engineering / construction practices in the past
- Expand access to resources and experiences
- Explore richness of history in corridor
- Highlight old Florida
- Tribal reach-out
  - Sensitivity in design and influence
- Develop consistent interpretative theme
- Spread out stops
- Safe recreation for health and wellness
- Create a fun recreational experience

Economic:

- Economic value to local businesses along the trail
- Provides economic benefit to communities as destinations along ROGG

7. Joe Webb (MDPROS) stated that 60% of Miami's youth under 18 have never been to a National Park. This project should enhance the environment and encourage stewardship.
8. Boundaries:
   - Use Russ’ breakdown CR 951 to CR 92 connection with phases of PD&E Studies
   - Add Miccosukee reservation to slide with federal boundaries
9. Data:
   - EIS (final and draft) for Tamiami Trail next steps has good info for east end of trail
   - GIS data available
   - Commercial air boat sites, especially in Everglades
10. Comparables for ROGG were discussed. Though there are not many point-to-point 80-mile greenways, especially in a landscape as unique as the Everglades, Chuck Flink suggested several preliminary sites:
    - Grand Canyon Rim Trail, which had extreme environmental constraints and took nearly a decade to build 12-15 miles
    - East Coast Greenway has some almost 100-mile segments
    - D & R (Delaware and Raritan) Canal Trail, which is 44 miles long
    - Many examples of levee trails

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- Examples in China and the Netherlands for 21st century engineering and creative trail development examples
- Lucie suggested the Sun Coast Trail next to the Sun Coast Parkway, which was a partnership between the Turnpike Authority and the MPOs. It is approximately 30 miles
- Suncoast Trail is located in Pasco/Hernando County

11. Fred Herling: Shark Valley is a high-use area providing visitors with opportunities for many activities. East of Shark Valley, in the East Everglades Expansion Area (east of L-67 Extension levee), there are several air boat tour operators and facilities providing visitor services into the park (the only location in Everglades National Park where air boats are allowed).

12. Chuck Flink (Alta/Greenways) asked if the speed limit on US 41 could be reduced; Patty Huff said it was not likely.

13. Nick Kuhn (AECOM) requested that all suggestions be provided in writing to Mark Heinicke (MDPROS) or at future meetings in order for them to be properly documented.

14. Nick Kuhn (AECOM) state that the MindMixer website would likely be up and running in approximately 4-6 weeks.

Action Items:

- Patty will talk to Maureen about updating the equestrian groups and the status of their participation in this study (by Nov. 15, 2012)
- AECOM (Nick Kuhn) to add slide to presentation that defines the feasibility study process and documents the feasibility study is a 2 step process (1 – determine feasibility and 2 – do the plan through PD&E/build)
- AECOM (Nick Kuhn) Develop a process/flow graphic to clarify the roles of various committees and roles they have in the project (*Completed*)
- AECOM (Nick Kuhn) to synthesize guiding principles into sustainable community pillars, i.e. economic, environmental and social

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Meeting Notes
Task 2.5

Subject:	River of Grass Greenway (ROGG) – Corridor Tour
Project:	60272285
Date:	September 25, 2012 (Revised 1/3/13)
Time:	9 a.m. – 5:30 p.m.
Location:	U.S. 41 Corridor (start/end at Miccosukee Gaming and Resort)
Attendees:	Lucie Ayer LucillaAyer@colliergov.net Bob DeGross Bob_DeGross@nps.gov Jay Exum Jay.Exum@aecom.com Heather Ferrand Heather.Ferrand@freshfromflorida.com Chuck Flink chuck.flink@altaplanning.com Franz Gimmler franzg@ix.netcom.com Ellen Heath Ellen.Heath@aecom.com Mark Heinicke MHEINIC@miamidade.gov David Henderson davidh@miamidade.gov Patricia Huff snookcity@gmail.com Jerry Krenz, AICP jkrenz@SFWMD.gov Nick Kuhn Nick.Kuhn@aecom.com Randy Mejeur Randy.Mejeur@aecom.com Russ Muller Russell.Muller@dot.state.fl.us Ben Nottingham Ben_Nottingham@fws.gov Ellen Oettinger eoettinger@nelsonnygaard.com Ken Ray Ken.Ray@aecom.com Renee M. Rau Renee.Rau@dep.state.fl.us Stewart Robertson, P.E. Stewart.Robertson@kimley-horn.com Joe Webb jwebb@miamidade.gov Kirby Wilson Kirby.Wilson@dep.state.fl.us

Purpose:
A corridor tour was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan. Attendees participated on a bus tour of the project corridor to develop a common understanding of existing conditions, discuss opportunities and constraints for the development the greenway (routes, trailheads, etc.), and management issues of the corridor.

Tour Summary:

1. A corridor tour was conducted with Naples area participants transported to the Miccosukee Gaming and Resort to board bus and travel with larger group back west.
2. All participants boarded a shuttle bus to visit each of the sites listed below
   - Coopertown Airboat Rides & Restaurant (Stop #1)
   - ValuJet Memorial / Old Tamiami Trail (Stop #2)

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- Shark Valley (Everglades National Park) (Stop #3)
- L-28 / Water Control Structure (S12A) (Stop #4)
- Oasis Visitor Center (Big Cypress National Preserve) (Stop #5)
- Kirby Storter Roadside Park (Stop #6)
- County Route 29 / Everglades City (Stop #7)
- Fakahatchee Strand Preserve State Park (Stop #8)
- Ten Thousand Islands National Wildlife Refuge (Stop #9)
- Collier-Seminole State Park (Stop #10)

3. Naples area participants were dropped off at the Lowe's Home Improvement in Naples around 3:45 p.m.
4. Miami-Dade County area participants were transported to the Miccosukee Gaming Resort
5. Bus Corridor Tour adjourned around 5:20 p.m.

General Notes:

1. **Coopertown Airboat Rides & Restaurant (Stop #1)**
   - Jerry Krenz (SFWMD): Some levees may potentially be removed to improve sheet flow in this area. The one-mile Tamiami Trail Bridge is being built in the area that aligns with the water flows. A bridge creates far better sheet flow than the existing culverts
   - Stewart Robertson (Kimley-Horn on behalf of FDOT District 1): This bridge (the one the group passed on U.S. 41) is the only bridge currently under construction. It has two 12' wide travel lanes with 10' wide shoulders and outside barriers in each direction; though, similar to the Overseas Heritage Trail, many cyclists want on-road bicycle facilities, too
   - Jerry Krenz: The L-29 levee road is used for Tigertail camp access from both the east and west, as well as from U.S. 41. The camp is between two SFWMD control structures. There are no gates or barriers at either end of the levee which is not typical. The Miccosukee can use U.S. 41 and SFWMD does not object to their using it. SFWMD does not own all parts of the levee, however, so private owners may not be amenable to allowing it to be used as a public bike trail. Levee ownership is also slightly uncertain in places; not all records match up
   - Jerry Krenz: L-29 levee removal would create a "substantial hardship" for the Miccosukee's, especially at Tigertail camp.
   - Randy Mejeur (AECOM): Two general possibilities for the long run: 1) Explore a bike path on a bridged U.S. 41, 2) Explore using the L-29 levee for the bike path; 3) Explore a combination of 1 & 2. A final possibility would be to use both the road and the levee trail as parallel cycling facilities. Use of the levee at Tigertail Camp would need to be closely studied
   - Observational Notes:
     - L-29 Levee contains an unimproved maintenance access on top of the levee and near top of bank between levee and canal
     - Maintenance access on top of levee crosses several SFWMD water control structures which are sensitive to security needs
     - L-29 Canal width appears to be in excess of 100 feet
     - Existing pedestrian access across L-29 canal consists of pedestrian bridges, some with closed access to tribal areas

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- Coopertown Airboat Rides and Restaurant requested to be notified of upcoming opportunities to participate in the ROGG planning process and provided a business card to Mark Heinicke (MDPROS)
- Right-of-way for U.S. 41 is about 200' in most areas, however, only about 60 feet is currently clear/graded and dry
- Miami-Dade County (ROGG East) trailhead is needed and could potentially consist of facilities at Trail Glades Sports Shooting Range east of Krome Ave.

ROGG Steering Committee on top of L-29 Levee

2. **ValuJet Memorial / Old Tamiami Trail (Stop #2)**
   - Jerry Krenz: SFWMD is building a slurry wall 35 feet below ground for several miles to stop seepage along the L-30 Canal. This is a pilot project to investigate seepage management technologies to control seepage from Everglades National Park and Water Conservation Area (WCA) 3B
   - Jerry Krenz: The ValuJet Memorial area could serve as a potential trailhead for ROGG. The memorial is in remembrance of the crash of ValuJet Flight 592 and the death of all 110 passengers on 5/11/96. In 1999 a memorial was designed by students at University of Miami for those who perished in the crash. Several boat launches are provided and the area currently serves as a hub for hunting and sportsmen activities in the nearby Frances S. Taylor Wildlife Management Area with gravel parking lot
   - Jerry Krenz: (Across U.S. 41 from the memorial) NPS owns the old Tamiami Trail and SFWMD typically make decisions based on whatever Everglades National Park wants. The old trail was built in the 1920s, and the new one in the 1960s.
     - Everglades restoration activities may limit use of the old U.S. 41 alignment due to water level changes and the need to remove sections as

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maintenance of sheet flow on south side from restoration activities is important
  - Mark Heinicke mentioned Everglades National Park has discouraged ROGG from using old U.S. 41 in the past because they block water flow and there are tentative plans to remove parts of the road
  - In addition, parts of old U.S. 41 are officially historic structures
  - Any connection through the Miccosukee Village would need approval and consent by the Miccosukee Tribe of Indians of Florida and should only be considered if they offer it
- Observational Notes:
  - ValuJet Memorial area is simple in design and could potentially include more educational elements like interpretive signage
  - Parking area of memorial is not maintained well as the area had not been mowed for ease of access at time of tour
  - Area is a popular fishing spot
  - Old U.S. 41 ownership is owned by NPS, management typically is handled by ENP
  - Utility lines are adjacent to the Old U.S. 41 roadbed and access would be needed to maintain lines
  - Old asphalt from original U.S. 41 roadway still exists and has been protected in many areas by overgrowth of vegetation, some of which are exotics

Old Tamiami Trail (U.S. 41) corridor

3. **Shark Valley (Everglades National Park) (Stop #3)**
   - Maria (Park Ranger) at Shark Valley: Most of the new visitors are cyclists, and many do not stop at the visitor center or they come after hours. NPS is building a new visitor center and expanding the parking lot.

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  - Everglades National Park (Shark Valley) [ENP] has an extreme parking problem at peak times such as on the weekends during peak season (Thanksgiving to Easter). The lot fills during the peak season weekends, and park employees estimate that up to 200 cars park along U.S. 41 / Tamiami Trail. ENP has tried to reach an agreement with the Miccosukee Village to use their large parking lot, but have been unable to come to an agreement
  - CERP activities will help Shark Valley restore some water to the area, but they may end up with less water because the water is supposed to be diverted back to the old flow area, east of Shark Valley
  - Shark Valley started full moon activities and bike rides several years ago, which bring in more visitors. They do not count the attendees.
  - Many cyclists buy the local annual park pass, which costs $25
- Observational Notes:
  - Bike trail connections to Shark Valley Loop Road from Miami-Dade County urban area to the east will be important
  - The width of the entry road to Shark Valley is limited for adding bike lanes
  - Old U.S. 41 extends to the entry road and may provide opportunities for extending the greenway off of the current Tamiami Trail prior to Shark Valley in limited sections
  - Portions of the Old U.S. 41 roadbed have been removed to provide better flow of water from control structures
  - Entry to ENP Shark Valley is rather subdued with no monumental signage on park property
  - Some of Old U.S. 41 could potentially serve as a mitigation bank for ROGG

ROGG Steering Committee at Everglades National Park Shark Valley

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Between Stops #3 & #4, Patty Huff: There are more than just the two tribes (Seminole and Miccosukee) here. Many independent villages are scattered in the area. Patty has worked to make contacts with the independents as well as the two larger tribes.

4. L-28/ Water Control Structure (S12A) (Stop #4)

- Bob DeGross: The general populations of the tribes are: Seminole, 6,000 (they require a very high heritage % to be considered a tribal member); Miccusukee, 600-1,000 (they have another reservation near I-75 which is used for resources, not residential). Approximately 10-15 independent villages are in the area and are unaffiliated. Keep Seminoles in Oklahoma informed on ROGG project
  - The levee for L-28 may provide a northern greenway corridor
  - The Big Cypress Loop Road potentially could be an alternative route but it could be controversial. If the surface is improved it will have lots more traffic which many residents will view as unwelcome. Any alternatives proposed for Big Cypress Loop Road need to be handled in a sensitive manner
  - Potential actions on the Big Cypress Loop Road could include using the entire road for the trail, paving a portion of the road and leaving the remainder in its current condition, or not using the road as part of the greenway

L-28 Levee existing maintenance road

- Observational Notes:
  - Potential route on L-28 levee is possible but would require a large bridge in order to route users back to U.S. 41 corridor
  - L-28 levee may provide routes or connections to other trails in the area for future opportunities
  - The L-28 levee is pleasant for cycling due to it being further from the highway with a solid visual barrier between the two

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  - Existing gate at L-28 levee would prevent access to cyclists and pedestrians not willing to jump gate
  - The two mile segment west of the L-28 is problematic due to the road being bordered on both sides with a guardrail and water
  - Big Cypress Loop Road routing contains several constraints and could be potentially be used as an alternative route or secondary loop route
  - Big Cypress Loop Road has recently been improved with several new culverts installed / new gravel for the roadway in the Collier County portion

Between Stops #4 & #5, Bob DeGross: The access road to the Dade-Collier Training and Transition Airport (TNT) or jetport is not closed and is six miles long. The 24,000 acre facility is owned by Miami-Dade County and operated by Miami-Dade Aviation Department. Begun in 1968, the jetport was originally planned to be a six runway airport for supersonic aircraft and a major South-Central Florida Transportation Hub but ended up with just one two-mile runway because of environmental concerns. People protested and construction was halted. Big Cypress National Preserve was created in 1974 as a result of that advocacy. Training and especially touch & goes still happen there, but no commercial air traffic. There are about 300 private properties in the Preserve, mainly hunt camps. Four commercial properties exist: a private campground, Clyde Butcher's Big Cypress Gallery, Joanie's Blue Crab Café, and an airboat tour business.

5. Oasis Visitor Center (Big Cypress National Preserve) (Stop #5)

- Bob DeGross: Big Cypress National Preserve is currently improving off-road vehicle (ORV) access points, adding left and right turn lanes (where possible) at the following locations:
  - Midway campground
  - Monroe Station
  - Monument Lake
  - Turner River Canoe Access
  - Oasis Visitor Center
  - Skillet Strand
  - Approximately 850,000 people visit Big Cypress NP each year, though many do not formally check in. The most popular sites are HP Williams and Kirby Storter. Approximately 100,000-200,000 visit the visitor center. Backcountry campers must request permits for day trips or overnight trips
  - Even the stabilized off-road trails have a large grade of rock, which makes bicycling less comfortable
  - Bear Island in the northwest of the park is the most popular location for off-road bicycling
  - The Preserve has 15 access points for swamp buggies. Most folks are coming in from Fort Lauderdale and Miami. Trail access points are designed for tow vehicle parking with limited vehicle parking outstand of gated ORV parking areas
  - The official terminus of the Florida National Scenic Trail is at the Oasis Visitor Center not Loop Road. There is still access to Loop Road but the Preserve is trying to better control public access and has requested the official terminus point be moved to the Visitor Center area

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- Observational Notes:
  - Parking lot is sizeable and contains areas for vehicles, bus and bike parking.
  - Visitor Center is the most visited location in an area with several points of interest, creating a hub of activity

Existing Boardwalk at Big Cypress National Preserve Oasis Visitor Center (U.S. 41 located on right side of photo)

Between Stops #5 & #6, Bob DeGross: Plans are currently underway for improvements to Monroe Station which will include 30 ORV parking spaces (controlled access). Future improvements may include renovations to the station building and additional vehicle parking.

6. **Kirby Storter Roadside Park (Stop #6)**
   - Lunch site
   - Observational Notes
     - Park is popular stop along U.S. 41 with several vehicles and families using facilities for lunch and touring boardwalk
     - Boardwalk provides opportunity into a cypress strand and includes ADA accessible route
     - Parking facilities are located on approximately 4-5 feet of fill
     - Park includes restrooms picnic shelters and tables and covered seating (shelter) along boardwalk

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Kirby Storter Roadside Park

7. **County Route 29 / Everglades City (Stop #7)**
   - Stop consisted of a narrated tour of the Everglades City area by Patty Huff
   - Observational Notes
     - Bike lanes currently existing on County Route 29 on east and west sides of road
     - Route into Everglades City should provide users with an experience of the City's history as a former county seat, fishing industry and island city developed by Barron Collier, as well as an important connection to Everglades National Park Flamingo Visitor Center

8. **Fakahatchee Strand Preserve State Park (Stop #8)**
   - Renee Rau: The Miccosukee have 19 acres of inholding south of U.S. 41, and they're proposing a restaurant and other uses. They will have to create a crosswalk for access across U.S. 41
   - Renee Rau: The state preserve has completed a design for a new visitor center which will include parking, restrooms and minimum visitor amenities (a printed copy of the proposed plan was provided)
     - A separate parking area is planned for the east at a former right-of-way site for U.S. 41
     - The new visitor areas will include a trail that goes around a nearby lake connecting the spur to the boardwalk. The trail is on the berm around the lake and on a boardwalk across the marsh and cypress swamp
     - Park spends approximately $8,000 per year on the wooden boardwalk maintenance, all on materials, since volunteers do most of the maintenance

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- There is an estimated 80,000-90,000 visitors per year. The park sees about 100-200 cars maximum at a time. There are currently no posted signs, and visitors will likely increase after the changes are made and signs are posted.
- Additional old U.S. 41 roadway spur near Miccosukee property will most likely be used for mitigation of the new visitor center

- Observational Notes
  - Miccosukee property is directly across from the existing boardwalk and includes a shop and small compound of buildings on the north side of U.S. 41
  - Existing boardwalk offers an unparalleled example into a cypress strand
  - Future visitor center will be approximately 1,000 feet to the east of current access point

ROGG Steering Committee at Fakahatchee Strand Preserve State Park

9. Ten Thousand Islands National Wildlife Refuge (Stop #9)

- Ben Nottingham: 10,000 Islands NWR area around Stop #9 was a former oil exploration site with an access roadway and drill site.
  - Site includes an 18-car parking lot, built in 2009, which connects to a short boardwalk and the Marsh trail
  - With an approximately 10 minute walk of an ADA accessible observation tower is located along the Marsh Trail
  - To the north are pine flatwoods and mixed prairie; to the south, mangrove forest
  - No airboats are allowed. Only watercraft under 25 horsepower
  - The ROGG West PD & E study is exploring bicycle access from County Route 92 to County Route 29 with connections to the NWR

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  - Boardwalk costs were approximately $1,000 LF

- Observational Notes
  - Site could potentially serve as a trailhead for ROGG with an opportunity to provided additional user amenities such as restrooms
  - Stop is located close to the Marco Island and Naples areas and is a popular route for day trippers during winter peak season
  - Observation tower offers an outstanding opportunity to view the swamps from above and for a great distance
  - Observation tower is located a distance away from U.S. 41 which limits the visual and noise impact of the highway while experiencing the area

Ben Nottingham with Ten Thousands Islands National Wildlife Refuge speaking to the ROGG Steering Committee

10. Collier-Seminole State Park (Stop #10)

- Kirby Wilson: Collier-Seminole State Park was developed by Barron Collier with the intention that it would become a national park, however, it did not meet the criteria of the National Park Service. The park became a County park and later it became a State Park.
  - The park will get more water from Picayune in the future. The three mile loop trail within the park is already under water for six months of the year, and with the proposed changes for water levels in Picayune, it would be under water for even longer than that
  - The park has no parking problem, except on the day of their bluegrass festival, when the lot fills

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- The park contains the last existing Bay City Walking Dredge which is a National Historic Mechanical Engineering Landmark that was used during construction of old U.S. 41
- Site of one of three original strands of royal palms in Florida
- Park offers approximately 120 camping and RV spaces and is full months in advance of the winter peak season
- Canoe/ Kayak rentals are offered on site and a sizeable launch area is available. A concessionaire formerly provided water tours and rentals, but that is no longer offered today
- Residents from Marco Island do not traditionally like cyclists on Route 92 as the roadway is narrow and dangerous. It would be good consider a connection to Marco Island if it could be made safe. Collier County MPO has plans for a CR 951 to Marco to CR 92 to U.S. 41 trail in various planning stages
- Last operable wayside gas station along U.S. 41 is located near entrance to park
- One of the last Seminole wars in the United States may have occurred at Collier-Seminole State Park
- Connection to Naples is already planned by FDOT and partially programmed along U.S. 41 between 6L's Rd. and Collier Blvd. Some of the construction will come from developer contributions as they develop that stretch of road

- Observational Notes
  - Site could potentially serve as a trailhead for ROGG with ample parking and activities
  - Park has a $5 dollar vehicle entry fee which may prevent some users from entering the park as a trailhead
  - Park offers several shelters and a restroom facility
  - Most of the park is accessible via waterways and can provide blueway connectivity to the ROGG
  - Connectivity to Naples needs to continue as planned in future PD&E studies and designs to provide seamless connectivity

Action Items:

- None recorded

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ROGG Steering Committee at the 1924 Bay City Walking Dredge National Historic Mechanical Engineering Landmark

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ROGG - Corridor Tour

Purpose: Please join us for a bus tour of the project corridor to develop a common understanding of existing conditions, discuss opportunities and constraints for the development the greenways (routes, trailheads, etc.), and management issues of the corridor.

Note: Attendees from the Naples (ROGG West) area are asked to meet at the Lowe's Home Improvement store (12730 Tamiami Trail East, Naples, FL 34113) for shuttle transportation to Trail Glades Sports Shooting Range in Miami-Dade County, shown in green below.
*A separate shuttle will transport the entire team through the corridor, dropping off ROGG West participants at Lowe's in the afternoon, and transporting Miami-Dade County participants back to Trail Glades Range Park. Lunch will be provided for all participants.

Agenda:

7 am	Pick up at Lowe's (12730 Tamiami Trail East, Naples, FL 34113) (Shuttle #1)
8:45	Drop-off at Trail Glades Sports Shooting Range (Shuttle #1)
9 am	Leave Trail Glades Sports Shooting Range (Shuttle #2)
9:30	Coopertown Airboat Rides & Restaurant (Stop #1)
10 am	ValueJet Memorial / Old Tamiami Trail (Stop #2)
10:30	Shark Valley (Everglades National Park) (Stop #3)
11 am	L-28/ Water Control Structure (Stop #4)
11:30	Oasis Visitor Center (Big Cypress National Preserve) (Stop #5)
12:15	Kirby Storter Roadside Park (Stop #6)
	Lunch provided at Kirby Storter Roadside Park (12:30-1pm)
1:15	County Route 29 / Everglades City (Stop #7)
2 pm	Fakahatchee Strand State Preserve (Stop #8)
2:30	Ten Thousands Islands National Wildlife Refuge (Stop #9)
3 pm	Collier-Seminole State Park (Stop #10)
3:30 pm	Drop-off at Lowe's
5:30 pm	Drop off at Trail Glades Sports Shooting Range

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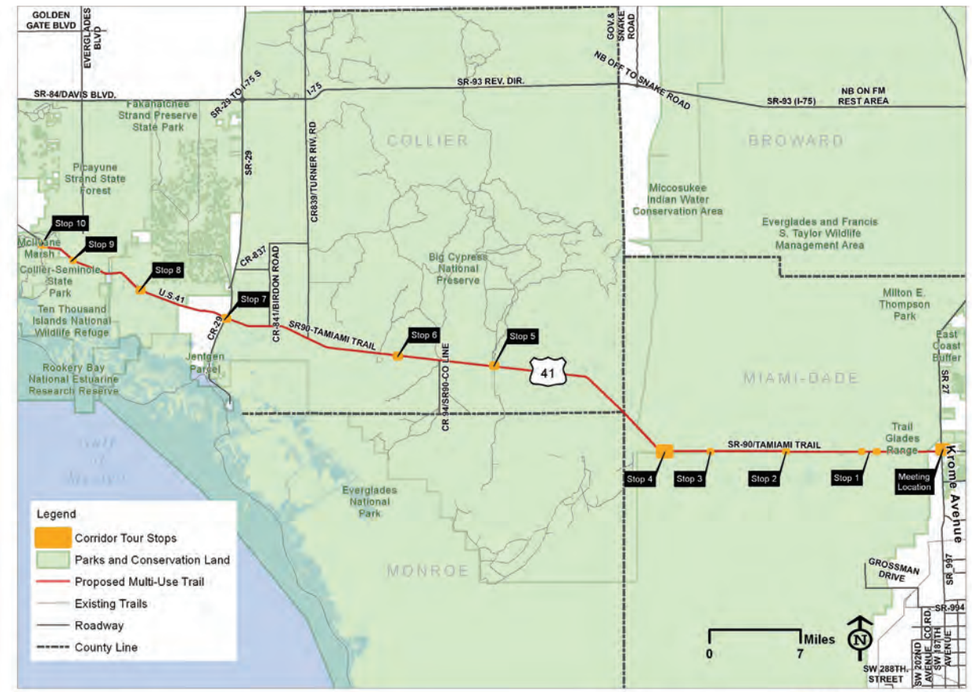

ROGG Corridor Tour - Key Map

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ROGG Corridor Tour - Meeting Location - Trail Glades Sport Shooting Range (Miami-Dade County)

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ROGG Corridor Tour - Stop #1 - Coopertown Airboat Rides and Restaurant

Appendix

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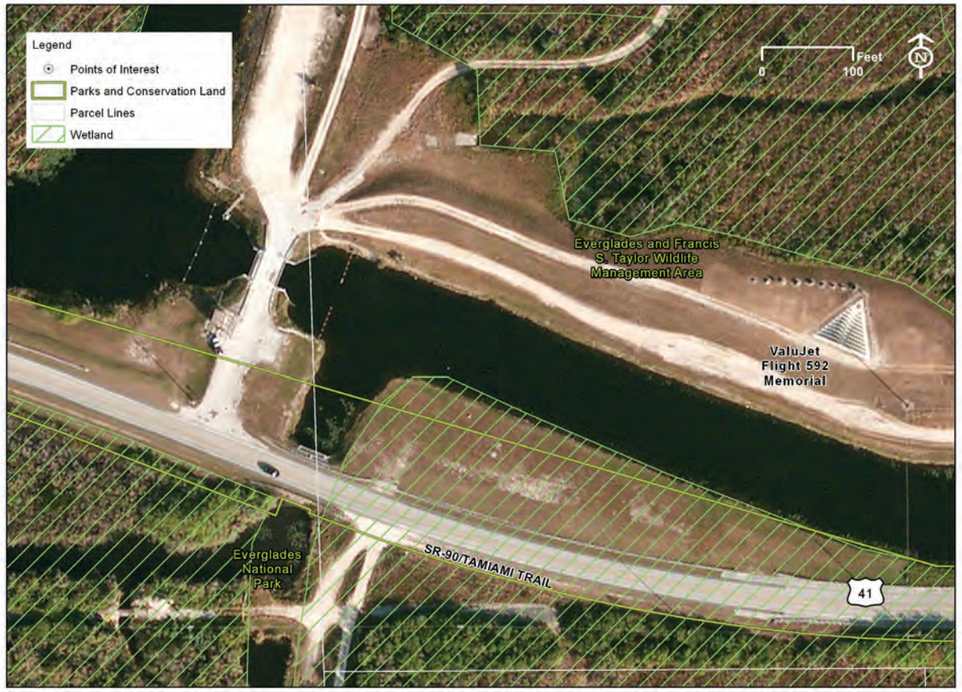

ROGG Corridor Tour - Stop #2 - ValuJet Memorial/Old Tamiami Trail

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ROGG Corridor Tour - Stop #3 - Shark Valley (Everglades National Park)

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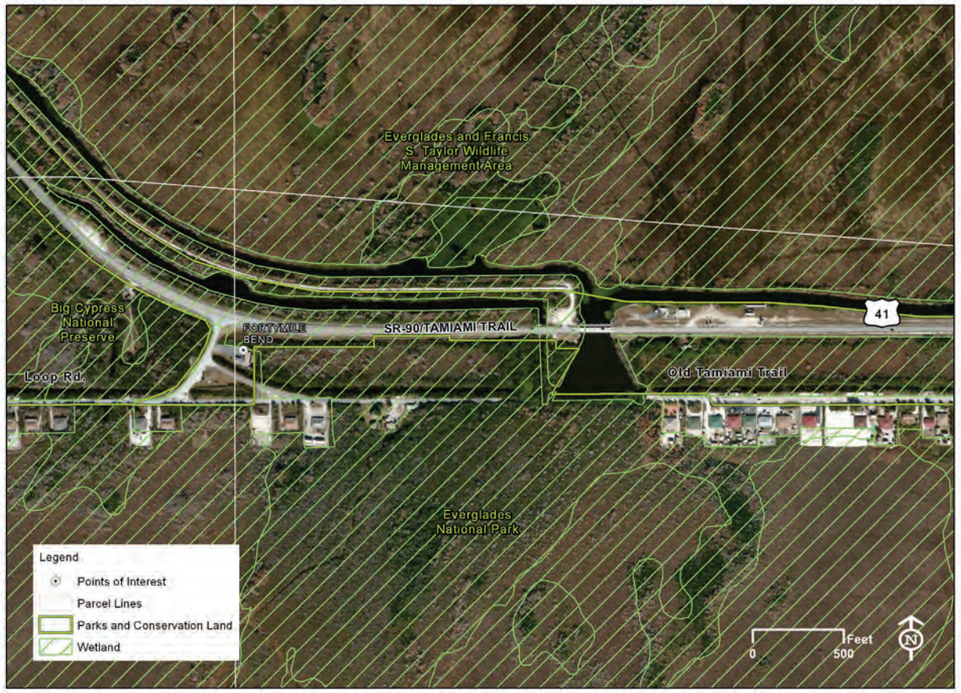

ROGG Corridor Tour - Stop #4 - L -28/ Water Control Structure

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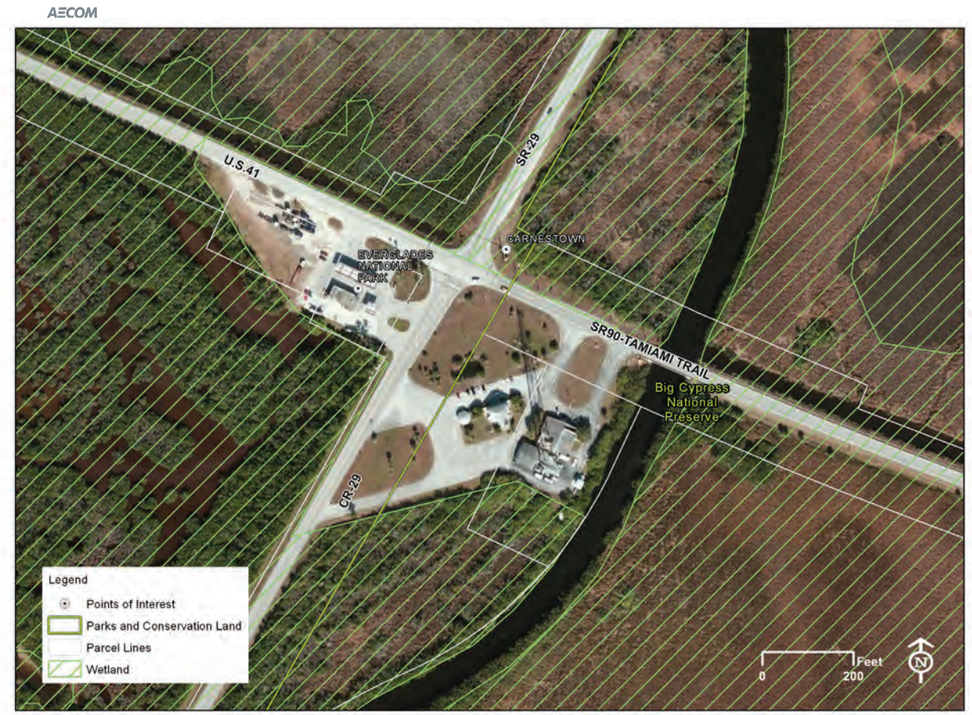
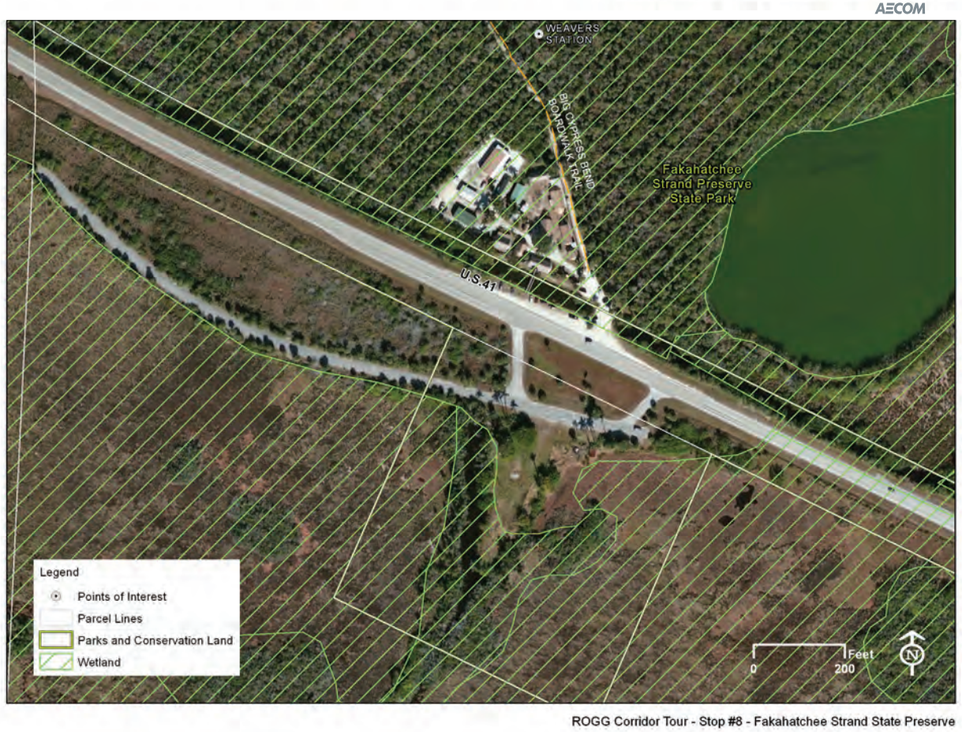
ROGG Corridor Tour - Stop #5 - Oasis Visitor Center (Big Cypress National Preserve)

ROGG Corridor Tour - Stop #6 - Kirby Storter Roadside Park



ROGG Corridor Tour - Stop #7 - County Route 29/Everglades City



ROGG Corridor Tour - Stop #8 - Fakahatchee Strand State Preserve

ROGG Corridor Tour - Stop #9 - Ten Thousands Islands National Wildlife Refuge

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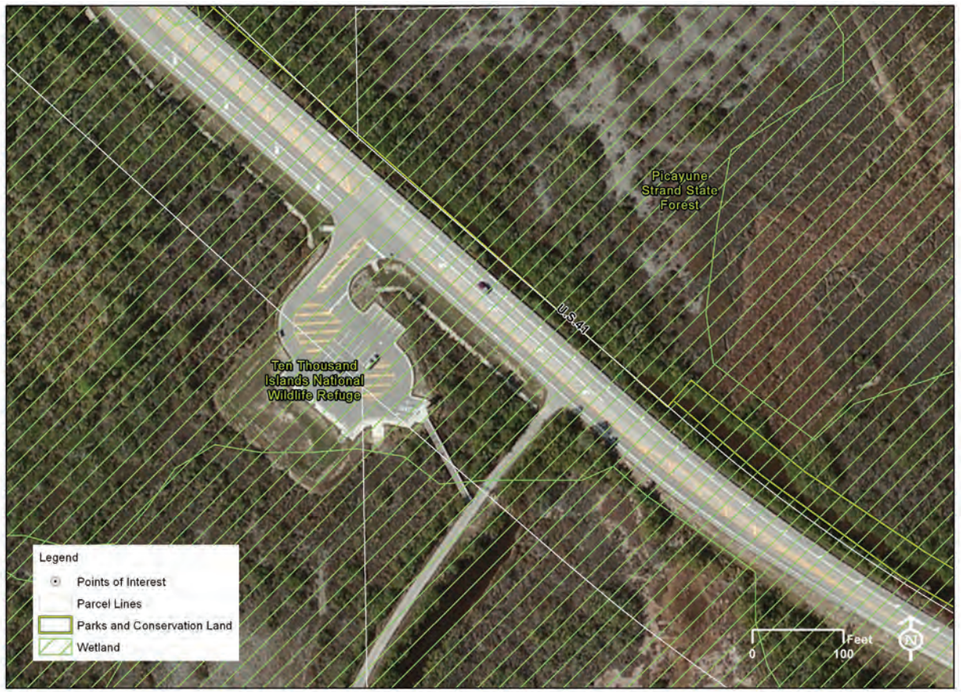

ROGG Corridor Tour - Stop #9 - Ten Thousands Islands National Wildlife Refuge

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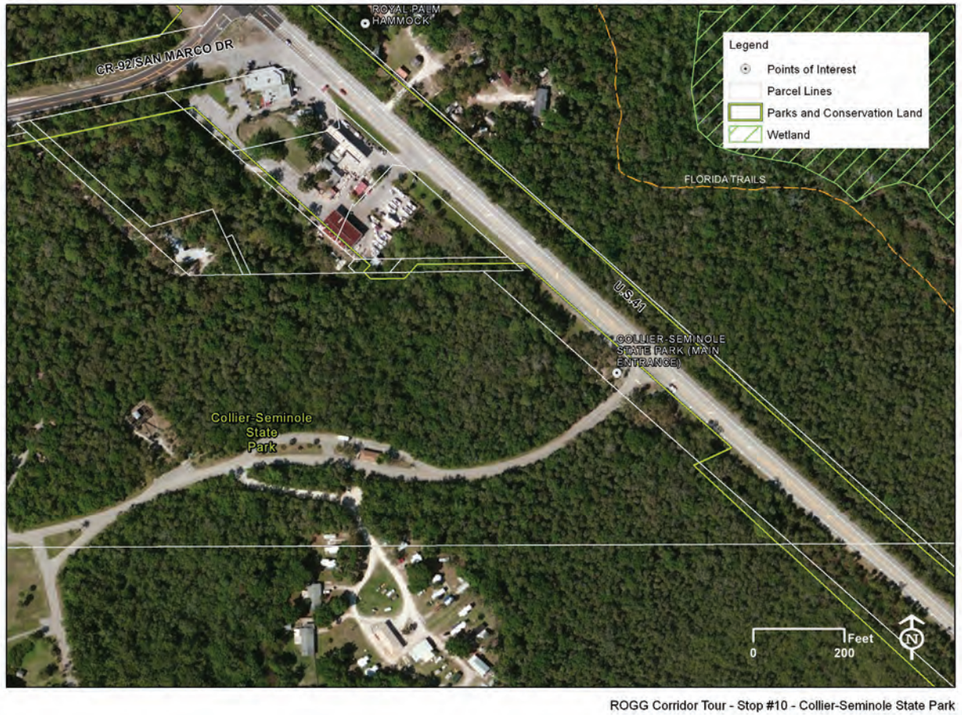

ROGG Corridor Tour - Stop #10 - Collier-Seminole State Park

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407.843.6552 tel
407.839.1789 fax

Meeting Notes
Task 2.8

Subject:	River of Grass Greenway (ROGG) – Steering Committee Review #1
Project:	60272285
Date:	November 15, 2012
Time:	1:00 p.m. – 4:00 p.m.
Location:	Big Cypress National Preserve Oasis Visitor Center – Second Floor Conference Room
Attendees:	Lucie Ayer LucillaAyer@colliergov.net Laurie Beard lauriebeard@colliergov.net Maureen Bonness bonness@infionline.net Bob DeGross Bob_DeGross@nps.gov Jay Exum Jay.Exum@aecom.com Kevin Godsea kevin_godsea@fws.gov Mark Heinicke MHEINIC@miamidade.gov David Henderson davidh@miamidade.gov Fred Herling fred_herling@nps.gov Patricia Huff snookcity@gmail.com Jeff Kneisley Jeffrey.kneisley@dep.state.fl.us Jerry Krenz, AICP jkrenz@SFWMD.gov Nick Kuhn Nick.Kuhn@aecom.com Randy Mejeur Randy.Mejeur@aecom.com Bonnie Moser Bonnie.Moser@aecom.com Renee M. Rau Renee.Rau@dep.state.fl.us Ken Ray Ken.Ray@aecom.com Stewart Robertson, P.E. Stewart.Robertson@kimley-horn.com Dexter Sowell dexter.sowell@freshfromflorida.com Jennifer Veiga Jennifer@miccosukeetribe.com Joe Webb jwebb@miamidade.gov Sarah Webber swebber@johnsoneng.com Kirby Wilson Kirby.Wilson@dep.state.fl.us

Purpose:
A Steering Committee (SC) review meeting #1 for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review the results and findings from the kick-off workshop and tour, comparables review, and best practices and lessons learned. Attendees provided updates on projects and activities in the vicinity of the ROGG corridor with potential to affect the feasibility study and reviewed and provided feedback on a presentation on comparable projects.

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Presentation:

- Meeting started at 1:00 p.m. with a roll call of attending SC members

- Bob DeGross from Big Cypress National Preserve (BICY) provided an update on oil exploration in BICY
    - Lampl Herbert Consultants, Inc., has initiated an Environmental Assessment (EA) for changes to the overhead power lines serving the BreitBurn oil extraction facilities at Raccoon Point
    - Project consists of extending and upgrading the capacity of overhead electrical lines along the south side of U.S.41/Tamiami Trail and 11 Mile road to the Raccoon Point facilities from the transfer station at SR-29 to replace trucked-in diesel to run the generators at the oil rigs
    - This would require moving existing power lines from the north side of U.S 41 to the south side within the 30' setback into the Florida Department of Transportation (FDOT) right-of-way (ROW). It is anticipated this move would assist in addressing maintenance issues with the lines occurring on the north side of the canal. It is anticipated that the new power lines would be strung between concrete poles with small pads accessible from Off-road Vehicles (ORVs) for maintenance
    - The EA consultants would like to interact with the ROGG project, including a potential presentation to the SC. They have just begun their agency scoping for the EA
    - ROGG SC expressed interest in seeing the cost differences for an underground alternative vs. the current proposed above-ground overhead lines
    - Renee Rau from Fakahatchee Strand State Preserve (FAKA) asked if the power poles would affect the ability to have a potential scenic highway designation on U.S. 41. Bob DeGross (BICY) answered it would have no affect because the poles are an existing feature. The scenic road designation has been removed for the U.S. 41 corridor within Collier County

- Renee Rau (FAKA) provided an update on the development of the visitor center for the park
    - The visitor center is still anticipated to occur north of U.S. 41 in the Big Cypress Bend
    - The current plan consists of a 70 space parking lot, interpretive center, loop trail, and connection to the existing boardwalk. The site plan requires a sidewalk/multi-use pathway, which could be connected to the ROGG, although a crossing of U.S. 41 would need to be evaluated to accommodate that connection
    - The site would use utilize portions of the existing old Tamiami Trail road bed for locating the facilities

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    - The project design engineering review identified using the old Tamiami Trail road bed removal as part of the mitigation for the project. Additional mitigation sites (5) were identified as well in case the road bed removal was not viable
    - ROGG use of the old Tamiami Trail road bed would be considered in the final planning process for the potential mitigation evaluation and connections to the site plan trail. Renee would pass along ROGG design evaluations to Florida Department of Environmental Protection (FDEP) about potential uses of the old Tamiami Trail for ROGG
    - A computer-aided design (CAD) file has been prepared with the site design for the Visitor Center. Renee indicated that could be available for the ROGG study

- Nick Kuhn (AECOM) provided an update from the ROGG West PD&E study. The study has preliminarily identified "fatal flaws" in using the north side of the road for ROGG

- Jerry Krenz from South Florida Water Management District (SFWMD) provided an update on the Central Everglades Planning Project (CEPP) plan affecting ROGG.
    - CEPP includes several alternatives to address water movement within the 16.5 mile long area west of the Miccosukee Resort and Gaming casino
        - This includes the Blue Shanty and other possible alternatives involving changes to the L-29 levee in the locations near the bridges proposed (or being built) for Tamiami Trail. Options include removal of the entire levee; using box culverts through the levee; removing portions of the levee; and using the L-29 canal to spread water flow. These alternatives would require levee modifications to alter water flow patterns. What to do with the fill on the sides of the canal from the original excavation of the canal is a big question?

Jerry Krenz explaining the Blue Shanty concept

    - Fred Herling from Everglades National Park mentioned a 2.6 mile long bridge is planned to go in west of the current bridge being built. It would extend past

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several of the current air boat operations. A trail on the bridge is not currently in the plans, but would be helpful for ROGG; adding bike/ped facilities to a road bridge could add as much as 10% to the cost of the bridge.
- Modifications to the levee would affect potential recreation use. Access to Tigertail Camp area needs to be maintained either through maintaining the levee or providing a bridge. The bridge or levee could be available for ROGG use. Removal of the levee, especially the entire length, would require significant fill removal cost requirements.
- Jerry noted connections north along other levees to Holiday Park in Broward County (approximately 15 miles) could be used for loop trails and alternative day-long experiences.
- SFWMD would like a parking area and boat ramp at the L-67/L-29 canal intersections (near the ValuJet memorial) as noted in plans for the area
- SFWMD levees typically are at least 12-14 feet wide and surfaced with gravel. Gravel has been used as SFWMD has found regular asphalt surfacing can be compromised by heavy equipment that uses the levee for levee and canal maintenance. Asphalt surfaces also alter surface drainage patterns and lead to potential erosion issues that would need to be addressed. Changes to the slopes on the levee can require changes to the width and size of the levee. This levee width can accommodate trails. The surface of the levee top needs to consider long-term maintenance needs, including equipment available to conduct the maintenance.
- Joe Webb from Miami-Dade Parks, Recreation and Open Spaces mentioned alternative equipment / surface (with more fines) can be effective such as porous asphalt mix that adds a significant amount of air space or voids to the gravel and petroleum binders that make up asphalt paving

- Nick Kuhn (AECOM) provided an update on the project, including an update on the working session schedule of the events and a review of Principles, Mission Statement, and Vision Statement

Nick Kuhn providing update

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- The SC asked questions about the ROGG termination points. Miami-Dade County sees the ROGG concept/connections extending to Biscayne Bay via other projects like the Biscayne-Everglades Greenway and Krome Trail. Spurs to Holiday Park were acknowledged as a potentially beneficial connection to Broward county greenways. Connections to Marco Island on the west side would also be good
- Edits to the vision statement were discussed. General comments were targeted toward addressing connectivity and removing references to safety in the vision statement. The SC worked on a revised vision statement reference
- Joe Webb (Miami-Dade Parks) suggested remove “Enhanced Access” . Change “Provides” to “Promotes”. Change “Between” to “Connecting”

- A discussion regarding themes of the Vision Statement identified the following:
  - Add Connectivity
  - Multi-modal/alternative transportation
  - Mobility
  - Remove safety- it is a given and not a theme
  - Cultural
  - Experience
  - Design criteria

  Modify and show:
  - Education
  - Transportation
  - Stewardship
  - Cultural
  - Recreation
- Final Vision Statement as agreed by SC will be as follows:
  ‘The River of Grass Greenway is a non-motorized transportation and recreation corridor across the Everglades connecting Naples and Miami that promotes enhanced opportunities for education and stewardship of the environmental and cultural assets of this unique area.’

- Nick Kuhn (AECOM) introduced the MindMixer public engagement site for the ROGG Feasibility Study and Master Plan.
  - The soft launch for the application was November 15, 2012
  - The public launch for the application will occur January 22, 2013
  - Additional materials will be added in January before the Planning Area Work Sessions meetings.
  - Suggestions from the SC included
    - Update the maps shown on the site to better identify parks and cultural resources in the area
    - Add hyperlinks to park websites
    - Potentially provide a hyperlink to the Miccosukee Tribe of Indians of Florida website

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- Nick Kuhn (AECOM) presented information about comparable projects to the ROGG. SC provided comments and questions for the presentation, including:
  - Who built the Coeur d'Alene's trail? Answer – Idaho Department of Transportation (IDDOT)
  - FDOT has updated their criteria for width of trails to be in line with AASHTO minimum requirements
    - 10'-14' width is acceptable depending on expected use
    - 12' minimum width for FDOT is no longer required
    - Design guidance for the width of shared-use paths is that paths should range from 10-15 feet in width depending on factors including the volume and mix of expected use
    - Federal Highway Administration (FHWA) and Florida Greenbook standards now call for 15 foot wide bike / ped trails or 10 foot wide bike trails if there is an adjacent pedestrian facility
  - Add more international examples and aspirational examples that motivate or achieve something great and goals for scale
  - Includes trails that are planned / designed to educate users and include such items as a Quick Response (QR) code on wayfinding signs for smart phones to get instant information and drive traffic to a specific website, other signs, bird watching, cultural resource interpretation, CERP
  - The Operations and Maintenance (O&M) for the trail needs to be addressed as part of the feasibility study considering the multiple jurisdictions involved
  - Show / identify hierarchy of trail comparables and trailhead types
  - Examples of paved levees and how management of the levees was addressed with the paved surfaces should be included in the comparable projects presentation
  - Buffalo Bayou in Houston should be evaluated as a comparable project.
  - Review stormwater treatment within the comparable projects to address water quality through primary, secondary, and tertiary treatment and education components
  - Confirm wording of descriptions for each comparable project, avoid using 'Parameters' or broad characteristic element

Action Items:

- Bob DeGross (BICY) to contact Lampl Herbert Consultants for schedule and proposed elements of the power line EA and provide to Mark Heinicke (MDPROS)
- Renee Rau (FAKA) to provide Visitor Center site design and associated mitigation site CAD files to Mark Heinicke (MDPROS) for incorporation into the ROGG base maps
- Jerry Krenz to provide boat ramp/parking concepts from SFWMD for the L-29/L-67/ValuJet Flight 592 memorial location to Mark Heinicke (MDPROS)
- AECOM to update vision statement to address comments from the SC

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Meeting Notes
Task 2.16

Subject:	River of Grass Greenway (ROGG) – Steering Committee Review #2
Project:	60272285
Date:	January 15, 2013
Time:	1:00 p.m. – 4:00 p.m.
Location:	Big Cypress Swamp Welcome Center - Auditorium 33100 Tamiami Trail East, Ochopee, FL 34141
Attendees:	Lucie Ayer LucillaAyer@colliergov.net Laurie Beard lauriebeard@colliergov.net Maureen Bonness bonness@infionline.net Damon Doumlele damon_doumlele@nps.gov Jay Exum Jay.Exum@aecom.com Heather Ferrand heatherferrand@freshfromflorida.com Kevin Godsea kevin_godsea@fws.gov Mark Heinicke MHEINIC@miamidade.gov David Henderson davidh@miamidade.gov Fred Herling fred_herling@nps.gov Patricia Huff snookcity@gmail.com BJ Kattel bjkattel@sfwmd.gov Nick Kuhn Nick.Kuhn@aecom.com Timothy P. Lamm timl@miccosukeetribe.com Bonnie Moser Bonnie.Moser@aecom.com Renee Rau Renee.Rau@dep.state.fl.us Ken Ray Ken.Ray@aecom.com Stewart Robertson, P.E. Stewart.Robertson@kimley-horn.com Sarah Webber swebber@johnsoneng.com Kirby Wilson Kirby.Wilson@dep.state.fl.us

Purpose:
A Steering Committee (SC) Review Meeting #2 for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review items pertinent to ROGG, research and analysis completed to-date, existing conditions findings, preliminary prospects and challenges and questions/topics for the MindMixer public engagement website.

Meeting started at 1:00 p.m. with sign-in by attending SC members

Previous Action Items:

Previous Action Items from SC Review Meeting #1:

- Revised final notes from Kick-off (9/24/12) and Corridor Tour (9/25/12) passed out along with final meeting notes from last SC meeting (11/15/12)

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- Bob DeGross (BICY) - Powerline EA schedule has not been developed. Nick Kuhn (AECOM) updated SC members on behalf of Bob that a schedule has not been developed at this time and there is no new progress to report. Updates will be provided to SC if any changes / progress is made
    - Post SC meeting follow-up from ROGG Central Workshop:
        - Maintenance of new poles anticipated by boom trucks 36 feet from white edge of pavement line on U.S. 41
        - EA Consultant looking at 13 alignment / routing options
        - Project is scheduled for fast-tack with construction anticipated for 2014
        - 289 circular concrete poles proposed on south side of U.S. 41
        - 178 circular concrete poles proposed off 11 mile road
        - EA Consultant will provide ROGG Team information on distances and restrictions under, around and adjacent to new poles at later date
- Renee Rau (FAKA) provided CAD files to MDPROS which were then forwarded to AECOM
- Jerry Krenz (SFWMD) to provide concepts for L-29 / L-67 Canal amenity area. Nick Kuhn updated SC members that concepts have not been developed to date
- Nick Kuhn (AECOM) updated SC members on the revised Vision statement. A final vision statement was created and shown at meeting for final approval. No additional comments provided by SC

Round Table Discussions:

- **Lucie Ayer (Collier MPO) – Update on Florida Department of Transportation (FDOT) 5-year work program:** Moving Ahead for Progress in the 21st Century (MAP-21) Act changed how things are developed for bike paths. There are 2 projects that affect ROGG: Design for a 2.3 mile trail between 6L's Road and SR 92 (San Marco Rd.) moved up to fiscal year 13/14, ($550,000 will be available this year) and Design for a 2.9 mile trail between CR 92 (San Marco Rd.) to Marsh Trail at Ten Thousand Islands NWR (Regional Enhancement Project Priority)—last year it went up to the top of the list, meaning if there is available money FDOT makes decision. This project has been supported by Lee and Collier MPOs. Because federal authorization rules changed, this project is currently not funded. Lucie thinks at this point, the best course is to show continued support of the project. Not clear on funding allocation. Local MPO process has started already, but will continue to work on that. Regional Pathways Advisory Committee (PAC) will have meeting on Feb. 28, 2013. Additional comments included:
    - Lucie Ayer: Funding for the 2.9 mile segment was in the amount of $700,000
    - Maureen: Naples Pathways Coalition partnered with U.S. Fish and Wildlife Service (USFWS) to get funding previously for this segment
    - Maureen Bonness: In order for the current ROGG West PD&E study to be

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    - accepted by the Federal Highway Administration (FHWA), there must be funding for next phase (Design). Lucie is not sure if that is fact; there may be room for negotiation
    - Lucie Ayer: Deadline for projects are supposed to be presented by Feb. 1. The Collier MPO is also in process of trying to capture money. Encourages SC not to give up
    - Maureen Bonness: ROGG advocates expected to get a Transportation Alternatives Program (TAP) grant for Design phase going into Ten Thousand Islands—the grant was not included in the current FDOT Transportation Improvement Program (TIP) 5 year plan. This grant (Design phase) is important because the PD&E study needs identified funding to be accepted
        - Post SC Meeting follow-up:
            - Maureen Bonness presented ROGG update to joint Lee /Collier Counties PAC on February 26
            - Committee voted to prioritize Design of 2.9 mile segment between CR 92 (San Marco Rd) and Marsh Trail at 10,000 Islands NWR as #1 for FDOT funding (TAP funds)
            - Design of 2.3 mile segment from SR 92 to 6L's Road begins in 2014
    - David Henderson: Prospects for municipalities are alive and can still happen

- **Sarah Webber - Johnson Engineering, Inc. (JEI) - Update from ROGG West PD&E:** Overall still in process of data collection: land use mapping, GIS based species assessment, environmental, etc. Culvert, Right-of-Way (R-O-W) utilities, bridges are currently being assessed as well as other elements of the project outside JEI duties which could not be updated at this time. Public involvement team is having FDOT District 1 review outreach materials with a public workshop tentatively scheduled for spring this year. The PD&E Team wants to conduct their public meeting after the Feasibility Study working sessions for ROGG West and Central have been completed. The PD&E Pathway Study website has been developed and is being review by FDOT District 1. Once approved, a notice will be provided to the Feasibility Study Team that the roggwest.com website will be live. Additional comments included:
    - Nick Kuhn: ROGG West working sessions for the Feasibility Study and Master Plan are scheduled to occur before the ROGG West PD&E Study Alternatives public meeting is completed

- **Nick Kuhn (AECOM) and Mark Heinicke (MDPROS) - Central Everglades Planning Project (CEPP):** Overall schedule is an 18-month process which is currently at the midpoint and it's approaching the next project phase where input will be very limited. Upcoming dates: meeting today to review modeling results and on Jan 23-24; additional meetings in February. The CEPP team will be finalizing four alternatives in the coming

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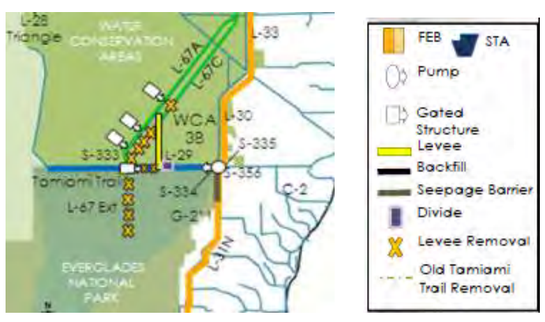
meetings. The Blue Shanty concept could potentially affect ROGG feasibility the most. Additional comments included:

- Mark Heinicke: The ROGG Feasibility Study project team will try to conduct a conference call with Allyn Childress sometime in February or March between ROGG and CEPP project teams. Information from this call will be distributed to SC members
- Post SC meeting follow-up from 2/25/13 South Florida Ecosystem Restoration Task Force meeting:
  - Tentatively Selected Plan (TSP) announced late February with the following highlights pertinent to ROGG:
    -Information available at http://www.sfrestore.org/cepp/cepp.html
    -Remove western 2.9 miles of L-29 levee north of U.S. 41
    -Divide structure at terminus of L-4 levee removal
    -Construct new 8.5 mile levee in WCA 3B, connecting L-67A to L-29
    -Remove 8 miles of L-67C levee in Blue Shanty floway north of U.S. 41
    -Remove 4.3 miles of L-29 levee in Blue Shanty floway north of U.S. 41
    -Add new 2.6 mile bridge for Tamiami Trail
    -Remove entire 5.5 miles of L-67 Ext. levee and backfill canal south of U.S. 41
    -Remove six miles of old Tamiami Trail road from L-67 Ext. to Shark Valley tram road south of U.S. 41



Partial Copy of CEPP Tentatively Selected Plan

- ROGG Feasibility Study Video review: A two-minute introductory project video for the public engagement site MindMixer was previewed by the SC in order to gain comments

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from members regarding content. The following comments were provided by SC members after the viewing of the video:

- Comment: Video does not list dates of upcoming workshops. Response (Nick Kuhn): The lifespan of the video is intended for well beyond just current study / life of this project. The workshop dates will be posted not in the video but on MindMixer
- Comment: In early part of video, with montage of automobiles, it looked like one was a tour bus. Is casting that in a negative light consistent with the project program? Response (Nick Kuhn): It is an RV shown, not tour bus
- Question (Mark Heinicke): Did logos look o.k. [to SC members]? Response: Yes
- Comment: There seems to be an absence of tribe elements; is that on purpose? Response (Mark Heinicke): The Miccosukee Tribe was contacted about using their logo, but they declined. The logos that are included are from agencies participating on the SC that have granted permission of use of their logos
- Comment: Historical and cultural features are not really shown. There isn't an image of Everglades City in the video. Not really sure there is enough time in 2 minutes to show these features? Response (Nick Kuhn): We can add in or subtract images as requested. At the end of the video there is an image of the historic Everglades City Hall
- Question: Would the Miccosukee Tribe like to provide image? Response (Tim Lamm): An image of the village area is okay to use as long as it is from the highway right-of-way. (Maureen Bonness): Provide a specific image proposal and slide location for the Miccosukee Tribe to consider such as an image of the tribe headquarters
- Comment: The public may not see the ROGG as a benefit if they would rather drive to destinations. The trail may not be a selling point if they see it as something blocking their view
- Question: Is statement about trail being in close proximity to road, separated and 12-14 feet in width true? Response (Nick Kuhn): Yes. This information is pulled from the 2009 Paul S. Sarbanes Transit in Parks (TRIP) grant text and is the essence of what the ROGG Feasibility Study is about. (Stewart Robertson): There are criteria that will designate width and proximity to road. The location of road within R-O-W is also important
- Comment: The section showing bird watching, photography, wheel chair photo, this portion needs to say it's "fully accessible" not specifically "wheel chair accessible" Response (Nick Kuhn): We'll request an edit to the audio, but may not be able to add in additional audio
- Comment: Is it negative impact to see a bike trail? There are dozens of access points; one of the highlights is that it provides non-motorized connections. Need to state this is an opportunity for safe connections of all of these points

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- **Nick Kuhn (AECOM) - Upcoming ROGG West Workshop:** Information / agenda was passed out regarding the ROGG West Workshop. Each SC member was provided with a flyer with all three upcoming workshop dates and locations and handout cards for ROGG West and Central. Upon review of the proposed agenda the following comments were provided:
    - Question: Have arrangements been made for public announcements for these sessions? If we want elected officials to show up, we have to advertise it. Response (Patty Huff): I have put an advertisement in the Marco paper but it does not include a statement that elected officials may be present. Response (Mark Heinicke): Print ads will go out in the Miami-Herald and Naples Daily News for each workshop. I will add statement about elected officials in the ads
    - Comment: We should also put in Florida Weekly. Response (Mark Heinicke): This publication covers the Naples area but we are already doing this with the Naples Daily News
    - Comment: (Lucie Ayer): Collier MPO website could advertise. Give her office a call to discuss. (Mark Heinicke): Lucie, could you put up a link to ROGG website on the Collier MPO site? Response (Lucie Ayer): Call her office about information. (Nick Kuhn): If anyone is interested contact Mark or Nick for project information and links
    - Comment (Nick Kuhn): ROGG Central workshop dates and location have been scheduled, however, ROGG East workshop location has not been set up at this time. Once a location has been scheduled, information will be sent to SC members via e-mail
    - Question: Can SC members attend meetings? Response (Nick Kuhn): Yes, as your schedule permits. You can e-mail ahead of time if you would like and we'll make sure to meet with everyone. Friday is shown as a closed day for the public, however, all SC members are invited to stop by
    - Question: What is best day to attend the workshop? Response (Nick Kuhn): Summary will be at Open House on Saturday. Your interests may be done on different days and you can attend any portion as your schedule permits
    - Comment (Nick Kuhn): Topics on agenda are basically the same, but discussions may be different for each portion of the corridor

- **Nick Kuhn (AECOM) - Review of materials:** SC members can review materials and make comments on Draft Report Part 1: Research and Analysis for the ROGG Feasibility Study and Master Plan by using the link e-mailed by Mark Heinicke. Comments can be posted on actual images or by highlighting word or text on pages.
    - The link will be active until January 25, 2013
    - SC members can also provide comment via written e-mail or documents to Mark Heinicke until January 25th

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Nick Kuhn (AECOM) presenting preliminary Existing Conditions findings to Steering Committee

    - Post SC meeting update: Deadline extended until February 4, 2013
    - The link for the annotate site is:
        http://a.nnotate.com/php/pdfnotate.php?d=2013-0111&c=JcLHZ0D0
    - Use of this technology is intended to make the review process more efficient for everyone's time. SC members are able to see other member's comments and provide additional feedback on text or comments

Research and Analysis:

- Nick Kuhn (AECOM) introduced the preliminary findings for the Draft Report Part 1: Research and Analysis for the ROGG Feasibility Study and Master Plan.
    - The intent for the Draft Report is to be strictly content review. Once the Drafts from all three parts of the study are completed they will be packaged together into one document for review with a finer grain of detail and a more finished product. Draft Report Part 2 will cover Feasibility and Corridor Vision. Draft Report Part 3 will cover implementation
    - Part 1 is organized into three initial sections: Corridor Context; Defining the Corridor; and Literature Review
    - Upon review of slides for each of three sections of the Draft Report Part 1, two display boards listing influencing documents were posted for review and comment by SC members. Comments written on boards are listed at end of this section
    - Suggestions from the SC included:
        - Comment: Add independent tribes to governing bodies or consider them private ownerships. Response (Nick Kuhn): We will make a clarification that there are private tribe ownership in corridor study area and these sites are not represented by a Federally recognized governing body

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- Comment: Remove/have concern for Rookery Bay as a public land since it is not directly on U.S. 41
- Comment: Seminoles do not have any trust land on U.S. 41. It is a special use permit, not a trust for what is inside parks and should not be represented as a governing body within the Corridor Study area
- Comment: Add private individuals into governing bodies or a separate notation. [see first bullet above]
- Comment: Include L-28 Canal levee into ROGG East route alternatives
- Comment: ROGG West map needs graphical boundaries for Ten Thousand Islands NWR and Picayune Strand State Forest. Response (Nick Kuhn): We will verify if we have received boundary information.
  - Post SC meeting follow-up: GIS Data for 10,000 Islands NWR sent to AECOM on 1/16/13
- Comment: Change Collier-Seminole State Forest to Collier-Seminole State Park on Page 29-30

- The following are written comments from Literature Review – Influence documents lists:
  - Add (Transportation) North Dade Greenways Master Plan
  - Add (Design Guidelines/Methodologies) AASHTO Guide for the Development of Bicycle Facilities (2012 Update) and FDOT Plans Preparation Manual (PPM) 2013

Prospects and Challenges:

- Nick Kuhn (AECOM) introduced the preliminary findings for Part 1 Report: Prospects and Challenges for the ROGG Feasibility Study and Master Plan.
  - Information is organized into three sections: ROGG East, Central and West
  - Upon review of slides for each of the three sections, display boards listing "Hot Spots" were posted for review and comment by SC members. Comments written on boards are listed at end of this section.
  - Suggestions from the SC included:
    - Comment: Change trail names Bass Lake, Florida Trail. Change labeling of "Hot Spots"
    - Questions: Are "Hot Spots" negative or positive? Response (Nick Kuhn): "Hot Spots" are areas that may pose exceptional prospect or challenges for the feasibility of the ROGG
    - Question: Why is Right-of-Way (R-O-W) greater than 75' a negative? Response (Nick Kuhn): These areas are not necessarily a negative. Areas with a maintained R-O-W greater than 75' may present an opportunity for trail amenities and require additional analysis

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- Comment: Allocation of space within R-O-W is just as important as width, i.e. where the roadway ribbon is within the R-O-W. Response (Nick Kuhn): measured travel lanes, pavement width and shoulder widths. AECOM can add allocated space of R-O-W to criteria consideration
- Question: Has speed in relationship to width of pavement on U.S. 41 and whether it meets the standards been considered? Response (Stewart): The width does meet standards, however, the width of shoulder is the portion that may be an issue

- The following are written comments from Prospects and Challenges boards:
  - Change fonts on maps pages to not run on and change as printed from PDF
  - Reformat so that colors and shapes of "Hot Spots" are easier to read
  - Change "Florida Trail" to "Florida National Scenic Trail"; may need to change "Bass Lake Trail" to "Burns Lake Trail"
  - Use an icon for bridges instead of numbers
  - Add arrowhead over north arrow
  - Verify if aerial background is incorrect for ROGG East (it is ROGG central according to committee member)
  - Either use all acronyms or remove the one for BICY
  - Show Tamiami Trail Modifications (TTM) bridge
  - Shows different colors in Everglades National Park, for this purpose don't use color overlays for each park—just show boundaries to avoid focus on the extraneous details
  - Legend: spell out abbreviations on maps: Picayune Strand State Forest (PSSF) Rec Site on North side of U.S. 41 with picnic tables / port restrooms on ROGG West near "Hot Spot" 17
  - Show large private parcels
  - Use latest Picayune Strand State Forest boundary
  - Consider using SFWMD/USACE bridge numbers to avoid confusion
  - Add "critical" to animal habitat "Hot Spots"

Comparables:

- Nick Kuhn (AECOM) presented action items completed since last SC review meeting (11/15/12) for Comparables, Best Practices and Lessons Learned for the ROGG Feasibility Study and Master Plan
  - Suggestions from the SC included:
    - Comment: When looking at comparables, looking at 65 mph speed may not be appropriate for trail use? Would like to see comparables out there with a condition that is <u>not</u> safe, like U.S. 41. I see a lot of comparables where road is <u>not</u> near greenway such as Buffalo Bayou Trail. Response

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(Nick Kuhn): Several comparables are trails along highways such as the St. George Bridge Trail and some international comparables

MindMixer Site:

- Nick Kuhn (AECOM) provided a brief overview of the public engagement website: www.riverofgrassgreenway.org and results to-date for participation. An overview of an on-line survey was provided.
  - Suggestions from the SC included:
    - Comment (Patty Huff): I can't figure out how to upload photos and would like someone else to upload them for me. Response (Nick Kuhn): Send them to AECOM if you have issues, we'll upload them, however, the problem may be the setting on your web browser. We will let MindMixer know of the problem with uploads

  - The SC was then asked to review 12 draft questions for potential posting to the MindMixer website. Each SC member was provided 4 green dots and asked to select the 4 top questions they would like to see asked on the website. The following are comments received from SC members on draft website questions/topics:
    - Comment: Consensus on themes for vision, actions was received
    - Question: Any additional questions that can be added? Response (Maureen Bonness): SC members need time to think about them
    - Question: Don't know what context is, but is there a way to get demographic of type of user to see why they are answering the way they are. Response (Nick Kuhn): Through the MindMixer site we can identify age, zip, etc.
    - Comment: For the Challenge, it might be better to direct people to go out and bike and walk along the roadway, it would inform their responses. Suggest people visit a trail near their house and compare it to how they would visit the Everglades. Imagine if you were in beauty of Everglades, how it would make them feel. The question applies to multiple experiences. Or could provide comments on experiences they already have from visiting Everglades
    - Question: Will you have more specific questions about specific locations (like Loop Road)? Response (Nick Kuhn): Yes, we will develop more detailed questions as a follow-up to each working session
    - Comment: When writing questions that address the pathway, say it's multi-use instead of asking pointed questions about it being for biking or walking specifically. An example would be to combine questions 8 and 9 as one question instead of separating activities. This would give the questions a more multi-modal aspect

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    - Comment: When gathering information, please feel free to share questions to SC as there isn't another meeting until summer

  - The following are the top four questions selected by SC members for use on the website out of the 12 questions reviewed*:
    - Question 1. What destinations would you LIKE to travel to via River of Grass Greenway? **(12 green dots)**
      a. Collier-Seminole State Park
      b. Ten Thousand Islands National Wildlife Refuge
      c. Picayune Strand State Forest
      d. Big Cypress Swamp Welcome Center
      e. Everglades City
      f. Port of the Islands
      g. Airboat Vendor
      h. Camp Grounds
      i. Kayak/ Canoe Launch
      j. Clyde Butcher's Studio
      k. Big Cypress National Preserve - Oasis Visitor Center
      l. Miccosukee Indian Village
      m. Everglades National Park - Shark Valley
      n. ValueJet Flight 592 Memorial
      o. Loop Road
      p. Francis S. Taylor Wildlife Management Area (WCA-3B)

    - Question 2. What issues or concerns keep you from bicycling in the Everglades? **(12 green dots)**
      a. Safety concerns
      b. Lack of paths, trails or greenways
      c. Don't know how
      d. Not physically able
      e. Destinations are too far
      f. Don't know 'Rules of the Road'
      g. Weather
      h. Not enough time

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Steering Committee members selecting top questions for MindMixer Site

- Question 4. In your opinion, what are the most important benefits and uses of a greenway system? **(9 green dots)**
  a. Transportation
  b. Recreation
  c. Exercise
  d. Community-building and events
  e. Connectivity to surrounding areas
  f. Habitat and environmental protection
  g. Economic stimulation/tourism
  h. Education and interpretation

- Question 10. How important to you are the themes we have identified for the ROGG's Vision? **(11 green dots)**

  'The River of Grass Greenway is a non-motorized transportation and recreation corridor across the Everglades connecting Naples and Miami that promotes enhanced opportunities for education and stewardship of the environmental and cultural assets of this unique area.'
  i. Education
  j. Transportation
  k. Stewardship
  l. Cultural
  m. Recreation

  Vote: Love it, Like it, It's OK, Neutral

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Next Steps:

- Nick Kuhn (AECOM) identified next step items for SC members which included:
  - Urged committee to share news of upcoming ROGG workshops
  - Project Team will continue to provide information until meeting in July
  - If there are questions about reports, let Nick Kuhn or Mark Heinicke know
  - If interested in linking to site, let Mark Heinicke know and info will be provided

Action Items:

- Steering Committee – Provide comments on preliminary findings of Draft Report Part 1 of the Feasibility Study and Master Plan either on-line or in written email or Word document to Mark Heinicke (MDPROS) by 1/25/13
- Bob DeGross (BICY) to contact Lampl Herbert Consultants for schedule and proposed elements of the power line EA and provide to Mark Heinicke (MDPROS)
- Mark Heinicke (MDPROS) – Schedule a conference call with CEPP Team before March, 2013 and distribute information to SC
- Mark Heinicke (MDPROS) – Coordinate advertisements for ROGG workshops
- Mark Heinicke (MDPROS) – Call Lucie Ayer's office to coordinate link for MindMixer site on Collier MPO website
- AECOM to incorporate comments for Literature Review and Prospects and Challenges into Draft Report Part 1
- AECOM to post updated question to MindMixer public engagement site
- AECOM to post ROGG West workshop information on the MindMixer website

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Meeting Notes
Task 0.00

Subject:	River of Grass Greenway (ROGG) – Steering Committee Update Meeting
Project No:	60272285
Date:	November 21, 2013
Time:	1:00 p.m. – 4:00 p.m.
Location:	Big Cypress National Preserve – Oasis Visitor Center – Second Fl. Conf. Rm. 52105 Tamiami Trail E, Ochopee, FL 34141
Attendees:	Lucie Ayer LucillaAyer@colliergov.net Laurie Beard lauriebeard@colliergov.net Bobbie C. Billie Dori Bon dori@greenworldpater.com Sarah Bon Maureen Bonness maureenb@evergladesROGG.org Bob DeGross Bob_DeGross@nps.gov Billy Doctor Jamie Doubek-Racine Jaime_doubek-racine@nps.gov Damon Doumlele damon_doumlele@nps.gov Stephanie Hall Mark Heinicke MHEINIC@miamidade.gov Fred Herling fred_herling@nps.gov Patricia Huff snookcity@gmail.com Jerry Krenz jkrenz@SFWMD.gov Nick Kuhn Nick.Kuhn@aecom.com Timothy Lamm timl@miccosukeetribe.com Shannon Larsen ancientrees@hotmail.com Randy Mejeur Randy.Mejeur@aecom.com Migathe Oak Cecil Osceola Hall McKinzey Osceola Leroy Osceola henehayoosceola@aol.com Mad Bear Osceola Dexter Sowell dexter.sowell@freshfromflorida.com Trisha Springstead aripekangel@gmail.com Alison Swing alisonswing@semtribe.com Geoff Wasson geoffreywasson@semtribe.com Joe Webb jwebb@miamidade.gov Sarah Webber swebber@johnsoneng.com

Purpose:
A Steering Committee (SC) update meeting for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held as an interim meeting to review items pertinent to ROGG. It was noted that this meeting was not SC Review Meeting #3 (Task 2.25) which

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is postponed until additional agency and stakeholder meetings are completed. Information was provided regarding latest progress of this project and other projects in the corridor, research and analysis completed by project team for existing conditions and on-going coordination efforts with agencies and advisory groups.

Meeting started at 1:00 p.m. with sign-in by attending SC members and several visitors

Introduction and General Comments:

- Nick Kuhn (AECOM) opened the meeting at 1:10 pm with the review of the agenda and description of the purpose for the meeting

- Nick Kuhn (AECOM) noted that the Part 1 (Introduction) and Part 2 (Research and Analysis of the draft report had been updated and was now available on Annotate.com for SC members to review and provide comments and feedback. The link for the editing the report is at http://a.nnotate.com/php/pdfnotate.php?d=2013-10-14&c=MGO8Ezeq. The draft report will be available until December 21, 2013
    - One comment from a SC member was that the photos were printing darkly and should be reviewed for clarity and consistency in printing
    - Nick (AECOM) explained the file uploaded to Annotate is a low resolution copy which makes colors appear lighter. The final report will be a higher resolution file which should resolve this problem

- Nick Kuhn (AECOM) presented an overview of the status of the Feasibility Study and Master Plan, including:
    - The project consists of a feasibility study and development of a master plan for ROGG based on a grant obtained from the Paul S. Sarbanes Transit in Parks (TRIP) program. Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) department is managing the project and has contracted with AECOM as consultant to complete the study with assistance from the National Park Service's Rivers, Trails, and Conservation Assistance (RTCA) program Florida field office. The Big Cypress National Preserve (BICY) and/or Everglades National Park (EVER) are members of the Steering Committee, but are not the lead agency for this study.
    - Additional opportunities for public comments can occur within the project website for the ROGG Feasibility Study and Master Plan at (www.RiverOfGrassGreenway.org)
    - The project area consists of approximately 75 miles of paved shared-use (multiple users) trail from Miami to Naples along U.S. 41 that is envisioned to be a non-motorized transportation and recreation corridor
    - Nick reviewed the public involvement process and the current schedule for the project
    - The ROGG (West) Project Development and Environment (PD&E) Pathway Study being conducted by the Florida Department of Transportation (FDOT) District 1 is currently on hold and will resume after the completion of the ROGG Feasibility Study and Master Plan

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- Nick Kuhn (AECOM) reviewed the Action Items from the previous SC Review Meeting #2 on January 15, 2013

- A comment was raised by a meeting participant associated with the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples that not all of the residents within the corridor had been contacted and questioned the notification process to all residents within the corridor prior to the public workshops
    - Mark Heinicke (MDPROS) noted that every effort was made to reach as many people as possible. All three public workshops had been advertised through local newspapers, MDPROS press releases, neighborhood flyers, e-mail blasts, three different websites and other media outlets to notify the public about the project
    - Additional opportunities for public participation on this project will be available at future advertised public meetings for the final conceptual master plan. There will be one meeting in each of the three planning regions (ROGG East, ROGG West and ROGG Central)
    - Additional public outreach is anticipated to occur as part of the more formal Project Development & Environment (PD&E) process, which is the next phase after the Feasibility Study and Master Plan
    - It was noted that several visitors who had not previously been aware of the project were now participating by attending this SC meeting and their participation going forward would also be sought

- A question was raised about the source of funding for improvements associated with the ROGG
    - Funding sources have not yet been secured for the construction of any improvements, but would be evaluated as part of the Feasibility Study process
    - The Feasibility Study and Master Plan has been funded by the TRIP grant
    - Multiple funding sources would likely be required to implement the ROGG Master Plan. These could include various federal and state programs, appropriations requests, private donations and other sources of funding
    - ROGG most likely will be built in incremental phases, contingent upon permitting and approval, as funding becomes available resulting in a series of segmented projects over time which may not initially be connected or end to end

Roundtable Discussions:

- Bob DeGross (BICY) provided an update on several projects occurring in or around BICY that have the potential to affect or influence planning efforts for the ROGG:
    - Off-Road Vehicle (ORV) Trail Parking Facilities Improvements
        - The National Park Service (NPS) prepared an ORV Management Plan in 2000 for the BICY that identified backcountry access point and associated improvements
        - The NPS completed an Environmental Assessment (EA) for improvements at eight of these locations in 2012

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        - Construction to implement the access point improvements have been completed at three locations: Skillet Strand North, Paces' Dike and Monroe Station

        - The EA included plans for the construction of turn lanes at these facilities as well
            - The turn lanes have not yet been completed as funding for the improvements is from separate sources and the Florida Department of Transportation (FDOT) has not yet required the construction of the turn lanes
            - Bobbie C. Billie (Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples) noted that no turn lanes were needed in his view and construction for the turn lanes and improvements should not be advanced
        - Links to the EA can be found on the BICY public involvement website (http://www.nps.gov/bicy/parkmgmt/publicinvolvement.htm)

    - Powerline EA Update
        - The EA is evaluating alternatives to eliminate need for power lines along U.S. 41 and 11 Mile Road from SR 29 to the Raccoon Point wellfield and is being conducted by a group outside of the NPS
        - The operator – BreitBurn Energy Partners L.P. - has contracted with Lampl-Herbert Consultants, Inc. to complete the EA
        - Lampl-Herbert has completed meetings with representative groups for the project and is working on drafting documents for the EA to bring to public

    - BICY Research Symposium
        - A symposium about research activities within the BICY was conducted at BICY Welcome Center on November 7
        - The NPS is packaging the video and audio from the symposium to place it on the BICY website

    - Copeland Prairie Mitigation Plan
        - The NPS has developed the Copeland Prairie Mitigation Plan to guide improvements to enhance hydrology of wetland areas west of Birdon Road through the replacement or fixing of existing culverts, degradation of existing field roads, and other activities
        - The NPS is preparing an EA for the plan and is receiving public scoping comments (closes Dec. 7)

    - Backcountry Environmental Impact Statement (EIS)
        - The NPS is beginning the process to develop a backcountry access plan for BICY to more clearly refine issues from the ORV management, which will include the development of an EIS
        - The NPS has opened the scoping period for public written comments

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concerning backcountry access, including hiking and camping within BICY, which will be open until January 2, 2014
    - Following the scoping period, the NPS will develop alternatives for review as part of the EIS

- Fred Herling (EVER) provided an update on several projects occurring in or around EVER that had the potential to affect planning efforts for the ROGG:
  - One-Mile Bridge
    - The one-mile long bridge constructed as part of the Tamiami Trail Next Steps project has been completed
    - The bridge and an 11-mile long segment of the upgraded U.S. 41 road was opened to traffic in 2013
    - The degrading of the historical roadbed to allow for enhanced water movement is continuing
    - Final inspection for the project is targeted for December 2013, which would complete the project
    - Although the bridge is in place, enhanced water flows through the area require additional actions, including parcel acquisition and flowage easements, prior to implementing higher flows
  - Shark Valley Visitor Center Improvements
    - Well-used facility with heavy use now, especially during the peak visitation periods
    - The NPS is completing improvements to the facility to provide a 3,000 sq. ft. facility with improved amenities
    - Target completion date is in December 2013
  - Homestead Trolley
    - The NPS, City of Homestead, and National Parks Conservation Association (NPCA) has been working on trolley access to EVER
    - A pilot program to provide trolley service between Homestead and stops in the Everglades National Park and Biscayne National Park is expected to run from January through April, 2014
    - Service will be provided on weekend days with three trips per day
    - Visitors using the trolley will not be required to pay a fee for entrance to the parks
  - The NPS is preparing a new General Management Plan (GMP) and Environmental Impact Statement (EIS) for EVER
    - The draft GMP/EIS reviews four alternative plans for the park
    - The current alternatives include provisions that could affect the planning for ROGG, including improvements at Shark Valley Visitor Center, the lack of a wilderness designation for lands lying within the vicinity of U.S. 41, consolidation of airboat operations, water access points along U.S. 41, environmental education improvements, and agency and tribal coordination

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    - Public review of the draft GMP/EIS, including public open houses, has been completed with the comment period closing in May 2013
    - The NPS is working to provide a Record of Decision targeted for 2014
    - The NPS is updating the draft GMP/EIS to address more than 15,000 public comments, which may result in changes to the potential effects of the plan for ROGG

- Patty Huff, Friends of the ROGG (FROGG), provided an update on several activities that the FROGG had been involved with including outreach to various Advisory Groups about the ROGG as well as several activities that could potentially affect ROGG:
  - FROGG has been reaching out to municipalities and various organizations within the region about the ROGG concept since 2006
    - FROGG obtained support letters from many municipalities and organizations to pursue funding for this initial master plan and feasibility study
  - FROGG provided project overviews on the ROGG at two separate meetings
    - Patty provided an overview of the ROGG concept for the ORV Advisory Committee for BICY on May 29, 2013
    - Patty Huff and Maureen Bonness (both from FROGG) presented an overview of the ROGG concept and status of the project to the Seminole Council of the Seminole Tribe of Florida on August 5, 2013
  - Florida Water and Land Conservation Amendment
    - This amendment would dedicate funds for restoring/protecting Florida conservation lands
    - There is a coalition of the state's leading conservation groups working to put this amendment on the November 2014 ballot
    - The group needs 689,000 signatures to get it on the ballot and currently have ±700,000 signatures that are in the process of being verified, some of which may not qualify thereby requiring additional signatures
    - The amendment would provide more than $5 billion for water and land conservation over the next 10 years and $10 billion over the 25 year life of the measure, all without a tax increase through "doc stamps" or fees on real estate transactions
    - It will provide funding to manage existing state and local natural areas, parks and trails for water supply, habitat and recreation
  - Patty Huff (FROGG) noted that the representative from the Fakahatchee Strand Preserve State Park (FAKA) was not in attendance and then provided an update on the improvements for the Big Cypress Bend Boardwalk at the FAKA
    - A plan is in review by the state to provide parking, restrooms and pavilion near the current boardwalk with the majority of the

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improvements occurring on the area covered by the existing spur of the Old Tamiami Trail
    - The plans are currently at the 60% completion level for design
    - Bobbie C. Billie (Council of Original Miccosukee Simanolee Nation Aboriginal Peoples) noted that improvements, in his opinion, should not be constructed to bring visitors to natural areas, but instead facilities in natural areas should be removed to restore the habitat

- Mark Heinicke (MDPROS) noted that he had been involved with a presentation to the Everglades Bicycle Club on June 11, 2013 to provide an overview of the ROGG project and the club was receptive to it

- Sarah Webber, Johnson Engineering, Inc. (JEI), provided update on some changes to the regulatory status of species within the corridor
    - The U.S. Fish and Wildlife Service (FWS) has listed the Florida bonneted bat as endangered effective on November 2, 2013
    - The Florida bonneted bat has been documented in locations along U.S. 41
    - The methods for surveying for the species and addressing potential impacts and mitigation for the bats is still being developed by the FWS
    - Very little is known about the habitat requirements and uses for this bat species, so the potential impacts for ROGG to this species is not able to be assessed at this point

- Jamie Doubek-Racine (RTCA) noted that she had helped write the original grant application for funding of the Feasibility Study and Master Plan and was available as a contact for this project for further questions
    - Jamie reiterated that the goal for the project was enhanced operations for the parks in the area and enhancements for the natural character of the corridor

- Shannon Larsen (Ancient Trees) provided comments about the project based on her review and understanding of the existing conditions portion of the draft report
    - She indicated that in her opinion she did not believe the project should occur as mitigation would not offset the impacts required
    - She expressed concern that the project would provide a new paved area within natural lands that would be the wrong thing in the wrong place as she believed the width would be substantial (up to 18 feet) based on discussions with FDOT
    - She noted that the Turner River Battlefield was a significant cultural resource area and should be considered a no-work area for the purposes of the ROGG
        - She noted that cultural resource surveys within the battlefield would be a significant issue for the Miccosukee Indians and no surveys should be completed within the battlefield
        - She further noted that cultural resource surveys would not be acceptable to traditional peoples anywhere within the corridor
        - She also noted that the Seminole Tribe of Florida should not be contacted if remains are identified as part of work ongoing in the

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corridor, but instead the remains and/or other artifacts found should be left in the ground and not disturbed

- Nick Kuhn (AECOM) provided updates on three items including an Advisory Group meeting with the National Parks Conservation Association (NPCA), a Transportation Investment Generating Economic Recovery (TIGER) grant award with the Seminole Tribe of Florida for a trail project currently under construction within reservation lands and the community workshops for ROGG
    - A meeting was held with representatives of the NPCA on May 30, 2013
        - An overview of the ROGG was provided with discussion about opportunities and constraints following the overview
        - The issues identified during the meeting primarily were for lands in ROGG East in Miami-Dade County, including options to accommodate the trail on the existing one-mile bridge, planning for trail features on future bridges, providing appropriate parking facilities and use of existing infrastructure
        - The NPCA noted that permanent facilities on the L-29 levee would conflict with the long-term goals of the NPCA to remove the entire levee which is contingent upon U.S. Army Corps of Engineers (USACE) resolving further scientific, water flow and water management uncertainties that require further clarification
        - The NPCA also noted that any improvements that would potentially conflict with the hydrological restoration of south Florida would be a significant issue for them
        - The NPCA did support the big-picture concept of the a trail system for biking/hiking in the area, but stated it would need to be done in a manner compatible with the long-term restoration and management goals for hydrology and natural resources

    - The Seminole Tribe of Florida received a TIGER grant for improvements to 2.25 miles of Snake Road, including two 14 foot wide lanes with a sidewalk on the east side of the road and 12 foot wide multi-use path on the west side of the road at the Big Cypress Reservation in in Hendry County
        - The project enhances safety and accessibility for the Seminole Tribe of Florida
        - It improves a designated emergency hurricane evacuation route
        - It enhances access to commercial and tourist destinations on the Big Cypress Reservation
        - Construction for the improvements is currently underway

    - ROGG Community Workshops review
        - Three advertised public workshops were held
            - The meeting for ROGG West was held January 29 – February 2 at Edison State College in Naples
            - The meeting for ROGG Central was held February 26 through March 2 at Everglades City Hall in Everglades City

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- The meeting for ROGG East was held March 12 through March 16 at FIU Modesto Maidique Campus in Miami
  - The workshops included a charrette-style format over a 5 day period totaling nearly three weeks to review and obtain public input on alternative route options, trailhead locations, intersections/crossings, unique areas of constraints or opportunities, potential trail materials and stakeholder interviews
  - The workshops were covered by newspapers and other local media
  - A photo summary of the workshops was included in the SC update meeting handouts and is also available online at www.RiverOfGrassGreenway.org

- Participants at the SC Update Meeting provided comments concerning outreach to the public
  - Shannon Larsen (Ancient Trees) read two letters between the Seminole Tribe of Florida and Bobbie C. Billie of the council of Original Miccosukee Simanolee Nation Aboriginal People concerning coordination between the parties for repatriation of ancestral remains

  - Shannon Larsen (Ancient Trees) reiterated that no cultural resource survey or intrusion in sacred areas and the Turner River Battlefield should occur
    - Nick (AECOM) noted a Cultural Resource Assessment Survey (CRAS) is not part of the scope of work for the Feasibility Study and Master Plan. This type of work is typically done during the PD&E phase or later subsequent phases of work which have not been identified or even funded for the area mentioned

  - Concerns were expressed that the issues raised by the Council of the Original Miccosukee Simanolee Nation Aboriginal People were being ignored in the process and that contacts with the Seminole Tribe of Florida and Miccosukee Indian Tribe of Florida were not sufficient to represent all indigenous people in the area as federal reservation Indians do not represent the independent tribe members
    - Nick (AECOM) thanked Shannon Larsen (Ancient Trees) and Bobby C. Billie (Council of the Original Miccosukee Simanolee Nation Aboriginal People) for both attending all three community workshops and reminded them there concerns were recorded and documented at each workshop
    - It's anticipated a more formal Section 106 tribal consultation process through the Federal Highway Administration (FHWA)/FDOT or others will be done in later subsequent phases of project development. A separate Section 4(f) Determination of Applicability (DOA) (as part of the Section 106 process) will be developed for those historic, archeological, and/or tribal resources that have been found to have an adverse effect from the proposed project through findings of the CRAS
    - It should be noted the current project is only a Feasibility Study and

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Master Plan. It's anticipated a Section 4(f) DOA will also be developed specifically for resources related to recreational and wildlife management uses during the PD&E phase by others. A formal section 4(f) designation will be provided for those properties bordering the project area of potential affect
    - Permitting agencies will require significant efforts be made to minimize potential impacts to conservation lands and identified historic and archeological resources to the greatest extent possible

  - Concerns were expressed that not all residents in the corridor, including members of the Council of the Original Miccosukee Simanolee Nation Aboriginal People, had been contacted about events to date
    - Nick (AECOM) noted considerable effort was made to reach as many people as possible. The audience can help improve outreach efforts by providing contact names and addresses for anyone who might be interested in this project to any of the Project Team members
    - Jamie Doubek-Racine (RTCA) noted that additional outreach will be addressed as the project proceeds

  - A participant noted that the pollution issues within the Everglades should be fixed rather than building a bike trail
    - Nick Kuhn (AECOM) noted larger peripheral issues like pollution are beyond the scope for the Feasibility Study and Master Plan but are being addressed through multiple on-going efforts of the Comprehensive Everglades Restoration Program (CERP) and the Central Everglades Planning Project (CEPP) by a broad coalition of other agencies.
    - Nick Kuhn (AECOM) reiterated there is no bike trail currently being built at this time in the corridor. The Feasibility Study and Master Plan is just the first of many other sequential phases that will need to be funded and approved before anything gets built

Joint Agency Meeting:

- Nick Kuhn (AECOM) provided a summary of the ROGG Joint Agency meeting with the ROGG (West) PD&E Pathway Study team and the additional agency meeting for ROGG West Agencies
  - ROGG Joint Agency meeting
    - The Feasibility Study and Master Plan team presented jointly with the ROGG (West) PD&E Pathway Study team to representatives from various regulatory agencies with purview over potential improvements associated with ROGG
    - This presentation included an overview of both the Feasibility Study and Master Plan as well as the PD&E Pathway Study project
    - Opportunities and constraints for potential sections and trail alignments were discussed

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- Additional Agency meeting for ROGG West Agencies
  - The Feasibility Study and Master Plan team met with representatives from Picayune Strand State Forest, 10,000 Islands and the Florida Panther National Wildlife Refuges, and Collier-Seminole State Park to review opportunities and constraints for the ROGG near these parks on the morning of November 21, 2013
  - The agencies provided comments concerning configuring the ROGG to maintain or enhance management access, preclude impacts to hydrology, seek opportunities to leverage the ROGG to implement existing plans for the parks, and criteria for the feasibility evaluation of the ROGG

- Nick Kuhn (AECOM) provided an overview of the trail sections identified during the three advertised community workshops and some changes to the boundary for the ROGG Feasibility Study and Master Plan.
  - More than 28 typical sections and/or route alternatives were identified during the public meetings to address the different types of road profiles and conditions within each planning study area
    - Nick Kuhn (AECOM) reviewed 13 of the typical trail sections, including the 1) Levee top, 2) levee toe, 3) canal fill, 4) a section through a wide portion of the U.S. 41 right-of-way, 5) moving the existing roadway by shifting travel lanes, 6) cantilevered trail on the existing one-mile bridge, 7) Old Tamiami Road, 8) a trail along the road edge with a gabion edge to transition to existing grade, 9) a trail located on a fill slope added to U.S. 41, 10) a gabion fill path for trail separate from the existing U.S. 41 roadway, 11) low boardwalk, 12) Old Tamiami, 13) new fill with spreader swale
    - Opportunities and constraints for each section were discussed

  - ROGG Feasibility Study and Master Plan boundary end point change
    - A 2.28 mile portion of the trail originally identified for the Feasibility Study and Master Plan from 6L's Road to C.R. 92 is currently in design
    - The design configuration of this segment is going to be removed from the Feasibility Study because a PD&E Study was previously completed by FDOT District 1 for the area that runs from C.R. 951 to C.R. 92
    - Original plan configurations for this portion of the trail occurred on the outer edge of the U.S. 41 right-of-way, but the current design takes the trail away from managed lands and moves the trail closer to the road
    - The crossing for the trail over the Alexander-Cameron Canal is problematic
    - The current design option moves the trail onto a ten foot shoulder of an existing road bridge over the Alexander-Cameron Canal, but other options, including moving and re-purposing sections of an existing fishing pier, to span the canal have been proposed

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- Nick Kuhn (AECOM) provided a summary of the status of the Central Everglades Planning Project (CEPP)
  - The tentatively selected plan for CEPP was reviewed and it was noted that this plan includes several features within the ROGG Study Area that could affect the routing and/or sections of ROGG
    - Some portions of the L-29 levee, L-67 extension levee, and L-67C levee would be removed
    - A new levee (the Blue Shanty levee) would be constructed from the eastern end of the L-29 levee removal north to the L-67A
    - The L-67A structures and structures for the L-29 canal would be modified, which would affect access for users but still leave an option for ROGG for further evaluation
    - Facility improvements for boat ramps and trails are included in the proposed plan
  - The Project Implementation Report (PIR) was available for public comment until October 15, 2013
  - The U.S. Army Corps of Engineers (USACE) and South Florida Water Management District (SFWMD) are working to finalize the PIR based on public concerns with the goal to have a fully approved PIR for congressional approval in 2014

Nick Kuhn (AECOM) presenting conceptual trail ideas generated by the public at the community workshops to Steering Committee (SC) members and visitors

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Additional Discussion:

- Dexter Sowell (Picayune) suggested including an explanation for jargon and/or a list of acronyms as a separate handout for future SC presentations so that participants could be sure of the meaning of the acronyms/jargon used

- Shannon Larsen (Ancient Trees) provided comments about the ROGG improvements and experience

    - She noted that in her opinion the full experience of BICY could not come through a bicycle ride, but rather needed to occur by foot
    - She noted that in her opinion she believed mitigation as a concept doesn't fully correct the wrong activities completed and that the concept of mitigation was being used to justify doing something bad
    - She reiterated that her opinion was the ROGG was the wrong project in the wrong place as she considered the project a new road in natural areas

- Joe Webb (MDPROS) commented that the Feasibility Study and Master Plan was evaluating improvements in the entire corridor and noted that some improvements or segments may be determined not to be feasible based on a wide variety of factors such as permitting, cost, as well as comments provided by the general public various agencies and SC members

- Bobbie C. Billie (Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples) commented that in his opinion the ROGG should not extend through this area and that the concept of the ROGG was not truly a greenway as it required impacts to natural areas
    - He added that development activities and/or making money from the land causes destructive influences on life and nature over the long-term

- Fred Herling (EVER) noted that goals and objectives for the ROGG had previously been established, but wanted to understand the next steps and how the feasibility of the ROGG would be evaluated
    - Nick Kuhn (AECOM) commented that the Project Team was currently defining criteria to evaluate feasibility based on input previously heard during the public workshops, steering committee meetings, and meetings with regulatory agencies
        - The intent would be to develop criteria and review those criteria with the steering committee prior to evaluating routes and alternatives for ROGG
        - The criteria would be applied to all 28 alternative sections, although a fatal flaw analysis may remove all or portions of any one alternative section in portions of the ROGG study area

- Trisha Springstead (Independent Biologist – www.motherearthcares.com) commented that a global perspective should be maintained when reviewing the ROGG and that global issues should be resolved prior to building anything else

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Action Items:

- Steering Committee - Provide comments on preliminary findings of Part 1-2 of the Feasibility Study and Master Plan either on-line or in written email or Word document to Mark Heinicke (MDPROS) by 12/20/13
- AECOM to provide list of abbreviations/acronyms for future Steering Committee and Public meetings
- MDPROS and AECOM to review criteria for determination of feasibility with key agencies (additional agency meetings)

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Summary
Task 2.25

Subject:	River of Grass Greenway (ROGG) – Steering Committee Review Meeting #3
Project:	60272285
Date:	August 7, 2014
Time:	1:00 pm – 4:00 pm
Location:	Big Cypress Swamp Welcome Center – Auditorium 33100 Tamiami Trail East, Ochopee, FL 34141
Attendees:	Lucie Ayer, COLLIER-MPO, LucillaAyer@colliergov.net Laurie Beard, COLLIER-GOV, lauriebeard@colliergov.net Bobbie C. Billie Maureen Bonness, FROGG, bonness@infionline.net LeAnne Cooper, JEI, lcooper@johnsoneng.com Drew Crumpton, AECOM, John.Crumpton@aecom.com Bob DeGross, BICY, Bob_DeGross@nps.gov Manuel de la Vega. PICAYUNE, manuel.delavega@freshfromflorida.com Jamie Doubek-Racine, RTCA, Jaime_doubek-racine@nps.gov Mark Heinicke , MDPROS, MHEINIC@miamidade.gov David Henderson, MD-MPO, davidh@miamidade.gov Timothy Lamm, MICCOSUKEE, timl@miccosukeetribe.com Shannon Larsen ancientrees@hotmail.com Zak Lata, FDOT D6, Zakary.Lata@dot.state.fl.us Ward Kennedy, COLLIER-MPO, wardkennedy@colliergov.net Jerry Krenz, SFWMD, jkrenz@SFWMD.gov Nick Kuhn , AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Cecil Osceloa Renée Rau, FAKA, renee.rau@dep.state.fl.us Stewart Robertson, KHA, stewart.robertson@kimley-horn.com Joe Webb, MDPROS, jwebb@miamidade.gov Kirby Wilson, COLLIER-SEM, Kirby.Wilson@dep.state.fl.us

Purpose: A Steering Committee review meeting (#3) was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan. Attendees had the opportunity to update members of items pertinent to ROGG. Information was provided regarding the latest progress and coordination efforts with agencies. The main focus of the meeting was on draft report Part III - Corridor Vision and Feasibility. Comments were gathered on concepts, draft route feasibility results, alternative transportation analysis and pathway benefits analysis.

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Introduction

1) Introduction by Nick Kuhn (AECOM) and Mark Heinicke (MDPROS)
   - Introduction of Steering Committee Members
   - Scheduling pushed back 6 months due to additional agency meetings, but project is back on schedule
   - Meeting is intended to kick off review process
     - Continued for the duration of the month
   - Overview of agenda
   - Overview of report is the goal for today's meeting, with an emphasis on draft report Part III
   - Overview of ground rules
     - General comments will be accepted in writing from non-Steering Committee members
     - General comments will commence at the conclusion of the time allotted for the Steering Committee
     - Comments should contribute to the conversation, and personal attacks are discouraged

2) Review of Action Items (Nick Kuhn)
   - Steering Committee Update Meeting (11/21/13)
     - Comments provided by Steering Committee for draft report Parts I and II
     - AECOM to provide acronyms definition list
     - MDPROS/ AECOM to review criteria for feasibility determination with agencies
     - Overview of Scope and Schedule
   - Additional Agency Meetings Update
     - Action item from FL State Clearinghouse
     - Five meetings held to date
     - Miami-Dade County Departments meeting anticipated in September

3) Round Table Discussions
   - Bob DeGross (BICY)
     - Power line EA status update
       - Oil and gas production site in the preserve
       - Site currently uses generators and diesel to power production
       - Proposal for power lines to be moved to run along 11-mile road
       - Concept discussed with BICY- no EA document draft has been sent to BICY to date
     - NPS Economic Benefits Report Update
       - 2.5M visitors to national parks in South FL spent $26M last year in surrounding communities
       - Spending supported over 2,700 jobs in South FL
       - BICY received over 1M visitors that spent $75M in South FL and created approximately 997 jobs
       - The report shows nearly $15B of direct spending by 274M visitors in communities within 60 miles of a national park

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- Spending supported more than 237K jobs nationally with most of them found in gateway communities
- The spending had a cumulative benefit to the national economy of nearly $27B

o Copeland Prairie / Turner River
- Intent is to restore natural water flow by plugging canals and installing additional culverts
- In partnership with SFWD
- Work will not commence for 12-18 months

o Return of superintendent Pedro Ramos
- Pedro Ramos has returned to BICY from Great Smoky Mountains National Park where he was Acting Superintendent to resume duties as Superintendent at BICY

o **Question:** How many people are actually employed at BICY? **Answer:** Bob DeGross (BICY) – 80 to 105 people

o **Question:** Do you foresee any problems with the relocation and improvement of the power lines? **Answer:** Bob DeGross (BICY) – Do not have a detailed proposal at this time, but impacts would be visual and not land-based

- Fred Herling (EVER) – From e-mail message
  - o Everglades National Park GMP-East Everglades Wilderness Study / EIS Status Update
    - Still need approval in Washington , D.C. to issue final GMP
  - o New Acting Superintendent
    - Bob Krumenaker has been named Acting Superintendent
    - He will be here 90-120 days and will likely transition to new permanent Superintendent but that decision is still months away

- Maureen Bonness (FROGG)
  - o Everglades Miccosukee Tribe of Seminole Indians (Leroy Osceola) Stakeholder Presentation update
    - Describing and addressing concerns
    - Tribal members do not want any disturbance or development in the area
    - Issues arising with contacting all people who are impacted by the project
    - Suggestion made to find an interpreter that can help inform all those who live near the trail of the project

- Jerry Krenz (SFWMD)
  - o CEPP status update
    - The project implementation will be published to federal registry for public review. The draft will be available for comments
    - Project did not make it to the Water Bill (WRDA) on time due to water quality report discrepancy.
    - Levee removal will still occur

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- Inclusion of hard surface on top of levee would most likely be turned down
- Plans to build ValuJet gateway and Krome Avenue gateway are still in place
- Nick Kuhn explained that these factors were taken into consideration and included in Part III of the Feasibility Plan.
- The Corps' Civil Works Review Board (CWRB) provided unanimous approval to release the revised final report for state and agency review once their recommended revisions were incorporated into the report. The CWRB is part of the Corps' internal process to facilitate the review of the recommended plan to ensure consistency with legal requirements, Corps policies, and administration priorities. It serves as a corporate check to ensure the report is ready for state and agency review.
- Comments and responses during the ongoing 30-day review period will be considered and incorporated as appropriate into the final report, and the Chief of Engineers Report, also known as a Chief's Report, will be finalized for signature. The signed Chief's Report will then be submitted to the administration for review. Based on this timeline, it is anticipated that the final Chief's Report will be submitted to Congress this fall.
- The goal of CEPP is to capture water lost to tide and re-direct the water flow south to restore the central and southern Everglades ecosystem and Florida Bay. The Corps is jointly conducting this planning effort in partnership with the South Florida Water Management District.

- Kevin Godsea (10K Islands NWR) – **unable to attend meeting**
  - o Draft Comprehensive Conservation Plan and Environmental Assessment for Florida Panther National Wildlife Refuge Status Update. Report postponed.

- Other Steering Committee members with updates?
  - o Renee Rau (FAKA)
    - Big Cypress Bend and proposed boardwalk elements in that area
    - Received 100% draft plans for site development
    - Within 1 year of ground breaking for parking lot, restrooms and picnic shelter
    - Still attempting to troubleshoot access issues to Big Cypress Bend with a focus on pedestrian safety
    - **Trail Alternative C6** on Page 118 is not feasible because the roadbed will be removed**. Response:** Nick Kuhn (AECOM) – So noted. The plans will be revised accordingly once the FAKA plans are received.

- MindMixer Update

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- o 23,600 page views to date
- o 5,050 visits to date
- o 200+ participants to date
- o 650+ comments and ideas contributed to date

4) ROGG Corridor Vision and Feasibility- Part III (Nick Kuhn)
   - Overview of the components of Part III
   - Review of project flow and status
   - Five Sections – Detailed overview of Each Section
     - o Public Involvement
     - o Pathway Components
     - o Feasibility Evaluations
     - o Alternative Transportation Analysis
     - o Benefit Analysis
   - Each section builds upon previous draft report Part I (Introduction) and Part II (Research and Analysis)
   - All elements are based on public involvement

Discussion

- Jerry Krenz (SFWMD) – **Comment: Issues with cross sections:** It is difficult to understand what existing condition is being changed when the viewer is looking at alternatives.
  - o Suggestions include add an image of the existing conditions,
  - o Also consider including original dimensions as well as proposed alternative dimensions
  - o Highlight elements that have changed
  - o Highlight what is being disturbed and impacted by each alternative

  Response: Nick Kuhn (AECOM) – The Project Team will look into these suggestions further but some of them are beyond the current scope of work and budget.

- Lucie Ayer (Collier MPO) – **Question:** Is there someone designated to evaluate environmental impacts for each proposal at this time? Answer**:** Nick Kuhn (AECOM) – Yes and No: There are environmental criteria in the path alternative matrix, and these will be explored further after this meeting and the cost benefit analysis. In addition, future Project Development & Environment (PD&E) studies will add significant depth of analysis in more site-specific situations

- Stewart Robertson (KHA) – **Comment:** In path section alternative **B8** and **B9** on Page 112 and 113, include a callout of proposed railing. **Response:** Nick Kuhn (AECOM) – So noted. Plans will be revised accordingly.

- Stewart Robertson (KHA) – **Comment:** Change map numbers to correspond with mile marker numbers. R**esponse:** Mark Heinicke (MDPROS) - Mile markers are not currently available for the entire ROGG corridor. **Reply:** Stewart Robertson (KHA) – FDOT District 6 will begin including these in new

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re-surfacing projects as they occur and the mileage could be estimated for now

- Stewart Robertson (KHA) – **Comment:** Projected mile markers found in maps is confusing. Consider using actual mile makers from the FDOT system, rather than starting with Mile 0 at Krome Avenue. **Response:** Nick Kuhn (AECOM) – So noted. Project Team will look into this further.

- Jaime Doubek-Racine (RTCA) – **Question:** Can the alternatives that are not preferred eventually be taken off the maps? **Response:** Nick Kuhn (AECOM) – Yes this can and will be done with additional sheets.

- Jaime Doubek-Racine (RTCA) **Comment:** It would be beneficial to create sheets that only show the preferred alternatives and their implementation.
  - o Consider including these maps in the Cost Benefit Analysis
  - o Early Action Demonstration Projects

  Response: Nick Kuhn (AECOM) – Yes as just stated this can and will be done with additional sheets.

- David Henderson (MD-MPO) – **Question:** If sites like Shark Valley were able to accommodate parking, would the problems with on street parking still exist? **Response:** Nick Kuhn (AECOM) – This was an issue explored in the report, but it is unlikely that the National Park units will expand parking on site due to wetlands. Many people also visit these areas for the biking experience, and being able to bike to the sites would accomplish this

- Stewart Robertson (KHA) – **Comment:** The cost section in the matrix needs to have the proper correlation between the description and the score. **Response:** Nick Kuhn (AECOM) – The Consultant will look at this in more detail and revise accordingly

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5) Draft Report (Part III) Comments
   - Kirby Wilson (COLLIER-SEM) – Comment: Issue with **Map 1A- Alternative C2** on Page 128 going through a protected area that is untouchable. **Answer:** Nick Kuhn (AECOM) – This was an oversight and the map will be revised accordingly
   - Jerry Krenz (SFWMD) – Comment: **Map 55- Proposing Alterative B12** and **B10** on page 182, without the presence of an S12 water control structure that is present in the existing conditions of the canal.
     - B10 would require realigning the roadway
   - Jerry Krenz (SFWMD) – Comment: Need to show where proposed bridges for TTM are going to occur in order to apply a more appropriate alternative for the existing conditions. **Answer:** Nick Kuhn (AECOM) – The proposed TTM bridges are already shown in purplish color and labeled on Pages 184 – 193
   - Bob DeGross (BICY) – **Question**: You are proposing small trailheads where facilities currently do not exist on Page 122. How many miles are in between the different trailheads / rest areas? **Answer:** Nick Kuhn (AECOM) – This has been previously discussed, and will be addressed in the report
   - Bob DeGross (BICY) – **Comment:** New facilities within the preserve are within the U.S. 41 ROW and FDOT typically does not allow for the

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construction of these facilities within the ROW. **Reply:** Nick Kuhn (AECOM) – The plans will be revised accordingly

- Bob DeGross (BICY) – **Question:** Who is responsible for the management of emergency telephones? **Answer:** Nick Kuhn (AECOM) – This will be addressed in the implementation portion of the report
- Lucie Ayer (COLLIER-MPO) – **Question**: When will you be talking with FDOT? I hope that they will be provided preliminary findings? **Answer:** Mark Heinicke (MDPROS) – We have both FDOT District 6 and District 1 represented on the SC. The Project Team conducted a joint projects agency meeting with multiple agencies including FDOT D1 and D6 on June 17, 2013 at District 1 HQ. In addition the Project Team presented to the FDOT D6 Scoping Committee on December 11, 2013 and has quarterly project conference calls with ROGG West PD&E project manager with 6 calls to date and another one scheduled for August 28, 2014. Both FDOT Districts receive multiple copies of each draft report
- Lucie Ayer (COLLIER-MPO) – **Question:** Are you considering PD&E and Efficient Transportation Decision-Making (ETDM) as separate processes? **Answer:** Nick Kuhn (AECOM) – Yes. This project will include the ETDM only for the ROGG East corridor with the PD&E to be done later as a separate project of its own through FDOT D6. ETDM/PD&E are not yet funded for
- ROGG Central. FDOT D1 is coordinating ETDM for ROGG West which has been completed and will finish the PD&E after conclusion of Feasibility Study and Master Plan.
- Lucie Ayer (COLLIER-MPO) – **Question**: When considering bike lanes on new bridges, this idea is generally thrown out. How is this being addressed? **Answer:** Nick Kuhn (AECOM) – In most cases a separate facility is established from the bridge, based on the constraints
- Stewart Robertson (KHA) – **Comment: Cross-sections B5** on Page 111 and **B7** on page 112 need the path to serve a dual purpose function as a path and a shoulder. This would create a situation where bike traffic is heading towards on-coming vehicular traffic. The proposed shoulder is not a significant barrier between the path and the roadway. **Answer:** Nick Kuhn (AECOM) – This situation generated low scores in the selection matrix, and in most cases was not selected as the preferred alternative
- Stewart Robertson (KHA) – **Comment:** Concerns over regulations for parking on a sidewalk vs. parking on a shared-use path. Regulations may permit parking on the shared-use path. **Answer:** Nick Kuhn (AECOM) – So noted.
- Stewart Robertson (KHA) – **Comment:** FDOT Plans Preparation Manual (PPM) defines 5' as the minimum distant between the shoulder of a road and

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shared-use path, however this is defined as being a grass or landscaped surface rather than a continuously flush asphalt surface. Consider showing the outside striping for the shared-use path as yellow for this condition. **Answer:** Nick Kuhn (AECOM) – So noted. The plans will be revised accordingly

- Stewart Roberson (KHA) – **Comment:** Please note if the 7' separation between the shoulder and guard rail is an existing condition. **Answer:** Nick Kuhn (AECOM) – So noted. The plans will be revised accordingly

- Stewart Roberson (KHA) – **Question:** Is there going to be a more in-depth description of the cross-sections? **Answer:** Nick Kuhn (AECOM) – There is the opportunity for more information to be included on the cross-sections and maps that ties the scores in the alternative matrix to the cross-sections and provides some reasoning behind them. The plans will be revised accordingly

- Ward Kennedy (Collier-MPO) **– Comment:** The **Highway Crossing 'B'** signal arms on Page 120 are on the wrong side of the crosswalk. **Reply:** Nick Kuhn (AECOM) – So noted. The plans will be revised accordingly.

- Jerry Krenz (SFWMD) **– Comment:** The **Map 45** on Page 172 and other maps that include **Alternative A1** should not be considered because SFWMD is not supportive of hard surfaces on top of levees. Why is this still

  being considered as a preferred alternative? **Reply:** Nick Kuhn (AECOM) - There are some cases where this scenario has been applied. It was our understanding that results from SFWMD staff meeting were not considered absolute as a full evaluation needed for application was not submitted. SFWMD staff indicated the Alternative with the surface on the toe of the levee is OK, but the top of the levee will not be support by the SFWMD. Permits for this alternative have already been denied in other areas, and will likely be denied in this scenario.

- Ward Kennedy (COLLIER-MPO) **– Comment:** Crossings in 60 mph zone near BICY Oasis Visitor Center would be better suited if they were moved to a nearby 40-45 mph zone**. Reply:** Nick Kuhn (AECOM) – This would require a high–level meeting with representatives from FDOT

- Lucie Ayer (COLLIER-MPO) – **Comment:** Saying you have worked with FDOT staff is different than actually having buy-in from FDOT officials. Be sure to continue to reach out to FDOT for coordination. **Reply:** Nick Kuhn (AECOM) – Understood. The Project Team has coordinated extensively with both FDOT District 1 and 6 as previously mentioned and will continue to do so through duration of project. The Feasibility and Master Plan is only the first step in a long series of steps needed to move the project forward. The next phase, PD&E, is really more of a determining factor which will most likely be coordinated directly through FDOT.

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- Maureen Bonness (FROGG) – **Question:** At what point do the management plans of the regulatory agencies influence the alternative scoring? **Answer**: Nick Kuhn (AECOM) – It is considered in the compatibility and restoration portions of the evaluation, and this meeting and subsequent comments will ultimately help refine the scoring and select the best alternatives

6) General Comments
   - Bobby C. Billie (The Original Miccosukkee Simanolee…)
     - Turner River is off limits to all development
     - This is a sacred place for the native people
     - Will not allow intrusion into this area
     - Do not want bicycle presence in the area

     Reply: Nick Kuhn (AECOM) – The importance of the Turner River has been noted and the path section alternatives avoid this area as shown on Page 148 with the preferred alternative being Section B9 as shown on Page 113 with the path five foot off the edge of pavement on the south side of U.S. 41 within the FDOT right-of-way

Written Comments

7) Additional Written Comments
   - Jerry Krenz (SFWMD)
     - Prepare a cross-section that proposes using the S-12 structure to support a bridge using segmented bridge pieces that can be removed to allow USACE maintenance needs

     Reply: Nick Kuhn (AECOM) – Project team will look into this idea

   - Ward Kennedy (Collier MPO)
     - Consideration of grade separation between ROGG and U.S. 41 for crossings should be considered

     Reply: Nick Kuhn (AECOM) – This is beyond the scope of work for this project but could considered in future studies by others

   - Jamie Doubek-Racine (RTCA)
     - Ranking is not just cost. Need plausible, doable, "no-brainer" segment implementation considered in raking.

     Reply: Nick Kuhn (AECOM) – Multiple factors are considered in the rankings and will be explained in more detail in the report

8) New Action Items / Next Steps
   - Draft report Parts 1-3 is available online; reviewers can see what comments other participants are making at http://a.nnotate.com/php/pdfnotate.php?d=2014-07-31&c=LbYM6yGQ
   - The deadline for review comments is August 29, 2014
   - Steering Committee comments are needed so the Part III can be updated before proceeding to the public presentations

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- Three Public Presentations and Implementation Workshop – Tentatively scheduled for September or October, 2014
- Next S.C. meeting is tentatively scheduled for December, 2014

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes

Subject	River of Grass Greenway (ROGG) – Steering Committee Review Meeting #4
Date	May 20th[th], 2015
Time	1:00 pm – 4:00 pm
Location	Collier County South Regional Library, Meeting Room A 8605 Lely Cultural Parkway, Naples, FL 34113
Attendees:	Melinda Avni, FLFORESTY, Melinda.Avni@freshfromflorida.com Lucy Ayer, Collier MPO, LucillaAyer@colliergov.net Bobbie C. Billie Maureen Bonness, FROGG, bonness@infionline.net Drew Crumpton, AECOM, John.Crumpton@aecom.com Bob DeGross, BICY, Bob_DeGross@nps.gov Jamie Doubek-Racine, RTCA, Jaime_doubek-racine@nps.gov John P. Dwyer, dwyerj1@comcast.net Mark Heinicke , MDPROS, MHEINIC@miamidade.gov David Henderson, Miami-Dade MPO, dhenderson@miamidadempo.gov Patty Huff, CITY EVER, snookcity@gmail.com Angela Ison Shannon Larsen ancientrees@hotmail.com Zak Lata, FDOT-D6, zakary.lata@dot.state.fl.us Ward Kennedy, COLLIER-MPO, wardkennedy@colliergov.net Dona Knapp, dkanawda02@yahoo.com Nick Kuhn , AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Michael R. Nelson Renée Rau, FAKA, renee.rau@dep.state.fl.us Connie Slovik, cslovik59@gmail.com Kirby Wilson, COLLIER-SEM, Kirby.Wilson@dep.state.fl.us

Purpose: A Steering Committee review (#4) was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan. Attendees had the opportunity to update members of items pertinent to ROGG. Information was provided regarding the latest progress and coordination efforts with agencies. The main focus of the meeting was on draft report Part IV- Implementation Plan. Comments were gathered on benefits-cost analysis results and potential priority projects.

ROGG Steering Committee Meeting #4 Notes:

1) Introduction by Nick Kuhn (AECOM) and Mark Heinicke (Miami-Dade PROS)
   - Overview of ground rules
   - Overview of agenda

2) Review of Action Items (Nick Kuhn)
   - Steering Committee Implementation Workshop (1/15/15)
     - Comments provided by Steering Committee for Part III
     - Reviewed projects and ideas from input during Part III workshops
     - Benefits-Costs Analysis Results

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     - Potential Priority Projects
       - Priority
       - Opportunity
       - Long-Term
     - Overview of Scope and Schedule
       - Finalizing report
     - Goal for today's meeting is a focused review on potential projects

3) Round Table Discussions
   - Jamie Doubek Racine – NPS-RTCA
     - FTA grant cycle closing
       - Notice given from NPS that the ROGG project needs to be closed out
       - Fund cycle is ending
       - Project close by July 31st
   - Mark Heinicke – MDPROS
     - Changes to project schedule
       - Currently 83% complete as of April
       - Report will be completed by July 31st
       - Scope items will be excluded from this plan
         - ETDM – moved to future phase – ROGG East PDE
   - Maureen Bonness – FROGG
     - Meeting with ROGG West land managers 4/16/15
       - Met with BICY, Fakahatchee, TTINWP, CSSP
       - Discussed individual concerns and how the project can be developed within each land management area
   - Patty Huff – FROGG
     - Everglades Bicycle Ride 4/12/15
       - Naples Pathway Coalition hosted 8th annual bicycle ride
       - Record breaking 177 cyclists
       - 16 miles on road – 27 miles through Fakahatchee – 62 mile (only ride that featured a future segment of ROGG)
       - Benefitted the ROGG and Fakahatchee
   - Zak Lata – FDOT-D6
     - Ongoing bridge projects in ROGG East
     - 10' shoulder in bridge designs
   - Lucy Ayer - Collier MPO
     - DOT is requesting MPO to add funding - $790K West of C.R. 92- Six L Farm Road to San Marco Road

4) ROGG Vision and Feasibility (Part III) – Feasibility Flow Chart (Nick Kuhn)
   - Overview of 4-step process for feasibility and preferred option selection
   - Step 1: Concepts (Type A,B,C)
   - Step 2: Typical Matrix (Cross Sections)
   - Step 3: Segment Analysis (Context Sensitive)
     - **Comment**: "lack of bicycle or pedestrian mode ability" needs to be clarified
     - **Comment**: "clarify the difference between the Typicals Matrix and Segment Analysis
     - **Comment**: Discrepancies between cost effectiveness and environmental impact
     - **Comment**: Concerns over land manager perspective of best alternative

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- o **Comment**: Time should be allotted for land managers to review alignments
- o **Comment**: Conflicts between FDOT design standards and land manager concerns
- o **Comment**: Documenting the preferred alternatives of the land managers
- Step 4: Preferred Option
- Visualizations

5) Benefit – Cost Analysis Review (Nick Kuhn)
   - Benefit-Cost Analysis: net benefits to society
     - o Measured in monetary units
     - o Results in benefits to cost ratio
   - Benefits Analysis: quantified benefits to all potential parties
     - o Measures non-monetized benefits
     - o Results in general descriptions of benefits
   - Overview of Projected Pathway Benefits from Benefits Analysis Results
   - Explanation of Benefits-Cost Analysis Guidelines
   - Overview of Costs and Benefits
     - o Path costs over the next twenty (20) years
       - $145.25M for capital costs
       - $65.56M for O&M costs
     - o Health and Recreation Benefits
       - $201.53M
     - o Safety and Congestion Benefits
       - Safety costs avoided: $42.62M
       - Congestion costs avoided: $10.32M
     - o Emissions and Vehicle Use Benefits
       - Emissions avoided: $2.45M
       - Vehicle costs avoided: $35.72M
   - Benefits – Costs Ratio
     - o 3% discount: **1.10**
     - o 7% discount: **0.83**
     - o Bob DeGross (BICY) **- Comment:** concerns over lack of transit use in Florida, and how this is calculated into costs and benefits. **Response:** Nick Kuhn (AECOM) Estimates are based off of transit use within other Federal Lands
     - o Bob DeGross (BICY) **- Question:** Where did the trail estimates come from? **Response:** Nick Kuhn (AECOM) As noted in the report: FDOT trail figures, comparables within Florida and trails globally
     - o Bob DeGross (BICY) **- Comment:** Benefits – Cost ratio would be more beneficial if it were calculated for each segment
     - o Bob DeGross (BICY) **- Question:** Do the FDOT calculations factor in trail proximity to an urban center? **Response:** Nick Kuhn (AECOM) Calculations are based on statewide figures, included proximity to travel lanes
     - o Patty Huff (City of Everglades) **- Comment:** Based on other parks and public lands in different parts of the country, if transit is available, people will use it
   - Overview of next steps

6) Priority Projects (Nick Kuhn)
   - Explanation of how to read the maps
     - o Acronym definitions

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- o Project descriptions
- o Phasing recommendation
- o Legend
- **Map Notes Received:**
  - o Potential additional facilities may be needed at Fakahatchee Preserve Welcome Center – align these with the plans for the facility
  - o Check amenities at Port-of-the-Islands Hub
  - o Big Cypress Oasis site of numerous car accidents
  - o Big Cypress Oasis desire for project not to appear as a medium level priority
  - o Midway campground as a long-term project
  - o Mile 32 rest-stop as opportunity
  - o Mile 30 rest-stop as opportunity

7) Next Steps (Nick Kuhn)
   - Full Draft Report will be made available for comment
   - Will be posted May 29th for 4 weeks
   - Public Review on MDC website will follow 2 weeks later for a 30-day period

8) New Action Items
   - None

Meeting concluded at 4:05 p.m.

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

*Following these notes are written comments received on 5/20/15 by the ROGG Project team during the SC meeting from public observers.

5/20/'15

Name: Dr. John P. Dwyer

Organization (if applicable): Stonecrab Alliance

Comment: Thank you for the food & drink. The unique environment of South Florida is best understood by our Indians. Please defer to the wishes of these guardians & keepers of Mother Earth. They do not want the RoGG at all. Please see the attached 1 page "speech"

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Review Meeting (May 20, 2015)

Name: DONA KNAPP

Organization (if applicable):

Comment: There is nothing "Green" about this bike "highway", the Everglades is a wild land and does not need more paving, filling in wetlands. The disrespect shown to the Miccosukee is shameful. I am from UK originally, & we do not

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Review Meeting (May 20, 2015)

PTO

Name: Bobby C. Billie

Organization (if applicable): COUNCIL OF THE ORIGINAL MICCOSUKEE SIMANOLEE NATION ABORIGINAL PEOPLES

Comment: ATTACHED "Documentation OF OBJECTION TO THE RIVER OF GRASS GREENWAY PROJECT".

5/20/15

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Review Meeting (May 20, 2015)

pave over even Biking + Hiking Trails, as it is the country wide. Respect must be shown to the Miccosukee, who's land it really is, digging up Sacred places + burial grounds is unacceptable!
How can we ever heal when this kind of ~~disr~~ disrespect to others goes on?
RoGG = "Green Washing at its finest".

Name: SHANNON LARSEN

Organization (if applicable): ANCIENT TREES

Comment: This PROJECT NEEDS TO BE SCRAPED, It is A violation of the Rights of NATURE. The PROJECT TEAM, LANDMANGERS ARE NOT Experts of the Natural WORLD or of the

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Review Meeting (May 20, 2015)

"Cultural Resources" that this horrible, destructive Project is going to CAUSE. It most BE STOPPED Your Ideas ARE NOT FOUNDED IN Reality AND therefore will CAUSE the ecogenocide of the entire AREA!
STOP it NOW!

Name: SHANNON LARSEN

Organization (if applicable): ANCIEN TREES

Comment: I don't see ANYthing telling me what the "Benefits" ARE for the ANIMALS, fish, Reptiles, BIRD, & INSECTS, PLANTS AND TREES Whose

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Review Meeting (May 20, 2015)

Lives you ARE going to END. Tell me, I want to KNOW!

Dr. John P. Dwyer

Indian Speech May 20, 2015

Among the many Native peoples displaced by ruthless authorities, the Tribal members remaining in Florida deserve deferential treatment, not further persecution and abuse.

This proposed road called ROGG is not the advertised friendly green bike path through the middle of nowhere. This is an Everglades-eating, water-blocking, village-fouling nasty knife in the back of the last of our Native Americans and a danger to our already critically ill Florida wilderness. Our aboriginals don't want it. We don't need it.

The unique environment of South Florida is best understood by these Indians. They want to protect it completely from the planned bike path, the misnamed 76 mile hard surface 15-foot wide corridor, from supplying the power lines to Raccoon Point Oil wells, the trails, roads, facilities, boat ramps, canals, welcome centers, signage, access points, and rest areas that have come or are planned. These invading horrors damage the land, the waters, the air and the natural creatures that share living in the tangled bank of a pristine environment--creations that do not belong to the government or to the citizen-immigrants of the USA. We USAns can never adequately mitigate the Rights of Nature we have damaged or are about to damage. Think about the other life and its rights: the earth, trees, plants, insects, wildlife, the few Natural Areas and Natural Systems that are left. The proposed ROGG project was created by humans to satisfy their unessential needs and desires. The Aboriginal Indigenous Peoples are not Americans; they oppose all additional intrusions upon what was and is rightfully, legally their own. Take your own walk on the "Greenway" in Naples extending from Golden Gate Parkway to the Naples Airport. Look along the sides of the walkway and think about the violation of Mother Earth's purity. Just this short piece has been very costly.

Dirty and expensive-to-maintain roads have generated an unparalleled assault on the environment and on human rights. We have exposed our Indians to adverse health impacts due to exposure to dirty drilling and agricultural run-off right here in the Greater Everglades. Let us not destroy the remaining Seminoles and Miccosukees by shooting yet another arrow into Florida's Achilles Heel, the Sunniland Trend stretching from Ft. Myers to Miami. Defer to the wishes of the guardians and keepers of Mother Earth.

Council of the Original Miccosukee Simanolee Nation

Aboriginal Peoples

May 20, 2015

DOCUMENTATION OF OBJECTION TO THE RIVER OF GRASS GREENWAY PROJECT

Factual Statement

Maps

Letters of Objections

Signature Page

Contact Information

Council of the Original Miccosukee Simanolee Nation
Aboriginal Peoples
Original Caretakers of this Land

Factual Statement

Our Ancestors defended themselves against the aggressive, brutal attacks of the immigrant newcomers. They struggled and died for us. They never gave up the Land or the Rights that we hold onto today.

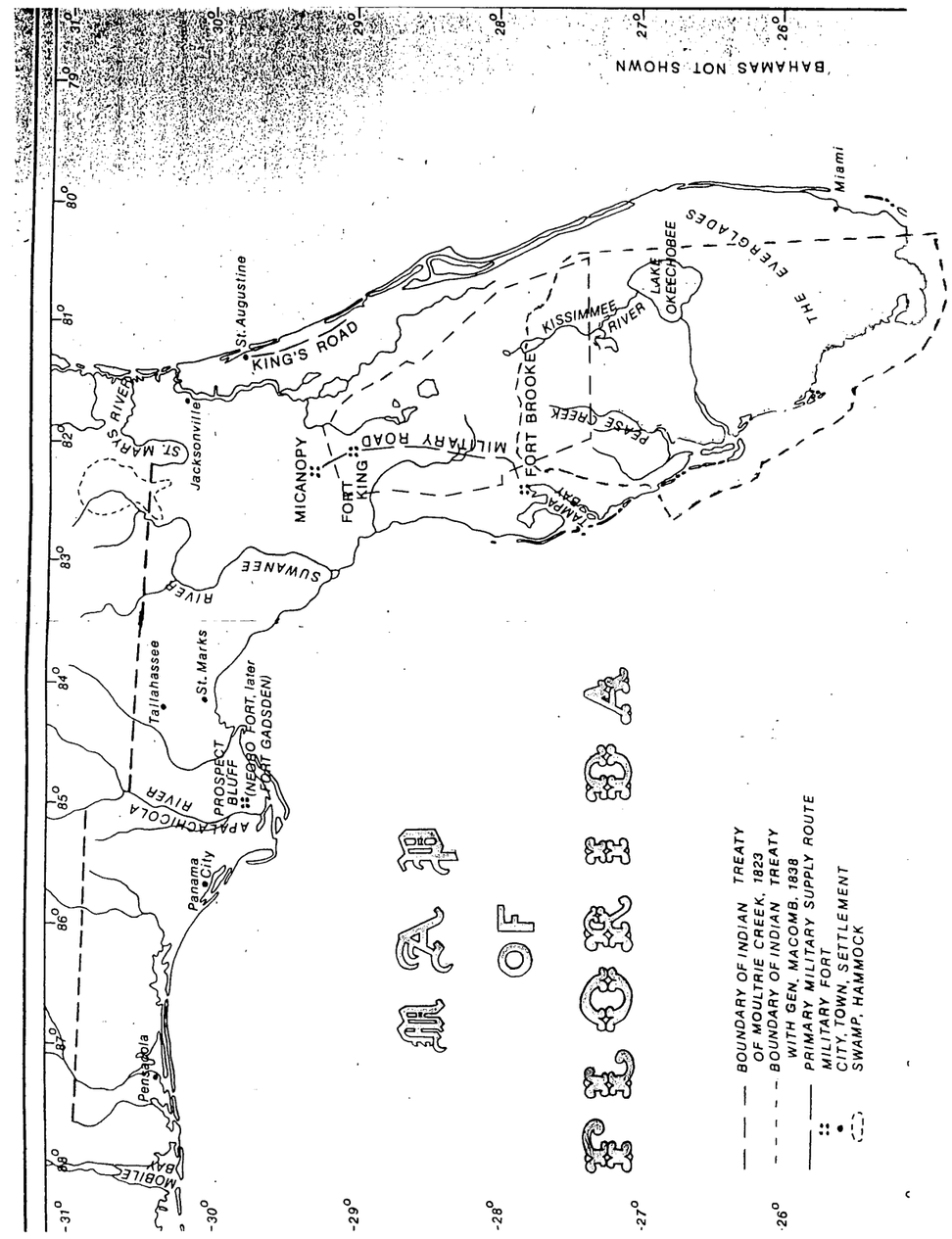
The immigrant newcomers abandoned their countries, their homes and their laws, and brutally and violently forced themselves into our Aboriginal Indigenous Land (Indian Land/Soil/Territories) No one invited the immigrant newcomers to come into our Aboriginal Indigenous Land. Nor did Aboriginal Indigenous Peoples go to other countries and attack the people. Aboriginal Indigenous Peoples have always lived in their own Land.

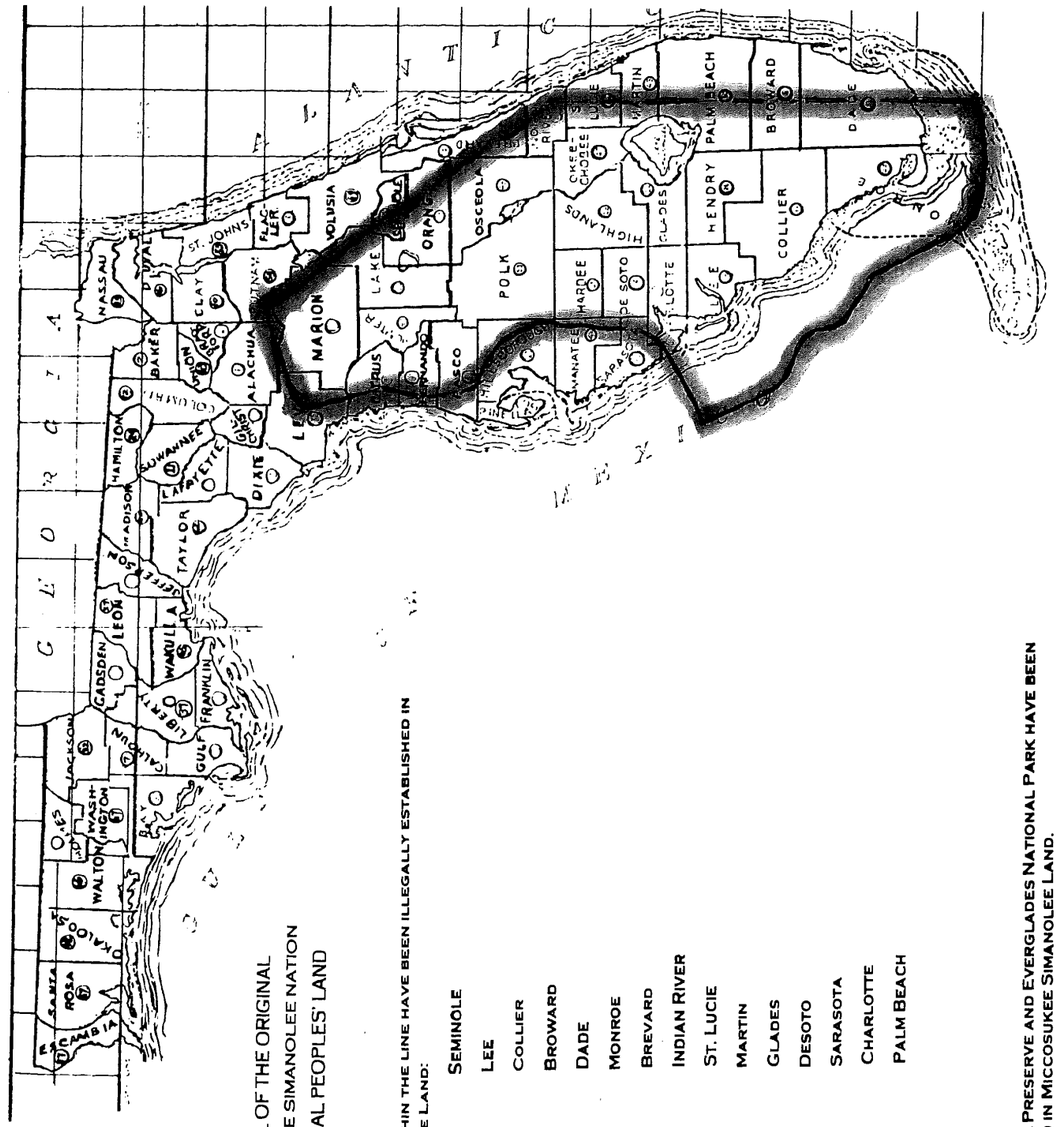
In the 1700's and 1800's, we made an Agreement, Aboriginal Indigenous Simanolee Nation and the American government and the president of the American flag of the people. Which says: You are not supposed to be disturbing our Land. You are not supposed to be surveying or selling our Land. You are not supposed to be moving into our Land, and you are not supposed to bring your law into our Land. And the American government of the flag of the people said: If any of our people, American people come across the boundary, you turn them over to us, and we will take care of them, and if any Simanolee People come across the boundary, we will turn them over to you to take care of. Everything that was said at that time, we still hold on to it today, to continue to pass it on to the next generation.

We didn't sign the Agreement in the early 1800's because it is easy to change the written papers. We only "shake hands", and with that, we remember, because it has been passed on from generation to generation to generation to this day, and nothing has changed towards that agreement, since the time we "shake hands". The Agreement was not broken on our side – We honor our Words, and we Honor the "shake hands". But, the Agreement was broken on your side. You broke your own law.

Some of the words spoken at that time were documented on the papers by the American people's side, but also a lot of things were said beyond those papers and our Elders have passed those words on to us to pass on to the next generation. Our Elders said: "If you break your words, the boundary you created of the Agreement, we have a right to take the Land back under our hand again".

You think you have a right moving onto our Land, encroaching on our Land, but that is not what has been said at that time. Once you break that boundary, then we have a right to the Land beyond that boundary. That is what has been said, and that has never been changed. So, we have a right to do what we want to do in the one you call Florida and beyond, because we still hold onto our Rights to the one you call Florida and beyond.





COUNTIES LOCATED WITHIN THE LINE HAVE BEEN ILLEGALLY ESTABLISHED IN MICCOSUKEE SIMANOLEE LAND:

ALACHUA	SEMINOLE
PUTNAM	LEE
LEVY	COLLIER
MARION	BROWARD
CITRUS	DADE
SUMTER	MONROE
LAKE	BREVARD
HERNANDO	INDIAN RIVER
ORANGE	ST. LUCIE
PASCO	MARTIN
OSCEOLA	GLADES
POLK	DESOTO
HILLSBOROUGH	SARASOTA
MANATEE	CHARLOTTE
HARDEE	PALM BEACH
HIGHLANDS	
OKEECHOBEE	
HENDRY	

BIG CYPRESS NATIONAL PRESERVE AND EVERGLADES NATIONAL PARK HAVE BEEN ILLEGALLY ESTABLISHED IN MICCOSUKEE SIMANOLEE LAND.

Council of the Original Miccosukee Simanolee Nation
Aboriginal Peoples

December 9, 2014

So-called River of Grass Greenway Feasibility Study and Master Plan Community Open House December 9, 2014, December 10, 2014, and December 11, 2014

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples has not changed their position of: Objection to the so-called River of Grass Greenway Highway.

The so-called River of Grass Greenway Highway, as planned, crosses our Aboriginal Indigenous Land – Miccosukee Simanolee Nation's Land. You have never received permission from us to go forward with this Project.

The Miccosukee Tribe and Seminole Tribe have no authority to speak for our Nation or our Aboriginal Indigenous Land. They gave up their rights, and Aboriginal land when they moved onto the reservations and adopted the U.S. system of government. They have no authority to allow you to go ahead with your Project.

We have never separated ourselves from our Land, our Soil where the Creator gave us to live. We have always lived in our own County, on our own Soil, living the Natural Law given to us by the Creator (God) at the beginning of the Creation of Life. We Respect, Protect and Care about our Land and the Natural Life, and the Future of All Life, not just the human beings.

The Creator's Law is: All Life is Sacred. All Creation is Sacred. The Creator's Law does not change so our Obligations and Responsibilities have not and will not change. Your project, so-called River of Grass Greenway Highway shows a lack of respect for our Homelands and is reflective of a larger disrespect for all Life, which we see by your actions.

What you are planning to do, on Miccosukee Simanolee Land has not been agreed to by the Council of the Original Miccosukee Simanolee Nation, and is illegal. Again, we have not given you permission for this Project. You are in violation of our Land Rights, and will be individually held accountable.

Council of the Original Miccosukee Simanolee Nation
Aboriginal Peoples
Statement of Opposition
November 21, 2013

Reference: Draft Report – River of Grass Greenway (Tourist' Bicycle Highway Trail) Feasibility Study Master Plan

We will oppose any plan to build any more trails, roads, bridges, access points to points of interests, trailheads, parking areas or the placement of any more signage for the benefit of tourists across "Environmentally Sensitive Lands, Critical Wildlife Habitat, "Natural Migrations Routes", and "Outstanding Water Bodies", within the so-called Big Cypress National Preserve or so-called Everglades National Park. Rights of Nature: "Nature has the Right to exist, and to maintain and regenerate its vital cycles." You cannot possibly mitigate all the damage you will create. As one of the consultants for this Project said: The Everglades is one of the last remaining Wilderness areas in the South", and "Every piece of the ecology off of 41 is Wetlands".

We will oppose any archaeological surveys conducted within the "Battle of Turner River Battlefield". We do not know if you understand us or not, the whole area is a burial ground, and we do not want you to disturb it. Leave that area alone!

We will oppose any other archaeological surveys conducted, or intrusion into our Sacred (Holy) Areas, or Removal of any of our Ancestors and their belongings, or any other findings, that you have suggested in this report, will be placed in public museums. Miccosukee Simanolee People do not go into other peoples' burial grounds (cemeteries) and disturb, damage and destroy their graves. We do not build roads, trails or bikeways or pathways in your cemeteries.

You are calling this project "River of Grass Greenway", but it should be called **"Tourists' Bicycle Highway Trail**." That is what is going to take place and we do not want it in our Land damaging, destroying and desecrating the Natural World and our Sacred Area.

There are just a few un-built Natural Areas left in Florida. You came into our Land like a cancer cutting down all the trees, building roads, building canals, building houses, towns, and cities and digging into the Mother Earth for gas, oil, minerals, and all the rest in order to feed your personal pleasure, convenience and profit making ventures - all at the expense of the Natural World.

Respecting the Natural World, Aboriginal Indigenous Peoples, practicing their Way of Life, when the environment is low, we move to a different area, to protect the Land, Trees, Plants, and Wildlife, and the others, from over use, and to give the Natural Areas, Natural Systems and Wildlife, time to renew there selves.

But, the newcomers to our Land never think about the other Life – only themselves. You must change your direction. Put yourselves into the Natural Creations, living in their Life. Don't you think they want a peaceful life and a Natural Undisturbed Life – the way the Creator (God) gave them to live? There must be a rebalancing of your values and understanding that the most important things, the Natural Areas and Natural Systems, that are left, must be protected. The Natural Creations have to have places where they do not have to fear the humans or the damage caused by human, coming across their land day after day, night after night. Nature is not a resource for human beings' personal pleasure, convenience and profit making. You cannot continue to invade their homes and their privacy and still call yourselves human beings.

The extensive destruction, damage and eventual loss of Ecosystems that will result from the construction of a 76 mile, 12-14 or 12-18 foot wide, 127.5 acres and more, hard-surfaced, multi use so-called River of Grass Greenway will be a contributing factor to the Ecocide of the so-called Big Cypress National Preserve and Everglades, and is unacceptable.

The planned River of Grass Greenway project, is a project created by humans, simply to satisfy their entertainment and recreational "wants" with total disregard for the Natural Environment, Natural Creations and Natural Life, which are: The Water, the Air, the Trees, the Plants, the Grasses, and all the Insects living in the Grasses, and all the other Creator's (God's) Creations: the Four Legged, the Two Legged with Wings, the Ones with the Fins and the Crawling Ones –the Snakes.

If you continue to damage the Natural Areas and Natural Systems you will eventually destroy all Life. You need to think about the damage, you are causing and think about the Future of All Life – All the Creator's (God's) Creations. The mass degradation and loss of Natural Areas and Natural Systems is happening on a mass scale, and when you abuse Mother Nature, Mother Nature does the same thing back to you – extreme weather conditions, fires, earthquakes, hurricanes, tornados, drought, floods. Money and so-called modern life creations, you can survive without, but we guarantee you, you cannot survive without water, and air, and that is what so-called modern life is destroying.

The so-called Everglades Restoration Project has been going on for, we do not know how long, and money has been allocated towards this Project year after year and nothing has been done yet - So-called Everglades Protection and Restoration. They are using the words "Everglades Restoration or Everglades Protection" to collect money, tax-payers money to make a living enjoying themselves, but so called Protection and Restoration has never really been done in our Land, in Miccosukee Simanolee Nation's Land. And, all the development in so-called Big Cypress National Preserve and Everglades National Park has been done illegally in our Land, in Miccosukee Simanolee Nation's Land.

Most American people do not want to tell the truth. They try to cover up the truth, of what they have done in the past, and they only write about what makes the history look

good for them. The history of the Miccosukee Simanolee Nation Aboriginal Peoples', of this Land, of this Country, has never been told or written rightly, and the history written, in this report, of our People, is not correct.

Paleo- Indian Period, Archaic Indians Period, Formative Calusa and Tequesta Indians Period, and Seminole – Miccosukee Period – Native Americans. These people are not American. I will say it again – they are not American. There was no such thing as Americans, at that time period.

Most Aboriginal Indigenous Peoples, throughout the World, live in their own Countries, and they lived their own Way of Life before the immigrant people came forcibly into their Lands and destroyed their Lands, and attempted to eliminate the Aboriginal Indigenous Peoples and their Cultures. Aboriginal Indigenous Peoples did not die only because of disease and slavery. People from other countries came into our Lands, and began slaughtering our People, killing our People, raping our People, doing whatever they could do to get rid of our People. They didn't just disappear. They tried to wipe the Aboriginal Indigenous Peoples out, but they were not successful. We are still here.

In the draft report on page 10, you state: "The Creeks that moved to Florida included speakers of the related, but separate Mikasuki and Muskogee languages, but came to be collectively know as: Seminoles by European Settlers"...This is an incorrect statement, maybe because you have come from other countries, maybe you have only been here for 4-6 generations, in our Land, but that does not make it your country, or give you the right to tell the story of our people. Where are the Cow Creeks, did they disappear?

The Miccosukee Simanolee Nation Aboriginal Peoples was recognized by the United States government in the early 1700's and 1800's, and has not changed since then. The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples is the same entity, and we still continue to govern ourselves under the Natural Law. We are separate from the Seminole Tribe of Florida and the Miccosukee Seminole Tribe who separated themselves from the Miccosukee Simanolee Nation and moved onto Federal trust lands (reservations) in 1957 and 1961 and adopted the United States system of government. They seem to be well recognized by the newcomers' government and business people, but they don't seem to be well recognized for caring about their culture or their connection with the Natural Environment.

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples will continue to Defend the Rights of Nature and our Rights to Protect our Lands, and we are telling you: We do not want the River of Grass Greenway Project on our Land. It is an irresponsible, environmental destructive project that will cause irreversible ecological damage. We do not want any more development or destroying of the Creator's (God') Creations on our Land. If you proceed with this Illegal Project, the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples will hold you all individually personally accountable for your illegal serious Crimes against the Creator's (God's) Creations on our Land.

Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples

ROGG Central Workshop – February 26 – March 2, 2013

Statement

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples strongly objects to the River of Grass Greenway - An environmentally destructive project in Violation of the Rights of the Earth and the Inalienable Rights of Nature.

The River of Grass Greenway proposed project crosses the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples' Land. We do not want to see any road building equipment or machinery, lime rock, gravel, concrete, asphalt or any other road building materials or machinery or any more roads, trails, pathways or bikeways on our Aboriginal Indigenous Land. Big Cypress National Preserve-Addition Land, Everglades National Park, Miami Dade County and Collier County and beyond **are illegally established in our Land**. We do not want you to start this project or even think about it. No more development, no more destroying the Creator's (God's) Creation in our Land.

This proposed project's 75 miles or more, 14 foot wide or more, hard-surfaced, environmentally, irresponsible corridor, with trailheads, spurs to historic and cultural centers, public facilities, parking, and more is in conflict with your mission statement: "preservation of the environment, historic and cultural assets". We understand that you are considering existing trailheads and facilities, but there are areas, that you have identified, where trailheads and facilities do not exist and you will build them in order, as you said, to protect the people from the Nature – "rain, heat, wind, bugs, approaching hurricanes", etc. And, some of the areas you have identified to use for parking are already full to capacity during certain times of the year, so you will have to build parking areas. And, you said this is a multi-purpose corridor – not just bicycles, - walking with strollers, and wheel chair access – so, this corridor will require, a yet to be identified, hard surface.

If you go through with your plans, to build the River of Grass Greenway, and fulfill your plans that extend well beyond the Corridor, you will be destroying many, many, many, acres of the Creator's God's Natural Creations and Natural Life. Which is: The Water, the Air, the Trees, the Plants, the Grasses, and all the Insects living in the Grasses, and all the other Creator's (God's) Creations: the Four Legged, the Two Legged with the Wings, the Ones with the Fins, and the Crawling Ones.

You are continuously clearing land and destroying the Homes and Lives of the Creator's (God's) Creations for your own comfort, pleasure, convenience and profit making

ventures –all at the expense of the Natural World. There are enough highways, roadways, trails, pathways and bikeways.

"Nature has the Right to Exist, Persist, Maintain and Regenerate its vital cycles" – Rights of Nature.

One of your proposals to build a 75-mile, 14 foot wide or more "Lasting (concrete) board-walk" across "Environmentally Sensitive Lands" with total disregard for the "Wildlife", "Critical Habitat", "Natural Migration", and "Outstanding Water Bodies is unacceptable thinking. And, thinking, that you must provide trailheads, access to points of interest, bathrooms, parking, and more along the corridor is also unacceptable. This corridor is not just a little bike path along the side of Tamiami Trail (US 41) as it was earlier presented to the people, and to think that this project is going to lessen the impact of traffic along the Tamiami Trail (U.S.41) is also unacceptable thinking. It won't.

You stated that you researched all over the World to see if a project like this had ever been created, and you could not find such a project - There was no exact comparison. Is this your motivating drive to do this? - To be the first? – At the expense of the Natural World?

Patty Huff, River of Grass Executive Committee, stated that they had knocked on everybody's door. This is not true, from listening to the statement of one of the people attending the February 26st workshop, who lives along side of the Tamiami Trail (U.S.41), in Big Cypress National Preserve – she stated: "No one came and talked to me. I live right down the road. This is the first I have heard of this". Also, in talking to other people along the Tamiami Trail (U.S.41), it does not seem that Patty Huff's statement is a truthful statement.

There were other complaints at the February 26th workshop concerning public notification and public involvement. It does not seem that your efforts to contact people about the River of Grass Greenway Project are working and most people think you are just creating a little bike path along side of the Tamiami Trail (U.S. 41), so they do not bother to attend your workshops. But, two women, who love to bike and hike, found out about the workshop on February 26th, and came to support the project, but later changed their minds, after hearing about the real plans that you are now coming up with, and said they would not support the River of Grass Greenway, and would let others know what was really going on. One of these two women, after listening to you said: "This is **crazy talk**" – Where is all the fill coming from? - I don't think so, this is not a good idea". Several others questioned the funding of the River of Grass Greenway, and felt that the 14' feet wide or more corridor was "**excessive**", and we should not be spending federal money for this kind of project when our Country is in serious economic difficulty.

One of the consultants said: The River of Grass Greenway would protect the Everglades for generations to come. And one of the consultants said: People do not want to ride along the side of the road (Tamiami Trail - US 41). Therefore alternative plans have been developed: Separating the corridor from the road, building a new corridor or creating links to already existing roads (Loop road).

Building a corridor of any kind, of any material across the Everglades and places for people to seek shelter from the Nature is not going to protect the Everglades for generations to come, and will not alleviate traffic. As, the consultants said, "The Everglades is one of the last remaining Wilderness areas in the South", and "Every piece of the ecology off of 41 is wetlands". North or South of 41 is does not matter, you will impact the wetlands. There will be no difference in the impact. Everglades and Big Cypress is all the same area – it is all wetland, but Big Cypress National Preserve will receive the greatest impact from the building of the River of Grass Greenway.

The River of Grass Greenway is an irresponsible, environmental destructive plan that will cause irreversible ecological damage. You cannot possibly mitigate all the damage you will create through mitigation plans to "fix the hydrology". Filling in cannels that are critical habitat for the manatees and crocodiles is unacceptable. One of the consultants said: "Is this an "American Crocodile"? The National Park Service representative's reply was yes. The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples was present at the Workshop and was listening to this conversation, and we were thinking: When did the Crocodile become American? - because we know about the Crocodiles. They do not speak English, and do not have the newcomer's education. So, again, we have the question – When and how did they become the American Crocodiles? The Crocodiles have been living here in this Land long before the newcomers started calling themselves Americans.

You need to understand that the Natural Creations, the Natural Life, living in their Life, want a Peaceful Life and a Natural undisturbed Life the way the Creator God gave them to live and to survive and raise their families the same as you. They have Creator (God) given rights – inalienable rights, the same as you. You must respect the Rights of the Earth and the Rights of Nature if you want to call yourselves human beings. You cannot continue to invade their homes and their privacy and still call yourselves human beings.

The Council of the Original Miccosukee Simanolee National Aboriginal Peoples tells you again: We do not want any more development or destroying of the Creator's (God's) Creations on our Land. – We do not want the River of Grass Greenway in our Land.

You said you wanted to identify the "Hot Spots" The whole area you want to damage – destroy - desecrate is a "Hot Spot". Leave it alone – then maybe you will "Protect the Everglades for Generations to Come", not only for the human life, but all life.

Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples

January 29 – February 2, 2013 – ROGG West Workshop
Statement – February 1, 2013

Objection to the River of Grass Greenway

Aboriginal Indigenous Red Peoples have always lived in their own lands. Our Ancestors defended themselves against the aggressive, brutal attacks of the immigrant newcomers. They struggled and died for us – young or old – men or women – children or the babies. They never gave up the Lands or the Rights that we hold onto today.

The Creator (God) gave us the Rights to live in His Creation. He created the Aboriginal Indigenous Red Peoples into the Land at the beginning of the Creation of Life and created into them the Natural Law at the beginning of the Creation of Life.

The newcomers have never sat down with the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples and paid us for our Land. With that, this land belongs to us.

The United States American People made agreements and treaties and other constructive agreements, and promises with the Aboriginal Indigenous Red Peoples, but you have never honored yourselves and you broke the agreements and treaties and other constructive agreements and promises you affirmed with the Aboriginal Indigenous Red Peoples. The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples see the United States American People as criminals who have committed crimes against not only the Aboriginal Indigenous Red Peoples, who are the landowners of this Land, but all the Creator's (God's) Creations as well.

We do not know where all the immigrant newcomers are coming from, and we don't think you know either, but you came into our Land like a cancer destroying and eating up all the Creator (God's) Creation – which is the Air, the Water, the Trees, the Plants, the Animals, the Fish, the Birds, the Reptiles, the Insects, and all the others.

There are just a few un-built Natural Areas left in Florida. The newcomers went through Florida and beyond like a cancer cutting down all the trees, building roads, building canals, building houses, towns, and cities, and digging into the Mother Earth for gas, and oil, and all the rest in order to ***feed your personal pleasure, convenience and profit making ventures*** - all at the expense of the Natural World.

The newcomers' extreme, irresponsible actions against nature and humanity are affecting the planet in cataclysmic ways.

The newcomers must change your direction. There must be a rebalancing of your values and an understanding that the most important things, the Natural Areas and Natural Systems cannot be bought or sold. The Earth is not yours to destroy. What Natural Areas and Natural Systems that are left must be protected. Maybe some of you who believe in the Creator (God) or the Creator's Son (Jesus), can understand what the Aboriginal Indigenous Red Peoples of this Land or the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples are saying: No! No! No! Do not do it! Do not build any more roads or bicycle trails on our Land, the Land that the Creator (God) created. You cannot proceed with this River of Grass Greenway Project – it is an environmentally destructive act! As a Christian you cannot hold the bible in one hand, and technology that is destroying Planet Earth, our Home, in the other hand.

We see highways, roads, and bicycle trails built everywhere. Use those bicycle trails and do not build the River of Grass Greenway in our Land.

This irresponsible River of Grass Greenway Project is in violation of the Rights of the Earth and the Rights of Nature.

We attended one of the River of Grass Greenway planning sessions on February 1, 2013, and one of the people was telling us that bicycle people want peace and quiet and enjoyment. Put yourself into the Natural Creations living in their life. Don't you think they want it the same way? Don't you think they want a peaceful life and a natural undisturbed life - the way the Creator (God) gave them to live? The newcomers never think about the other Life – only themselves.

On behalf of the Natural Creations living in the last remaining Natural Areas that cannot speak for themselves, we are speaking for them. The Natural Creations have to have places where they do not have to fear the humans or the damage caused by humans, coming across their land day after day, night after night. Nature has rights as surely as any that exist.

Nature is not a resource for human beings' personal pleasure, convenience and profit making.

The mass degradation and loss of Natural Areas and Natural Systems and species is happening on a mass scale. If you continue to damage the Natural Areas and Natural Systems you will eventually destroy all Life. We ask that the newcomers think about the horrifying damage you are causing and think about the Future of All Life – all the Creator's God's Creations, and reverse your decision to build the River of Grass Greenway. To go forward with your Project will result in serious Crimes against Nature.

The extensive destruction, damage and eventual loss of Ecosystems that will be the result of the 75 mile, 12-14 foot wide or more, 127.5 acres River of Grass Green Greenway Project is unacceptable. This Project will be a contributing factor to the Ecocide of Big Cypress National Preserve. A Project created by humans simply to satisfy their entertainment and recreational "wants", with total disregard for the Natural Environment, Natural Creations and Natural Life, which are: The Water, the Air, the Trees, the Plants, the Grasses, and all the Insects living in the Grasses, and all the other Creator's (God's) Creations: the Four Legged, the Two Legged with the Wings, the Ones with the Fins and the Crawling Ones – the Snakes.

It is time that the shields of government and agencies, behind which individuals have hidden, be removed, and individuals are held accountable for their decisions creating serious Crimes against Nature.

If you proceed with this illegal Project, the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples will hold you all individually personally accountable for your illegal serious Crimes against the Creator's (God's) Creations on our Land.

-2-

Council of the Original Miccosukee Simanolee Nation
Aboriginal Peoples
Original Caretakers of this Land

February 1, 2013

Failure to provide proper notification of meetings.

To: Mark Heinicke, Patty Huff, and Maureen Bonness
From: The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples
Reference: 75-mile Non-motorized transportation, educational, and recreation corridor.

The Council of the Original Miccosukee Simanolee National Aboriginal Peoples requested to be advised of any meetings to be held concerning the so-called "River of Grass Greenway" Project.

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples did not receive any notification of the three Regional Community Workshops on the Feasibility Study and Master Plan for the proposed so-called River of Grass Greenway project until receiving an **email on January 27, 2013** stating that workshops were being held **January 29 - February 2** at Edison State College Collier Campus. **Two days notice** is not proper or sufficient notification, and consequently we were not able to attend the meetings held on January 29, January 30, and January 31 to provide "public input" at those meetings.

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples has not changed their opinion of the project and continues to strongly object to the project for the reasons stated in our letter attached dated September 20, 2012.

Council of the Original Miccosukee Simanolee Nation
Aboriginal Peoples
Original Caretakers of this Land

September 20, 2012

Mr. Mark Heinicke
Parks, Recreation and Open Spaces
275 N.W. 2nd Street, 4th floor
Miami, Florida 33128

Re: River of Grass Greenway
75-mile non-motorized transportation, educational, and recreation corridor extending east from 6L-Farm Road (near Naples) to Krome Avenue (near Miami). 12-14 foot wide pathway running roughly parallel to U.S. 41.

In response to our meeting with you, Patty Huff, and Maureen Bonness on May 15, 2012, the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples formally advises you, and all concerned with this Project: **We strongly opposed the river of grass greenway project.** This meeting on May 15, 2012 was the first time we heard about your project.

In the river of grass greenway project "mission statement", you state that this project provides opportunities for education, stewardship, and **preservation of the environment, historic, and cultural assets** of this unique area.

By constructing the River of Grass Greenway Project's 75-mile corridor, 12-14 foot wide pathway, **you will destroy 127.5 acres of the Creator's (God's) Natural Creations and Natural Life.** In addition, to destroying 127.5 acres of the Creator's (God's) Natural Creations and Natural Life for your educational and recreational corridor, **you will be destroying many, many more acres** of the Creator's (God's) Natural Creations and Natural Life **by constructing access points, parking areas and facilities**. What does the Department of Environmental Protection think about your project?

The most important concern with this project is: The Natural Environment, Natural Creations and Natural Life, which are: The Water, the Air, the Trees, the Plants, the Grasses, and all the Insects living in the Grasses, and all the other Creator's (God's) Creations: the Four Legged, the Two Legged with the Wings, the Ones with the Fins, and the Crawling Ones – the Snakes. The Creator (God) Himself created all of those Creations at the beginning of the Creation of Life.

-2-

Aboriginal Indigenous Peoples, in this, Creator's (God's) continent, of the Earth, know that these Creations must survive in order that they may survive and continue to live in their Way of Life. Non-Aboriginal Indigenous Peoples (non-Indian people) must learn to Respect the Creator (God) and the Creator's (God's) Son. They are the ones above all Life.

Aboriginal Indigenous Peoples always Respect the Creator's (God's) Gifts because, we know those Gifts are giving the Future of Life and Unborn Life. The Creator (God's) Gifts, mentioned before, are disappearing now because of the newcomers, the other people, the other cultures', so-called modern life and modern comforts. You are taking the Future of Life and creating endangerment of the Natural Environment, Natural Systems and Natural Wildlife - what the Creator (God) Himself created. Enough is enough.

The Creator's Gift is in us, which is: Our Way of Life and the Natural Law and all His Creation, which is: The Air, the Water, the Trees, the Plants, the Animals, the Fish, the Birds, the Reptiles, the Insects, and all the others, and for that reason we cannot accept other peoples' way of life on their man-made laws.

There are enough highways, roadways, trails, pathways, and bikeways. You are continuously clearing the Land, and destroying the Homes and Lives of the Creator (God's) Creations for your own comfort and for your own pleasure. There are other bikeways, pathways, and trails all over the world – use them, the ones you already have built. If you want that bicycle trail, build it in front of your house, and if the sponsors of this project want the bicycle trail, they can build it in front of their houses.

We understand two of the members of the Miccosukee Tribe, James Erskine and Tim Lamm are on the river of grass greenway project's steering committee, and that an access to the Miccosukee Indian Village is included in your project plans. You can build the bicycle trail in front of the Miccosukee Indian Village, but not beyond that. Just in front of the Village and nowhere else.

The Council of the Original Miccosukee Simanolee Nation Aboriginal People does not want another trail, pathway, bikeway or road of any kind, on our Aboriginal Indigenous Land. Make no mistake, see these words: No, stop, Do not build it.

-3-

American people came into our Aboriginal Indigenous Land without permission, without asking. Big Cypress National Preserve, Everglades National Park, Miami Dade County and Collier County and beyond are all illegally established in our Land.

Big Cypress National Preserve is the last Natural Area left. If you develop anymore in that area, the Natural Environment, Natural Systems, and Natural Wildlife will disappear. That is why we say: No more development, no more destroying Creator's (God's) Creation in our Aboriginal Indigenous Land. The Creator (God) has a right to be acknowledged, what he has given us, and that is the most important thing, not Americans' so-called, modern way of life, of comfort and pleasure. The money and so-called modern life creations, you can survive without, but we guarantee you, you cannot survive without water and air and that is what so-called modern life is destroying.

The river of grass greenway (bicycle way) project, will damage and destroy the Creator's (God's) Gifts, and will also affect the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples' Holy Sacred Areas and bring sickness into the world. We do not want to see that happen. Miccosukee Simanolee Nation of the Peoples does not go into other peoples' burial grounds (cemeteries) and disturb, damage and destroy their graves. We do not build roads, trails or bikeways or pathways in your cemeteries. We cannot understand why you want to disturb, damage and destroy ours.

You are going to create more damage of your people – cripple, deformed or pain from the mothers, heart attacks, cancer, diabetes, and all the other sickness that has been created since your arrival in our Aboriginal Indigenous Land. You brought the sicknesses from the other countries and you are going to continue spreading the sicknesses out. And, when you abuse Mother Nature, Mother Nature does the same thing back to you – extreme weather conditions, fires, earthquakes, hurricanes and tornados.

The Council of the Original Miccosukee Simanole Nation Aboriginal Peoples does not want to see the one you call the river of grass greenway (bicycle trail). We do not want to see any road building equipment or machinery, lime rock, gravel, concrete, asphalt or any other road building materials or machinery on our Aboriginal Indigenous Land. We do not want you to start or even think about it. Hang it up and forget about the Project, unless you walk barefoot in the woods – that would be healing.

This is the first Statement. There will be more and more coming until you all really understand what we are saying.

The United Nations Declaration on the Rights of Indigenous Peoples

The United Nations Declaration on the Rights of Indigenous Peoples recognizes Indigenous Peoples and the urgent need to Respect and Protect the Inherent Rights of Indigenous Peoples which derive from their politics, economic and social structures and from their cultures, spiritual traditions, histories and philosophies, especially their Rights to their Lands, Territories and Resources and Promotes the Rights of Indigenous Peoples affirmed in treaties, agreements and other constructive arrangements with States and recognizes that control by Indigenous Peoples over development affecting them and their Lands and Resources will enable them to maintain and strengthen their institutions, cultures and traditions and to promote their development in accordance with their aspirations and needs.

Aboriginal Indigenous Peoples that follow the Natural Laws created into the Aboriginal Indigenous Peoples by the Creator (God) Himself at the beginning of the Creation of Life were born into and have Rights that go way beyond these words created by the United Nations Declaration on the Rights of Indigenous Peoples. This Declaration is considered a "minimum standard" for non-indigenous people to begin working towards fulfilling their obligation to Aboriginal Indigenous Peoples.

Aboriginal Indigenous Peoples will continue to Defend the Future of Life against your attacks on their Way of Life, and the Natural World: the Sunlight, the Water, the Air, the Land, the Trees, the Birds, the Animals, the Fish, the Insects, and all that is Sacred to us, as our Elders have done since the illegal, aggressive and brutal immigration of the European Americans, and the other immigrants into our Aboriginal Indigenous Land.

The Creator (God) Himself gave us the Rights to live in His Creation. The Creator (God) Himself created the Original Aboriginal Indigenous Peoples into the Land at the beginning of the Creation of Life and the Creator (God) created into the Aboriginal Indigenous Peoples the Natural Law at the beginning of the Creation of Life.

The Creator's Gift is in us, which is: Our Way of Life and the Natural Law and all His Creation, which is: The Air, the Water, the Trees, the Plants, the Animals, the Fish, the Birds, the Reptiles, the Insects, and all the others, and for that reason, we cannot accept other peoples' way of life or their man-made laws.

Council of the Original Miccosukee Simanolee Nation, Aboriginal Peoples

Bobby C. Billie

Cecil Osceola

Everglades Miccosukee Tribe of Seminole Indians

Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples

Contact Information:

Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples
P.O. Box 1452
Lake Placid, Florida 33862

Ancientrees@hotmail.com

904-654-0200

The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples is the same entity that entered into the 1842 Agreement with the United States government. Later, others, Seminole and Miccosukee groups split off from the Original Miccosukee Simanolee Nation to form governments under the United States Indian Reorganization Act. The Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples continues to govern themselves under their Customary Law – Natural Law.

Please note: The above contact information is the only contact information for the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples. Please direct your response or inquires to the address/email/telephone number indicated above.

AECOM

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Meeting Notes
Task 2.38

Subject	River of Grass Greenway (ROGG) – Steering Committee Review Meeting # 5
Date	June 24th[th], 2015
Time	1:00 pm – 4:00 pm
Location	Collier County South Regional Library, Meeting Room A 8605 Lely Cultural Parkway, Naples, FL 34113
Attendees:	Melinda Avni, FLFORESTY, Melinda.Avni@freshfromflorida.com Maureen Bonness, FROGG, bonness@infionline.net Laurie Beard, COLLIER-GOV, lauriebeard@colliergov.net Drew Crumpton, AECOM, John.Crumpton@aecom.com Bob DeGross, BICY, Bob_DeGross@nps.gov Jamie Doubek-Racine, RTCA, Jaime_doubek-racine@nps.gov Mark Heinicke , MDPROS, MHEINIC@miamidade.gov Angela Ison, CCSO, angela.ison@colliersheriff.org Ward Kennedy, COLLIER-MPO, wardkennedy@colliergov.net Jerry Krenz, SFWMD, jkrenz@SFWMD.gov Nick Kuhn , AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Russ Muller, FDOT D1, russel.muller@dot.fl.us Michael Nelson, CCSO, Michael.nelson@colliersheriff.org Renée Rau, FAKA, renee.rau@dep.state.fl.us Stewart Robertson, KHA, stewart.robertson@kimley-horn.com Sarah Webber, JOHNSON ENG, SWebber@johnsoneng.com Kirby Wilson, COLLIER-SEM, Kirby.Wilson@dep.state.fl.us

Purpose: A Steering Committee review (#5) was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan. Attendees had the opportunity to provide written or verbal comments for incorporate into the ROGG FSMP document. The workshop concluded with a Q&A period for Steering Committee members.

ROGG Steering Committee Meeting #5 Notes:

1) Introduction by Nick Kuhn (AECOM) and Mark Heinicke (Miami-Dade PROS)
   - Overview of ground rules
   - Overview of agenda

2) Review of Action Items (Nick Kuhn)
   - Steering Committee Meeting #4 (5/20/15)
     - Comments provided by Steering Committee
   - Land Managers Meeting (conducted on 6/24/15)

3) Round Table Discussions
   - Jamie Doubek Racine – NPS-RTCA
     - FTA grant cycle closing
       - Approval for complete funding of project
       - Project will be completed, although project end date has not been firmly established

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   - Mark Heinicke – MDPROS
     - Next Phases
       - ROGG East & ROGG West PD&E studies
       - Subject to FDOT process, including periods for public involvement and comment
     - Noted that a multi-use pathway is being planned on Krome Ave from 8th St. to approximately 18 miles south.
   - Maureen Bonness – Updates from Naples Pathway Coalition
       - NPC has a new Facebook page with a growing presence online
       - NPS is partnering with Rails to Trails Conservancy to promote the ROGG pathway

ROGG Steering Committee Review Meeting #5 – Roundtable discussions

4) Discussion of Land Managers Meeting and Draft ROGG FSMP Comments
   - Addition to Section 3.3.1
     - Suggest using a yellow box to identify on the route plans which alternative land managers preferred when not in alignment with the official preferred route as shown in the current plans.
     - Based on the expertise and knowledge of the local resource they manage, the unit managers have identified preferred alternatives due to environmental impacts, other recreation uses and additional permitting constraints.
     - Include the following disclaimer on either Pg. 137 or page 130: *'Even though preferred alignments were selected through a matrix evaluation process, numerous alignments and alternative routes could be feasible; depending on permitting and regulatory requirements which includes rigorous environmental analysis.'*

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- Criteria was established to identify fatal flaws and possibilities for a feasible design
- Review of Corridor Maps
  - Incorporating the land managers preferred routes in Yellow
  - General comments
    - Land managers typically seek to not impede on existing recreation uses
    - Desire to study dispersed recreation and quantity of future recreation needs as a recommendations from this project
    - Goals from potential bridges
      - Seek to not block boat and fishing access
      - Seek to not necessarily formalize all informal recreation uses
    - Land managers would like to have input on material selection and access to resources
    - **Jerry Krenz (SFWMD):** Eliminating informal resources like boat launches
    - **Bob DeGross (BICY):** Preferred bridge alternative is B14**,** which widens existing bridge (preferred by all land managers)
      - Additional 10' of widening could be required
    - General concern for proposed number, location and type of boardwalks due to potential wetland impacts and materials since all boardwalks would need to be fire proof
    - Check match lines on sheet 6B
    - Concern that C2 option would create more wetland impacts
    - **Renee Rau – FAKA**
      - Map 8B - C3 is not preferred alternative due to restored berm and wetland area- B9 is preferred
      - At future Fakahatchee Welcome Center – FAKA does not see significant impacts in alignment selection, berms are not preferred
      - Weaver Station - icon is on north side of road but should be on south side pg. 145 and 146
      - Pg 145, lack of private parcel identifier
      - In Fakahatchee, consider B7 over B9 in select places due to potential environmental and cultural impacts
    - **Bob DeGross - BICY**
      - Pg 147: remove emergency call boxes on all but major trailheads and welcome centers. Emergency call boxes are not desired at this time.
      - B14 bridge concept is preferred options for land managers
      - B7 alignment from Ochopee Post Office to Turner River Road is desired by land manager due to culturally sensitive areas near the roadway embankment
      - Both habitats and cultural areas on site by site basis should be considered when final route is determined
      - Pg 159 - B14 preferred to minimize impact in a culturally sensitive area (tribal members)
    - B7 and B14 - Hash marks (gores) inside the 2 ft buffer would be a safer alternative to consider

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- **Kirby Wilson (CSSP)**
  - A3 alternative (Page 138) connecting to Collier Seminole Trail should be removed from plans as trail connector route would impact Rockland Hammock habitat
  - Existing vehicle parking does not need improvement
    - Current configuration requires visitors to the eastern side of CSSP to check-in with ranger at main visitor station
- Are all crossings shown preferred crossing or opportunities?
  - The plans show a mix of crossing for the preferred route as well as for alternatives
  - All trailheads would include a connection from preferred route to the trailhead facility
  - Crossing of US 41 should only be sought in order to access a major trailhead or higher level facility
- Turner River Canoe Launch Minor Trailhead should be removed as a support facility for the ROGG and only be shown as a potential destination or point of interest (BICY)
- Consider including hierarchy of crossings and amenities that are preferred and those that are opportunities
- Highway/Street Crossing B, mast arm location needs to be verified as correct. **Response (Mark Heinicke):** Crossing and plans were reviewed by Miami-Dade County traffic engineer.
- Is there a way to better show the preferred route on the map only?
  - **Response (Nick Kuhn):** Current route maps are smallest scale that captures the context of the corridor. AECOM will explore ways to highlight the actual preferred route linework for better visibility
- **Jerry Krenz (SFWMD)**
  - Cross sections questions:
    - Does B1 require fill? – **Response (Nick Kuhn):** No
    - Do B9 and B9A require fill? – **Response (Nick Kuhn):** Yes, they may in select locations. This would be determined during additional phases of analysis of route options
  - Concerns that any additional fill will increase the roads capacity as a levee and will have an impact on the models used in Everglades Restoration
  - Consider revising descriptions that include statement: 'compatible with Everglades restoration' to reflect that the potential impacts are contingent on location and that compatibility with Everglades restoration is sought
  - Pg 182 - Bridge from trail to levee is a recreational opportunity and would need to be high enough to accommodate boats
  - Pg 185 - Location of minor trailhead is currently way gravel stockpile is located. Presence of existing boat ramp on west side of water control structure is incorrect and should be removed from plans.

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- Spread 48B - Boat ramp was located on east side of bridge- should be west
- Pg 188 – Southern bridge should be the preferred bridge
- Plan should reiterate not eliminating current recreation uses
- Adding new opportunities (especially fishing) would generate more support and potential funding opportunities
- Indicate what is happening on 63A where the A2 and A1 route options converge on levee
- Levee toe – May recommend to install bollards at occasional locations to prevent public vehicles from using the trail

▪ Pg 198 – Conflict with Tigertail Camp by the C3 option. Consider going in front of the village on the canal side or possibly routing the trail on the north side of the levee by using a boardwalk alternative
▪ Is there any text discussing current recreation user groups? – **Response: (Nick Kuhn):** Yes in the comparables section, but could be highlighted more
▪ **Kevin (TTINWR)**
  - B14 preferred alternative on pg. 140
  - Enhance the length of the fishing provisions on bridging for dual recreation opportunities when possible
  - Pg 142 - Check bridge names- 050 should be 0300051
  - Pg 142- Label connections to bridges
  - B13A – Current airboat launch location, do not need a new bridge (Safe Canal). Launch is used for land management access
  - Consider airboat crossings at all bridge locations
▪ Typo: Miccosukee Resort spelling on route sheet at Krome Ave.
▪ Typo: Collier MPO // not Collier County MPO (Implementation Section)
▪ Suggested the acknowledgments at the back of the document include Collier County Commissioners.

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ROGG Steering Committee Review Meeting #5 – FSMP Comments

5) Closed with overview of next steps
   ▪ Discussion of how to involve the members of the public that may oppose the idea of the ROGG in the discussion
   ▪ Comments collected until July 1st
   ▪ Public review on-going through July 1st
   ▪ Final Report anticipated in late August
   ▪ Suggestion to address categorized comments as an appendix in the document

Meeting concluded at 4:00 p.m.

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

Workshops

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Meeting Notes
Task 2.16

Subject:	River of Grass Greenway (ROGG) – ROGG West Workshop
Project:	60272285
Date:	January 29 – February 2, 2013
Time:	various
Location:	Edison State College 7007 Lely Cultural Parkway, Naples, FL 34113
Attendees:	See sign-in sheets

Purpose:
A community workshop was held at Edison State College. .

January 29, 2013:

Workshop stated on Tuesday, January 29, 2013 at 6:00 p.m. with a presentation of findings to-date follow by a questions and answers session. The following items were discussed at the event:

Introduction

- Introduction by Mark Heinicke (MDPROS)
- Nick Kuhn (NK) (AECOM) introduces consultant team and week's events
- Questions/Thoughts: (Franz): Would like to know who is here and introduce themselves.
- NK asked about who is among biking community and who has biked ROGG (four people raised their hands to both)
- NK introduces video
- NK asks for comments on vision statement:
    - o Comment about accessibility from populated areas—don't want to have to drive to facility. It should be accessible from urban areas via bicycle/on foot
    - o Would like the word "safe" added to the statement to assure people that it will be safe for them to use
    - o Believes statement should be more specific and include Big Cypress and western Everglades to reflect systems encountered
    - o Why isn't it the Everglades greenway? Maureen Bonness (MB) (NPC): many names were explored, but we didn't want people to get confused about it being solely in the Everglades or confused with the Florida Trail. Felt the current name was able to include the culture and history.
    - o Believes is should be shorter and more specific so that only key words are visible and to the point
    - o Best vision statement is one that everyone can remember and can be said on a one-floor elevator ride. This statement is not intended for people who know a lot about the area.
    - o People don't know Big Cypress, they only know Everglades and would like it to be included in the name
    - o Vision needs to be something easily transmittable, like a 1 floor elevator ride statement

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- o Councilman Saad (Naples) spoke to support the project and stated: Vision statement wants to be something clear and sellable. Will like to provide support for project, but knows the community will carry the heaviest burden.
- o Maureen: Thinks slides will answer questions and address issues raised here.

Project Background:

- NK introduces partners involved, future workshops
    - o Question: Went to website and there were many degrees of concern from various agencies. How does that fit in and have those issues been resolved? NK: Those results are being evaluated and many of the agencies are being involved in the process and are stakeholders for ROGG
- NK explains 6 part process and schedule
- Asks for questions on process
    - o When will you look for funding? NK: the implementation plan is when developing funding comes into play. What the process will end with is looking at funding
- How many have been able to visit the project website? (Several attendees rose their hands) NK explained how to visit and pass out cards
- NK discuss participation opportunities, week schedule, meeting content and introduces Ryan Cambridge (RC) (AECOM)

Corridor Context, Defining Corridor, Literature Review

- Brief introduction to corridor, asks for questions about information reviewed
    - o Visitor counts don't include Big Cypress National Preserve—would like to include it (NOTE: to include the Preserve's counts into graph)
- Comment: Would like to add Big Cypress as a destination to ROGG West map and in label neighboring the map. There was also a road that could be an alternative—believes it was called Bell Meade Road.
- RC reviews literature included
    - o Are these for the entire greenway? Yes, all 70+ miles
    - o Not sure who steering committee is and how they are involved. NK: people from agencies listed on prior slide
    - o Where to find information on meetings and schedules? RC: Can find all of that information online
- Introduces Ken Ray (KR) (AECOM)

Prospects and Challenges, Permitting

- KR: Discusses hotspot criteria, existing conditions, permitting requirements
    - o Question: Some of the pictures of the ROW show it is tight, are you going to try to fit it within the ROW? NK: yes, it is tight in some areas and near bridges, but in other cases it is more than 200 feet. We are trying to look at what is achievable within the maintained area.
    - o Comment: Do you think you can get outside of the cleared zone? NK: We don't know yet. We are still exploring where and if we may need to.
    - o Comment: It is another lane of highway. There could be impacts even on the maintained ROW.

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- Comment: Listed existing trailheads, want to know there are a number of access points in Big Cypress. Be aware that these should be accommodated so that you don't see opposition by users

Comparables and Best Practices

- Introduction of Chuck Flink (CF) (Alta/Greenways) by NK
- CF explains experience, previous projects, where we are looking
  - Maureen mentions to Chuck that they currently get a lot of through users. Many are travelling on only road possible to get to Key West.
  - Maureen: a lot of people are on bicycles, but birders and hikers are a part of user group mentioned as well
- Assures we are trying to impact the environment in a positive way
- Turns over to NK
- NK encourages others to visit website and provide input and take survey
- NK asks participants to talk with team and give input, opens up for making comments on sheets
  - Comment: Are these the same questions that are on the website? Are they all treated equally whether online or written at meeting? NK: All are same
  - Comment: Chuck Wilson is here from local Florida Trail group
  - Comment: Schedule—are the morning and evening sessions the same thing? NK: Want participation for what time of day you can come each day.

Adjourned at 8:00pm

January 30-31, 2013 Workshop Days:

Workshop continued on Wednesday, January 30, 2013 at 6:00 p.m. with two working session from 1:00 pm to 4:00 pm and a second session from 5:00 pm to 8:00 pm. The following items were discussed at the event:

Kick-off

- NK introduces activities of the day
- MB: requests introduction of team

Recap Discussion (7:00 pm)
General Comments:

- Joe Webb (MDPROS): Team mentioned that the exploration of options was a good idea, but will need to discuss realistic options with PD&E team
- MB: Each park has their own environmental education program, but would like children to get out and experience the area in a different way
- Is there a way to reduce panther killings? That would sell the project
- Franz Gimmler (TRIPTAC) said Nancy Payton mentioned that anything north of the road in Picayune is unacceptable. Moving to eastern section, there are mixed reviews about canal under passes and overpasses. Concerned about restoration and mitigation of Picayune
- Patty Huff (PH) (NPC): It's not the overpass that is the problem for panther crossing, it's the fencing

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- MB: Came to solution to try detection devices instead of fence at Turner River. They are doing studies to see how affective it is. Hopefully it will work.
- PH: the system will be interesting to see how it works with trail users possibly setting of detection, in addition to wildlife
- Randy Mejeur (RM) (AECOM): Are there some designs here that would lend themselves to addressing panther habitat? Can we design for it?
- KR: Comfort and separation are included in the matrix. Perceived and actual safety is important to get children on the trail

Connections to trails:

- Identified destinations and trail corridors in previous work, now we are evaluating what these conditions mean. Identified and quantified what connections could be made to destinations
- Some have missing links—Picayune has hiking, unimproved roadway, equestrian trails
- There are varying types of trails, experiences: blueway, adventure, mountain bike
- How do we quantify experience vs infrastructure and what those look like
- Franz: these are wonderful environments, we should think about involving equestrians. They are a very important user group that we are ignoring. It's a tough addition, but we should make a deliberate decision
- CF: I think we do provide all the connections in the masterplan, even if they are not usable.
- RC: We have lots of different trail systems, and different groups are doing different things within these spaces. We need to provide a comfortable connection
- Jay Exum (JE) (AECOM): Some of them may become a distraction. Some might lend to experience, others may not. But we need to highlight all of them
- RC: We need to establish this this is not just a corridor, but a network. Some people may not be interested in main uses, but being broad will allow them to use for their interests as well
- PH: We keep saying paved trail. I would prefer the term hard surface.
- Renee Rau (Fakahatchee): made comment at meeting that we were assuming it was going to be paved
- MB: We had discussed equestrian before, but the users were not interested.
- CF: It will be too difficult to accommodate equestrian in this area
- Franz: the more flexible and diverse the trail experience is, the more groups will support the trail. It will help get political and financial support. Nancy mentioned equestrian in Picayune, and noting that will help to get support from that group.
- RC: You could technically make it up through different parks. Acknowledge the group within the area, but don't plan to make areas for equestrian along the corridor

Trailheads:

- Getting through Port of Islands will be difficult with its set up
- Consider private owners along trail as trailheads
- Picayune trail is being improved north of Port of the Islands
- Franz: would you suggest that we support idea of using private restrooms?
- JE: It may be beneficial to embrace private side because of the distance between them. The cost of providing public facilities
- MB: As a user, it is nice to have signage to know if there are vendors available to stop at
- CF: Spacing here is excellent and have a nice combination of types of trailheads

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- PH: Potentials for shuttle tram, transit stops with bigger turn around area
- MB: Should we address connections to Marco Island?
- RC: Some Marco residents may oppose lane width changes
- PH: Highway 92, should work with environmental groups about restoring mangroves. It needs to be improved
- JE: Also mention the Fakahatchee connection
- PH: Have heard trailheads are already in place, great for the implementation of the trail
- Franz: We should also consider bike shares, bike rentals and public transit at major trailheads
- JE: consider private owners along trail for trailheads
- Picayune trail will have a picnic area built along northern portion of Port of the Islands

Trailhead Types

Type	Facilities
Major Trailheads	• 20+ Parking Spaces • Restrooms • Showers • Water Fountains • Trash/Recycling • Picnic/Shade Pavilions • Seating • Air Station • Emergency Call Box • Signage System • Vending Machines/Concession • (Optional) Transit • (Optional) Bike Share/Rentals
Minor Trailheads	• 5 to 10 Parking Spaces • Shelter • Trash/Recycling • Signage • Emergency Call Box • Seating • (Optional) Restrooms
Rest Area	• (Optional) Car Parking • Shelter • Seating • Trash • Emergency Call Box
Rest Stop	• Shelter • Emergency Call Box

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Trailhead locations:

Type	Name	Programming in Place
Major Trailhead	Collier-Seminole State Park	Parking, restrooms, showers, trash/recycling, seating fountains, pavilions, exhibit, bike and pedestrian access, camping, boating access
Rest Stop	Collier-Seminole Trail Entrance	Trail access
Rest Area	Wayside Park	Parking, picnic tables, trash bins
Minor Trailhead	Ten Thousand Islands Marsh Trail	Parking, signage, trash bins, trail access
Major Trailhead	Port of the Islands Marina	Private parking, restrooms, access to food and concession, trash bins, hotel
Major Trailhead	Big Cypress Bend Visitor Center	Proposed parking, rest rooms, signage, shelter, trail access
Rest Area	Wayside Park	Parking, picnic tables, trash bins
Rest Area	Canoe Launch	Parking, water access
Rest Stop	Proposed Rest Stop (location to be determined)	None
Major Trailhead	Everglades Welcome Center	Parking, Pavilions, Signage

Signage Notes

Can categorize signage into three categories:

1. Directional
2. Interpretive/Educational
3. Pavement Markings

Signage needed on trail:

- Trailhead designations
- Trail designations (travel lanes, etc)
- Conflicts: road crossing, pedestrian crossing, bridges, lane sharing

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- Distances with minutes/miles to Facilities and Attractions
- Routes of adjacent trails
- Etiquette/Rules
- Facilities notating food, shelter, lodging, phone, recreation, transit, information
- Plan maps
- Beginning/End of bike/ped. Trail
- Education

Criteria for Assessing Trail Design Options
February 2, 2013

I. Trail User Experience

1) Sense of adventure
2) Perceived safety
3) Authenticity of Everglades experience
4) Variety of pathway courses
5) Diversity of cultural and natural scenery
6) Enhanced educational opportunities
7) *Economic benefit (either here or a separate criteria)*

Note: How do we accommodate varied skills, intensities of uses? (Fisherman [e.g. birders, astronomers, etc.]) We need to accommodate non-cyclists in this assessment.

II. Environmental Impacts

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1) Wetland impacts – direct
2) Wetland impact – secondary
3) Panther habitat
4) Federally-designated critical habitat
5) Other listed species habitat
6) Essential fish habitat
7) Impediment of flow/restoration planning
8) Efficiency of natural resource management
9) Water quality degradation

Note: Should these be consolidated – perhaps in a permittability question?)

III. Cost

1) Fill
2) Trail material
3) Boardwalks
4) Bridges
5) Operations and maintenance
6) Structures – for hydrological enhancement and stormwater management)
7) Wetland mitigation
8) Listed species mitigation

Notes:

- Create a positive counter to this criterion that represents economic benefit
- Cost of shuttles?
- Need for acquisition of public lands/need for "lease" or easement for segments that go out of the ROW
- Include positive and negative for each criterion?

IV. Environmental Attributes

1. Suitability for enhanced multi-modal access to reduce vehicular traffic
2. Restoration of tidal flow
3. Restoration of freshwater flow
4. Opportunity for education
5. Water quality improvement
6. Removal and management of exotics
7. Enhanced natural resource management

Note: Facilities objectives for visitor access, as required by each Park/Preserve's General Management Plan

V. Impacts to Cultural Sites and Uses

1. Native American sites or uses
2. Cultural or historical sites
3. ORV/hunter access/schedule
4. Availability of parking, facilities
5. Viewshed
6. Obstruction of traffic flow

Open House: February 2, 2013
General Comments:

- Concern that the trail will further impact the N to S flow of water, in-turn climate

Appendix

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- Communicate/involve ORV users
- For Fakahatchee Strand – off-ROW trail, consider taking the course through the upland communities (this could reduce wetland impacts, but it might also increase impacts to upland hammocks used by panthers)
- Should we consider paddling the Tamiami Trail?
- Do we need to accommodate fishermen on bridges used for the trail?

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Meeting Notes
Task 2.18

Subject:	River of Grass Greenway (ROGG) – ROGG Central Workshop
Project:	60272285
Date:	February 26 – March 2, 2013
Time:	various
Location:	Everglades City Hall 102 Broadway East, Everglades City, FL 34139
Attendees:	See sign-in sheets

Purpose:
A community workshop was held at Everglades City Hall.

Kick-Off - February 26, 2013:

Workshop started on Tuesday, February 26, 2013 at 6:00 p.m. with a presentation of findings to-date follow by a questions and answers session. The following items were discussed at the event:

Introduction
- Patty Huff (NPC) introduced ROGG project, Mark Heinicke (MH) with MDPROS and AECOM
- MH mentioned location of restrooms and elevator and introduces Nick Kuhn (NK) with AECOM
- Nick Kuhn (NK) (AECOM) introduced consultant team and week's events
- NK asked everyone to sign-in and take home cards to pass out to interested parties
- NK introduced ROGG video
- NK asked audience how many have visited website, approximately ½ of attendees raise their hands

Project Background:
- NK introduced partners involved, future workshop (ROGG East)
- NK highlighted funding source and partnership between NPC, NPS and MDPROS
- NK explained 6 part process and schedule
- NK explained charrette process
- NK showed highlights from previous workshop (ROGG West): constrained zones, alternative routes, trailheads, degrees of complication and section typologies
    - **Comment**: Impressed with detail of work and amount that went into it.
    - **Question**: When you encounter wetlands will you have to mitigate? **Answer**: (NK) Yes, we have to factor it in.
    - **Question**: If you do a separate trail where would fill come from? **Answer**: (NK) Good question. We haven't gotten to that point yet. We don't want to build another canal. Haven't gotten to that scale.
    - **Comment**: When this was first presented to me, it seemed like a little pathway. Now it seems like so much more. You say you would like to protect cultural resources and nature. This looks like you would be doing the opposite of that. Big Cypress is already in much distress. You will be bringing in more people, more impacts. What you are talking about tonight is a violation of nature. I find it shocking and concerning. How can you have peaceful enjoyment with all of these cars? **Response**: (NK) We are hoping to make biking and walking a safe alternative. Are looking to find an alternative that is within existing ROW. We are testing what feasibility options are. We have lofty goals so that in the end we can have a positive effect on environment. The last alternative would help restore flows.
    - **Comment**: I am a property owner within the Preserver and I think the project is very nice. I think it boils down to how you engineer and impact environment. Everglades is a beautiful place, and it doesn't do any good if you can't experience it. In my opinion, there shouldn't be any bicycles on the trail (not safe). It doesn't hurt to explore the options. May go through all options and in the end decide it's not right. I think it's a great idea. Can't see how an elevated platform would hurt anything. Don't think it would hurt to try it all and see what we could come up with. **Response:** (NK) We want to stay true to vision of greenway and make sure we are getting all of your input.
- NK discuss participation opportunities, week schedule, meeting content and introduces Jay Exum (JE) (AECOM)

Corridor Context,
- JE discussed regional ecological context
- Introduced Ellen with Nelson Nygaard to discuss transportation analysis
    - **Question:** Which parks are included in count? **Answer**: (NK) All of park locations included are ones with visitation records broken down on a monthly basis. For Big Cypress National Preserve we don't have specific data for each stop, but will include as we get further into detail.

Defining Corridor, Literature Review
- Ryan Cambridge (RC) showed a brief introduction to corridor, asks for questions about information reviewed
    - **Comment**: Just from what you have explained so far, I don't think you have got the word out, in my opinion. I was under the impression that I could not attend your sessions. I am shocked to learn that I am not going to be able to comment on all portions. What are you solutions for those who want to comment on other sections?: **Response**: (NK) We are open to ideas for the overall trail. We are not just focused on these small areas. We would hope to sit down and get your opinions. You can also comment online at any time.
    - **Comment**: If you are going to divide it up into sections, you need to make people aware. **Response**: RC: We have had people from West who wanted to comment on Central and East. Any input on website is fully taken into account and won't be weighted any higher than these workshops are.
    - **Comment**: When several of you are talking about sensitivity, I am concerned. When you are talking about trail on Loop road, how are you going to fit it? **Response**: (NK) When we are talking about a trail, it would be separated. Loop is not paved and has a small ROW. It makes it almost impossible to do a separate facility. It would have to be shared, but it is just one option. RC: We are not recommending anything go anywhere yet.

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- **Question:** Will public have opportunity to comment and give input? Right now there is so much in the air. **Answer**: (NK) Yes we will have input to make sure that what is being shown is correct through reevaluation.
- **Comment:** When they did the ORV trail fiasco, which are not accessible, they did it in sections. It was crammed down our throat and they were on a deadline—whether they had the roads in the right place or not.
- **Comment:** People are only thinking about themselves, never thinking about the natural creation. When they first began planning 41, we couldn't stop it because we weren't under the gun. Now we have a chance to communicate with you. Indigenous people value what it on earth, not on money or modern life. They keep building. First it was 75. Its okay to look at it, but don't disturb it. Our concern is that over time we are going to continue building. **Response**: (NK) That is a very important part of it.

- RC reviewed literature included
- Introduces Randy Mejeur (RM) (AECOM)

Prospects and Challenges, Permitting

- RM: Discusses hotspot criteria, existing conditions, permitting requirements
  - **Question:** Has anyone ever considered filling in canals on 41? **Answer**: (RM) That was an option we are still evaluating.
  - **Comment**: This is crazy talk. We are filling in canals. Where is the money coming from? I understand what gentleman said—its okay to have areas where people don't go or see. I don't think it's a good idea after seeing what you all have just said.
  - **Question:** I never said anything before. This is the first time I have ever heard anything about this. Are the Big Cypress Preserve for this? **Answer**: (Bob DeGross, Big Cypress National Preserve) We support feasibility study. It will provide land managers information on cost and impact, so that we can determine if this is something we can continue.
  - **Comment:** They closed down stores and gas stations on 41, and don't want ORV and buggies, but they support another trail? If you decide to get permitting for bikes, please do it for canoes.
  - **Comment:** South Florida has spent billions of dollars on restoration. It seems crazy that we dump money into fix one problem and then spend money to cause another. Response: (NK) We are trying to see if this could be turned into a positive
  - **Comment:** The whole water flow restoration starts at Kissimmee. It should start with sugar cane farms. Most of the issue is up there and not down here.

Comparables and Best Practices

- Introduction of Chuck Flink (CF) (Alta/Greenways)
- CF explains experience, previous projects, where we are looking
  - **Comment:** That boardwalk in the beautiful area, its ugly. You all had 500,000 dollars to do this. It's common sense that this should not happen. Its sensitive area and we should be doing everything we could to protect it. It will be an incredible expense. I think project is outrageous.
  - **Question:** Has there been a study of how many people would use trail all the way? **Answer**: (CF) We are doing that now.

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  - **Comment**: As far as human impact that people are talking about, I don't know what people are talking about. I don't see mass human impact in Everglades. There aren't many people out there because it's been so restrictive. You can't really enjoy Everglades unless you change something.
  - **Comment**: It's interesting the different thoughts and ideas. I agree about the cost being too high. A 14' wide path just seems excessive for a bicycle path. I came down 951 where Collier County put in a path. I haven't seen a user on the path. Maybe put a path near Oasis center. A path on 41 might be feasible, but you are getting into other areas where it may be a concern. You will need places for people to park and enjoy this.
  - **Question**: What is the driving force? Is it to get more people on parks? Who is asking for it? **Answer**: (NK) Department of Transportation.
  - **Comment**: Part of grant is the reduce traffic. A private vendor might come in and shuttle. I think it may have the opposite effect. **Response**: (NK) A shuttle service may reduce cars.
  - **Comment**: You will have private cars bringing bikes and create more traffic.
- Turns over to NK
- NK concludes and requests people come down stairs to interview and ask questions. Shows link to survey and next steps
  - NK encourages others to visit website and provide input
  - Patty Huff: Informed attendees that the City Hall is scheduled from 6pm to 8pm tonight but that there is opportunity rest of week and on Saturday for interviews

Adjourned at 8:00pm

Image of attendees at the February 26, 2013 Kick-off Presentation at Everglades City Hall

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The specific project noted in these notes has been canceled. These notes are to document early project information gathered.

Workshop Days - February 27-28, 2013:

Workshop continued on Wednesday, February 27, 2013 with two days of open, public workshop from 1pm until 8pm each day. The following items were discussed at the event:

Kick-off

- NK introduces activities of the day

Image of consultant staff working during an open, public workshop session at Everglades City Hall

Workshop Interviews:

Interview Lisa Ostberg attended on 2/27/13
She is concerned about:

1. Potential impacts to the RADS from the trail in the Turner River Road vicinity. If it does impact the efficacy of the system, she wants the underpass system that was proposed last year to be re-evaluated.
2. Safety as a result of people driving on the trail. There needs to be a system of separating pedestrians and cyclists from automobiles because she believes this is a likely outcome.
3. Safety as a result of different types of users on the trail, e.g. speed bikers vs birdwatchers and seniors.

Interview with consultants for BreitBerun (BB), the energy company that extracts oil from the Big Cypress Preserve came to meet with AECOM to discuss the status of their project.
Their representatives included Jim Miller with James J. Miller consulting, and Tom Herbert and Linda Lampl, with Lampl Herbert. They informed AECOM about the plans for the proposed power line that will access the oil rigs on Eleven Mile Road in Big Cypress. Information they conveyed included:

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Note: EA for power-line upgrades was canceled and was not completed at the time of publication of this report.

1. BB's business model is to extract oil from existing wells that may not be considered valuable to larger oil companies.
2. BB is currently using generators to operate pumps at the well sites; they now want to connect to the power grid through the new 25KV line that will be moved from the north side of SR 41 to the south side. Lee County Electric will be the provider of power.
3. The new power line route will extend from SR 29 to CR 11 at mile marker 50.
4. The project will be reviewed as a part of an Environmental Assessment done through the NPS
5. The current design includes concrete, round poles that will be 475 feet apart and likely south of SR 41.
6. Fill will be placed in an area approximately 4 feet in diameter to accommodate the poles. All other impacts will be temporary.
7. Vegetation will be "managed" in a strip 10 feet wide on either side of the vertical row of conductors strung from the power poles. The lowest conductor will be 25 – 30 feet off the ground. There will be no paved or filled portion of this managed pathway. This will result in trimming about 13 miles of forested wetlands
8. The poles will likely be placed 36 feet from the edge of the pavement. This allows maintenance of the vegetation under the power lines from the shoulder of the road
9. Construction is expected to begin in early 2014
10. Theoretically, the trail could go between the edge of pavement and the poles 36 feet away, but it there may be some constraints based on the details of the utility easement granted to Lee County Electric. Linda promised to check on that and get back with AECOM.

Meeting with Ervin Stokes (Jungle Erv's airboat rides)
Everglades City

- Provided his email contact information
- Ervin owns the railroad all the way to Everglades City. This shows up as public lands – correct to include as private areas.
- Welcome Center Building owned by E.C. Chamber of Commerce, property owned by BICY. Lease up for renewal.

Telephone interview with Dan Smith regarding the potential conflict of the RADS with ROGG (Jay Exum - AECOM

1. Dan outlined some details about ROGG and why his input would be helpful.
2. Dan said that the performance of the RADS was at this point extremely poor (primarily on the south side of the road – the ones north of the road are between the canal and the guardrail, and therefore less disturbed)), and not particularly useful, because of several reasons:
    a. The RADs are placed in areas of relatively high human activity, and people are tripping the RADS system and causing a high volume of false readings. This is particularly true in 3 areas:
        i. The Swamp Ape attraction
        ii. The parking area at Turner River Road
        iii. The canoe launch just west of Turner River
    b. The RADS are placed too close to the highway on the south side of SR 41
    c. The RADS can't distinguish between animals and cars, and lots of people are tripping the system just by parking on the shoulder of the road
    d. The RADS are being vandalized at such a high rate that they are unreliable
    e. Signage used to alert motorists have too many words, and are too similar to lots of other FDOT warning signs, so they are somewhat ignored
3. The trail would be an additional impediment to the system because it would increase disturbance and, therefore, false positive readings. A few options were discussed to actually improve the function of the RADS, or an alternate system

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a. Place an animal detection system between 50 and 100 feet from the highway – this would be an ideal distance on the south side of the road
b. Use an enhanced detection system – Dan believes there is an underground cable system that has shown to be effective – it can distinguish between organic and inorganic intrusions (cars and bikes don't trip the system), and distinguish animals of a certain mass. This would theoretically allow specific detection of panthers, bears, deer and hogs.
c. Consider turning the system off during the day – this would maximize the nocturnal habits of the target species, and prevent false positives from pedestrians that might cross the cable

4. Dan commented that he thought the idea of ROGG is a great idea, and it would be a great amenity in the region

Preliminary ROGG Materials Evaluation

Trail Surface	Trail Base	Signage	Furnishings
Permatrack boardwalk (concrete)	Dirt fill	Metal	Concrete
Asphalt	Gabion	Plastic	Metal
Concrete	Limestone rock	Stone	Recycled plastic
Permeable concrete	Steel boardwalk	Wood	Wood
Wood (exotic wood)	Concrete boardwalk	Limestone	Limestone rock
Aggregate	Water (floating)	Concrete	
Shell			
Soil stabilization			
Tar and shell/aggregation			
Metal			

Trail design issues:

- Support, allow, or minimize impact to maintenance vehicles
- Permeability of base and surface
- Storm surge anchoring
- Use and effects of use from local wildlife
- Invasive plant growth on new substrate
- Lifespan of materials
- Regional hydrological changes and effects on long-term design of facilities
- Fire
- Wind (especially during hurricane events)
- Rain (volume and force)
- Sun

Criteria for evaluating materials use

- Consistency of materials throughout entire ROGG, including surface, signage, and furnishings
- Maintenance accessibility and ease of maintenance
- Cost of improvement
- Aesthetics of materials
- Opportunities and constraints for natural resource management
- Effects on user group access patterns
- Graffiti resistance

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Design thoughts

- Brand individual sections to provide specific experiences
- Define independent buildable spaces for phasing
- Show access constraints caused by proposed improvements as a relative amount of corridor
- Identify segments as "Experience" or "Connector"

Open House - March 2, 2013:

Workshop concluded on Saturday, March 2, 2013 with an open house at Everglade City Hall from 10am until 2pm.

Collier County District 5 Commissioner Tim Nance attending the Open House on March 2, 2013 at Everglades City Hall

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Meeting Notes
Task 2.18

Subject:	River of Grass Greenway (ROGG) – ROGG East Workshop
Project:	60272285
Date:	March 12 - 16, 2013
Time:	various
Location:	**Florida International University (FIU) – School of Architecture and the Arts** 11200 SW 8th ST., Miami, FL 33199
Attendees:	See sign-in sheets

Purpose:
A community workshop was held at Florida International University (FIU) – School of Architecture and the Arts; Landscape Architecture Department.

Kick-Off – March 12, 2013:

Workshop started on Tuesday, March 12, 2013 at 6:00 p.m. with a presentation of findings to-date follow by a questions and answers session. The following items were discussed at the event:

Introduction
- Mark Heinicke (MH) with MDPROS introduced consultant team and Nick Kuhn AECOM
- Nick Kuhn (NK) (AECOM) introduced week's events
- NK asked everyone to sign-in and take home cards to pass out to interested parties
- NK introduced ROGG video

Project Background:
- NK introduced partners involved
- NK highlighted funding source and partnership between NPC, NPS and MDPROS
- NK explained 6 part process and schedule
- NK explained charrette process
- NK showed highlights from previous workshop (ROGG West and Central): constrained zones, alternative routes, trailheads, degrees of complication and section typologies
    - **Comment**: Make the PowerPoint available to the public.
    - **Question**: Are any of the tribes included as there was tribal logos in the video? **Answer**: (NK) Yes, the tribes have been contacted and invited as part of the project's steering committee. The Miccosukee Tribe of Indians of Florida have not provided permission to show their logo.
    - **Question**: What part is the PD&E Study looking at? **Answer**: (NK) The PD&E Study is in the western segment and goes to S.R. 29. ROGG Central doesn't have any funding yet for PD&E Study, while ROGG East goes to the Collier County line.

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- **Question**: Is FDOT funding all of the PD&E Study? **Response**: (NK) FDOT is funding the ROGG West PD&E Study while the ROGG East study is funded by the Paul Sarbanes Transit in Parks Program.
- **Comment**: I want to talk about ROGG West and Central. Is there a certain day that I should come? **Response:** (NK) If people come to any of the open workshop sessions, they can express any ideas and thoughts about the project. Input will be taken at any and all of the sessions and can be made on any of the sections of ROGG.

- NK discuss participation opportunities, week schedule, meeting content and introduces Jay Exum (JE) (AECOM)

Corridor Context,
- JE discussed regional ecological context
- Introduced Ellen with Nelson Nygaard to discuss transportation analysis
    - **Question:** What is the average traffic? **Answer**: (EO) 5,500 AADT [average annual daily trips] is the average for the entire year.
    - **Comment:** Parking along the roadway is another problem with the safety of the drivers, pedestrians and cyclists.

Defining Corridor, Literature Review
- Ryan Cambridge (RC) showed a brief introduction to corridor
- RC reviewed literature included
- Introduces Randy Mejeur (RM) (AECOM)

Prospects and Challenges, Permitting
- RM: Discusses hotspot criteria, existing conditions, permitting requirements and Central Everglades Restoration Program impacts to ROGG planning:
    - **Question:** Why is the Water District not on the governing body list? **Answer**: (RM) SFWMD is not listed because they are on the steering committee.
    - **Question**: Does the alignment mean the entire ROW of the centerline of the road? **Answer**: (RM) It means the alignment of the trail. It could vary between the sides of the road and outside of the ROW.
    - **Question:** How are the proposed bridges being dealt with? **Answer**: (RM) The CEPP [Central Everglades Planning Project] process is being considered in our plans and the implications of the bridges will be considered.
    - **Comment:** I think that the ROGG should connect to the Biscayne-Everglades Greenway and into Miami. Run a trail south from the ROGG on the levee.

Comparables and Best Practices
- Introduction of Chuck Flink (CF) (Alta/Greenways)
- CF explains experience, previous projects, where we are looking
- Turns over to NK
- NK concludes and requests people come to the working session during the week and the open house on Saturday. Shows link to survey and next steps
- NK encourages others to visit website and provide input

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- NK opened the floor to general questions or comments from the audience. The following are comments:
    - **Comment:** Transit would be a good option to reduce traffic that may come from the development of the trail
    - **Comment:** Sign-in on the MindMixer site seemed confusing and people had trouble signing in and use the site. **Response**: (NK) Thank you for the note. We haven't had any problems from users other than a confusion by users in tagging each other for abuse of the site, but upon review of comments no abuse was found and the terms of the website were upheld.
    - **Comment:** Consider the bank fishermen when proposing the floating trail option
    - **Comment:** Narrowing the lanes seems dangerous and raises the risk to riders
    - **Comment:** Seek comparable projects that have similar maintenance, operations and construction costs
    - **Question:** Are the transit options in other parks mandatory? **Answer**: (CF) Yosemite National Park and Grand Canyon some areas are limited to vehicles so that transit can travel in areas.
    - **Comment:** Transit may reduce carbon footprint slightly, but increased tourism might have a net increase in carbon footprint
    - **Comment:** Design the trail as a separate pathway is preferred
    - **Question:** How much of the old Tamiami Trail is useable? **Answer**: (NK) About 6 miles.
    - **Question:** Where is the boardwalk comparable located and how long is it? **Answer**: (CF) I'm not sure exactly where the location is but it is in a fire prone area. The example is less than a mile in length.
    - **Comment:** Are the half back user option one of the alignment options that only starts from one end and runs and stops? Answer: (CF) It is a type of user that would typically travel half way into the corridor and back track around.
    - **Question:** Have you found any deal killer challenges yet? **Answer**: (NK) Not yet, but each section has their own challenges.
    - **Comment:** Object to the project because of the environmental impact to the wetlands, vegetation and wildlife and the sheer cost of the roadway seem to make it out of the question. Plus accessibility questioned during some seasons.
    - **Comments:** The life in the study area has no voice. They have the right to live and be left alone. Do not disturb god's creation.
    - **Comment:** This project is bigger than I realized before coming to this presentation.
    - **Comment**: The ROGG idea is an exciting idea, and one that connects greenways throughout the region.
    - **Comment:** Good job with the methodical process, don't get rushed
    - **Question:** Are you considering feasibility of construction? **Answer**: (NK) Yes, we will be evaluating that on segment basis.
    - **Comment:** Accommodate various levels of experienced cyclist
    - **Comment:** The parks along the highway are currently only accessible by automobile, requires parking, etc. There needs to be facilities to accommodate transit, the trail, and shuttle stops to access the area.
    - **Comment:** Bike lanes should be on US 41, but they are not for all users along the trail. It needs to be an off-road path.

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Adjourned at 8:10pm

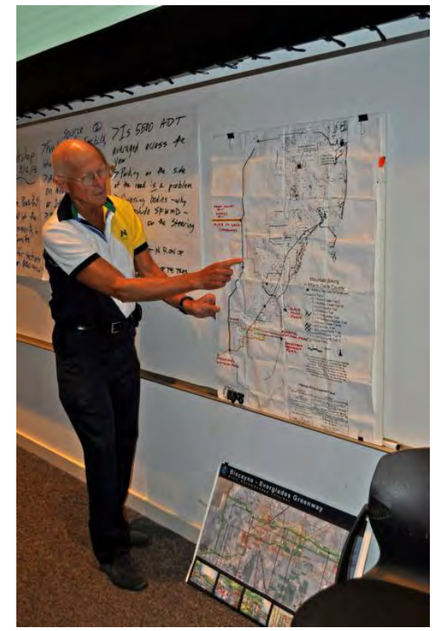

Image of attendee identifying a preferred connection from the ROGG corridor to the Biscayne-Everglades Greenway during the Kick-Off presentation

Workshop Days – March 13 – 14, 2013:

Workshop continued on Wednesday, March 13, 2013 with two days of open, public workshop from 1pm until 8pm each day. The following items were discussed at the event:

Kick-off

- NK introduced activities of the day

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Image of consultant staff working during an open, public workshop session at FIU

Written Comments:

The following are comments written on flip charts by attendees of the working sessions of the course of two days:

What do you think are the Challenged for ROGG East?

- Safety access. No guard rails that prevent or inhibit traditional cultural uses.
- Costs for project
- Will ROGG implementation lead to any Federal Agency to gain land, management authority over any portion of Tamiami Trail
- ROGG should be called the Tamiami Trail Greenway in the Central and Eastern sections.
- Make sure elected official retain decision-making authority over Tamiami Trail and ROW
- To prevent any Fed. Agency from having any management role over U.S. 41.
- Make sure elected officials of both counties retain 100% of the authority they now have in conjunction with FDOT with regard to decision-making on US 41and its designated ROW.
- These comments apply to entire corridor.
- Limited maintained ROW along road.
- Discontinuous levees.
- Have to get easements/ avoid private property.
- Cost, especially for more exotic options.

What Are Your Thoughts?

- The ROGG Vision is already accomplished without the need of further developments or construction or any further expenditure of tax dollars. Any citizen or visitor can access and explore all of the area along the Tamiami Trail now with a little experience can venture for days in the back country.

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- Just cannot justify the financial burden for the taxpayers whose dollars are hard to come by.
- No commercial services or activities.
- Please do not block or inhibit access that we have had for generations.
- No construction whatsoever in the Big Cypress.
- Remember traditional cultures (hunting, fishing, frogging, hiking, camping and enjoy).
- Impact from gray urban structures associated with ROGG W, E, C on the historic views within proposed project footprint, viewshed would be very detrimental to the long established ambiance of the area.
- Materials:
    - Smog eating concrete (photocatalytic concrete)
    - It's a sustainable concrete and very environmentally friendly.

Draft Decision Marking Diagram:

Decision Making Diagram

1. Themes
    a. Corridor Region
2. Typical Matrix
3. Segment Analysis
    a. Mile by mile/ options and site plans
4. Preferred Option

Decision Making Notes

1. Themes
    a. Multi-modal connectivity (hubs)
    b. Economic Benefits (zones)
        i. Increase tourism
        ii. Business development
        iii. Programs
        iv. Revenues
    c. Environmentally sustainable
        i. Resiliency
        ii. Net zero impact
        iii. Compatible with restoration
    d. Safe
        i. Federal/state/local standards
        ii. User needs/ functions
    e. User experience
2. Matrix
    a. User experience
        i. Authenticity of everglades experience
        ii. Diversity of cultural and natural scenery
    b. Environmental Impact
        i. Wetlands
        ii. Listed species habitat connectivity
        iii. Listed species habitat cover
        iv. Restoration compatibility

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v. Water quality
vi. Exotics
c. Cultural Impacts
i. Viewsheds
ii. Access
d. Attributes Env./Cult.
i. Health/Wellness
ii. Aesthetics of design
iii. Educational opportunities
e. Transportation
i. Perceived safety
ii. Directness of travel
f. Cost
i. Range of cost
1. Boardwalks/Bridges
2. Stormwater Management
3. Segment Analysis (mile by mile)
a. User Experience
i. Viewsheds
b. Environmental Impacts
i. Wetlands (Direct/Indirect)
ii. Exotics
c. Cultural Impacts
i. Cultural/Historical Sites
ii. Current Landowner Disruptions
d. Attributes
i. Aesthetics
ii. Educational
e. Site Plan Typicals by Opportunity
i. Trailheads/ Rest areas
ii. Transit Connections

Note: **Exhibit A** is included which documents a series of comments by Frank Denninger on 3/14/13.

Interview with Jerry Krenz (South Florida Water Management District)
Tuesday, March 12, 2013
1) Please provide an overview of the CEPP program and time frame for implementation.

- Plan to be submitted to Congress (tied to Federal Water Bill); implementation is iterative and will likely take a decade – Draft was complete mid-March – will be in the Federal Register a few weeks. (This is both a PIR and an EIS)
- ROGG could be based on levee system that exits today (on gravel).

2) Is the preferred alternative (4R) almost assuredly the program that will be implemented?

- The 4R plan is the plan being submitted to the Colonel in Jacksonville. The colonel, ACOE in Washington DC, or Congress could require changes to the alternative, but it is the preferred alternative being recommended.

3) Could portions of the Old Tamiami Trail be left to accommodate the ROGG?

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- The status of the Old Tamiami Trail is a question that needs to be resolved by Everglades National Park.
- Old Tamiami Trail that is located in areas where there is no bridge proposed may make sense – you would likely have to bridge back and forth to 41.

4) Will it be phased, or conducted in one continuous project?

- Water must meet 10 ppb criteria before it is transmitted to ENP. This will take trial plans and documentation to demonstrate.
- The work will be phased based on a number of factors, including water quality and bridge work completed.
- CEPP relies on Tamiami Next Steps – the 2.6 mile bridge must be substantially completed before water can be diverted.
- Current plans show using fill dirt from levee removals to partially fill canals. In addition, phasing and timing of fill removal may limit the use of fill dirt from levees for other uses, including ROGG. Using fill dirt from levee removal is typically difficult to coordinate. There may be exceptions. The source of fill dirt is going to be highly scrutinized to assure no exotic seed source.

5) Are there accommodations for recreation use (potentially including bicycle access) in the proposed improvements?

- Federally funded projects are not required to provide recreation. Typically on state lands, public access is provided so long as it doesn't conflict with the purpose of the project or is unsafe. Most District projects do have simple, inexpensive recreation amenities for boat ramps, access to canals.
- SFWMD not adverse to camping in the right spots – maybe on the L-28.
- Structures must be built so that public can access them by pedestrians.

6) What accommodations are being made for tribal access?

- Tigertail settlement will be accommodated by the District. Tigertail doesn't need to be raised.
- Access will occur via levees that remain for Tigertail.

7) Is there potential to bridge the canal system after the improvements are put in place, and how could that be facilitated to accommodate a multi-use trail?

- Floating canals – can't block boat traffic; break apart in hurricanes, generally speaking the District isn't going to allow it.
- However, other bridging of canals has been done. 160' span of canals (8 feet wide) to span canals have cost the District about $350,000.

8) There are successful examples around the county of public access on USACE water control structures, what are the limitations or concerns, if any, to allowing a multi-use trail cross such a structure.

- The District doesn't maintain asphalt trails on levees and doesn't have equipment available to maintain levees with asphalt in place. Maintenance and operations assessments for ROGG would need to consider new equipment being acquired to properly maintain the levees with a different surface than normal.
- Lake Okeechobee trail is maintained by the ACOE, so there are examples of facilities done on levees.
- Trail on levees needs to accommodate traversing by cranes, heavy equipment.

9) What is the timing of CEPP with respect to Tamiami Next Steps?

- CEPP relies on Tamiami Next Steps – the 2.6 mile bridge must be substantially completed before water can be diverted.

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Email comments – 3/13/2013

- A structure needs to continue to be operable and maintainable. The public use retrofit needs to ensure that the public access will not lead to vandalism that might render the structure inoperable. This usually means fencing/plates over controls and locks. Specific to the S12A you are looking for walkway parallel to 41. If located on the upstream side this needs to be fenced so people do not fall off and be brought through the structure and likely drowned. If on the downstream side generally safety rails are required. Consideration given to the possibility that water might flow both ways at different times?
- Such walkways over water tend to draw fisherman. If this would interfere with the trail users or if the fisherman's use would create issues for the structure operation this needs to be resolved. This might include- if fishing is allowed can the public enter and exit the highway at these locations.
- A walkway might need to be easily removed so that major maintenance and repairs can be performed.
- The land ownership might affect the use allowed if property is an easement. Sometimes ownership has deed restrictions.

Additional Notes (conversations on 3/14/13):

- We discussed potential routing options from the Dade County training airport to the L28. Jerry noted that a boardwalk option from the airport to L-28 canal would be worth evaluating. Initial thoughts were wetland impacts for a boardwalk to the L-28 may be less than other options as the L-28 could be used for quite a long distance.
- The L-28 levee is staying in place to his knowledge.
- A boardwalk from the airport to levee would need to accommodate airboat passage in portions of the boardwalk.
- Using the existing levee system until they are removed may be an option as a phasing approach to ROGG. Once the portions of the levees in the Blue Shanty are removed, alternative routing (either as a loop or as the main trail alignment) up the Blue Shanty levee to the L-67 and back to Tamiami Trail may be an option.
- Camping sites on levees would need to be located off of the main drive aisles to limit traffic/camper interaction. The FFWCC patrols levees at night (sometimes without lights on to track for poachers) and would need to know about any camping locations.
- Phasing of CEPP will be dependent on a number of factors. The water diversion elements in the northern portion of CEPP will need to be done first. The bridges for Tamiami trail will need to be in place before water from the north is routed there. Water quality needs to improve before rerouting. Based on these phasing elements, ROGG may be able to use levees for a number of years before they are required to be removed.

March 16, 2013 – Open House:

Workshop concluded on Saturday, March 16, 2013 with an open house at FIU from 10am until 2pm.

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Attendees of the ROGG East workshop using the online public engagement website

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Exhibit A

Conversation with Frank Denninger 3/14/2013:

Comment #1:
See to it that there is no mention whatsoever of issues having to do with Florida Statutorily authorized parking along side Tamiami Trail anywhere in the PD &E planning screen to be developed prior to the PDE study regarding any section of ROGG. Additionally if they have been included in the ongoing ROGG West PD & E remove them.

Two Sarbanes grant applications issued in 2009 and 2011 for ROGG planning contain multiple text sections that creates a false impression that this legal Statutorily approved parking is causing safety problems and environmental degradation. Alluding to safety issues due to parking would need to be fully documented and contained within FDOT statistical data for these ROGG segments of US 41/ SR 90. The same reasoning as above would apply to the environmental damage remarks within these grant applications.

This comment is prompted by review of the grant applications, personal experience from driving the proposed ROGG routinely since 1966 (47 years) and being witness to National Park Service's attempts since 1971 to exert any level of control possible over this Florida Highway SR 90/US 41. The Jetport Study prior to the acquisition of Big Cypress National Preserve indicated clearly in print a desire to turn Tamiami Trail into a National Parkway under NPS management. Then during the development of a Scenic Highway program which eventually failed due to covert discussions engaged in to set up the transfer of US 41 to the NPS. Emails verifying those discussions lead to 3 Naples News articles by Ilene Stackel exposing this attempt that one State official involved in said when asked a direct question posed to them concerning US41 transfer talks with 'I'm not aware of that' or something to that effect that contradicted an audio cassette record of the question asked.

Next, according to FDOT a few years ago NPS mentions at an informal meeting that they believe people fishing at the 40 bridges along SR90 within Big Cypress National Preserve are dangerous. Shortly after that Collier MPO gets a notice that FDOT will be posting all the bridges there with "NO Fishing" in an attempt to stop a tradition since 1928. Well informed opponents found out and armed themselves (W/FDOT stats) the onerous decision to Prohibit the fishing tradition along Tamiami trail was reversed.

The beat seems to continue on with ROGG as per the NPS grant application mentioned in this comment. From this perspective this is an attempt to lay another foundation for a nonexistent problem concocted by NPS that will need an unnecessary solution that will aid their perceived goal of destroying the traditions of South Florida's heritage.

Comment #2:
All questions regarding ROGG with answers should be posted to the ROGG web site, especially the 5 questions referenced below within the Idea titled "Answers to Questions Needed Now Not Later" should be posted to the web site within 1 week after feasibility meetings conclude Saturday 3 – 16 - 2013. This idea is within Topic titled "What are your ideas for ROGG Central….".

Question #1) Will ROGG implementation cause any Federal agency to acquire land management authority over any part of Florida's Tamiami Trail and it's right of way? Ans. Yes or No
Question #2) Will Miami Dade or Collier County's MPO Boards elected officials retain 100% of their decision making authority? Ans. Yes or No
Question #3) Which governmental entity would be the **LEAD** agency to manage ROGG?
Question #4) Which governmental entity will be in charge of the development of any forthcoming management plan for ROGG?
Question #5) Will any management plan for ROGG be put into Miami Dade or Collier County's Comprehensive Growth Management Plans? Ans. Yes or No

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Comment #3:
A professor named Reed Noss should have nothing to do whatsoever with ROGG management planning in any manner due to his bias, bigoted philosophy against roads, motorized vehicles and the humans who utilize them as documented in his article titled "The ecological effects of Roads" under his alias "Diamondback" and the land management strategy he authored for the Wildlands Project subsequently distributed for free to 70,000 destinations with Academia by the Cenozoic Society to promote their anti-human doctrine. The results of the promotion of The Wildlands Project doctrine have been clearly evident in presentations about ROGG at AECOM meetings and the Grant Applications that repeatedly refer to motorized vehicles and their operations on US 41 in a derogatory manner.

*A copy of the Ecological … was delivered to Jay Exum at the 3/11/2013 AECOM meeting.

Comment #4: (from Frank and the Everglades Coordination Council)
Cultural studies should be conducted during feasibility or PD&E phases of ROGG to determine the importance of US 41 and the access it has provided to the Everglades and Big Cypress Swamp since 1928 as it relates to two threatened/endangered cultures, namely the Independent Seminole and Gladesmen Cultures whose future existence depend upon continuation of their ability to access areas of the Everglades and Big Cypress for traditional cultural activities exactly since they have since 1928. Any project using 1 federal dollar must fund such studies as per the National Historic Preservation Act as per Section 110 of the Act.

Comment #5:
Re-route ROGG along I-75.

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Meeting Notes
Task 2.29

Subject:	River of Grass Greenway (ROGG) – Implementation Workshop
Project:	60272285
Date:	January 15, 2015
Time:	1:00 pm – 4:00 pm
Location:	Big Cypress Swamp Welcome Center – Auditorium 33100 Tamiami Trail East, Ochopee, FL 34141
Attendees:	Melinda Avni, PICAYUNE, Melinda.Avni@freshfromflorida.com Laurie Beard, COLLIER-GOV, lauriebeard@colliergov.net Bobby C. Billie Maureen Bonness, FROGG, bonness@infionline.net Drew Crumpton, AECOM, John.Crumpton@aecom.com Bob DeGross, BICY, Bob_DeGross@nps.gov Manuel de la Vega Toledo, PICAYUNE, manuel.delavega@freshfromflorida.com Jamie Doubek-Racine, RTCA, Jaime_doubek-racine@nps.gov Jaime Duran Pamela Duran Dr. John Dwyer, STONECRAB, Dr. Karen Dwyer, STONECRAB, dwyerka@gmail.com Bill Evans Chuck Flink, ALTA, chuck.flink@greenways.com Mark Heinicke , MDPROS, MHEINIC@miamidade.gov Patty Huff, CITYEVER, snookcity@gmail.com Shannon Larsen ancientrees@hotmail.com Ward Kennedy, COLLIER-MPO, wardkennedy@colliergov.net Dona Knapp Jerry Krenz, SFWMD, jkrenz@SFWMD.gov Nick Kuhn, AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Robert Modys, JEI, JModys@johnsoneng.com Renée Rau, FAKA, renee.rau@dep.state.fl.us Stewart Robertson, KHA, stewart.robertson@kimley-horn.com Jose Santiago, COLLIER-SEM, Jose.Santiago@dep.state.fl.us Heather Shuke-Wilson, DEP, heather.shuke@dep.state.fl.us Sarah Webber, JEI, SWebber@johnsoneng.com Dennis Wilson, ORVAC, juniebd29@aol.com Kirby Wilson, COLLIER-SEM, Kirby.Wilson@dep.state.fl.us

Purpose: An Implementation Workshop was held for the River of Grass Greenway Feasibility Study and Master Plan project. Members of the Steering Committee (SC) were presented with a project overview up to the Implementation section (Part 4) of the draft

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report, and then asked to participate in an implementation exercise for each of the three ROGG planning regions (ROGG West, Central and East).

ROGG Implementation Workshop Notes:

1) Presentation began with Nick Kuhn (AECOM) discussing workshop agenda and overview, as well a review of actions items, meeting notes and roundtable discussions.
   - Actions Items
     - Steering committee comments for draft report Parts I - III have been included in the January 2015 report for use during the workshop
     - Additional descriptions of feasibility evaluation and graphics added
     - Public open house meetings conducted
   - Review of key findings from December 2014 public open house meetings
   - Review of remaining scope items
     - Currently on Part 4 (Implementation Plan) of 6
     - Part 5 (Feasibility Study and Master Plan Report) next
     - Part 6 (Efficient Transportation Decision–Making (ETDM) last
   - Update on project schedule
     - Tentative date of late June for final public presentations in each of the three planning regions (ROGG West, Central and East) contingent upon completion of SC review #4 and #5
   - Grant Objectives
     - Seven (7) objectives have been completed
       a. Identify and map existing conditions
       b. Identify potential alignment
       c. Determine intersections / access
       d. Determine feasibility and compatibility
       e. Identify environmental constraints
       f. Promote public participation
       g. Analyze demands, use and benefits
       h. Noted that this current project is not a Project Development & Environment (PD&E) study
   - Still in Feasibility Study and Master Plan phase
     - First of eight (8) anticipated phases for project development
       a. Feasibility Study and Master Plan
       b. ETDM / PD&E Study
       c. Environmental Impact Statement (EIS) / Environmental Assessment (EA)
       d. Design and Engineering
       e. Permitting
       f. Bidding

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g. Construction
h. Path Segment Opening

- Future Path Development
  - Three (3) classifications of potential development will be discussed during workshop today
    a. Immediate / priority
    b. Near term
    c. Future

- Identified purpose of the workshop today, and the process by which the workshop will be conducted

- Roundtable Updates –
  - Jamie Doubek-Racine –RTCA
    - Centennial Initiative 2016
      a. Celebrating 100 years of NPS, each region will put together a list of park projects they wish to accomplish, and attempt to raise philanthropic funds for projects
      b. Potential opportunity for future ROGG development
    - U.S. Department of Transportation (USDOT) initiative to enhance bicycle safety on roadways that are unsafe
      c. Tamiami Trail (U.S. 41) could be a candidate
    - Trolley system connecting parks
      d. Integrating mass transit into the ROGG corridor
      e. Use Homestead National Parks Trolley program between City of Homestead, Everglades National Park and Biscayne National Park as a model
      f. Visitors enjoy an educational guided tour while they ride the trolley and learn about the history and ecosystems of the national parks and how these relate to the surrounding area.
      g. Bike racks are available on the front of the trolley
    - Agreement between Adventure Cycling and NPS to promote cycling in national parks

  - Nick gave opportunity for other members to ask questions or discuss topics pertinent to ROGG
    - None Responded

- December 2014 Public Open House meetings
  - Discussed materials that were covered during meetings
  - Highlighted Vision Scorecards and their components
    - Scores
      a. ROGG East Vision: 3.5 average

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      b. ROGG Central Vision: 4.0 average
      c. ROGG West Vision: 4.4 average
    - Each attendee was asked to score each element on a 1-5 point range with 5 representing the highest achievement of vision element and 1 representing the lowest achievement
    - Discussed attendance and broke down scores for each category
    - MindMixer Public Engagement Site Numbers:
      a. 26,100 + page views
      b. 6,100+ visits
      c. 245+ participants
      d. 690+ comments and ideas
  - Online Comments
    - Draft report document available for review online for 30+ days

- Updates in January 2015 draft report since last review
  - Two (2) new alternative conceptual cross-sections
  - Revised cross-section alternatives matrix
  - Additional scoring descriptions for new alternatives
  - Revised alternative route evaluations
    - Noted that these updated maps reflect comments throughout review process

- Questions from updated materials
  - Jerry Krenz (SFWMD) – **Question:** Why aren't additional conceptual cross-section alternative scores for 9A (*Expand Shoulder-Alt*) and 13A (*Board-Walk Bridge Alt*) higher than similar alternatives? **Response:** Nick Kuhn (AECOM) – The two additional cross-section alternatives were created to address specific issues, but still may not be the best option
  - Clarification of comments from public meeting summaries.
  - Stuart Robertson (KHA) – **Question:** On conceptual cross-section B7 (*Path on South Side of Highway / Lanes Shifted*) and B10 (*Path on Proposed Bridge*), it should be noted 5 ft. is required for separation beyond the shoulder, making these cross-sections inconsistent with FDOT criteria. Did you ever consider providing a wider bridge in order to achieve more separation between travel lanes and shared-use path? If these cross-sections are never the preferred cross-section alternative, are these inconsistencies ever documented? **Response:** Nick Kuhn (AECOM) – Both the concepts are low scoring, and would require variances from FDOT, as noted in draft report section 3.3.2 criteria scoring, if they were ever to be selected as the preferred alternative. We also looked at special needs for physical barriers, and other methods for communicating the separation from the travel lanes and the path.

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- Maureen Bonness (FROGG) – **Comment:** Noted that preferred cross-section alternatives have changed in many places to match the revisions to the score matrix

- 10 Minute Break

2) Implementation Workshop for ROGG Segments Introduction
   - Nick Kuhn (AECOM) described the three (3) maps that were introduced to the Steering Committee
     - Indicated preferred route, cross sections, amenities, cost estimates, and tables for comments
     - Emphasized that the costs are "construction costs"
     - Encouraged SC feedback to identify priority projects, partnerships, and funding options
     - Overview of how the implementation process could progress
   - Chuck Flink (ALTA) presentation on Regional Path Strategies
     - List of components that make a great regional path
     - Steps toward implementation projects of this magnitude
       - Funding
       - Planning and design
       - Use of Rights-of-Ways and Easements
       - Operations and Management
       - Environmental Permitting
       - Construction
       - Marketing, Promotion and Education
       - Official Opening
     - Working Groups that can help achieve the goals of the workshop
   - Nick Kuhn (AECOM) continued presentation by outlining the participation from the SC

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- SC split into groups: ROGG West, Central and ROGG East

3) Funding for ROGG
   - Nick Kuhn (AECOM) gave a breakdown of the typical components that went into the analysis of ROGG funding
     - Length in miles and percentage and overall cost for each planning region (ROGG West, Central and East)
     - Percentage of each conceptual cross-section alternative by type
       - Thirteen (13) out of twenty-seven (27) conceptual cross-section alternatives used on the preferred alternative trail section
     - Percentage of each conceptual cross-section alternative by cost
       - Cross-Section B12 (*Path next to Existing Bridge / Separate Facility*) has the largest cost associated but only represents 1% of the route length

   - Chuck Flink (ALTA) presentation on typical funding process
     - Subdivide project into phases
     - Project sponsors
     - Logical endpoints
     - Example project: NW Arkansas Razorback Regional Trail
       - Completed planning to construction in 5 years
       - $118,000 under budget
       - Overview of funding sources and partners/sponsors involved

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- Moving Ahead for Progress in 21st Century (MAP-21) federal funding from multi-year Transportation Bill
- Additional federal sources
- State of Florida sources
- Local Government funding sources
- Private / non-profit sources
- Establishing a funding quilt
  - Potentially 4-6 separate sources of funding for ROGG

- Nick Kuhn (AECOM) instructed group to reference White Paper Report of Funding Sources and evaluate potential sources for funding priority projects.
- Mark Heinicke (MDPROS) mentioned infographic fact sheets on potential funding sources for shared-use paths/trails handed out at meeting provide additional information for Steering Committee members
  - Find-it Fund-It Chart
  - MAP-21 (Moving Ahead for Progress in the 21st Century- Federal Transportation Bill)
  - TAP (Transportation Alternatives Program)
  - STP (Surface Transportation Program)
  - HSIP (Highway Safety Improvement Program)

4) Presentation of Steering Committee Ideas
   - Nick Kuhn (AECOM) invited each group (ROGG West, Central, and East) to present the ideas that resulted from the breakout sessions
     - ROGG West
       - Potential Priorities:
         a. FDOT District 1 completing ROGG West PD&E study
         b. Accommodating ROGG trail in the design and construction where there are current activities like the Fakahatchee Strand Preserve State Park Welcome Center and Big Cypress Bend Boardwalk;
         c. Connecting park entrances
         d. Identifying dangerous curves or areas where there have been fatalities
       - Potential Partners:
         a. Friends of ROGG (FROGG)
         b. Parks (O&M)
         c. Various Friends groups for the Parks

     - ROGG Central
       - Potential Priorities:
         a. Public transit like the Homestead National Parks Trolley program or private transit from Miami or Naples to the BICY Oasis Visitor Center, Big Cypress Swamp Welcome Center and other areas to avoid additional parking

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         b. Connecting existing trailhead facilities and improving them to minimize the addition of more parking or facilities
         c. Accommodating turn lanes on U.S. 41
         d. Everglades City to Turner River Road
         e. Marketing existing biking opportunities within the preserves and parks
         f. Environmental and Hydrology education
         g. More detailed study of dispersed recreational use along the U.S. 41 corridor
       - Potential Partners:
         a. Collier County
         b. Collier Area Transit (CAT) system
         c. Florida Department of Transportation (FDOT)
         d. National Park Service (NPS)
         e. Everglades City
       - Potential Funding Sources:
         a. Grants through Florida Division of Historical and Cultural Resources
         b. Federal Land Transportation
         c. National Parks Conservation Association (NPCA)
         d. Private and non / profits in Naples
         e. Medical Facilities

     - ROGG East
       - Potential Priorities:
         a. Exploring a trolley service from FIU to Shark Valley like the Homestead National Parks Trolley program
         b. Build a Minor Trailhead near Krome Ave.
         c. Demonstration Project from Krome Ave. to Shark Valley Visitor Center
         d. FDOT District 6 completing ROGG East PD&E Study
         e. Education about CERP
       - Potential Partners:
         a. NPS
         b. Miccosukee Tribe of Indians of Florida
         c. FDOT
         d. South Florida Water Management District (SWFMD)
         e. U.S. Army Corps of Engineers (USACE)
         f. U.S. Environmental Protection Agency (USEPA)
       - Potential Funding:
         a. NPS Centennial Funds
         b. State and Federal Funding
         c. Grants

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- Nick thanked the committee for their ideas and explained the next steps in the process of collecting, evaluating and collecting further feedback for implementation ideas

- Next steps:
  - SC review meeting #4 for Implementation Plan (anticipate late April meeting)
  - SC review meeting #5 for draft final Feasibility Study & Master Plan report (anticipate mid to late May meeting)
    - Complete report with all sections together

- Steering Committee Questions:
  - **Question:** Maureen Bonness (FROGG) – When do we talk about maintenance? **Response:** Nick Kuhn (AECOM) – This will be part of the implementation strategy covered in Part 4 of the draft report **Response:** Mark Heinicke (MDPROS) – Maintenance issues will be covered under scope Task 2.30 Project Management Plan where a summary of short-term and long term maintenance and upkeep initiatives will be developed along with a preliminary financial management plan identifying operating and maintenance needs
  - **Response:** Jamie Doubek-Racine (RTCA) – Management can be achieved through partnerships such as FDOT and OGT
  - **Question:** Mark Heinicke (MDPROS) – When will we have the next online Annotate review? **Response**: Nick Kuhn (AECOM) – The next draft Report will be up for review approximately two weeks in advance of SC review meeting #5 where the complete draft report (all sections) will be available, and two weeks after SC meeting

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5) Public Comments
   - Nick Kuhn (AECOM) offered the remaining 10 minutes of the meeting for public comments, adding that comment cards are also available to attendees
     - Public Comments:
       - **Public Comment:** When will we prioritize neighborhood sidewalks and bikeways over a recreation trail? **Response:** Nick Kuhn (AECOM) – Although sidewalks are not part of the scope of work for this current project it should be noted that ROGG is proposed as a shared-use path for cyclists, pedestrians and other non-motorized uses. Comment is noted and will be passed along to the authorities that can address this question such as the FDOT, local Public Works Department, or local Metropolitan Planning Organization (MPO)

       - **Public Comment:** Miccosukee and Seminole tribes that don't want bike path going through their territory – concerns are not being addressed. **Response:** Mark Heinicke (MDPROS) – The majority of the proposed project is within public right-of-way not tribal lands. The current project is just the first of many steps needed, before anything can move forward. Future phases would include a PD&E study as well as specific specialized studies such as a Cultural Resource Assessment

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Survey (CRAS). This project will abide by all laws regarding cultural and historical sites.

- **Public Comment:** (Bobbie C. Billie) – Cannot continue to alter the land that the creator has given to us. Future generations will suffer for what has taken place. Referenced Lake Okeechobee projects, concerned that wetlands will be destroyed, much like U.S. 41. Do not disturb natural environment, or resources will disappear. Stated that the some of the Independents are seeking legal representation to fight project. Will not cease opposition until the project is halted. **Response:** Mark Heinicke (MDPROS) – It should be noted it has not been determined at this time if the ROGG will even move forward. Nothing has been designed or permitted and won't be until further analysis and additional work is done by others in later phases which is contingent upon securing additional funding and other factors.

- **Public Comment:** Was under the impression that the Miccosukee Tribe was in favor of the project, but now knows that they are not. Concerned that allocation of the funds could be better used elsewhere, and feels that the parks were intrusive to people that lived in the area. Feels that the trail would not be beneficial. **Response:** Mark Heinicke (MDPROS) – Both Federally recognized tribes, The Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Indians of Florida are represented on the Steering Committee and represent the tribal councils who make the official tribal positions. It's my understanding both tribal councils are taking a neutral position until more information becomes available.

- Nick Kuhn stated that any further comments could be written down and submitted.

- Meeting concluded at 4:10 p.m.

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Written Comments

Name: Jaime Duran

Organization (if applicable):

Comment: Address priorities of the area residents for safe walking and travel.

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Implementation Workshop (January 15, 2015)

Name: Pamela Duran

Organization (if applicable):

Comment: Neighborhood Side walk?

Name: Bill Evans

Organization (if applicable):

Comment: Once started - a project like this never reverses — future generations will bear witness to the keloid scars that we make on the natural environment - scars immediately visible and scars that will appear later.

River of Grass Greenway Feasibility Study and Master Plan
Steering Committee Implementation Workshop (January 15, 2015)

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

Appendix

Agency Meetings

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Meeting Notes
Task 2.44

Subject:	River of Grass Greenway (ROGG) – Review with NPCA
Project:	60272285
Date:	May 30, 2013
Prepared by:	Randy Mejeur, M.S.
Location:	NPCA Regional Office – 450 N. Park Road, Suite 301, Hollywood, FL 33021
Attendees:	Kahlil Kettering, NPCA Dawn Shirreffs, NPCA Jennifer Hecker, Conservancy of Southwest Florida (by phone) Cara Capp, Clean Water Action Steven Davis, III, Ph.D., Everglades Foundation Jonathan Ullman, Sierra Club (by phone) Mark Heinicke, Miami-Dade County Parks, Recreation, and Open Spaces Department Maureen Bonness, ROGG Executive Committee Co-Director Patty Huff, ROGG Executive Committee Co-Director Jay Exum, Ph.D., AECOM Randy Mejeur, M.S., AECOM

Purpose:
A meeting with the National Parks Conservation Association and associated conservation and natural resource protection groups was held to provide an overview of the River of Grass Greenway (ROGG) planning efforts and to obtain comments about projects, features, and activities within the vicinity of the ROGG corridor with the potential to affect the feasibility study.

1. The meeting began with introductions of the participants.
2. Maureen provided a presentation about ROGG that included the following elements:
    - Overview of vision
    - Description of what others are doing with trails in other parts of county
    - Genesis of ROGG idea (non-motorized access)
    - Existing attractions within the corridor
    - Segments of ROGG being evaluated
    - Opportunities for education and stewardship
    - Story lines that may be incorporated into educational interpretation
    - Types of users
    - Description of projects currently in process or anticipated for ROGG, including a discussion of potential evaluations to address transit alternatives/costs/benefits
    - Grant funding sources and a description of the project team
    - Status of public outreach for Master Plan and Feasibility Study and for PDE study
    - Acknowledgement of ongoing restoration efforts within the ROGG East segment, including Central Everglades Planning Project (CEPP) and Tamiami Trail Modification Next Steps (TTMNS)
3. The remainder of the meeting consisted of discussions concerning potential issues and opportunities for the ROGG. The following provides a summary of the questions and answers discussed.

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- Initial comments were provided that placement of permanent features on the levees would not be desirable – all improvements would need to be on bridges to allow for long-term restoration.
- How can the existing 1 mile bridge be used for the ROGG?
    - o The bridge includes 10 foot shoulders that can be used for non-motorized use adjacent to the roadway, but does not currently accommodate a separate pedestrian/non-motorized facility.
    - o Kahlil followed with a question about separating the trail on the bridge with a rail. Discussion afterwards noted it was not included in the original design of the bridge and would potentially affect the shoulder pull-offs that the 10 foot shoulder provides.
    - o Cara asked what the desired goal would be for future bridging. The project team noted that a bridge that accommodates a separated trail facility from the road would be desired.
- Would speed decreases on the bridge be desired to accommodate ROGG needs?
    - o Jonathan noted that he had heard from the park that speed reductions would be desirable. He also noted that DOT has the authority reduce speed limits, especially for addressing safety concerns. He also noted that lower speeds would allow for better views of the surrounding, although shoulder pull-offs would be needed.
    - o Patty noted that lower speeds would not assist in separating facilities for motorists and ROGG users.
    - o It was noted that separate facilities were desired for ROGG, but lower speeds would be acceptable if needed.
- Who would be out in the corridor other than serious cyclists?
    - o It depends on the facilities available. Separate facilities from the road would allow a variety of people, including families with kids, to have an alternative trail experience to Shark Valley. Adjoined facilities would have less capacity to provide experiences for all users.
    - o Steven noted that the corridor for the Key Biscayne trail has evolved over time:
        1. The Key Biscayne trail has a hard core bike path (lane) and a separate path
        2. This is coupled with stepped-up enforcement for speed limits
- Is the goal to have the "safe" (separate) trail throughout or only in the active use areas?
    - o The starting point of the study is to evaluate a separated facility through the entire length of the corridor. The feasibility study may indicate that separated facilities need to be one in segments rather than throughout.
    - o Cara noted that 30+ mile bike rides for recreation users was very large and as such, the separate facility throughout may not serve a large number of people.
    - o Jonathan noted that although biking is generally supported by the Sierra Club, it should not conflict with restoration goals.
    - o Kahlil asked the ultimate ROGG configuration would be limited to areas where regional users would be utilizing the corridor. Mark, Patty, and Maureen responded that it was a possibility that would be considered during the feasibility study.
- How would parking be considered within the plan and is more parking needed?
    - o Kahlil noted parking east of Krome would be problematic.
        1. There are parks within the vicinity of Krome that would be considered for parking facilities.
        2. The current study is reviewing multiple attractions, user types, destinations, and alternative options (shuttles) that could be used to

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address parking concerns and the distance of rides for recreational users.

- o Cara noted that infrastructure often begets infrastructure such that a given set of improvements often requires additional improvements down the road. She expressed a concern that improvements for ROGG would ultimate result in additional improvements not intended or planned for by ROGG that would ultimately conflict with restoration goals for the Everglades.
    1. The current guiding thoughts for ROGG are that it is responding to the Everglades restoration work and is not intended to conflict with the goals or implementation of the restoration work.
    2. The study is evaluating if ROGG can be used to meet 2 or more needs such as simultaneously address parking issues along the side of the road by providing better parking facilities and/or shuttle stops for alternative transit options.

- Can existing infrastructure be used for the ROGG?
    - o Project team noted that opportunities to use existing infrastructure were being evaluated as part of the study.
    - o Kahlil expressed that putting permanent facilities on the levee would conflict with goals for NPCA, because:
        1. “Temporary” facilities often get a life of their own, which limits the capacity to remove them as originally intended.
        2. Investments by user groups or concessionaires can happen around “temporary uses” that change future expectations for how the facilities is both used and maintained over time.
    - o Cara noted that installation of temporary facilities that potentially become permanent due to public interest is problematic because it would affect the adaptable management options for long-term maintenance/management of the restoration efforts.
    - o Steven noted that adaptive management needs to account for users, water storage, climate change, seepage and more improved technology that could address those issues – and added that people who have access to a feature that was designed to be temporary, but available for 10 to 20 years, can begin to see the feature as permanent, which affects adaptability.
    - o Jonathan noted serious concerns with permanent trails on the L-29 levee because:
        1. Primary considerations for the area is restoration of water flows – anything else, including recreation or other human uses, is subsidiary to this restoration effort
        2. Restoration goals are primary
        3. Levee use would require crossing the canals with bridges, which would require high costs for implementation.
        4. Bridging and/or hardened surfaces on the levees is more permanent in nature and limit the long-term options for removal of the levees
    - o Several infrastructure elements were discussed by the NPCA participants, including:
        1. The L-31 and L-30 levees are critical flood control elements – connections/trail uses on these would be okay as long as they conform to flood control uses.
        2. The removal of the L-29 levee is the long-term goal of the participants.
            a. The current studies, including CEPP, do not include the removal of the entire length of the L-29 levee as the ACOE is hesitant for complete removal due to seepage and flooding management concerns.

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            b. The CEPP is seen by the participants as a first step that supplements the long-term goals of the TTMNS.
            c. The TTMNS is a consensus plan that the participants and other groups do not want to revisit as it has been authorized by Congress.
            d. Removal of the L-29 is a long-term goal of the Comprehensive Everglades Restoration Plan (CERP)
            e. Maureen noted that having the eastern terminus of the ROGG at L-67 may need to be an option to be evaluated as part of the study.
        3. The L-28 levee is not a critical levee for flood control, but the Everglades Foundation hopes to have the entire length of it removed in the long-term.
        4. Bike trails/lanes on the existing or improved Tamiami Trail, especially coupled with reduced speed limits, would be good option for ROGG
        5. Accommodating a shuttle at Shark Valley would be good.

- What does ACOE require to implement a trail on the levee?
    - o Trails have been accommodated on ACOE levees, such as the Lake Okeechobee trail.
    - o The type of material used for the trail and location of the trail can affect levee structure/width.
    - o Jerry Krenz from South Florida Water Management District has noted that changes to levee surfacing for the trail may require new maintenance equipment different from that currently used that would need to be considered as part of a long-term maintenance cost.
    - o Steven inquired as to whether communications with the ACOE have been conducted to identify the feasibility of the trail on the levee.
- What kind of hard surface is anticipated as part of the trail?
    - o Multiple surfaces will be evaluated as part of the study, including both pervious and impervious systems
- What is the anticipated source of funding for ROGG? Is it a dedicated source or a patchwork of sources? What is the feasibility for obtaining funding?
    - o Mark noted that multiple sources would likely be required to implement ROGG. These could include greenway and trails funds, alternative transportation funds, or other sources.
    - o Steven noted that the Everglades restoration efforts were limited by money availability.
    - o The project team anticipates that the ROGG would need to be built in phases. The team will be considering funding and implementation phasing as part of the feasibility study.
- How has the Collier family received news of the ROGG concept?
    - o Maureen has met with a representative of the Collier family.
    - o During the meeting, the Collier representative noted mangrove areas and other Collier holdings may be suitable for restoration efforts to serve as mitigation for the ROGG.
- Have there been efforts to raise awareness of the corridor?
    - o Steven noted that holding a critical mass event or closing the Tamiami Trail for a ½ day or full day for a unique ride would be good for building awareness of recreational riders for the facility.
- The project team asked if there were other comments/concerns about the portions of ROGG outside of the ROGG East segment.

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- The project team noted that alternatives were being reviewed to identify opportunities to use the ROGG to enhance hydrology/water quality in the ROGG, especially in the Central and West segment that are not the primary focus of the CEPP, including options to enhance sheetflow downstream of Tamiami Trail.
- Steven noted that opportunities to improve sheet flow would be desirable, but was concerned that the costs for studies and structures to do the adjustment would be significant.
- Steven also noted that improvements with a footprint requiring wetland impacts may be problematic.

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Meeting Notes
Task 2.17

Subject:	River of Grass Greenway (ROGG) – Joint Projects Agency Meeting
Project No:	60272285
Date:	June 17, 2013
Location:	FDOT District 1 HQ - Southwest Interagency Facility for Transportation (SWIFT) 10041 Daniels Parkway, Fort Myers, FL 33913 Elizabeth Moore Rm. 214, Large 2nd Fl. Conf. Rm. 2014
Participants:	Marlon Bizerra, Florida Dept. of Transportation, District 1 (FDOT-D1) Maureen Bonness, ROGG Executive Committee Co-Director Mark Easley, Kisinger Campo & Associates (KCA) Jay Exum, Ph.D., AECOM Heather Ferrand, Florida Forest Service, Picayune Strand State Forest (PICAYUNE) Kevin Godsea, Ten Thousands Islands National Wildlife Refuge (10,000 Islands NWR) Mark Heinicke, Miami-Dade County Parks, Rec, & Open Spaces (MDPROS) Patty Huff, ROGG Executive Committee Co-Director Aaron Kaster, FDOT-D1 Nick Kuhn, AECOM Bruce McArthur, Sprinkle Consulting Kelly Moran, Florida Forest Service (FL Forest Service) Russ Muller, FDOT-D1 Providance Nagy, FDOT-D1 Jennifer Nelson, Florida Dept. of Environmental Protection (FDEP) – South District Jeff Novotny, American Consulting Professionals (ACP) Robin Parrish, FDOT-D1 Church Roberts, Johnson Engineering, Inc. (JEI) Chris Salicco, ACP Bob Sobczak, Big Cypress National Preserve (BICY) Terrance Torvund, FDEP, Collier-Seminole State Park (SP) Sarah Webber, JEI Kirby Wilson, FDEP, Collier-Seminole SP **By phone / GoToMeeting:** Jerilyn Ashworth, FDEP, Office of Ecosystem Projects Samantha Browne, FDEP, Office of Greenways and Trails (OGT) Damon Doumlele, BICY Stacey Feken, FDEP, Office of Ecosystem Projects Martha Garcia, Miami-Dade County Regulatory and Economic Resources – Coastal and Wetlands Resources Section (MDC-RER / Coast and Wetlands) Fred Herling, Everglades and Dry Tortugas National Parks (EVER) Ken Jeffries, FDOT District 6 (D6) Jerry Krenz, South Florida Water Management District (SFWMD) Lauren Milligan, FDEP, Florida State Clearinghouse (FL State Clearinghouse) Bradley Mueller, Seminole Tribe of Florida –Tribal Historic Preservation Officer (THPO) Keith Price, SFWMD

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	Jai Ramkissoon, ACP Renee Rau, FDEP, Fakahatchee Strand Preserve State Park (FAKA) Marsha Rickman, FDEP-OGT Stewart Robertson, FDOT-D6 / Kimley-Horn and Associates (KHA) Brandon Schad, Florida Fish and Wildlife Conservation Commission (FFWCC) Chris Stahl, FDEP, Florida Office of Intergovernmental Programs John Wrublik, U.S. Fish and Wildlife Service (USFWS)

Purpose:
A joint projects agency meeting was held at Florida Department of Transportation, District 1 (FDOT-D1) offices to review findings to-date for two separate but related projects being conducted by two different project teams: the ROGG Feasibility Study and Master Plan project and ROGG (West) Project Development and Environment (PD&E) Pathway Study. The two project teams presented an overview of findings for each project and comments from participants were recorded.

Introductions:

Aaron Kaster (FDOT-D1) introduced the projects and proceeded with having attendees in the room and on the phone participating via GoToMeeting identify themselves. The Feasibility Study and Master Plan project is being managed by Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) with AECOM as its prime consultant. The ROGG (West) PD&E Pathway Study is a separate and concurrent project being managed by FDOT-D1, with American Consulting Professionals (ACP) as its prime consultant.

ROGG Feasibility Study and Master Plan:

- Mark Heinicke (MDPROS) presented a series of summary introductory slides on Feasibility Study and Master Plan project background and funding sources. Mark provided an overview of existing and future ROGG related projects throughout the U.S. 41 corridor from 6 L's Road to Krome Ave (SW 177th Ave.)

Feasibility Study and Master Plan Overview (Part 1A) Presentation:

Nick Kuhn (AECOM) introduced the schedule for the Feasibility Study and Master Plan. A brief overview of the funding source and funding grant objectives for the project was provided, followed by a short presentation summarizing findings from research and analysis work completed to-date of corridor existing conditions. Highlights included:

- Grassroots support developed by Naples Pathways Coalition (NPC) since 2006
- Funding source is Paul S. Sarbanes Transit in Parks (TRIP) Program (2009) grant application
- AECOM team is tasked with testing the feasibility of a 12-14 foot hard surfaced pathway separate from U.S. 41
- The Feasibility Study and Master Plan consists of a six-part scope of work that includes the formation of a 14-member Steering Committee, existing conditions research and

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analysis, conceptual planning with extensive public involvement, implementation plan, final report and concluding with Efficient Transportation Decision Making (ETDM) Report for a portion of ROGG East for a future PD&E study in Miami-Dade County

Jay Exum (AECOM) introduced existing conditions research and analysis findings in the areas of:

- Geographical and geology – Extensive public lands and watersheds
- History – Unique periods that include Native American, Gladesmen and development history
- Ecology – Dominated by Everglades and Big Cypress Swamp
- Transportation – Seasonality of traffic on U.S. 41
- Literature Review – Almost 100 documents were reviewed with dozens summarized for implications to the feasibility of ROGG
- Observation Findings – A number of opportunities and constraints are present within the existing conditions of the U.S. 41 right-of-way and surrounding areas that are being reviewed for implication to the feasibility of ROGG.

Nick Kuhn (AECOM) summarized findings from comparable research of trails and greenways from around the world including elements of successful trails which provide comparable conditions.

- Two specific comparables were highlighted and included:
  - Lake Okeechobee Scenic Trail (LOST) provides a successful hard surface levee comparable developed in coordination with FDOT and U.S. Army Corp. of Engineers (USACE)
  - Trail of the Coeur d'Alenes (Idaho) provides a successful comparable of an extended length trail with multi-jurisdictional management and maintenance, include tribal.
- ROGG will support various user types with diverse needs in amenities and opportunities to experience the corridor at various lengths
- Lessons Learned were summarized based on findings from comparable research at the end of Part 1A (Existing Conditions findings) presentation. A period of time was open to attendees for comments pertaining to information presented in Part 1A. Comments were as follows:

Part 1A Comments:

- Bob Sobczak, Big Cypress National Preserve (BICY) – Question: The ROGG (West) PD&E Pathway Study is just for the west region. No PD&E has been started yet for the central or east portions of the trail? Answer: Nick Kuhn (AECOM). Correct, although some funding has been provided through the same TRIP program for a future PD&E Study for ROGG East in Miami-Dade County.

- Bob Sobczak (BICY) – Question: Is funding identified or uncertain for ROGG Central PD&E? Answer: Nick Kuhn (AECOM) – Funding is not in place right now, but may be identified in the near future. The scope of work for the Feasibility Study and Master Plan includes a task on identification of funding that includes research and summary of potential funding sources towards the end of the project

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- Bradley Mueller, Seminole Tribe of Florida, Tribal Historic Preservation Officer (Seminole THPO) – Question: With multiple federal agencies involved which agency will be taking the lead on Section 106 Compliance and is there an idea of when tribal consultation will begin? Answer: Jeff Novotny (ACP) – In terms of Section 106 Compliance, that will most likely be going through the Federal Highway Administration (FHWA) for the ROGG (West) PD&E Pathway Study and if the other segments go forward and FHWA is the lead, then they would continue in that role. The ROGG (West) PD&E Pathway Study has begun coordination through FDOT- D1 in terms of reaching out to the Native American communities about the project and has initiated consultation with the tribes

- Bradley Mueller (Seminole THPO) – Comment: To FDOT-D1, the earlier the tribes are involved the better as the tribes can have effective input

Feasibility Study Criteria (Part 1B) Presentation:

Nick Kuhn (AECOM) introduced the development of a draft feasibility criteria based on input and feedback received during a series of three (3) advertised regional community workshops held earlier in the year. Each workshop event was five (5) days in duration in each planning region or nearly three (3) weeks total. Highlights included:

- Routing alternatives focus on opportunities within and near to the U.S. 41 right-of-way
- All proposed routing options and feasibility determination will be consistent with the plans identified in the Central Everglades Planning Project (CEPP)
- Trailhead locations and hierarchy
- Decision Making Process include regional themes, typicals matrix, and segment analysis
- Review of cross-sections opportunities from public workshop
- Review of project schedule and current status

Part 1B Comments:

- Kirby Wilson, Collier-Seminole State Park (Collier-Seminole SP) – Question: What is the most expensive section? Answer: Nick Kuhn (AECOM) – Cost estimates have not been determined at this time, but will be included in the determination of feasibility later in the project

- Bob Sobczak (BICY) – Comment: I liked how the team covered the range of all options. One option that should be looked into further is filling in the canal to the north of U.S. 41, which would help with sheetflow restoration and limit saltwater intrusion. This could be included in the environmental benefits analysis. Question: Jay Exum (AECOM) – Are there areas where that concept would be best utilized? Answer: Bob Sobczak (BICY) – There are several areas in the ROGG West segment where saltwater intrusion is occurring. That would warrant taking a closer look at and should be factored into a future PD&E Study. Looking at it in a reverse paradigm, with recreation opportunities leading to environmental benefits and restoration efforts may be even more effective

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- Bob Sobczak (BICY) – Comment: Consistency with CEPP is good, but this could actually contribute to the restoration efforts outlined by CEPP

- Comment: Consistency with CEPP is great, but also could include restoration benefits for Picayune Strand and Collier-Seminole State Park

- Jerry Krenz, South Florida Water Management District (SFWMD) – Comment: From the CEPP perspective we are trying to align recommendations for levees to help flow and would need to include some level of analysis for the levee routes proposed by ROGG

- Lauren Milligan, Florida State Clearing House (FL State Clearing House) – Comment: Although the Florida Department of Environmental Protection (FDEP) generally supports the idea of the ROGG trail concept, I don't see a discussion of the constraints of CERP projects immediately adjacent to the Tamiami Trail. How will these projects be taken into consideration? You will need to overlay the CERP components on any maps showing potential trail layouts. Please note we will likely have to dispute any concept that involves significant fill in the canals that serve these restoration systems as well as use of any abandon road that is proposed to be removed. Answer: Jay Exum (AECOM) – The Feasibility Study and Master Plan team has reviewed almost 100 documents as part of literature reviews, including many of the documents from CERP, CEPP and ROGG West ETDM, and has provided a summary of a portion of the most relevant studies to assess the planning implications. The Feasibility Study and Master Plan report will include brief summaries of the contents of the representative documents and an assessment of the relevance for the regulatory requirements, design considerations, physical setting, or other factors relevant to the feasibility assessment and master plan. Each document summary provides the timeframe of issuance, responsible agency, the purpose of the document, and items identified in the document that would need to be addressed through design considerations and ends with an assessment of potential implications for planning efforts

- Jay Exum (AECOM) – Comment: In addition, the Feasibility Study and Master Plan team has been working with a Steering Committee composed of 14 different agencies, including SFWMD, BICY, EVER, FDOT, tribal representatives etc…that will be meeting at least eight different times during life of project. Furthermore, the Steering Committee has been invited to participate in all advertised public meetings which includes nearly three weeks of advertised workshops to date and at least eight future public presentations during life of the project

- Bob Sobczak (BICY) – Comment: The canals by and large cause documented impacts to the characteristic sheetflow. Canals can be strategically filled in to restore sheetflow. Some canals are strategic to implementation of CEPP, but in the Big Cypress National Preserve the Tamiami Canal is an impact. In the ROGG West area there is saltwater intrusion as well by these canals

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- Stacey Feken (FDEP) – Comment: Include coordination with other restoration efforts. What level of coordination has been completed? Answer: Nick Kuhn (AECOM) – SFWMD is part of the Feasibility Study and Master Plan project Steering Committee and has attended public workshops. We are early in the Feasibility Study so the AECOM team has not provided many details on potential concepts since we are not at that stage in the project yet. Jay Exum (AECOM) - Question: If there are any specific comments about restoration efforts that Department of Interior (DOI) or other agencies are doing that we need to be aware of, please let us know. Response: Stacy Feken (FDEP) – Some of the concepts proposed using the Old Tamiami Trail roadbed in ROGG East and we are aware that proposals include the removal of the roadbed. Other needs may include coordination with Tamiami Trail Modifications (TTM) projects

- Bob Sobczak (BICY) – Comment: Building on the reverse paradigm idea, identification of some of these problem areas, the project can demonstrate the potential for regional scale restoration in the process of planning the trail and should be a driving element not a secondary study

- Church Roberts, Johnson Engineering, Inc., (JEI) – Comment: The trail could help mitigate some of the secondary impacts of the U.S. 41 highway, such as areas with high wildlife mortality rates, certain design components could help outset those impacts. Response: Jay Exum (AECOM) – We had a coordination discussion with Dr. Dan Smith and FWS about the trail being a place and a feature that could improve the function of the Roadside Animal Detection System (RADS) at BICY from Bass Rd. to Turner River Rd.

- Lauren Milligan (FL State Clearing House) – Comment: Is the ETDM completed? Answer: Jeff Novotny (ACP) – For ROGG (West) PD&E Pathway Study, the ETDM has not been completed with a final Class of Action, but all comments have been received. Additional coordination with FHWA will be required

- Stacy Feken (FDEP) – Question: Will there be a formal process for agency comments (e.g. state clearing house)? Answer: Nick Kuhn (AECOM) – We will have a series of presentations and review periods as a regular part of the report development for the Feasibility Study and Master Plan

ROGG West PD&E Study (Part 2) Presentation:

Jeff Novotny (ACP) introduced work completed to-date for the ROGG (West) PD&E Pathway Study. A public workshop is anticipated to be held in late summer 2013, while a public hearing is tentatively scheduled for early 2015. The project website can be accessed to provide input or review additional materials at www.roggwest.com

Part 2 Comments:

- Kirby Wilson (Collier-Seminole SP) – Question: What is the tipping point on whether the trail is feasibility or not? Answer: Jeff Novotny (ACP) – We want a trail that will be

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usable, that is cost effective, that has as minimum number of impacts as possible, and the trail itself could provide benefits. That is what the PD&E process does, determine environmentally feasibility. It's a balancing act of providing environmental and user benefits

- Bob Sobczak (BICY) – Question: Where is the best place to look at the regional restoration benefits associated with providing recreation opportunities? Answer: Jeff Novotny (ACP) – It would require coordination with the land owner, with a variety of agencies

- Church Roberts (JEI): ROGG should be viewed as two separate projects, the development of the trail and the mitigation. In some places they may complement one another, but in some cases they are independent

- Comment: The purpose could be to have a multi-use access trail that is consistent with and compliments above and beyond the intent of the Everglades experience

- Bruce McArthur (Sprinkle Consulting) – Comment: The existing Tamiami Canal acts as a long narrow pond. Primary flow is north to south and filling in the canal will not increase sheetflow. Unless additional culverts are added to U.S. 41, it will not increase sheetflow, but may help with saltwater intrusion. Response: Bob Sobczak (BICY) – What we see in BICY is that once the sheetflow hits the canal there is a massive redistribution of water as it goes to the deeper bridges. If you are able to strategically fill in segments of the canals, then you can retain the natural distribution of water movement from north to south instead of lateral movement within the canal

- Jerilyn Ashworth (FDEP) – Comment: Use of boardwalks or raised trail surfaces could decrease the impacts that a berm option would have on impeding flow. Response: Jeff Novotny (ACP) – We are looking at the detail of specific areas for the ROGG (West) PD&E Pathway Study, but may include subgrade for berms which will allow for some flow from one side to another

- Lauren Milligan (FL State Clearing House) – Comment: There may be many opportunities to dovetail the development of the trail into mitigation for on-going restoration projects. Must ensure the trail construction does not impede the implementation of these restoration efforts. Response: Sarah Webber (JEI) – We are trying to identify the unfunded restoration efforts which could be included in this effort for ROGG (West) PD&E Pathway Study

Action Items:

- None

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes

Task 2.17 - A1

Subject:	River of Grass Greenway (ROGG) – ROGG West Agencies Additional Meeting
Project No:	60272285
Date:	November 21, 2013
Time:	10:00 a.m. – 12:30 p.m.
Location:	Big Cypress National Preserve – Oasis Visitor Center – Second Fl. Conf. Rm. 52105 Tamiami Trail E, Ochopee, FL 34141
Attendees:	Maureen Bonness, Friends of the ROGG, bonness@infionline.net Heather Ferrand, PICAYUNE, Heather.Ferrand@freshfromflorida.com Kevin Godsea, 10,000 ISLANDS NWR, kevin_godsea@fws.gov Mark Heinicke, MDPROS, MHEINIC@miamidade.gov Patricia Huff, Friends of the ROGG, snookcity@gmail.com Nick Kuhn, AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Joe Webb, MDPROS, jwebb@miamidade.gov Kirby Wilson, COLLIER-SEM, Kirby.Wilson@dep.state.fl.us

Purpose:
An additional supplemental meeting with land management agencies within the western segment of the River of Grass Greenway (ROGG) corridor was held to review the results and findings from the three advertised community workshops, discuss potential issues and opportunities within the parks that would affect the ROGG Feasibility Study and Master Plan, and identify potential criteria that could be used in the feasibility evaluation of the ROGG. This meeting was not a permit meeting but rather a discussion on this subject to help with the feasibility of this document.

Introduction

- Nick Kuhn (AECOM) opened the meeting with a review of the agenda and description of the purpose of the meeting
- Nick Kuhn (AECOM) provided an overview of the components and status of the Feasibility Study and Master Plan, including:
  - The revised and updated draft Part 1 (Introduction) and Part 2 (Research and Analysis) draft report had been updated and is now available on Annotate.com for Steering Committee review and comment. The link for the editing the report is http://a.nnotate.com/php/pdfnotate.php?d=2013-10-14&c=MGO8Ezeq. The draft report will be available until December 21, 2013.
  - The draft report summarizes background data and planning implications for ROGG concerning the geography and geology, history, ecology, transportation characteristics, and ownership trends of the corridor, documents and studies completed within the corridor, opportunities and constraints observed within the corridor, and comparable projects
  - Three advertised regional community workshops were held in January

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  - through March to obtain public input concerning alternative routes, trailhead locations, intersections and crossings, unique areas of opportunities and constraints, materials and stakeholder interviews
  - Nick Kuhn (AECOM) provided a preview of a decision making process and criteria for evaluation of potential alternatives that is being developed by the ROGG consultant team
  - Nick Kuhn (AECOM) then reviewed some draft section typologies that were identified during the public workshops and discussed potential opportunities and constraints associated with the selected typologies
  - The Feasibility Study and Master Plan boundaries have been modified to remove the section from 6L's Road to CR 92 from the Feasibility Study and Master Plan since the Florida Department of Transportation (FDOT) District 1 had completed a Project Development and Environment (PD&E) study for that portion and a Categorical Exclusion had already been obtained

- Maureen Bonness, Friends of the ROGG (FROGG), noted that the design for the 6L's Road to CR 92 was being advanced
  - The original design in the PD&E depicted a trail system separated from the existing roadway
  - The current design moves the trail closer to the U.S 41 road for much of the area
  - A portion of the trail in the current design extends onto an existing bridge over the Alexander-Cameron Canal and is very close to the road lanes

- Nick Kuhn (AECOM) provided an update on the schedule for the ROGG (West) PD&E Pathway Study that FDOT District 1 is managing
  - The project has been put on hold until the Feasibility Study and Master Plan are completed

- Nick Kuhn (AECOM) provided an overview of the Joint Agency Meeting conducted on June 17, 2013
  - The purpose of this meeting was to provide an overview of the ROGG Feasibility Study and Master Plan project and the ROGG (West) PD&E Pathway Study to the regulatory agencies with purview over the future ROGG and get feedback on both projects from the regulatory agencies
  - It was a joint meeting hosted by the ROGG Feasibility Study and Master Plan project team and the ROGG (West)PD&E Pathway Study project team
  - The Florida State Clearing House recommended on August 28, 2013 for the Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG.
  - The ROGG West Agencies meeting is the first additional agency meeting held to date with several more planned
    1. ROGG West Agencies - 11/21/13

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Discussion

- The group reviewed opportunities and constraints for ROGG for a variety of sections identified during the three advertised community workshops
  - The first item discussed was the berm and swale section that could would be designed to use the trail as a method to restore sheetflow south of U.S. 41
    - It was noted that culverts under a trail on a berm separate from the road facility would need to be designed to carry as much or more water than the current conditions
    - The initial thought is that this scenario would require minimal culvert installation under U.S. 41, but spread out the water coming through existing culverts where possible
      - In areas where restoration is already being considered, such as for the Copeland Prairie area in the Big Cypress National Preserve (BICY) outside of ROGG West or the enhancements to U.S. 41 related to the Picayune Strand restoration project in ROGG West, the culverts under the trail and berm would need to accommodate the post-restoration scenario
    - The final design for these facilities would occur during the PD&E review and/or final design work, which would need to accommodate hydrological information as part of the engineering review
    - A question was raised concerning the movement of water within the swale
      - The preliminary consideration for water sources would be backflow into the swale from existing culvert crossings and/or channels
      - Supplemental culverts under U.S. 41 would be considered during the PD&E to address better water flow if this section was considered feasible
      - Concerns were expressed about water that backs up into the swale becoming stagnant leading to increased mosquito growth, which would be a detraction for trail users
      - This would need to be addressed during the design phase
    - This method is also anticipated to provide filtration and stormwater treatment for runoff from the trail and U.S. 41 and may provide an opportunity to treat some runoff from the agricultural fields near 6L's Road
  - Bridge crossings were discussed as the bridges within ROGG West are generally very narrow and provide a constraint for on-bridge crossings of the ROGG
    - Kevin Godsea,Ten Thousand Islands National Wildlife Refuge (10,000 Islands NWR), noted that several bridges have boat ramps and/or airboat access that is used by the public (hunters) and/or for park management

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    - Arched pedestrian bridges or other routing options need to be developed to accommodate the boat/airboat access points within the corridor
    - These are generally informal ramps with limited to no parking
    - Improvements to facilitate boat access and parking may be problematic due to permitting and size constraints
    - Near SR 29 / CR 29, the Collier Family land holdings have several locations where airboats access the holdings and airboats are periodically parked on banks

- The participants noted that ROGG facilities need to be constructed with non-flammable materials to address fire management requirements
  - Opportunities to use the trail with Utility Terrain Vehicles (UTV) or brush trucks should be addressed during trail design
  - Railings on boardwalks should be kept to a minimum, especially in herbaceous areas, except for the height of the boardwalk requires them to meet ADA specifications
  - Where boardwalks have railings, crossover locations need to be established periodically to allow for management access and crossing of the boardwalk
  - The agency representatives noted that the ROGG facility may improve access for exotic invasive treatments

- The agency representatives were asked to provide initial thoughts on potential effects that ROGG would have on their facilities and/or on natural resources and/or issues that would need to be accommodated by ROGG
  - Kevin Godsea (10,000 Islands NWR) noted the following comments:
    - ROGG should not have an impact on hydrology
    - ROGG should not limit access for management of the park facilities
    - The cost benefit for wetland mitigation requirements should be carefully evaluated
  - Kirby Wilson (Collier-Seminole State Park) provided the following thoughts:
    - Look for opportunities to have the ROGG on the north side of U.S. 41 in more locations
      - Heather Ferrand, Picayune Strand State Forest (Picayune), also noted that the 6-mile trail for Collier-Seminole State Park was already on the north side of the road
      - Incorporating segments of the ROGG north of U.S. 41, especially in the vicinity of the 6-mile trail connection location, would assist in safety improvements for visitors already crossing the roadway for access to the 6-mile trail
    - ROGG should have no effect on the viewshed of the U.S. 41 corridor
    - ROGG should be designed to minimize effects on fire management within the adjacent parks

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- Incorporate an acknowledgement in the study that the adjacent parks need to be engaged in the planning, design, and development activities associated with ROGG
- He asked about the status of reaching out to the Trail Indians for comments on the project

- Heather Ferrand (Picayune) provided the following comments:
  - Trail locations on the north side of U.S. 41 within the Picayune Strand State Forest (SF) would require involvement of the resource administrator and/or additional review as these areas have not been designated for prior use in trails
  - Picayune Strand SF is a Florida panther mitigation site
  - The Florida Department of Environmental Protection (FDEP) is doing substantial work on the canals within the forest, including the Faka-Union Canal that will affect water flows within the corridor
  - Collier County wetland development restrictions can be significant for improvements like the ROGG and should be reviewed/addressed early in the plan development

  - Few improvements in the southern portion of the Picayune Strand SF have been planned/implemented within the vicinity the ROGG, although a small improvement has been identified for the Port of the Islands access point adjacent to the Faka-Union Canal on the north side of U.S. 41
    - Fisherman are the primary users of this access point to conduct bank fishing in the adjacent canal
    - The improvement involves establishing formal parking areas at this location and potentially adding a canoe launch north of the weir
    - The Port of the Islands access point is an operations and maintenance (O+M) issue for the State Forest as it is a long distance from the main office
      - Opportunities to reduce O+M costs for the State Forest for the Port of the Islands access point would likely be welcomed
      - Lighting has been an issue at the location due to wildlife concerns and effects on neighbors across the canal
      - Efforts to close the site to limit the O+M requirements have been ineffective

  - Changes to the pump stations in the Picayune Strand SF as part of the restoration efforts will effect canal levels, including at the Port of the Islands access point
    - These changes are being evaluated for potential impacts to manatees due to changes in the water temperatures/salinity

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- Patty Huff (FROGG) noted that Renee Rau from the Fakahatchee Strand Preserve State Park (FAKA) could not attend the agency meeting and then provided an update on the plans for the new visitor center and parking facility based on a recent conversation with Renee Rau
  - FAKA currently has completed 60% design drawings for the visitor center and parking area to occur on the Old Tamiami Trail east of the existing boardwalk
  - Discussion among the group noted that input from the ROGG project team should occur to address a safe biking route through the new parking area and to limit conflicts between bicyclists and pedestrians in the new facility

Criteria for Feasibility

- The group discussed potential criteria for evaluating feasibility relevant to the agencies and/or landholdings in ROGG West region that should be addressed by the ROGG project team in the final criteria development
- Potential criteria discussed included:

  - Access needs to be maintained for current users, including hunter and fisherman management

  - Opportunities to enhance the views of wildlife from the roadway prior to wildlife crossing the road should be considered
    - This could assist in decreasing roadkill
    - Removal of trees would be required, but the removal may be balanced by the increased visibility for wildlife from the roadway

  - The quantity and quality of potential wetland impacts are issues that need to be evaluated
    - Impacts to lower quality wetlands may be easier to address if impacts are required
    - The criteria should assess impacts to wetlands that provide habitat for sensitive species as less suitable than other wetland impacts
    - Parks have a variety of research plots within wetland systems throughout the corridor and impacts to wetlands with research plots should be avoided

  - In the 10,000 Islands NWR impacts to hammocks south of U.S. 41 should be avoided as these are likely middens with cultural resources

  - The criteria should include a review of potential barriers to wildlife movement caused by the ROGG facilities

  - Regulatory requirements need to be addressed and accommodated by the ultimate design of ROGG
    - This should include accommodation for future hydrological improvements, especially in the vicinity of Picayune Strand

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        - County permitting issues can be difficult to navigate and should be addressed proactively within the design
        - The regulatory reviews need to include assessments and regulatory requirements for driveway access points
        - The criteria should include an evaluation of dredge and fill required to complete the project, including the need to bring in clean fill from outside of the corridor

- In addition to these potential criteria, the group discussed potential changes to existing recreation plans for parks adjacent the ROGG that would need to updated/evaluated as part of feasibility

    - The General Management Plan for the 10,000 Islands NWR would not need to be changed as the ROGG uses are already allowed
        - A compatible-use determination would be required for facilities with the refuge
        - Benefits from ROGG could be expanded and different uses for the Marsh Trail and potential connections from the refuge to the FAKA

    - Picayune Strand SF does not currently have significant plans in the south part of the forest
        - Benefits from ROGG for the forest would be a different kind of user, such as eco-tourist, to the Port of the Islands access point and assistance in addressing O+M issues for the Port of the Islands access point

    - ROGG could assist in connections between new/improved/existing facilities at Collier-Seminole State Park, although constraints exist within the park
        - A new youth camp is going to be put in at the southwest corner of the U.S. 41 and CR 92 intersection
        - ROGG may be able to provide link from the youth camp to other trail heads in the park
        - The rockland hammock in the park is rare and should not be impacted by the ROGG facilities
        - Trails between the park residence and gas station would be problematic due to access control
        - Crossings of CR 92 are needed to connect facilities within the park

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes
Task 2.17 - A2

Subject:	River of Grass Greenway (ROGG) – FDOT District 6 (D6) Additional Agency Meeting
Project:	60272285
Date:	December 11, 2013
Time:	9:00 a.m. – 12:00 p.m.
Location:	FDOT District 6 HQ – Room B 1000 NW 111th Ave., Miami FL 33172
Attendees:	Aileen Boucle, FDOT D6, aileen.boucle@dot.state.fl.us Leigh Cann, FDOT D6, leigh.cann@dot.state.fl.us Carlos Castro, FDOT D6, carlos.castro@dot.state.fl.us Mark Croft, FDOT D6, mark.croft@dot.state.fl.us Barbara Culhane, FDOT D6, barbara.culhane@dot.state.fl.us Nick Danu, FDOT D6, nicholas.danu@dot.state.fl.us Rudy Garcia, FDOT D6, rudy.garcia@dot.state.fl.us Mauricio Gomez, FDOT D6, mauricio.gomez@dot.state.fl.us Fabiana Gonzalez, FDOT D6, fabiana.gonzalez@dot.state.fl.us Mark Heinicke, MDPROS, MHEINIC@miamidade.gov Ken Jeffries, FDOT D6, ken.jeffries@dot.state.fl.us Steve Johnson, FDOT D6, steven.johnson@dot.state.fl.us Nick Kuhn, AECOM, Nick.Kuhn@aecom.com Misleidys Leon, FDOT D6, misleidys.leon@dot.state.fl.us Michele Martin, FDOT D6, michele.martin@dot.state.fl.us John McWilliams, KHA, John.McWilliams@kimley-horn.com Omar Meitin, FDOT D6, omar.meitin@dot.state.fl.us Paul Moore, Nelson Nygaard, pmoore@nelsonnygaard.com Chris Tavella, FDOT D6, chris.tavella@dot.state.fl.us Joe Webb, MDPROS, jwebb@miamidade.gov

Purpose:
An additional supplemental meeting with representatives from the Florida Department of Transportation (FDOT), District 6 Scoping Committee concerning the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review the results and findings from the public workshops, discuss potential issues and opportunities within the parks that would affect the feasibility study and master plan for ROGG, and identify potential criteria that could be used in the feasibility evaluation of the ROGG. This meeting was not a permit meeting but rather a discussion on this subject to help with the feasibility of this document.

Introduction

- Mark Heinicke (MDPROS) provided a background of the genesis of the ROGG project and the project team

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- The original idea for the ROGG as an approximately 75 mile long multi-use trail corridor was generated by citizens and the initial development of the idea was a grassroots effort
- The project is coordinated with the proposed elements of the Central Everglades Restoration Plan (CERP)
- Through the grassroots effort and participation of the National Park Service (NPS) Rivers, Trails and Conservation Assistance (RTCA), a grant was obtained from the Paul S. Sarbanes Transit in Parks (TRIP) program to conduct a feasibility study and master plan for the trail
- Naples Pathways Coalition (NPC) formed a Friends of the River of Grass Greenway (FROGG) to help advance the idea of the ROGG
- In 2009 the RTCA was awarded a $1M grant through the TRIP program to undertake a Feasibility Study and Master Plan. An additional $500k was awarded in 2011 for a PD&E Study for the ROGG East segment.
- The TRIP program is designed to address transportation issues, especially multi-modal transportation like transit, for national parks and is not a Project Development and Environment (PD&E) study
- Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) is the project manager for the grant, while AECOM is the consultant for the project

- Nick Kuhn (AECOM) provided an overview of ROGG project and the components and status of the ROGG Feasibility Study and Master Plan, including:
  - Ongoing ROGG Feasibility Study and Master Plan is for the entire length, along Tamiami Trail from County Road (CR) 92 in Naples to Krome Avenue in Miami (approximately 75 miles)
  - The ROGG West Project Development and Environment (PD&E) Study in Collier County is on hold until the completion of the Feasibility Study and Master Plan project
  - Focus for this meeting is on the ROGG East segment in Miami-Dade County as it is the portion within District 6 boundaries
  - The Feasibility Study and Master Plan project has a Steering Committee comprised of 14 members, primarily of landowning agencies within the study corridor that are tasked with guidance of the project and review of information
  - This project includes an extensive public outreach with advisory groups and primary agencies and advertised public meetings. In addition, a comprehensive community engagement website for the project, developed by MindMixer, is available for public interaction and feedback at: www.RiverofGrassGreenway.org. The ROGG project website invites contributors to learn more about the project, share new ideas, upload photos, expand upon existing ideas, and give feedback on initiatives, working with the project team on a variety of topics related to the project online anytime, anywhere.
  - On June 17, 2013, the Feasibility Study and Master Plan team combined forces with the ROGG West PD&E team to hold a joint projects primary agencies meeting at FDOT D1 offices in Ft. Myers
  - The Feasibility Study and Master Plan will include the development of an Implementation Plan in a later stage of the project

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- The project team is wrapping up the existing conditions assessment and working to complete the conceptual vision master plan and feasibility assessment
- The project team will review the proposed master plan and feasibility assessment in public meetings prior to finalization
- Coordination with ongoing or proposed Central Everglades Planning Project (CEPP) projects is key component of the ROGG Feasibility Study and Master Plan
- The draft Existing Conditions report had been updated and has been reviewed by the Steering Committee
  - The draft Existing Conditions report summarizes background data and planning implications for ROGG concerning the geography and geology, history, ecology, transportation characteristics, and ownership trends of the corridor, documents and studies completed within the corridor, opportunities and constraints observed within the corridor, and comparable projects
- Comparables were researched from around the world for successful examples for solutions and potential user groups
  - **Question**: Are you referring to a barrier separation or a spatial separation? **Response:** Nick Kuhn (AECOM) – We are looking at spatial separation as preference for user comfort, but have looked at physical barriers as well.
  - **Question**: What are national standards for separation being looked at? **Response:** Nick Kuhn (AECOM) – We are looking at successful comparables from around the country which range from five foot spatial separation from the edge of shoulder to as much as 20 feet or more. **Reply:** Paul Moore (Nelson Nygaard) - The range of spatial separation is really tied to the primary user group(s) comfort level with cyclist being more comfortable with on-road facilities vs. families or occasional bikers preferring greater spatial distance. Facilities which tend to have high levels of users or a greater amount of different user groups tend to have greater spatial separation.
- A phased approached will most likely be utilized for the development of ROGG if found feasible contingent upon funding
- Criteria for feasibility will include a review of potential benefits and impacts of the proposed alternatives as well as user comfort, connectivity and environmental conditions of materials
- Three advertised regional workshops were held January through March 2013 to obtain public and agency input concerning alternative routes, trailhead locations, intersections and crossings, unique areas of opportunities and constraints, and materials
- A review of several publicly generated trail options for ROGG by AECOM included three categories from north of R/W, adjacent to U.S. Hwy. 41, and south portion of the R/W
- Project team is scheduling additional agency meetings with primary land owning agencies such as National Park Service, SFWMD, etc.
- The Florida State Clearing House recommended on August 28, 2013, for the

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- Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG.
- The FDOT D6 meeting is the second additional agency meeting held to date with several more planned
  1. ROGG West Agencies - 11/21/13
  2. FDOT District 6 - 12/11/13

Discussion

- Nick Kuhn (AECOM) and Mark Heinicke (MDPROS) opened the presentation to general comment from the FDOT D6 Scoping Committee. The following comments were made:
  - **Question**: Has the project coordinated with SFWMD? **Response**:Joe Webb (MDPROS) – Yes, they are on our steering committee and we will be having an additional agency meeting with them in the future.
  - **Question**: A number of the sections showed the trail on a levee. Who owes the levee? **Response:** Nick Kuhn (AECOM) – We are working with SFWMD and USACE regarding use of the levee easement. There is some private land ownership along the L-29 levee but the majority of the levee is owned by SFWMD.
  - **Question**: Are you suggesting acquisition of the levee property? **Response:** Mark Heinicke (MDPROS) – It would most likely be a right-of-way occupancy permit within the easement from SFWMD. MDC has successfully done that throughout the County on several other trail projects with SFWMD. **Reply:** Joe Webb (MDPROS) – There has not been a determination if R/W acquisition will be needed, but the project team is meeting with each of the land owning entities. The L-29 levee currently has an unimproved access road on top of the levee which is open to the public. The trail may be segmented in order to provide benefit to some of the federal land entities while other segments may not be developed initially.
  - **Comment**: For the alternatives that include shifting travel lanes, additional coordination with FDOT D6 will be needed. **Reply:** So noted
  - **Comment**: An alternative from the ROGG East Workshop identified a one foot buffer between the trail and the roadway; this option is fatally flawed and a minimum five foot paved separation is needed. With a physical barrier the trail would need a ten foot paved shoulder, then the physical barrier which would not save any room. **Reply:** So noted
  - **Comment**: Request to be included in discussions regarding the design of the trail at the proposed bridges along Tamiami Trail. **Reply:** So noted

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- **Question:** Is the ROGG West PD&E Study on hold? **Response:** Joe Webb (MDPROS) – Yes that is correct. Until the Feasibility Study and Master Plan project is completed.
- **Comment**: The J-hook on the bridge would extend as an intrusion into the roadway and would not be allowed. **Reply:** So noted
- **Comment**: There is a concerned about reduction of the roadway shoulder in order to accommodate the trail at some locations. **Reply:** So noted
- **Question**: Will the project remove invasive species during construction? Response – Joe Webb (MDPROS) Yes, if there are invasives within the footprint the idea would be to remove them.
- **Question**: When are you looking to construct this? **Response:** Mark Heinicke (MDPROS) – There is no date set. This project is the first of several steps towards that goal. The next step would be PD&E phase.
- **Question**: You are proposing any emergency call boxes? **Response:** Joe Webb (MDPROS) – Yes, that would be included. There happens to be several opportunities for rest stops and use of existing facilities along Tamiami Trail. **Reply:** Paul Moore (Nelson Nygaard) – It is really about an exercise of connecting the dots with existing rest stops and gas stations. In some cases we are proposing new dots in some of the larger spans that have logical places.
- **Comment**: Providing sufficient parking is a concern since it is an existing problem in the area and about right-of-way (R/W) impacts to tribal lands and preserves. **Response**: Paul Moore (Nelson Nygaard) – By tying in the use of transit, shuttle and marketing, an increase of vehicle trips to segments of the trail could be reduced to have no impact an possibly a net negative reduction in parking needs.
- **Question**: Would a change to speed limits be needed? **Response:** Mark Heinicke (MDPROS) – That was an idea from the National Parks Conservation Association (NPCA) that along the proposed bridges the speed limit could be reduced to encourage bicycling. We have not explored it beyond that suggestion. **Reply:** Paul Moore (Nelson Nygaard) – The difference of nighttime and daytime speed limits does introduce a safety issue with animal crossings and a comprehensive study based on design needs would be required.
- **Comment**: A maintenance agreement would be required if the trail is to be located within existing FDOT R/W **Response:** Paul Moore (Nelson Nygaard) – There are several examples of successful arrangements between multiple jurisdictions. **Reply:** Mark Heinicke (MDPROS) – Likewise a maintenance agreement would be needed as a condition of the right-of-way occupancy permit from SFWMD on their land

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- A map of all on-going and future projects along Tamiami Trail within District 6 was provided
- Mark Heinicke (MDPROS) stated that a second coordination meeting will be held with FDOT D6 staff towards the end of the study in conjunction with the proposed ROGG East PD&E study and the ETDM component for the Feasibility Study and Master Plan scope of work

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes
Task 2.17 - A3

Subject:	River of Grass Greenway (ROGG) – NPS Additional Agency Meeting Everglades National Park and Big Cypress National Preserve
Project:	60272285
Date:	January 14, 2014
Time:	10:00 a.m. – 1:00 p.m.
Location:	Big Cypress Swamp Welcome Center – Auditorium 33100 Tamiami Trail East, Ochopee, FL 34141
Attendees:	Dennis Bartalino, BICY, dennis_bartalino@nps.gov Maureen Bonness, Friends of the ROGG, bonness@infionline.net Christine Clark, BICY, Christine_clark@nps.gov Ron Clark, BICY, ron_clark@nps.gov Bob DeGross, BICY, bob_degross@nps.gov Jaime Doubek-Racine, RTCA, jaime_doubek-racine@nps.gov Damon Doumlele, BICY, damon_doumlele@nps.gov Randy Effert, BICY, randy_effert@nps.gov Jay Exum, AECOM, Jay.Exum@aecom.com Mark Heinicke, MDPROS, MHEINIC@miamidade.gov Fred Herling, EVER, fred_herling@nps.gov Dan Kimball, EVER, dan_kimball@nps.gov Nick Kuhn, AECOM, Nick.Kuhn@aecom.com J.D. Lee, BICY, J_D_Lee@nps.gov Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Dave Sikkema, EVER, dave_sikkema@nps.gov Joe Webb, MDPROS, jwebb@miamidade.gov

Purpose:
An additional supplemental meeting with representatives from the Everglades National Park (EVER) and Big Cypress National Preserve (BICY) concerning the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review the results and findings from the public workshops, discuss potential issues and opportunities within the parks that would affect the feasibility study and master plan for ROGG, and identify potential criteria that could be used in the feasibility evaluation of the ROGG. This meeting was not a permit meeting but rather a discussion on this subject to help with the feasibility of this document.

Introduction

- Joe Webb (MDPROS) opened the meeting with a description of the purpose of the meeting
  - The ROGG Feasibility Study and Master Plan is being conducted to evaluate the feasibility of the proposed trail, including how the trail would affect resources and operations within parks adjacent to the ROGG corridor

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  - As part of public interaction for the project, public participants have provided the ROGG project team with potential design solutions, alignment alternatives, and/or feasibility criteria that need to be evaluated for use in the study
  - The ROGG project team is seeking input from agencies that own or regulate lands that include or occur adjacent to the proposed ROGG corridor, including BICY and EVER, for vetting the ideas received during the public workshops
  - The ROGG project team is also seeking input from these agencies concerning opportunities to enhance multi-modal connections and identify opportunities and constraints to park resources and operations that may arise from the ROGG
  - The Florida State Clearing House recommended on August 28, 2013 for the Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG.
  - The NPS meeting is third additional agency meeting held to date with several more planned
    1. ROGG West Agencies - 11/21/13
    2. FDOT District 6 - 12/11/13
    3. NPS (EVER & BICY) - 1/14/14

- Nick Kuhn (AECOM) provided an overview of ROGG project, agenda for the meeting, and the components and status of the ROGG Feasibility Study and Master Plan, including:
  - The draft Part 01 Introduction and Part 02 Research and Analysis report had been updated and has been reviewed by the Steering Committee
    - The draft report sections completed to date includes project origination, study approach, public outreach process, document intent, corridor context, corridor existing conditions, literature review, comparables and summary
    - The draft existing conditions summarizes background data and planning implications for ROGG concerning the geography and geology, history, ecology, transportation characteristics, and ownership trends of the corridor, documents and studies completed within the corridor, opportunities and constraints observed within the corridor, and comparable projects
  - Three regional workshops were held in January through March 2013 to obtain public input concerning alternative routes, trailhead locations, intersections and crossings, unique areas of opportunities and constraints, and materials
  - The ROGG is being reviewed for safety and access improvements as well as costs to implement feasible portions of the trail.

- Mark Heinicke (MDPROS) provided a background of the genesis of the ROGG project and the project team
  - The original idea for the ROGG as an approximately 75 mile long multi-use

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trail corridor was generated by citizens and the initial development of the idea was a grassroots effort
- Through the grassroots effort and participation of the National Park Service (NPS) Rivers, Trails and Conservation Assistance (RTCA), a grant was obtained from the Paul S. Sarbanes Transit in Parks Program (TRIP) to conduct a feasibility study for the trail
- The TRIP program is designed to address transportation issues, especially multi-modal transportation like transit, for national parks and is not a Project Development and Environment (PD&E) study
- Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) is the project manager for the grant, while AECOM is the consultant for the project

- The participants asked if the scope for the feasibility study included cost estimate preparation for the components
  - The project does include a scope to address cost estimates, but these have not been completed to date

- The project has a Steering Committee comprised of 14 members, primarily of landowning agencies within the study corridor

- Nick Kuhn (AECOM) provided an update on the schedule for the study
  - The process has been ongoing for approximately 1.5 years
  - The team is wrapping up the existing conditions assessment and working to complete the conceptual vision master plan and feasibility assessment
  - The project team will review the proposed master plan and feasibility assessment in public meetings prior to finalization
  - Anticipated completion date is winter 2014

Discussion

- Nick Kuhn (AECOM) provided an update on findings of the ROGG project team to date
  - The existing conditions assessment for ROGG included dividing the assessment of ROGG into three general segments: ROGG West, ROGG Central, and ROGG East
    1. These segments correspond generally to either landowner agencies or physical/environmental conditions that vary through the corridor
    2. These do not indicate potential segments that may be constructed in their entirety, but instead represent an organizing element for reporting the feasibility study

  - The Existing Conditions Assessment chapter includes a documentation of:
    1. Extensive literature review of documents, studies, and regulations affecting the potential development of ROGG
    2. An assessment of existing conditions within the corridor based on six major focus areas

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    3. Comparable projects that provided lessons learned for ROGG in five primary categories (safety, connectivity, experience, trail efficiency, and trail type)
    4. User types anticipated for the ROGG

  - Trails at this scale are typically developed in phases over a period of time
    1. The NPS/Department of the Interior has a system plan in development to connect National Parks with other parks and green spaces
    2. The entire length of the ROGG is not necessary to add value to park function within the corridor

- Questions about participation in the public reviews were raised by participants
  - Was there participation from non-park landowners and commercial users?
    1. Non-park landowners participated in the workshops and provided input on potential ROGG design, including a participant that identified his property as a potential trailhead
    2. Members of the Council of the Original Miccosukee Simanolee Nation Aboriginal Peoples participated in both the workshops and Steering Committee meetings and have provided comments that helped to clarify significant constraints for portions of the ROGG
    3. Wooten's Everglades Airboat Rides has recently been sold to a new private owner
    4. Significant input from a variety of non-park landowners and other interested parties has been received on the project website hosted by Mindmixer
       - Some of this input has been positive about the need for safety improvements within the corridor
       - Others have noted issues concerning actual or perceived impacts anticipated from the trail on wetlands, wildlife interactions, or access

  - Have environmental groups commented on the proposed project?
    1. The project team met with the National Parks Conservation Association (NPCA), which included representatives from the Sierra Club, Conservancy of Southwest Florida, Everglades Foundation, and Clean Water Action
    2. Primary issues noted within the meeting were potential impacts to wildlife (specifically Florida panthers), accommodation of the restoration activities associated with the Picayune Strand, impacts to wetlands, and the use of levees in ROGG East for the trail, even as a temporary use, that would preclude future restoration activities
    3. The project team conveyed to these groups that ROGG would follow and conform to the Central Everglades Planning Project (CEPP) and Comprehensive Everglades Restoration Plan (CERP) goals, with

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impacts to implementing CEPP/CERP caused by ROGG considered as a fatal flaw for the feasibility study

- Participants noted that identifying how ROGG ties into and/or is consistent with the enabling legislation of the Parks within the corridor would be helpful

- Comments were also provided that ROGG would need to address how it would address concerns about competing with or displacing traditional uses at ORV trailheads or other facilities

- Nick Kuhn (AECOM) reviewed the results of three advertised public workshops each a week long held in 2013 in which public input was received about potential alignments, trailhead locations, materials, trail crossings, and sections were identified and asked for input from the participants on sections that were identified during these workshops
  - Levee Top Section
    1. The CEPP plan retains portions of the L-29 levee, although the ultimate goal is to remove the levee
    2. The primary area for levee removal identified in CEPP is in the vicinity of the 2.6 mile long bridge
       - A design contract is anticipated in mid-2014 for the 2.6 mile bridge
       - This could take more than a decade to fully realize
       - The Blue Shanty levee would be installed to connect the L-29 levee to the L-67 levee as part of hydrology management efforts
       - Removal of the remaining portions of the L-29 are problematic now due to seepage/flooding concerns
    3. The levee top trail would provide a recreation experience separate from the roadway and providing views over the Water Conservation Area
       - A structure to be installed at the Blue Shanty levee will provide potential access from US-41 to the Blue Shanty levee
       - Use of the Blue Shanty levee and remaining portions of the L-29 levee not proposed for removal by CEPP may be compatible with the trail use
       - SFWMD currently allows recreation activities on the levee

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Dan Kimball Dan Kimball (EVER) making comments on CEPP to group

    4. Concerns about use of the levee establishing a user expectation for long-term retention of the levee was a concern for potential effects on the regional restoration efforts
       - Efforts to note now that a levee trail was intended to be temporary would not necessarily be remembered in future years when the trail use is established on the levee
       - Ultimately, US-41 needs to be built up to address water flow and design efforts for this reconstruction could accommodate a new trail
       - This would need to be balanced with potential wetland impacts, which could be problematic

  - Levee Toe Section
    1. Similar opportunities and concerns identified for the levee top trail location were identified for the levee toe option
    2. SFWMD maintains the levee top and toe currently and would need to be coordinated with for any trail use
    3. The levee toe would be removed as part of any levee removal, which would need to be considered for any levee toe use

  - Fill in Canal Section
    1. This section would primarily be considered in the ROGG Central and ROGG West segments and would not work in ROGG East
    2. Any use of this section would need to address impediments to flow within the canals and the routing of water currently carried by the canal, including the restoration plans for the Birdon Road/Turner River Road area
    3. Filling of the canal to accommodate the trail could facilitate panther crossings of the road
       - This would especially be true in the vicinity of Turner River

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- This could lead to more road/crossing conflicts between panthers and vehicles
- Filling of the canal may require wildlife crossing structures to limit the potential adverse interactions
    a. Fencing and modifications to the roadway to accommodate wildlife crossings could detract from the experience, aesthetics, and access within the corridor

4. Questions were raised about other options for addressing the trail on or over the canal
    - A cantilevered boardwalk was considered during the public workshops as a separate plan concept
    - BICY staff noted that the south side of U.S. 41 was higher quality and more pristine than the disturbed edges of the canal on the north side of the road and would be worth considering for work due to the potential lower impact to high quality systems
    - A floating trail on the canal was also considered during the public workshops
        a. This floating trail could conflict with fishing from the bank
        b. In ROGG East, a floating trail could also potentially conflict with structure operation, especially if the floating structure was damaged during a storm

- Wide ROW Section – Trail Between Road and Canal
    1. This section would require coordination with the Miccosukee Tribe to work around existing facilities and/or land holdings owned by the tribe on the north side of U.S. 41
        - As part of this review, ownership and/or permitted access to the Miccosukee would need to be looked at
    2. The group noted that comparisons of this option to others would be helpful, especially if quantitative values (such as cost and acreage of impact) were included in the analysis
    3. For areas currently used for traditional uses and/or casual visitor pull-offs, the goal would be to not remove parking options
        - Restrictions on access would need to be considered
        - Parking on the north side of the road would be potentially problematic
            a. Expanded shoulders for parking could result in conflicts with the trail and/or parking on the trail
            b. This could be mitigated if the trail was between a guardrail and the canal so that parking could not interfere with the trail

- Cantilever on Bridge Section
    1. Dave Sikkema (EVER) noted that the Tamiami Trail Next Steps EIS evaluated the cantilever option, but it was very expensive

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        - It can cause concerns for FDOT on existing bridges that were not designed originally to include it
        - This option would also be challenging for the bridges in ROGG West/Central due to bridges that were not designed for additional structures
    2. This would be an interesting option for future bridges in the corridor, but potential conflicts between trail users and fisherman from the cantilevered trail would need to be addressed
    3. Maintenance for this would be a concern
        - A coalition of groups to conduct maintenance would be needed
        - The Florida Keys Overseas Heritage Trail may be a model for the maintenance approach

- Boardwalk within Degraded U.S. 41 Area Section
    1. Questions were raised about locating a boardwalk under existing or proposed bridges in ROGG East
    2. This would reduce shadow impacts from the boardwalk

- Expansion of Road Shoulder Section
    1. The use of a retaining wall to limit fill requirements should be evaluated

<u>Criteria for Feasibility</u>

- The group discussed potential criteria and other considerations for evaluating feasibility that should be addressed by the ROGG project team in the final criteria development, including:
    - General configuration approaches
        - Opportunities to use the existing ROW of U.S. 41 for ROGG would be much more straightforward to permit from a mitigation, impact, and permitting perspective
            - The farther from the roadway the trail is located, the more potential regulatory impediments to implementing the trail
            - EVER has looked at separated trail facilities, but the preservation of wetlands consistent with the park purpose has been more important than the access provided by a separated facility
        - The use of previously disturbed areas would be beneficial and easier to address regulatory
            - The use of existing shoulders would be a good way to address park purposes in the enabling legislation
        - Opportunities to put the ROGG on the north side of the canal would be worth exploring
        - The park purposes for EVER and BICY need to be evaluated and access needs to be balanced with the other purposes of the parks
        - Landscape aesthetics are important and need to be considered for any structures proposed as part of the ROGG

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- Boardwalks may be more applicable downstream of bridges, but could affect views and aesthetics
- Future structures need to accommodate traditional access and activities
- Impacts to wetlands need to be minimized
- Impacts to wildlife should be minimized
  - The proposed facilities should not facilitate panther crossings that lead to mortality events or conflicts between panthers and vehicles
  - Gabion walls that could be used for the trail are problematic for turtles and other small wildlife and would require interruptions or crossings if used

- The addition of trail loops and/or other experiences would be beneficial
  - The Birdon/Turner River Road area could provide a potential loop corridor
  - The eastern portion of EVER needs to accommodate recreation access via car along U.S. 41

- Establishing a nexus between ROGG and traffic relief is relevant
  - The incorporation of a shuttle should be considered
    - If shuttles are considered, it would be helpful for them to be in place before the trail use begins to limit the need for additional car traffic in the corridor
    - Building the attraction (ROGG) before solving the vehicle access issues could cause problems for existing facilities
    - The opportunities for public/private partnerships would need to go into the consideration for the shuttle
  - The ROGG should occur within the bigger picture of transportation within the parks based on visitor profiles and conditions
    - This should be linked to a multi-modal hub
  - Parking is a concern throughout the corridor
    - Existing facilities for parking were not designed to accommodate ROGG users
    - For Shark Valley, options to connect the ROGG to the park are desirable, but parking at Shark Valley for ROGG cannot be accommodated
    - Opportunities to connect with parking at the Miccosukee Indian Village have been evaluated and/or discussed over the years, but has not been desired by the Miccosukees
      - Any parking at the facility for ROGG would require authorization from the Miccosukee
    - Parking needs to be provided throughout the corridor for users who would drive in to bike segments
    - The SFWMD Recreation Plan for CEPP includes parking at several locations in ROGG East that would expand or provide new potential parking facilities in the corridor

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- Phasing
  - The group expressed concerns about building the entire 75 mile length in the corridor
    - The construction of ROGG would likely functionally be done in segments as funding becomes available and/or as facilities are required to address established needs
  - ROGG trail uses between nodes should be less important than in higher demand areas
    - Priorities should be addressed around high use areas, such as Krome Avenue to Shark Valley

- Future evaluations
  - Details for cost / impacts / mitigation are needed for all segments for the parks to fully evaluate the potential effects of ROGG on their operations and resources

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes
Task 2.17 - A4

Subject:	River of Grass Greenway (ROGG) – NOAA / USFWS Additional Agency Meeting
Project:	60272285
Date:	March 26, 2014
Time:	10:00 a.m. – 1:00 p.m.
Location:	Conference Call
Attendees:	Maureen Bonness, Friends of the ROGG, bonness@infionline.net Mark Heinicke, MDPROS, MHEINIC@miamidade.gov Patty Huff, Friends of the ROGG, snookcity@gmail.com Nick Kuhn, AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com David Rydene, NOAA, david.rydene@noaa.gov John Wrublik, USFWS, john_wrublik@fws.gov

Purpose:

A telephone conference call with representatives from the National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries and the U.S. Fish and Wildlife Service (USFWS) and concerning the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review the results and findings from the public workshops, discuss potential issues and opportunities within the resources subject to the jurisdiction of these agencies that would affect the feasibility study and master plan for ROGG, and identify potential criteria that could be used in the feasibility evaluation of the ROGG. This meeting was not a permit meeting but rather a discussion on this subject to help with the feasibility of this document.

Introduction

- Mark Heinicke (MDPROS) opened the meeting with a background of the genesis of the ROGG project and the project team
    1. The original idea for the ROGG as an approximately 75 mile long multi-use trail corridor was generated by citizens and the initial development of the idea was a grassroots effort.
    2. Through the grassroots effort and participation of the National Park Service (NPS) Rivers, Trails and Conservation Assistance (RTCA), a grant was obtained from the Paul S. Sarbanes Transit in Parks Program (TRIP) to conduct a feasibility study and master plan for the trail.
    3. The TRIP program is designed to address transportation issues, especially multi-modal transportation like transit, for national parks and is not a Project Development and Environment (PD&E) study.
    4. Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) is the project manager for the grant, while AECOM is the consultant for the project.
    5. The project has a Steering Committee comprised of 14 members, primarily of landowning agencies within the study corridor.

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- Nick Kuhn (AECOM) provided a description of the purpose of the meeting
    1. The ROGG Feasibility Study and Master Plan is being conducted to evaluate the feasibility of the proposed trail, including how the trail would affect resources within the ROGG corridor.
    2. As part of public interaction for the project, public participants and agencies provided the ROGG project team with ideas for potential design solutions during the 2013 advertised regional workshops, alignment alternatives, and/or feasibility criteria that need to be evaluated for use in the study.
    3. The ROGG project team is seeking input from agencies that own or regulate lands that include or occur adjacent to the proposed ROGG corridor, including NOAA Marine Fisheries and USFWS, for vetting the ideas received during the public workshops.
    4. The Florida State Clearing House recommended on August 28, 2013 for the Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG.
    5. The NOAA Marine Fisheries / USFWS conference call is the fourth additional agency meeting held to date.
        a) ROGG West Agencies - 11/21/13
        b) FDOT District 6 - 12/11/13
        c) NPS (EVER & BICY) - 1/14/14
        d) NOAA - Marine Fisheries / USFWS - 3/26/14

- Nick Kuhn (AECOM) provided an overview of ROGG project, agenda for the meeting, and the components and status of the ROGG Feasibility Study and Master Plan, including:
    1. The ROGG is a 75 mile long study area stretching from Miami to Naples along U.S. 41.
    2. Three advertised regional workshops were held January through March 2013 to obtain public and agency input concerning alternative routes, trailhead locations, intersections and crossings, unique areas of opportunities and constraints, and materials.
    3. The ROGG is being reviewed for safety and access improvements as well as costs to implement feasible portions of the trail.

- Nick Kuhn (AECOM) provided an update on the schedule for the study
    1. The process has been ongoing for approximately 1.5 years.
    2. The team is working to complete the conceptual vision master plan and feasibility assessment.
    3. The project team will review the proposed master plan and feasibility assessment in public meetings prior to finalization.
    4. Anticipated completion date is spring 2015.

Discussion

- Nick Kuhn (AECOM) provided an update on findings of the ROGG project team to date

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- The existing conditions assessment for ROGG included dividing the assessment of ROGG into three general geographic planning regions or segments: ROGG West, ROGG Central, and ROGG East
    - These segments correspond generally to either landowner agencies or physical/environmental conditions that vary through the corridor
    - These do not indicate potential segments that may be constructed in their entirety, but instead represent an organizing element for reporting the feasibility study

- The Existing Conditions Assessment chapter includes a documentation of:
    - Extensive literature review of documents, studies, and regulations affecting the potential development of ROGG
    - An assessment of existing conditions within the corridor based on six major focus areas
    - Comparable projects that provided lessons learned for ROGG in five primary categories (safety, connectivity, experience, trail efficiency, and trail type)
    - User types anticipated for the ROGG

- Trails at this scale are typically developed in phases over a period of time
    - The entire length of the ROGG is not necessary to add value to park function within the corridor

- Nick Kuhn (AECOM) reviewed the results of three public workshops each a week long held in 2013 in which public input was received about potential alignments, trailhead locations, materials, trail crossings, and sections were identified and asked for input from the participants on sections that were identified during these workshops
    - Existing conditions within the corridor vary across the three segments
        - Much of ROGG East includes a wide levee (L-29 levee), a wide canal (the L-29 Canal), raised roadways and/or bridge segments, and wetlands within the southern portion of the FDOT right-of-way (ROW)
        - Much of ROGG Central consists of natural systems associated with the Big Cypress National Preserve on the north side of the road, a narrow canal (Tamiami Canal), a filled roadway section (maintained ROW), and natural systems within the remainder of the FDOT ROW
        - The ROGG West segment is similar to the ROGG Central segment in section, although the natural systems include salt marsh and mangrove systems in addition to freshwater systems

    - General comments were provided by the participants
        - John Wrublik (USFWS) noted that the width of the disturbed area for future trails could affect natural resources and the USFWS would have concerns about habitat removed for the trail
            - This would include impacts to listed species habitat and wetland systems in general

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        - David Rydene (NOAA) noted that potential impacts to NOAA/National Marine Fisheries Service (NMFS) trust resources would be subject to scrutiny

    - Levee Top and Toe Sections
        - The CEPP plan retains portions of the L-29 levee, although the ultimate goal is to remove the levee
        - The primary area for levee removal identified in CEPP is in the vicinity of the 2.6 mile long bridge
        - The levee top trail would provide a recreation experience separate from the roadway and providing views over the Water Conservation Area
        - Concerns about use of the levee establishing a user expectation for long-term retention of the levee was a concern for potential effects on the regional restoration efforts
        - Participants noted that work on the levee would have limited impact to resources managed by the two agencies

    - Fill in Canal Section
        - This section would primarily be considered in the ROGG Central and ROGG West segments and would not work in ROGG East
        - Any use of this section would need to address impediments to flow within the canals and the routing of water currently carried by the canal, including the restoration plans for the Birdon Road/Turner River Road area
        - Filling of the canal to accommodate the trail would need to address panther crossings of the road
        - David Rydene (NOAA) noted that a wall may work, but would need to address hydrological connections and conveyance

- Randy Mejeur (AECOM) discussed a series of questions concerning potential criteria that would need to be evaluated based on potential effects on resources subject to the jurisdiction of the USFWS and NOAA
    - Dave Rydene (NOAA) noted that some conceptual sections would likely be feasible depending on location
        - For NOAA, one of the main issues is where the proposed trail would extend over tidal creeks
            - Landfalls for the bridge segments over the creeks require potential impacts to NMFS trust resources
            - In addition, the bridges and/or boardwalks could have a shading effect on vegetation
            - Concern is for installation of fill in mangroves and/or salt marsh systems for NOAA
            - NOAA would typically prefer to see bridges over creeks rather than extended culverts
            - The installation of bridges or boardwalks separate from existing bridges would not be evaluated for distance from the

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existing bridges, but would be assessed for area covered by fill and/or shading to determine a total impact from the facility
    - The type of impact (whether to salt marsh or mangroves) would not matter in the assessment, but the total acreage would
  - For NMFS trust resources, mangroves and salt marsh habitats are of primary concern in the corridor , although hydrology changes (including both salinity and flow) would be of concern

- The primary measure of impact is acreage for wetlands for the USFWS as administered through the consulting federal agency, although the Unified Mitigation Assessment Method (UMAM) would also be used to address the quality of the proposed impacts
  - Mitigation for impacts is typically determined by applicants as part of the process with the FWS and/or consulting federal agencies
  - In-kind mitigation is generally required to offset impacts
  - The use of credits at private mitigation banks can be done, although the participants were not sure that any were present that would work for this project

- For Critical Habitat issues, the agency with purview would depend on the type of species involved
  - Essential Fish Habitat (EFH) would be done by NMFS
    - The Tamiami Canal would likely be considered EFH within all or portions of the corridor, especially where connected to coastal resources
  - The USFWS would typically address potential impacts and mitigation for most federally listed species
  - Within the study area, the NMFS would likely address potential impacts to the small tooth sawfish

- EFH Assessments can be done as part of a PD&E process by the FDOT and/or through coordination with the U.S. Army Corps of Engineers (ACOE)
  - The ROGG is a complex project and would likely require an expanded EFH Assessment review as part of the process
  - Less impacts would be easier to review than more impacts in general
  - Mitigation for EFH impacts would generally be done a project-wide basis

- The USFWS does not have a threshold for the level of potential wetland impacts and/or impacts to listed species that would preclude a project from occurring, although less impacts would be easier to review and address than more
  - John Wrublik (USFWS) noted that formal consultation for the Florida panther would be likely for potential impacts to the panther by ROGG
    - U.S. 41 serves as a boundary in portions of the study area for different levels of review for potential Florida panther impacts

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    - Some Florida panther focus areas lie south of U.S. 41 west of S.R. 29
    - Mitigation for potential impacts to Florida panthers would be done on a project-wide basis, not on individual segments
    - Mitigation for potential impacts to maintained ROW for Florida panthers would likely be evaluated differently than to naturally vegetated areas
  - The USFWS would likely review impacts to both listed species and wetlands as part of their consultation review
  - The USFWS can only do their review as part of a consultation for a federal agency, which could include the Federal Highway Administration (FHWA) and/or the ACOE
  - The USFWS would determine a consultation level by species depending on the degree of potential impacts to each species

- Generally, participants noted that impacts to naturally vegetated areas should be avoided as most of the corridor contained naturally vegetated areas that were jurisdictional wetlands
  - Disturbed lands such as levees, sodded banks for the current road, or berms would not be viewed as adversely as impacts to naturally vegetated areas
  - UMAM assessments would assist in evaluating potential impacts to historical agricultural areas as to whether they would be determined to be disturbed or naturally vegetated systems

- Generally, the participants noted no preference for the location of the trail on the north or south side of U.S. 41, although the location within Florida panther habitat would need to be carefully evaluated

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

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Meeting Notes
Task 2.17 - A5

Subject:	River of Grass Greenway (ROGG) – SFWMD Additional Agency Meeting
Project:	60272285
Date:	May 9, 2014
Time:	10:00 a.m. – 12:00 p.m.
Location:	SFWMD Headquarters – West Palm Beach 3301 Gun Club Rd., Rear Bldg. B1, Conf. Rm. B2, West Palm Beach FL, 33406
Attendees:	Dan Boyar, SFWMD, dboyar@sfwmd.gov Lucine Dadrian, SFWMD, ldadrian@sfwmd.gov Caroline Hanes, SFWMD, chanes@sfwmd.gov Mark Heinicke, MDPROS, MHEINIC@miamidade.gov Jerry Krenz, SFWMD, jkrenz@sfwmd.gov Nick Kuhn, AECOM, Nick.Kuhn@aecom.com Randy Mejeur, AECOM, Randy.Mejeur@aecom.com Teri Swartz, SFWMD, tswartz@sfwmd.gov Joe Webb, MDPROS, jwebb@miamidade.gov

Purpose:
An additional supplemental meeting with representatives from the South Florida Water Management District (SFWMD) concerning the River of Grass Greenway (ROGG) Feasibility Study and Master Plan was held to review the results and findings from the public workshops, discuss potential issues and opportunities within the resources subject to the jurisdiction of these agencies that would affect the feasibility study and master plan for ROGG, and identify potential criteria that could be used in the feasibility evaluation of the ROGG. This meeting was not a permit meeting but rather a discussion on this subject to help with the feasibility of this document.

Introduction

- Joe Webb (MDPROS) provided a brief overview of the project highlighting that the project will determine the feasibility of portions, not whether the entire route is feasibility. Project is about connecting people to the Everglades experience, kids to the parks

- Nick Kuhn (AECOM) provided a description of the purpose of the meeting
  - The ROGG Feasibility Study and Master Plan is being conducted to evaluate the feasibility of the proposed trail, including how the trail would affect resources within the ROGG corridor
  - As part of public interaction for the project, public participants and agencies provided the ROGG project team with ideas for potential design solutions during the 2013 advertised regional workshops, alignment alternatives, and/or feasibility criteria that need to be evaluated for use in the study

  - The ROGG project team is seeking input from agencies that own or regulate lands that include or occur adjacent to the proposed ROGG corridor, including the SFWMD, for vetting the ideas received during the public workshops
  - The Florida State Clearing House recommended on August 28, 2013 for the Project Team to continue having one-on-one agency coordination and interagency and stakeholder briefings to ensure that all affected stakeholders reach a mutual understanding regarding the proposed ROGG
  - The SFWMD meeting is the fifth additional agency meeting held to date
    1. ROGG West Agencies -11/21/13
    2. FDOT District 6 - 12/11/13
    3. NPS (EVER and BICY) - 1/14/14
    4. NOAA - Marine Fisheries / USFWS - 3/26/14
    5. SFWMD West Palm Beach - 5/8/14

- Mark Heinicke (MDPROS) provided background of the genesis of the ROGG project and the project team
  - The original idea for the ROGG as an approximately 75 mile long multi-use trail corridor was generated by citizens and the initial development of the idea was a grassroots effort
  - Through the grassroots effort and participation of the National Park Service (NPS) Rivers, Trails and Conservation Assistance (RTCA), a grant was obtained from the Paul S. Sarbanes Transit in Parks Program (TRIP) to conduct a feasibility study for the trail
  - The TRIP program is designed to address transportation issues, especially multi-modal transportation like transit, for national parks and is not a Project Development and Environment (PD&E) study
  - Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) is the project manager for the grant, while AECOM is the consultant for the project
  - The project has a Steering Committee comprised of 14 members, primarily of landowning agencies within the study corridor

- Nick Kuhn (AECOM) provided an update on the schedule for the study
  - The process has been ongoing for approximately 1.5 years
  - The team is working to complete the conceptual vision master plan and feasibility assessment
  - The project team will review the proposed master plan and feasibility assessment in public meetings prior to finalization
  - Anticipated completion date is spring 2015

Discussion

Levee Use for Trail

- Links for U.S. Army Corp. of Engineers (ACOE) Levee Manual document will be sent by SFWMD to MDPROS
- ACOE is o.k. with paving levee tops but they don't maintain SFWMD levees
- SFWMD will not support trail being asphalt on levee top on any District levee

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- Asphalt trail would be torn up by frequent work, posing as a long-term maintenance issue
- Top of the levee is significantly constraining for SFWMD use of heavy equipment and tracked vehicles for canal and levee maintenance
- L-29 is 10-12' wide now which is insufficiently wide for most uses

- Off-road use on top is not as constrained and is currently provided for public use
- SFWMD supports the designation of routes on existing levees throughout district
- Risk for damage to asphalt on bench is less and would be acceptable by SFWMD
  - 15' to 20' off of the toe of levee may be paved
- SFWMD seeks to maintain areas available for recreation
- Recreation use will remain an ancillary use (not primary mission of levees)
- Projects have shown that recreation uses can be used/removed
- Lake Okeechobee Scenic Trail (LOST) is maintained by ACOE, not SFWMD
  - It has a wider levee top than levee system maintained by SFWMD
- There are trails and recreation uses already that occur on several levees
  - The use will need to be removed when levee is determined to be removed
  - Licenses are set up with language to make it revocable
- Levees (L67A, Blue Shanty, L28) use of asphalt for trail surface is an issue as the levees do not or will not have benches
- Alternative surfaces for levees may be available like coquina and maintenance of surface material will need to factored in
- Current levee top is not required to be ADA accessible for maintenance purposes
- Need to determine where Miami-Dade County's trail system and SFWMD's trail start and end
- SFWMD will continue to maintain L-29 levee surface periodically
- SFWMD may periodically close levee sections for maintenance
  - When sections are closed, signs are needed to warn the public (maintenance of traffic (MOT)
- Currently paved approaches for structures extend about 35-100' away from structure on levee top
  - Usually levee equipment works around these paved approaches

Options to include pavement or transfer between benches and top of levee:

- Viewing platforms desirable
- Turnouts or widened areas at periodic locations on levee may be opportunities to use for platforms
- Levee intersections create felled corners that can be used for additional structures (fishing, shelter)
- ACOE would need to review
- Periodic ramp up a levee or into side slopes may be feasible as a traverse path
- Other option is aggregate surface for levee top
- Currently, system is a vehicular access road so it does not need to be ADA accessible
  - Building bike/ped trails may change that component
  - Structures need to have ADA accessibility

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Randy Mejeur (AECOM) asking questions to SFWMD staff

Permitting Process

- SFWMD addresses all issues with ACOE for anything with SFWMD Right-of-Way (ROW)
- Requests for Additional Information (RAIs) route through SFWMD
- ACOE is looking for no adverse impact to flood control under Section 408 process
  - Done through ROW permitting
- West of the L-28, the ACOE does not have ROW permitting requirements (SFWMD ROW may still be needed)
  Wetlands permitting may still need ACOE and SFWMD permits

Wetlands

- Avoid and minimize is main policy
- Environmental Resource Permit (ERP) applications
  - Water quality
  - Listed species impacts (wetland dependent)
  - Public interest test Outstanding Florida Waters (OFW) areas needs to be clearly in public interest – trail for natural enjoyment should meet this test
  - Wetland impacts regime mitigation
  - Address cultural resource impacts
  - SFWMD relies on Division of Historic Resources (DHR) to comment on application
  - Getting done early is important
- Direct impacts for bell/shading as well as secondary impacts for fragmentation
  - Independent of type of impact (secondary)

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    - Fill is more of an impact than boardwalks
- Secondary or Indirect Impacts
- Assess through Uniform Mitigation Assessment Method (UMAM)
- Would need to assess impacts relative
- Discourage direct fill in wetlands and things that would cause fragmentation
- Disturbed edges may be easier to address
- No threshold for wetland impact acreages
- Need to scope out mitigation opportunities
    - Remove fill roads
    - Impacts will require good mitigation
    - SFWMD would like to see mitigation in specific areas (may differ from ACOE) on site not at mitigation bank
- Would want mitigation as like for like mitigation
- Would not necessarily oppose mitigation bank purchases
- If impacts occur in different basin than mitigation, would need to address cumulative impacts
- Rely on Florida Fish and Wildlife Conservation Commission (FWC) / U.S. Fish and Wildlife Service (FWS) for recommendations
- Demonstrate project won't impact listed species
- SFWMD will not view impacts differently in or outside of FDOT ROW
- History of disturbance would assist in detaining value of wetland quality for impacts
- ERP process will address Sovereign Submerged Lands (SSL) but would need to be evaluated

Action Items:

- SFWMD to send ACOE Levee Manual link to MDPROS

Note: This information is provided as a summary of the meeting and does not represent a transcription of comments or presentations made at the meeting.

Open House Meetings

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Meeting Notes – Vision Elements

Task 2.27

Subject:	River of Grass Greenway (ROGG) – Public Open House (ROGG West)
Project:	60272285
Date:	December 11, 2014
Time:	6:00 p.m. – 9:00 p.m.
Location:	Collier County South Regional Library – Meeting Room 8065 Lely Cultural Parkway, Naples, FL 34113

Purpose: An advertised public Open House was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan in the ROGG West planning region (C.R. 29 to C.R. 92). Attendees had the opportunity to update project team members on items pertinent to ROGG and ask questions and get answers on an individual basis from project team members. Project information was provided regarding the latest progress and coordination efforts with agencies. Meeting materials were displayed at various stations throughout the room and attendees viewed a self-running PowerPoint presentation, along with conceptual plans and cross-sections, maps, assorted documents, and a summary of benefits.

A series of Vision elements (below) were provided on a sheet for attendees to evaluate the project materials effectiveness in demonstrating the vision of ROGG. Each attendee was asked to score each element on a 1-5 point range with 5 representing the highest achievement of the Vision element and 1 representing the lowest achievement. Color coded responses are provided below for each Vision theme average with green representing high scores and yellow representing moderate scores. The number of responses with similar themes is provided in bold at the end of each theme.

Vision Elements:

= High Score = Moderate score

A. Provides safe, non-motorized transportation opportunities

Attendees scored this vision theme an average of 4.2.

- Several respondents expressed concerns about pedestrian and biker safety at the points where the greenway trail merged, crossed or was proposed to be within close proximity to vehicle traffic. Safety of bikers along the long distance multi-use shared path was also a stated concern. [Physical and/or spatial] barriers between bikers/pedestrians and the traffic are recommended to improve safety, specifically along US-41.
  Total number of responses- **10**
- A few respondents, noted that the greenway is not currently very family-oriented; and is more conducive to racers rather than recreational bikers.
  Total number of responses- **2**

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B. Provides diverse recreation opportunities and experiences

Attendees scored this vision theme an average of 4.0.

- Attendees responded that such a biking route is needed in the area and the proposed biking and pedestrian facilities would help in exploring the beauty of the Everglades.
  Total number of responses- **5**
- According to a few respondents the area already has a number of alternative recreational facilities, and hence, a new greenway is not required, which would only cater to a low percentage of bikers.
  Total number of responses- **3**
- Need for safety around areas where people fish.
  Total number of responses- **1**

C. Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts

Attendees scored this vision theme an average of 4.3.

- A few respondents are opposed to the idea of the greenway routing through the Everglades, and impacting the delicate ecosystem of the area.
  Total number of responses- **6**
- One respondent called for the need for safe wild life observation areas along the project length.
  Total number of responses- **1**

D. Protects cultural assets from impact

Attendees scored this vision theme an average of 3.8.

- Several of respondents expressed comments opposing the proposed greenway, calling the project an invasion on Native American land and cultural assets.
  Total number of responses- **9**

E. Helps preserve or enhance environmentally sensitive resources

Attendees scored this community theme an average of 3.3.

- Many of the respondents felt that the project would lead to habitat fragmentation and environmental degradation. Comments included; 'The Everglades, being the only one of its kind in the world needs to be preserved,' and a perceived fear that the greenway project would damage environmentally sensitive lands further.
  Total number of responses- **8**

F. Overall Vision

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Attendees scored the overall vision an average of 4.4.

Written responses were not provided.

G. Other comments

- There is a suggestion for the addition of exercise stations in the first few miles of the trail and then signage markers for every 1/10 mile of the greenway.
- Management of the trail post-construction is another important issue to be considered.
- Request to incorporate biking and pedestrian facilities into all existing facilities, like bridges, instead of building a new and separate facility specifically for biking and pedestrian activities.
- Drainage of the greenway needs to be handled efficiently in order to minimize environmental damage.

River of Grass Greenway
FEASIBILITY STUDY AND MASTER PLAN

The vision of the River of Grass Greenway (ROGG) is a non-motorized transportation and recreation corridor across the Everglades, connecting Naples and Miami, that promotes enhanced opportunities for education, stewardship of the environmental, and cultural assets of this unique area.

Provide Your Feedback:

Instructions: Based on what you have seen this evening, please rate each of the items below by putting an **X** in the number box that best represents the degree of success towards achieving the River of Grass Greenway (ROGG) vision. Each item is a part of the overall vision for the greenway. 1 = not achieving the vision : 5 = right on target with vision

Vision Element	1	2	3	4	5	Comments
Provides safe, non-motorized transportation opportunities						
Provides diverse recreation opportunities and experiences						
Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts						
Protects cultural assets from impacts						
Helps preserve or enhance environmentally sensitive resources						
Overall Vision						

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Open House Notes – Vision Elements

Task 2.27

Subject:	River of Grass Greenway (ROGG) – Public Open House (ROGG Central)
Project:	60272285
Date:	December 10, 2014
Time:	6:00 p.m. – 9:00 p.m.
Location:	Everglades City Hall – Second Floor Council Chambers 102 Broadway East, Everglades City, FL 34139

Purpose: An advertised public Open House was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan in the ROGG Central planning region (Miami-Dade County line to C.R. 29.) Attendees had the opportunity to update project team members on items pertinent to ROGG and ask questions and get answers on an individual basis from project team members. Project information was provided regarding the latest progress and coordination efforts with agencies. Meeting materials were displayed at various stations throughout the room and attendees viewed a self-running PowerPoint presentation, along with conceptual plans and cross-sections, maps, assorted documents, and a summary of benefits.

A series of Vision elements (below) were provided on a sheet for attendees to evaluate the project materials effectiveness in demonstrating the vision of ROGG. Each attendee was asked to score each element on a 1-5 point range with 5 representing the highest achievement of the Vision element and 1 representing the lowest achievement. Color coded responses are provided below for each Vision theme average with green representing high scores and yellow representing moderate scores. The number of responses with similar themes is provided in bold at the end of each theme.

Vision Elements:

= High Score = Moderate score

A. Provides safe, non-motorized transportation opportunities

*Attendees scored this vision element an average of **4.5**.*

- A few respondents noted concerns about pedestrian and biker safety at the points where the greenway trail merged, crossed or was proposed to be within close proximity to vehicle traffic. [Physical and/or spatial] barriers between bikers/pedestrians and the traffic is required to improve safety.
  Total number of responses- **2**

B. Provides diverse recreation opportunities and experiences

*Attendees scored this vision element an average of **4.3**.*

- One respondent noted that the ROGG vision plan encourages the use of the State and National Parks and greenway system.
  Total number of responses- **1**

C. Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts

*Attendees scored this vision element an average of **3.8**.*

Written responses were not provided.

D. Protects cultural assets from impact

*Attendees scored this vision element an average of **3**.*

Written responses were not provided.

E. Helps preserve or enhance environmentally sensitive resources

*Attendees scored this community element an average of **3.3**.*

Written responses were not provided.

F. Overall Vision

*Attendees scored the overall vision an average of **4**.*

Written responses were not provided.

River of Grass Greenway
FEASIBILITY STUDY AND MASTER PLAN

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Provide Your Feedback:

Instructions: Based on what you have seen this evening, please rate each of the items below by putting an **X** in the number box that best represents the degree of success towards achieving the River of Grass Greenway (ROGG) vision. Each item is a part of the overall vision for the greenway. 1 = not achieving the vision : 5 = right on target with vision

Vision Element	1	2	3	4	5	Comments
Provides safe, non-motorized transportation opportunities						
Provides diverse recreation opportunities and experiences						
Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts						
Protects cultural assets from impacts						
Helps preserve or enhance environmentally sensitive resources						
Overall Vision						

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Open House Notes – Vision Elements

Task 2.27

Subject:	River of Grass Greenway (ROGG) – Public Open House (ROGG East)
Project:	60272285
Date:	December 9, 2014
Time:	6:00 p.m. – 9:00 p.m.
Location:	Miami Center for Architecture and Design (MCAD) – 100 NE 1st Ave., Miami, FL 33132

Purpose: An advertised public Open House was held for the River of Grass Greenway (ROGG) Feasibility Study and Master Plan in the ROGG East planning region (Krome Av. to Collier County line.) Attendees had the opportunity to update project team members on items pertinent to ROGG and ask questions and get answers on an individual basis from project team members. Project information was provided regarding the latest progress and coordination efforts with agencies. Meeting materials were displayed at various stations throughout the room and attendees viewed a self-running PowerPoint presentation, along with conceptual plans and cross-sections, maps, assorted documents, and a summary of benefits.

A series of Vision elements (below) were provided on a sheet for attendees to evaluate the project materials effectiveness in demonstrating the vision of ROGG. Each attendee was asked to score each element on a 1-5 point range with 5 representing the highest achievement of the Vision element and 1 representing the lowest achievement. Color coded responses are provided below for each Vision theme average with green representing high scores and yellow representing moderate scores. The number of responses with similar themes is provided in bold at the end of each theme.

Vision Elements:

= High Score = Moderate score

A. Provides safe, non-motorized transportation opportunities

*Attendees scored this vision theme an average of **3.5**.*

- A respondent noted a concern about pedestrian safety at the point where the greenway trail merged, crossed or was proposed to be within close proximity to vehicle traffic.
  Total number of responses- **1**
- Provision for lighting on the trails during the night was requested by a respondent.
  Total number of responses- **1**

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B. Provides diverse recreation opportunities and experiences

*Attendees scored this vision theme an average of **3.5**.*

- A respondent noted that the ROGG vision plan had the potential to promote eco-tourism.
  Total number of responses- **1**

C. Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts

*Attendees scored this vision theme an average of **4**.*

- A respondent noted that a lack of signage along the trail was a concern.
  Total number of responses- **1**
- A respondent noted that the opportunity to see the area on bike or on foot was an educational experience by itself.
  Total number of responses- **1**

D. Protects cultural assets from impact

*Attendees scored this vision theme an average of **4**.*

- A respondent noted that the trail needs to be inclusive of the Native American community and culture.
  Total number of responses- **1**

E. Helps preserve or enhance environmentally sensitive resources

*Attendees scored this community theme an average of **4**.*

- A respondent noted a concern that the trail might impact environmentally sensitive lands, like wetlands and cypress groves.
  Total number of responses- **1**

F. Overall Vision

*Attendees scored the overall vision an average of **3.5.***

Written responses were not provided.

G. Other Responses

- Feasibility of the project is a concern especially the monetary aspect of the project.
- Request to incorporate biking and pedestrian facilities into all existing facilities, such as bridges, instead of building a new and separate facility specifically for biking and pedestrian activities.

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River of Grass Greenway
FEASIBILITY STUDY AND MASTER PLAN

The vision of the River of Grass Greenway (ROGG) is a non-motorized transportation and recreation corridor across the Everglades, connecting Naples and Miami, that promotes enhanced opportunities for education, stewardship of the environmental, and cultural assets of this unique area.

Provide Your Feedback:

Instructions: Based on what you have seen this evening, please rate each of the items below by putting an **X** in the number box that best represents the degree of success towards achieving the River of Grass Greenway (ROGG) vision. Each item is a part of the overall vision for the greenway. 1 = not achieving the vision : 5 = right on target with vision

Vision Element	1	2	3	4	5	Comments
Provides safe, non-motorized transportation opportunities						
Provides diverse recreation opportunities and experiences						
Offers educational opportunities and awareness of Greater Everglades ecosystem, culture and restoration efforts						
Protects cultural assets from impacts						
Helps preserve or enhance environmentally sensitive resources						
Overall Vision						

ROGG East Open House Notes Pg. 3 of 3 12/9/14

Appendix G : Benefits Tables

Social Benefits

Accessibility: The following tables provides figures for annual visitation estimates for destinations that can be accessed using the ROGG.

Annual Visitation Estimates by Destination

Public Facility or Park	Number of Visitors
River of Grass Greenway	**503,250**
Big Cypress National Preserve Oasis Visitor Center*	445,500
Shark Valley Entrance at Everglades National Park**	160,000
Fakahatchee Strand Preserve State Park	121,139
Collier-Seminole State Park	57,939
Ten Thousand Islands National Wildlife Refuge	29,333

Data Source: National Park Service, Big Cypress National Preserve Business Plan, Fakahatchee Strand Visitation Reports, Collier-Seminole Visitation Reports, Ten Thousand Island NWR (2012) Visitations.
Assumptions/ Notes: * Based on BICY total visitation of 810,000 with Oasis Visitor Center estimated to receive 55% of visitors per BICY Business Plan; **Shark Valley Entrance figure based on total EVER visitation records for 2011; General Management Plan, pg. 264

Health and Wellness: Building off of the estimates for total number of visitors and mode shares in alternative transportation scenarios, the following table shows estimates calories burned and pounds lost annually by ROGG visitors.

Estimated Calories Burned and Pounds Lost Annually

Scenario	Total Calories Burned Annually	Pounds Lost Annually^
Pathway Only	6,751,080	**1,928**
Basic Initiatives	17,232,961	**4,923**
Progressive Demand Management	30,035,707	**8,581**

Assumptions/ Notes: ^ Approximately 3,500 calories per pound lost.
Scenario 1 modes: 0.9% Bike, 3.4% Pedestrian
Scenario 2 modes: 5.1% Bike, 4.2% Pedestrian
Scenario 3 modes: 6.9% Bike, 10.5% Pedestrian

Environmental Benefits

Annual Average Daily Vehicle Trips (AADTs): The following table demonstrates the potential reduction Average Daily Vehicle Trips through the development of the ROGG and implementation of alternative transportation strategies.

Estimated Annual Average Daily Vehicle Trips (AADTs) Reduction

Scenario	Net AADTs Reduction	Alternative Transportation Strategies AADTs Reduction
Pathway Only	+202,770	**-8,648**
Basic Initiatives	+115,446	**-85,613**
Progressive Demand Management	-114,913	**-332,074**

Assumptions/ Notes: Net AADTs represent total vehicle AADTs upon full implementation of ROGG and Scenario 3 Alternative Transportation Strategies.

Estimated Annual Vehicle Trip Miles (VTMs): The following table provides estimates for the potential reduction of Annual Vehicle Trip Miles through the development of the ROGG and implementation of alternative transportation strategies.

Estimated Annual Vehicle Trip Miles (VTMs) Reduction

Scenario	Net VMTs Reduction	Alternative Transportation Strategies VMTs Reduction
Pathway Only	+15,207,750	**-648,000**
Basic Initiatives	+8,658,450	**-6,420,975**
Progressive Demand Management	-8,618,475	**-24,905,550**

Assumptions/ Notes: Net VMTs represent total vehicle mileage upon full implementation of ROGG and Scenario 3 Alternative Transportation Strategies.

Estimated Fossil Fuel Reduction: Using the same total VMTs reduction figure, the following table shows estimates for the potential reduction in fossil fuel use though the development of the ROGG annually, and over the next 10 and 25 years.

Estimated Fossil Fuel Reduction

Time Period	Gallons of Gasoline Reduced	Gasoline Savings
Annually	252,741	**$930,086**
Over 10 Years	2,527,410	**$9,300,860**
Over 25 Years	6,318,525	**$23,252,171**

Assumptions/ Notes: Total of 8,618,475 VMTs reduced annually with an average MPG of 34.1. AAA average gasoline price of $3.68 as of June, 2014.

Economic Benefits

Tourism Expenditures: The following tables provide estimates for annual ROGG visitor groups (including those solely for ROGG), as well as the total direct expenditures resulting from these visitor groups.

Estimated Annual ROGG Visitor Groups

Type of Visitor Group	Number of Visitor Groups	Number of Visits Solely for ROGG
Day/ Local Trips	82,010	**18,862**
Camping	9,319	**3,168**
Hotel/ Lodging Stay	70,827	**14,165**
Total Visitor Groups:	186,388	**36,195**

Assumptions/ Notes: Average visitor group is 2.7 persons.. Type of Visitors displayed do not equal Total Visitor Groups due to exclusion of OVN or Other Visitor Nights in which visitors did not provide spending details.

Estimated Annual ROGG Visitor Groups Total Trip Expenditures

Type of Visitor Group	Number of Visitor Groups	Total Direct Expenditures
Day/ Local Trips	82,010	**$8,402,405**
Camping	9,319	**$3,270,812**
Hotel/ Lodging Stay	70,827	**$84,748,046**
Total Visitor Groups:	186,388	**$96,421,263**

Assumptions/ Notes: Average visitor group is 2.7 persons..All amounts have been adjusted for inflation. Camping is 40% in other facility and 60% in park facility. Excludes OVN trips from Visitor Groups.

Potential Florida State Sales Tax: The State of Florida collects a 6% sales tax on expenditures, excluding necessary groceries. The following table shows the potential revenue for the State of Florida when this tax is applied to potential visitor group expenditures for ROGG.

Estimated Annual State of Florida Sales Tax Revenue (Direct Expenditures)

Type of Visitor Group	Visitor Group Annual Taxable Direct Expenditures	Florida State Annual Sales Tax Revenue
Day/ Local Trips	$7,343,189	**$440,591**
Camping	$2,740,822	**$164,449**
Hotel/ Lodging Stay	$80,509,050	**$4,830,543**
Annual Totals:	$90,593,061	**$5,435,583**

Assumptions/ Notes: State of Florida collects a 6% sales tax as of 2014 on non-grocery expenses.

Potential County Sales Tax: Directly related to the estimated sales tax collected by the State of Florida, Miami-Dade County has a 1% sales tax on all non-grocery related expenses. In addition to state and county sales tax revenue, Miami-Dade collects a 6% hotel tax for over-night stays and short-term rentals. Collier County collects a 4% hotel tax for over-night stays or short-term rentals. The following table shows estimated tax revenue for the State of Florida and both counties.

Estimated Sales Tax and Hotel Tax Revenue for Miami-Dade County and Collier County (Direct Expenditures)

Jurisdiction	Annual Sales Tax Revenue	County Hotel Tax Revenue
State of Florida	$5,435,583	-
Collier County	-	$165,362
Miami-Dade County	$813,522	$2,183,758
Annual Totals:	**$6,249,105**	**$2,349,120**

Appendix G : Benefits-Cost Analysis Tables

Analysis Including Scenario 3 + Health & Recreation

	20-Year Analysis Period	
	7% Discount Rate	3% Discount Rate
	All Values are in Millions of $2014	
Costs		
Capital Costs Subtotal	$ 122.72	$ 134.92
O&M	$ 31.31	$ 49.29
Total Costs	**$ 154.02**	**$ 184.20**
Benefits		
Residual	$ -	$ -
Emissions Avoided	$ 1.06	$ 1.67
Safety	$ 18.43	$ 29.01
Vehicle Costs Avoided	$ 15.45	$ 24.32
Property Premium	$ -	$ -
Health	$ 26.95	$ 42.43
Recreation	$ 46.41	$ 73.06
Congestion Avoided	$ 4.46	$ 7.02
Total Net Benefits	***$ 112.76***	***$ 177.51***
BC Ratio	**0.73**	**0.96**

Capital Costs

	2014$	
Trail	$ 140,000,000	assume equal costs
Bike Share Stations (8)	$ 5,250,000.00	assume equal costs
Total	$ 145,250,000.00	

Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Year	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**	**2016**
Trail	$ 5,833,333.33	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333
Bike Share Station	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750
Total	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**
Discounted at 7%	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124	$ 5,286,124
Discounted at 3%	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669	$ 5,704,669

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2017	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**	**2017**
$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333	$ 5,833,333
$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750	$ 218,750
$ 6,052,083	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**	**$ 6,052,083**
$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303	$ 4,940,303
$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514	$ 5,538,514

Total	$ 145,250,000
Discounted at 7%	$ 122,717,121
Discounted at 3%	$ 134,918,191

Quarterly Construction Impacts: Miami

Assume 20% of Trail costs are Professional Services

	2016				**2017**				
Expenditures	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Construction	$ 14,000,000	$ 14,000,000	$ 14,000,000	$ 14,000,000	$ 14,000,000	$ 14,000,000	$ 14,000,000	$ 14,000,000	**$ 112,000,000**
Professional Services	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	**$ 28,000,000**
Direct Employment									**Total**
Construction	115	115	115	115	115	115	115	115	**919**
Professional Services	29	29	29	29	29	29	29	29	**231**
Total	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**1,149**
Total Earnings									**Total**
Construction	$ 7,719,600	$ 7,719,600	$ 7,719,600	$ 7,719,600	$ 7,719,600	$ 7,719,600	$ 7,719,600	$ 7,719,600	**$ 61,756,800**
Professional Services	$ 2,347,100	$ 2,347,100	$ 2,347,100	$ 2,347,100	$ 2,347,100	$ 2,347,100	$ 2,347,100	$ 2,347,100	**$ 18,776,800**
Total	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 10,066,700**	**$ 80,533,600**
Total Employment									**Total**
Construction	196	196	196	196	196	196	196	196	**1,568**
Professional Services	50	50	50	50	50	50	50	50	**402**
Total	**246**	**246**	**246**	**246**	**246**	**246**	**246**	**246**	**1,970**

Operating and Maintenance Costs

Project length 75 miles

$1,000 per year per mile, on average $ 2,500 per mile
Note: only addresses spot pavement repairs
Source: http://www.seattle.gov/transportation/docs/am/Section%203%20%20Bike%20and%20Pedestrian%20System.pdf, page 11

Assume an additional $2k/mile for other O&M $ 5,000 per mile

	2018	2019	2020	2021	2022	2023	2024	2025	2026
Transit Service, 2014$	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00
Marketing Alternative Transportation, 2014$	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
Annual O&M, 2014$	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500

2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00
$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500	$ 562,500

	1	2	3	4	5	6	7	8	9
Operations and Maintenance Costs	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Total	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500
Discounted at 7%	$ 2,755,959	$ 2,575,663	$ 2,407,161	$ 2,249,683	$ 2,102,508	$ 1,964,961	$ 1,836,412	$ 1,716,273	$ 1,603,993
Discounted at 3%	$ 3,209,659	$ 3,116,174	$ 3,025,412	$ 2,937,293	$ 2,851,741	$ 2,768,680	$ 2,688,039	$ 2,609,747	$ 2,533,735

10	11	12	13	14	15	16	17	18	19	20
2027	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**
$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500	$ 3,612,500
$ 1,499,059	$ 1,400,990	$ 1,309,336	$ 1,223,679	$ 1,143,625	$ 1,068,808	$ 998,886	$ 933,539	$ 872,466	$ 815,389	$ 762,046
$ 2,459,937	$ 2,388,288	$ 2,318,726	$ 2,251,191	$ 2,185,622	$ 2,121,963	$ 2,060,158	$ 2,000,154	$ 1,941,897	$ 1,885,337	$ 1,830,424

	Total
O&M Costs	$ 72,250,000
Discounted at 7%	$ 31,240,435
Discounted at 3%	$ 49,184,177

Health & Recreation Benefits

$/VMT

These reflect the congestion benefits associated with the automobile trips avoided on the Miami-Dade metro roadways. All other drivers on these roads are made better off by these riders taking the trails for some trips.

Table IV-9 NHTSA Economic Values for Estimating Benefits

	2006$	2014$
Annual Per Capita Cost Savings from Physical Activity		$ 322.000
Value of Recreation	$ 10.000	$ 10.663

NCHRP Report 552: Guideline for Analysis of Investments in Bicycle Facilities (2006), http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_552.pdf

Health & Recreation Benefits (M$2014)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual number of weekly users	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678	9,678
Value of Health Benefits	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12
Discounted at 7%	$ 2.38	$ 2.22	$ 2.08	$ 1.94	$ 1.81	$ 1.70	$ 1.58	$ 1.48	$ 1.38	$ 1.29	$ 1.21	$ 1.13	$ 1.06	$ 0.99
Discounted at 3%	$ 2.77	$ 2.69	$ 2.61	$ 2.53	$ 2.46	$ 2.39	$ 2.32	$ 2.25	$ 2.19	$ 2.12	$ 2.06	$ 2.00	$ 1.94	$ 1.89
Annual number of new visitors	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250	503,250
Value of Recreational Benefits	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37
Discounted at 7%	$ 4.09	$ 3.83	$ 3.58	$ 3.34	$ 3.12	$ 2.92	$ 2.73	$ 2.55	$ 2.38	$ 2.23	$ 2.08	$ 1.94	$ 1.82	$ 1.70
Discounted at 3%	$ 4.77	$ 4.63	$ 4.49	$ 4.36	$ 4.24	$ 4.11	$ 3.99	$ 3.88	$ 3.76	$ 3.65	$ 3.55	$ 3.44	$ 3.34	$ 3.25

	2032	2033	2034	2035	2036	2037
	9,678	9,678	9,678	9,678	9,678	9,678
	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12	$ 3.12
	$ 0.92	$ 0.86	$ 0.81	$ 0.75	$ 0.70	$ 0.66
	$ 1.83	$ 1.78	$ 1.73	$ 1.68	$ 1.63	$ 1.58
	503,250	503,250	503,250	503,250	503,250	503,250
	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37	$ 5.37
	$ 1.59	$ 1.48	$ 1.39	$ 1.30	$ 1.21	$ 1.13
	$ 3.15	$ 3.06	$ 2.97	$ 2.88	$ 2.80	$ 2.72

Health Benefits Totals	$ 62.33
Discounted at 7%	$ 26.95
Discounted at 3%	$ 42.43
Recreation Benefits Total	$ 107.32
Discounted at 7%	$ 46.41
Discounted at 3%	$ 73.06

	Total
Benefits	$ 169.65
Discounted @ 7%	$ 73.36
Discounted @ 3%	$ 115.49

All calculations assume a 5% increase in the total number of visitors annually

External Costs from Auto Use Avoided

$/VMT

These reflect the congestion benefits associated with the automobile trips avoided on the Miami-Dade metro roadways. All other drivers on these roads are made better off by these riders taking the trails for some trips.

Table IV-9 NHTSA Economic Values for Estimating Benefits

	2010$	2014$
Congestion	$ 0.056	$ 0.060

External Costs from Additional Automobile Use ($/vehicle-mile)

https://www.federalregister.gov/articles/2012/10/15/2012-21972/2017-and-later-model-year-light-duty-vehicle-greenhouse-gas-emissions-and-corporate-average-fuelft-176

External Congestion Cost Savings (M$2014)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Reduced Annual VMT	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
Value of Reduced Congestion	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52
Discounted at 7%	$ 0.39	$ 0.37	$ 0.34	$ 0.32	$ 0.30	$ 0.28	$ 0.26	$ 0.25	$ 0.23	$ 0.21	$ 0.20	$ 0.19	$ 0.17	$ 0.16
Discounted at 3%	$ 0.46	$ 0.44	$ 0.43	$ 0.42	$ 0.41	$ 0.40	$ 0.38	$ 0.37	$ 0.36	$ 0.35	$ 0.34	$ 0.33	$ 0.32	$ 0.31

2032	2033	2034	2035	2036	2037
8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52	$ 0.52
$ 0.15	$ 0.14	$ 0.13	$ 0.12	$ 0.12	$ 0.11
$ 0.30	$ 0.29	$ 0.29	$ 0.28	$ 0.27	$ 0.26

	Total
Congestion	$ 10.32
Discounted @ 7%	$ 4.46
Discounted @ 3%	$ 7.02

Table 10.1—GROSS DOMESTIC PRODUCT AND DEFLATORS USED IN THE HISTORICAL TABLES: 1940–2019
(Fiscal Year 2009 = 1.000)

Fiscal Year	GDP (in billions of dollars)	GDP (Chained) Price Index	Composite Outlay Deflators												
			Total	Total Defense	Total Non-defense	Payment for Individuals			Other Grants	Net Interest	Undis-tributed Offsetting Receipts	All Other	Addendum: Direct Capital		
						Total	Direct	Grants					Total	Defense	Non-defense
1983	3,541.1	0.5328	0.4949	0.4721	0.5035	0.5241	0.5241	0.5239	0.3955	0.5328	0.4077	0.4357	0.7325	0.7410	0.6765
1984	3,952.8	0.5516	0.5165	0.4944	0.5250	0.5444	0.5444	0.5442	0.4160	0.5516	0.4173	0.4539	0.7594	0.7700	0.6939
1985	4,270.4	0.5699	0.5334	0.5128	0.5413	0.5636	0.5636	0.5633	0.4335	0.5699	0.4345	0.4685	0.7674	0.7773	0.7087
1986	4,536.1	0.5829	0.5477	0.5242	0.5572	0.5784	0.5784	0.5781	0.4497	0.5829	0.4407	0.4771	0.7621	0.7686	0.7174
1987	4,781.9	0.5959	0.5631	0.5325	0.5760	0.5930	0.5931	0.5928	0.4723	0.5959	0.4425	0.4857	0.7549	0.7592	0.7263
1988	5,155.1	0.6151	0.5820	0.5455	0.5970	0.6154	0.6155	0.6149	0.4902	0.6151	0.4566	0.5038	0.7560	0.7575	0.7473
1989	5,570.0	0.6396	0.6043	0.5648	0.6200	0.6424	0.6425	0.6414	0.5109	0.6396	0.4670	0.5125	0.7701	0.7698	0.7722
1990	5,914.6	0.6628	0.6226	0.5844	0.6356	0.6682	0.6684	0.6667	0.5354	0.6628	0.4797	0.5172	0.7851	0.7839	0.7921
1991	6,110.0	0.6863	0.6515	0.6159	0.6614	0.6943	0.6946	0.6926	0.5570	0.6863	0.5124	0.5478	0.8067	0.8054	0.8135
1992	6,434.7	0.7031	0.6758	0.6231	0.6918	0.7122	0.7126	0.7102	0.5739	0.7031	0.5257	0.5859	0.8185	0.8179	0.8208
1993	6,794.9	0.7198	0.6958	0.6302	0.7152	0.7305	0.7310	0.7280	0.5923	0.7198	0.5560	0.6277	0.8359	0.8366	0.8332
1994	7,197.8	0.7355	0.7087	0.6366	0.7284	0.7458	0.7465	0.7424	0.6078	0.7355	0.5815	0.6395	0.8549	0.8570	0.8469
1995	7,583.3	0.7511	0.7294	0.6498	0.7494	0.7617	0.7625	0.7582	0.6283	0.7511	0.6001	0.6762	0.8766	0.8788	0.8701
1996	7,978.3	0.7651	0.7452	0.6641	0.7643	0.7771	0.7778	0.7734	0.6451	0.7651	0.6282	0.7006	0.8885	0.8925	0.8779
1997	8,483.2	0.7786	0.7602	0.6740	0.7804	0.7926	0.7933	0.7888	0.6565	0.7786	0.6431	0.7145	0.8858	0.8888	0.8778
1998	8,954.8	0.7882	0.7670	0.6866	0.7848	0.7999	0.8005	0.7972	0.6660	0.7882	0.6583	0.7069	0.8865	0.8887	0.8786
1999	9,514.0	0.7982	0.7768	0.7015	0.7932	0.8092	0.8097	0.8069	0.6829	0.7982	0.6774	0.7261	0.8951	0.8992	0.8846
2000	10,154.0	0.8147	0.7962	0.7235	0.8123	0.8283	0.8289	0.8256	0.7089	0.8147	0.7093	0.7524	0.9079	0.9108	0.9017
2001	10,568.4	0.8344	0.8175	0.7494	0.8323	0.8467	0.8472	0.8443	0.7319	0.8344	0.7310	0.7787	0.9114	0.9115	0.9113
2002	10,879.4	0.8478	0.8313	0.7761	0.8438	0.8568	0.8573	0.8546	0.7463	0.8478	0.7702	0.8057	0.9061	0.9041	0.9107
2003	11,334.0	0.8640	0.8544	0.8239	0.8617	0.8740	0.8745	0.8719	0.7696	0.8640	0.8057	0.8328	0.9130	0.9118	0.9160
2004	12,090.7	0.8854	0.8774	0.8552	0.8831	0.8930	0.8934	0.8911	0.8007	0.8854	0.8468	0.8661	0.9260	0.9250	0.9292
2005	12,890.5	0.9132	0.9080	0.8963	0.9109	0.9180	0.9183	0.9167	0.8485	0.9132	0.8867	0.8996	0.9437	0.9423	0.9484
2006	13,686.6	0.9429	0.9394	0.9350	0.9405	0.9457	0.9459	0.9446	0.8920	0.9429	0.9229	0.9320	0.9601	0.9593	0.9626
2007	14,324.9	0.9684	0.9643	0.9648	0.9642	0.9658	0.9659	0.9654	0.9378	0.9684	0.9562	0.9631	0.9749	0.9744	0.9766
2008	14,756.1	0.9884	0.9980	1.0019	0.9970	0.9999	1.0000	0.9996	0.9838	0.9884	0.9879	0.9892	0.9929	0.9921	0.9956
2009	14,413.6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2010	14,791.4	1.0087	1.0118	1.0031	1.0140	1.0162	1.0163	1.0159	0.9971	1.0087	1.0103	1.0104	1.0070	1.0052	1.0127
2011	15,387.1	1.0284	1.0317	1.0187	1.0349	1.0372	1.0373	1.0369	1.0189	1.0284	1.0207	1.0264	1.0270	1.0241	1.0355
2012	16,094.2	1.0464	1.0511	1.0286	1.0566	1.0589	1.0589	1.0588	1.0542	1.0464	1.0374	1.0399	1.0354	1.0339	1.0399
2013	16,618.6	1.0622	1.0682	1.0441	1.0738	1.0758	1.0758	1.0757	1.0627	1.0622	1.0530	1.0580	1.0511	1.0495	1.0556
2014 estimate	17,332.3	1.0781	1.0841	1.0591	1.0893	1.0909	1.0909	1.0908	1.0839	1.0781	1.0688	1.0735	1.0670	1.0652	1.0714
2015 estimate	18,219.4	1.0966	1.1043	1.0776	1.1097	1.1116	1.1116	1.1116	1.1164	1.0966	1.0872	1.0898	1.0852	1.0835	1.0898
2016 estimate	19,180.6	1.1170	1.1276	1.0975	1.1329	1.1350	1.1350	1.1351	1.1510	1.1170	1.1073	1.1100	1.1056	1.1036	1.1100
2017 estimate	20,199.4	1.1391	1.1521	1.1192	1.1574	1.1599	1.1599	1.1600	1.1878	1.1391	1.1293	1.1320	1.1276	1.1255	1.1320
2018 estimate	21,216.3	1.1619	1.1779	1.1416	1.1835	1.1866	1.1866	1.1867	1.2259	1.1619	1.1519	1.1547	1.1502	1.1480	1.1547
2019 estimate	22,196.1	1.1852	1.2043	1.1645	1.2101	1.2139	1.2138	1.2141	1.2666	1.1852	1.1750	1.1778	1.1732	1.1710	1.1778

Note: Constant dollar research and development outlays are based on the GDP (chained) price index.
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Emissions Avoided

Emissions Rates Grams/Mile --	1997
Carbon Monoxide	10.66
Hydrocarbons	1.37
Nitrogen Oxides	1.39

Source: Documentation and Procedural Updates to the Florida Standard Urban Transportation Model Structure (FSUTMS), Florida Department of Transportation, November 1997
Emissions rates (g/m) are the most common rates (mph and facility type)

Value of Emissions (2013$) - Adjusted to 2014$ using GDP deflators

Emission Damage Costs	2013$	2014$	Unit	Data Source
Carbon Monoxide	$0	$ -	$/ton	Corporate Average Fuel Economy for MY2017-MY2025 Passenger Cars and Light Trucks (August 2012), page 922, Table VIII-16, "Economic Values Used for Benefits Computations (2010 dollars)" http://www.dot.gov/sites/dot.gov/files/docs/TIGER_BCARG_2014.pdf
VOC	$1,813	$ 1,840	$/ton	
Nitrogen Oxides	$7,147	$ 7,254	$/ton	
Particulate Matter	$326,935	$ 331,829	$/ton	
Sulfur Dioxide	$42,240	$ 42,872	$/ton	
Carbon Dioxide	*varies*	varies	$/metric ton	

Note: Escalated to 2014$ using GDP deflator

Hydrocarbons $2,040
Note: assumes HC is in 2014$, from GradeDec analysis

tpd = tons per day
g per short ton 907,185
g per metric ton 1,000,000

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Annual VMT Reduced	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475

Source: See VMTReduced tab, assumes 0% growth over time.

2030	2031	2032	2033	2034	2035	2036	2037
8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475

Value of Emissions Savings (M$2014)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Carbon Monoxide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NOx	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10
Hydrocarbons	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Total	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**
Discounted 3% (M$2014)	$ 0.109	$ 0.106	$ 0.102	$ 0.099	$ 0.097	$ 0.094	$ 0.091	$ 0.088	$ 0.086	$ 0.083	$ 0.081	$ 0.079
Discounted 7% (M$2014)	$ 0.093	$ 0.087	$ 0.082	$ 0.076	$ 0.071	$ 0.067	$ 0.062	$ 0.058	$ 0.054	$ 0.051	$ 0.047	$ 0.044

2030	2031	2032	2033	2034	2035	2036	2037
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10	$ 0.10
$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
$ 0.12	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**	**$ 0.12**
$ 0.076	$ 0.074	$ 0.072	$ 0.070	$ 0.068	$ 0.066	$ 0.064	$ 0.062
$ 0.041	$ 0.039	$ 0.036	$ 0.034	$ 0.032	$ 0.030	$ 0.028	$ 0.026

Total	$ 2.45
Discounted 3% (M$2014)	$ 1.67
Discounted 7% (M$2014)	$ 1.06

Safety Costs Avoided

Value of accidents avoided from reduced VMT, based on the retained ridership from the installation of the real-time transit information system

2009 BTS Motor Vehicle Safety Data Table 2-17 (from 2011 National Transportation Statistics)
http://www.bts.gov/publications/national_transportation_statistics/#chapter_2

	Rate	
Fatalities	1.144675318	per 100,000,000 VMT
Injured persons	75.06345185	per 100,000,000 VMT
Crashes	186.3889501	per 100,000,000 VMT

KABCO-AIS Conversion Table, NHTSA July 2011

	Injured - Severity Unknown	O - No injury
AIS 0	0.21538	0.92534
AIS 1	0.62728	0.07257
AIS 2	0.104	0.00198
AIS 3	0.03858	0.00008
AIS 4	0.00442	0
AIS 5	0.01034	0.00003

Source: TIGER BENEFIT-COST ANALYSIS (BCA) RESOURCE GUIDE
http://www.dot.gov/sites/dot.dev/files/docs/BCA_OnlineSupplement_May15_2013.pdf

Value of Accidents Avoided		**2014$ Millions**	
Value of Statistical Life, 2013	$ 9.200	$ 9.338	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
MAIS 5 Critical (0.593) Fraction of VSL	$ 5.456	$ 5.537	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
MAIS 4 Severe (0.266) Fraction of VSL	$ 2.447	$ 2.484	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
MAIS 3 Serious (0.105) Fraction of VSL	$ 0.966	$ 0.980	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
MAIS 2 Moderate (0.047) Fraction of VSL	$ 0.432	$ 0.439	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
MAIS 1 Minor (0.003) Fraction of VSL	$ 0.028	$ 0.028	Guidance on Treatment of the Economic Value of a Statistical Life in the US, Department of Transportation Analyses 2014
No Injury, 2010	$ 0.004	$ 0.004	The Econmic and Societal Impact of Motor Vehicle Crashes, 2010 (forthcoming April 2014)

2014 OST Guidance, see http://www.dot.gov/sites/dot.gov/files/docs/TIGER_BCARG_2014.pdf

Reduced VMT	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Reduced Annual VMT	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
Reduced Fatalities	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Reduced Injuries	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47
Reduced Crashes	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06	16.06

2032	**2033**	**2034**	**2035**	**2036**	**2037**
8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
0.10	0.10	0.10	0.10	0.10	0.10
6.47	6.47	6.47	6.47	6.47	6.47
16.06	16.06	16.06	16.06	16.06	16.06

Annual Accidents Avoided by MAIS type

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Fatalities	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MAIS 5	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
MAIS 4	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
MAIS 3	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
MAIS 2	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
MAIS 1	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22	5.22
PDO	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26	16.26

2032	2033	2034	2035	2036	2037
0.10	0.10	0.10	0.10	0.10	0.10
0.07	0.07	0.07	0.07	0.07	0.07
0.03	0.03	0.03	0.03	0.03	0.03
0.25	0.25	0.25	0.25	0.25	0.25
0.70	0.70	0.70	0.70	0.70	0.70
5.22	5.22	5.22	5.22	5.22	5.22
16.26	16.26	16.26	16.26	16.26	16.26

OUTPUTS

Cost Savings from Accidents Avoided (2014$ M)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Fatalities	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92
MAIS 5	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37
MAIS 4	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07
MAIS 3	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25
MAIS 2	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31
MAIS 1	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15
PDO	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06
Total	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**
Discounted @ 7%	$ 1.63	$ 1.52	$ 1.42	$ 1.33	$ 1.24	$ 1.16	$ 1.08	$ 1.01	$ 0.95	$ 0.88	$ 0.83	$ 0.77	$ 0.72	$ 0.67
Discounted @ 3%	$ 1.89	$ 1.84	$ 1.78	$ 1.73	$ 1.68	$ 1.63	$ 1.59	$ 1.54	$ 1.49	$ 1.45	$ 1.41	$ 1.37	$ 1.33	$ 1.29

2032	2033	2034	2035	2036	2037
$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92
$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37	$ 0.37
$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07
$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25	$ 0.25
$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31	$ 0.31
$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15
$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06
$ 2.13	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**	**$ 2.13**
$ 0.63	$ 0.59	$ 0.55	$ 0.51	$ 0.48	$ 0.45
$ 1.25	$ 1.22	$ 1.18	$ 1.15	$ 1.11	$ 1.08

	Total
Safety	$ 42.62
Discounted @ 7%	$ 18.43
Discounted @ 3%	$ 29.01

VMT Reduced

Vehicle Trip Reductions

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Trips to Parks	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
Total Vehicle Trips	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**

2031	2032	2033	2034	2035	2036	2037
8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
8,618,475	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**	**8,618,475**

Estimated VMT Reduced

Assume all trips are 1.00 miles

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Estimated VMT Reduced	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475

Assumes 0% annual growth

2031	2032	2033	2034	2035	2036	2037
8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475

Vehicle Costs Avoided

The retained riders will not incur the vehicle maintenance costs for the trips they take by transit due to the installation of the real-time transit information system.
Conservatively assumes that no parking costs are avoided. Those commuting passengers destined to downtown or other regional center likely have a parking expense associated with their trips.

Average Auto Operating Costs per Mile

$	0.204	2013
$	0.207	2014

Source: AAA, Your Driving Costs, 2013
http://newsroom.aaa.com/wp-content/uploads/2013/04/YourDrivingCosts2013.pdf
2013 costs escalated to 2014$ using GDP deflator
Includes variable costs only: gas, maintenance, tires, and half of depreciation.

First 25 Stations	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Annual VMT Avoided	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
Auto Costs Avoided	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236
Net Vehicle Costs Avoided	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236
Discounted at 7%	$ 1,362,711	$ 1,273,562	$ 1,190,245	$ 1,112,378	$ 1,039,606	$ 971,594	$ 908,032	$ 848,628	$ 793,110	$ 741,225	$ 692,733	$ 647,414	$ 605,060
Discounted at 3%	$ 1,587,048	$ 1,540,823	$ 1,495,945	$ 1,452,374	$ 1,410,071	$ 1,369,001	$ 1,329,128	$ 1,290,415	$ 1,252,830	$ 1,216,340	$ 1,180,913	$ 1,146,517	$ 1,113,123

	2031	2032	2033	2034	2035	2036	2037
	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475	8,618,475
	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236
	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236	$ 1,786,236
	$ 565,477	$ 528,483	$ 493,909	$ 461,597	$ 431,399	$ 403,177	$ 376,801
	$ 1,080,702	$ 1,049,226	$ 1,018,666	$ 988,996	$ 960,190	$ 932,223	$ 905,071

Vehicle Costs Avoided	Total $2014
First 25 Stations	$ 35.72
Discounted at 7%	$ 15.45
Discounted at 3%	$ 24.32

Appendix H: Draft Feasibility Study and Master Plan Report
Public Review Comment Themes and Responses

AC #	Action Items	Page/Section	Responses
	Advocate Group Combined Comments		
1	Correct Appendix C - see comments	Appendix C	Verified information in comments by reviewing the stated sections in the Collier and Monroe County Comprehensive Plans and updated in Appendix C.
2	Add Monroe County policies and codes - see comments	Appendix C	Only Loop Road is contained with Monroe County, which is not a viable alternative due to the lack of ability to pave the road for a hard surface path as stated in the requirements of the funding grant for feasibility. No changes to text is needed.
3	Explain canal concept and how it benefits restoration	pg. 106-133	Information is contained with pages 108- 133 concept descriptions as well as matrix score explanations address how concepts impact restoration efforts. No changes to text is needed.
4	EWMA is not listed as point of interest in Section 2.2.8	pg. 59, 61	Everglades Wildlife Management Area (shown on maps as WCA-3A) description added to pg. 61 as a point of interest
5	FWC recommends coordination with FWC for proposed development near boat launches	n/a	Note added on pg. 108 stating 'proposed development near existing boat launches require FWC coordination'
6	Add explanation that ROGG will enhance and not impede access to current recreation opportunities	pg. 4	Page 4 outlines grant objectives as identified in the original FTA agreement. Text includes the following, 'ROGG will provide an opportunity for millions of residents and visitors to South Florida to experience the Everglades landscape and culture in a sustainable manner.' and '....suitable for a wide range of non-motorized transportation and recreation activities such as walking, bicycling, bird watching, photography, fishing and general enjoyment and education of the Everglades ecosystem.' No changes to text is needed.
7	Coordinate with FWC	n/a	See previous comment: Note added on pg. 108 stating 'proposed development near existing boat launches require FWC coordination' No changes to text is needed.
8	Signage for wildlife encounters	pg. 125	Note added to signage section on pg. 128
9	Choosing B9-A rather than B9	pg.	Concept B9 is the highest scoring alternative per the matrix. Requested B9A concept requires impacts to adjacent wetlands, higher costs and potential impacts culturally significant lands. B9 alternative remains as preferred route due to the above reasons for B9A impacts. B9A route is identified as land manager's preferred route.
10	Reference to Independent Seminoles living in corridor	pg. 10	Removed reference on page 10, last paragraph regarding Seminole Tribe of Florida maintaining a significant presence within the corridor.
11	Collier MPO Comprehensive Pathways Plan - indicates no additional bike facilities needed	pg. 76	Full text states that the area east of SR 29 has suitable paved shoulders for cycling, however, the plan further identifies, "Portions of U.S. 41 in Collier County are designated as lacking pedestrian sidewalks or shared-use path improvements.' Also that San Marco Road (CR 92) is an important bicycle connector between Marco Island and US 41. No changes to text is needed.
12	Fire resistant boardwalk materials	pg. 108, 115-117	Note added to page 108.
13	Matrix - "Perceived Safety" vs. "Actual Safety"	pg. 131	Matrix evaluation of concepts is based on perceived safety only as noted on page 132, '....goes beyond the required elements of safety which any concept would be required to fully met or exceed and instead focuses on perceived safety for users.' No changes needed.
14	C1, C2 - toxic chemicals from wood	pg. 108, 115-117	Note added to page 108. Notes also added to page. 119-120 under descriptions for both concepts that read, 'All materials are to be toxic chemical free and fire resistant or proof is possible.'
15	Fatally flawed minor trailhead location that SFWMD has already stipulated is unacceptable - No need of boat ramp	pg. 185	Moved trailhead to existing boat launch location on immediate east side of S112A.
16	Add formulas used to calculate benefits	appendix	Formulas are documented in the text of the benefits-costs analysis. Formulas for benefits study have been included in appendix.
17	Not including expenditures that could offset predicted savings.	pg. 229	Formulas are included on pg. 222. Baseline is current usage; benefits are estimated reductions only. No changes are needed.
18	Concern that path is not allowing space for disabled vehicles to pull off the road. (see photo on page 236)	pg. 236	FDOT PPM Section 8.6.10 standards include 13' of shoulder and buffer between roadway and trail. Concepts shown in plan incorporate current FDOT requirements for emergency shoulders and clear zones, or variance needs are noted. Image has been revised to emphasis the current standards as noted.

	Action Items for Report - Public Comments		
19	Concerns over cost estimates for environmental mitigation not being in report	pg. 226	See existing text on pg. 228, which notes, 'Magnitude of cost estimates provided in this section identify capital construction costs as well as estimates of associated contingency recommendations, design costs, and project setup and management costs. Later phases of the work, before any portion of the path is constructed, will include additional cost estimating.' Text revised to include, '...will include additional costs estimating to include mitigation costs.'
20	Add paragraph about wilderness eligibility assessment in BICY	pg. 67,	Wilderness Eligibility Assessment - Big Cypress National Preserve, Florida (2015) added to Master Plans list on pg. 67 (far right column). Following text added to pg. 73 (left column) title of document and text: The BICY wilderness eligibility assessmetn (WEA) was completed in January, 2015 in accordance with legislative and policy mandates requiring an assessment of wilderness eligibility of all NPS lands. The assessment itself does not define or propose wilderness designation of lands, however, it assessmetn the eligibility of lands in accordance with the Wilderness Act of 1964 (Public Law 88-577) and NPS Management Policies 2006 (6.2.1). This assessment also is in accordance with the Big Cypress National Preserve Backcountry Access Plan/EIS. Relevance to ROGG: Per the WEA, non-wilderness corridors were defined as a width of 1/2 mile (1/4 mile from the centerline of all established roades, ORV trails, canals) and 1/4 mile from either side of the ROW for road and highways (US 41, SR 29, and I-75). The ROGG Study Area is roughly parallel to US 41 within FDOT ROW. Per the WEA, the ROW of US 41 and 1/4 mile south and north of the ROW limits is not eligible for wilderness designation.
21	Address presence of Miccosukee Tribe lands in WCA-3A	pg. 12-16	Public/Tribal ownership addressed on pg. 39. No changes needed.
22	Check annual O&M costs and discount rate figures	pg. 229	Table correct on pg. 231 to reflect O&M costs documented in the text above table.
23	Include a statement that boardwalks are not treated wood	pg. 108, 115-117	Note added to page 108.
24	Spelling error on wayfinding and signage images	pg. 126	Wayfinding image on pg. 128 corrected.
25	Rewrite wayfinding and signage description to emphasize placement to avoid signage pollution	pg. 126	Text in Section 3.2.6 includes the following, 'While it is not desirable to litter the path with signs, the goal is to meet the needs of users for information.' No changes needed.
26	Eliminate call boxes and vending/ toilets/ showers	multiple	Call boxes eliminated for all trailheads. Vending is eliminated where existing is not currently provided. Toilets and showers are for existing facilities and are not proposed for improvements specifically for ROGG.
27	Remove sentence: " Routing options for the ROGG that avoided known TCPs were not precluded from being considered feasible by the presence of the TCP"	pg. 14-15	Text edited to read, ' ....by the presence of the TCP and will be further evaluated through the completion of a Cultural Resource Assessment Study (CRAS) and permitting.'
28	Double check crossings at Monroe Station and Monument Lake Campground; seems to be a concern over crossing types due to ROW.	pg. 167	Monroe Station crossing has been verified as existing ORV crossing. Label added to pg. 169 to identify crossing at Monroe Station as 'Existing ORV Crossing.' Monument Lake campground highway crossing changed to type "B"
29	Remove vending machines	multiple	Noted as optional amenity on pg. 124, existing amenity as some destinations.
30	Address location of boat ramps	pg. 185	See response to AC# 15
31	Specify that boardwalk will be made from fire resistant materials	pg. 108, 115-117	See response to AC# 14
32	State that Florida became a State in 1845 (territory in 1821)	pg. 10	Corrected on pg. 10, center column, second paragraph, last sentence. Reads, '...after Florida became a state in 1845.'
33	Rewrite paragraph regarding Archeological Resource Relocation to be more sensitive	pg. 11	Text identifies required activities to avoid or protect archeological resources as well as practices which would be undertaken should any unknown resources be discovered. Replaced the second to last sentence in second paragraph under Archeological Resource with the following text: ' Future requirements may include a Cultural Resource Assessment Study (CRAS) as well as extensive coordination with area tribes and land owners will be required for future phases of analysis and design to ensure identification and protection of archeological resources.'
34	Mention Council of the Original Miccosukee Seminole Nation of Aboriginal peoples- Council separate from Tribes.	pg. 39	Added to summary on page 39; first sentence to read, '...include the NPS, State of Florida through the Trustees of the Internal Improvement Trust Fund, SFWMD, Miccosukee Tribe of Indians of Florida, Council of the Original Miccosukee Seminole Nation of Aboriginal Peoples, and USFWS.'
35	Concern over scores of "No Build" in "Authenticity of Everglades Experience" and "Diversity of Cultural or Natural Scenery" categories	pg. 131	"No Build" option is constrained to shared facilities on U.S. 41 only without connections to existing network of trails and blueways. Experiences then limited to constrained to view off US 41.

36	Concern over bias of scoring towards indigenous people	pg. 131	Following text added to first paragraph on page 133, new second sentence to read, 'All 18 criterion elements are weighted equal in order to provide a balance between each category. Future evaluations may seek to weigh individual elements due to permitting requirements or specific management needs.'
37	Concern of implications of adding new electric lines	pg. 108-113, 117-119, 132-137	Proposed electric lines were based on EA being completed by BICY which has been canceled. All references to proposed or relocated utility lines have been removed from cross-sections.
38	Need to be more clear about mitigation costs, engineering fees, and permitting	pg. 226	See response to AC #19
39	Add native groundcovers such as sensitive mimosa, gopher apple, cord grasses- include management practices	descriptions in cross sections	Note added to pg. 108 regarding use of native groundcovers in future design phases. Note reads, 'Future design phases of ROGG should strive to apply a native plant pallet consistently with and in coordination with land managers and maintenance standards.'
	Steering Committee Combined Comments		
40	Update document to reflect final GMP 2015	pg. 67	Revised on page 67 and 72.
41	Make proposed segments in Big Cypress National Preserve low priority	pg. 232- 247	All maps and text has been revised to indicate a low priority for preferred alignment within ROGG Central.
42	Expand width of the buffer between shared-use path and travel lane to include 5' between shoulder and path	multiple	Concepts shown include 5' buffer, or includes information regarding required variance to FDOT PPM Section 8.6.10 standards.
43	Community involvement with tribes	n/a	Included additional information in Section 3.1 to include details regarding coordination, meetings and outreach to area tribes and independents and land owners.
44	1/2 mile buffer required around tribal religious sites	n/a	Existing text in report on pg. 11, under Ceremonial Sites subheading addresses the buffers restrictions. No changes needed.
45	Add paragraph concerning herbicides	n/a	Note added to pg. 108 reads as, 'The use of herbicides along any future developed portion of ROGG shall be limited to type and application techniques used and supported by adjacent land managers.'
46	Concerns that matrix does not properly weigh categories	pg. 131	See response to AC # 36
47	Recommend using B7 and B14 in Ten Thousand Island NWR	pg. 139-143	Proposed alternative from land managers will be highlighted in yellow on maps where conflict with matrix evaluated concepts identify an alternative preferred route. Also of note, B7 and B14 require a variance to FDOT PPM Section 8.6.10 standards, therefore reducing constructability.
48	Bridge 51 on Map 4B preferred alternative blocks access- bridge needs to be 12' above water	pg. 141	New concept added for evaluation to address unique condition. New concept added to pg. 118 as concept B13-B. Updated matrix on pg. 133 and added new concept evaluation details to pg. 138.
49	Concerns over consistency with CERP	multiple	Refer to existing text on pg. 132 that reads, 'This category includes potential impacts to wetlands, water quality and lack of compatibility with existing or proposed Everglades restoration efforts or with the mission or management plan of a public land unit.' Note was also added on pg. 120 that reads, 'All concepts are to be compatible with existing and proposed elements of the CERP.'
50	Add disclaimer that beside matrix that final feasibility will be made for cross sections in design and permitting process.	pg. 131	Disclaimer added to pg. 108 that reads, 'Addition levels of feasibility will be made for cross sections in design and permitting stages for any future segments of ROGG.' Note existing text located on pg. 104 and pg. 132 regarding feasibility determination process. Included: "The final feasibility for cross-sections will be made during the design and permitting phases for any future segments of ROGG." on page 139
	Steering Committee Comments (ACP)		
51	A3/A4- Caution using "significant"	pg. 132	Removed the word "significant" through subsection of report.
52	B2, B3, B4, B9A,….- Check all "high" and "significant"	pg.132 - 137	Removed the word "significant" through subsection of report. "High" will remain because it is necessary to explain matrix scores
53	Re-number, include paragraph about cost estimates	pg. 226-263	Pg. 228 revised to include a new Section 1 description for Cost Estimates, all other sections renumbered.
54	General text edits	pg. 226-263	General text edits were completed as noted by ACP.
55	Consider rounding totals to nearest million	pg. 227	Cost estimates rounded to nearest thousand.
56	Consider totaling Construction and Contingency	pg. 227	Capital construction costs totals provided. No revisions required.
57	Mitigation Costs	pg. 228	See response to AC # 19
58	Consideration of rising land values over course of project	pg. 231	Benefits-Cost Analysis (BCA) typically include estimates of the increase in land values as a societal benefit, however, most of the study area is located in publicly owned lands such as the US. 41 FDOT ROW and adjacent state or federal public land entity. No changes needed.
59	Concern over inclusion of tax revenues as benefits	pg. 229	In standard BCA approach, tax revenues are not a recognized societal benefit and therefore were not included in the ROGG BCA. No changes needed.
60	Benefits questions - General comments	pg. 229, 230, 231	See existing text on pg. 231. No changes needed.
61	Economic - consider impact of $140M in construction (workers, contractors, etc.)	pg. 231	BCA process is inclusive to societal benefits, which do not typically include construction activities associated with the project. No changes needed.
62	Change SWFMD to SFWMD	pg. 234-235	Typos regarding SWFMD corrected throughout document
63	Discrepancy of existing vs. proposed rest area and rest stop	pg. 234-235	Rest stop is existing, changed to high priority to be consistent with segment prioritization.
64	Flashing beacons at crossing	pg. 236	Image has been revised to include flashing beacons, consistent with diagram included in Section 3 of the report.
65	Need to mention need for further environmental studies and documents	pg. 248	Documented within Section 2 of the report. Text added to Section 4.5.2 and Section 4.5.4 to include information for additional studies, assessments and evaluations.
66	Include additional groups (FDEP)	pg. 251, 260	FDEP included on page 243; added to page 246
67	See benefits comments	pg. 262	Non-quantified economical benefits not included in BCA as noted on pg. 231. No changes needed.
68	Section 4.5 revisions to include additional information	pg. 263	Section 4.5 revised to incorporate comments received from ACP and additional information made available to project team.

	Steering Committee JK Comments (PROS)		
69	TOC- Include photo of culture heritage of corridor	TOC	Images added to TOC to reflect cultural heritage of corridor.
70	Introduction to Research and Analysis- include MDPROS role and explain position	pg. 8	Add to page 4. Section 1.2 new third sentence to read, 'MDPROS' role is as manager and facilitator of the scope of work for the NPS. All statements included in this report are a reflection of the public involvement process and are not to be interpreted as official statements from MDPROS or Miami-Dade County.'
71	Include more pictures of culture heritage of corridor	pg. 8	Additional images have been added to report document to reflect cultural heritage of corridor.
72	Concerns that Native American and Cultural references are not sensitive enough	pg. 52	Section 2.2.6 highlights Point of Interest in the ROGG Central area. Native American cultural resources have been documented by the project team, but are not included as points of interest to be sensitive the resourses. Identification of these resource will not be documented in the report.
73	Reference to ORVs- comment is unclear	pg. 78, 80	Modified ORV Access paragraph on pg. 78 to read: '…..various ORV vehicles. The development of ROGG highlights potential access to recreation activities consistent with current access provided through use of ORV trails.'
74	Document needs to acknowledge the significance of cultural sites and passion of individuals who have participated and advocated for its protection	pg. 98	Cultural significance of sites and resources are documented in Sections 2.1.1, 2.1.6 and 2.2 of the report. No changes needed.
75	Reference to Patty and Maureen's Vision, see Seminole Tribe Presentation Notes 8/5/13	pg. 98	Modified third paragraph first sentence in Section 1.1 (pg. 4) to read: '…in 2006 and envisioned as a *pathway that allows folks of all ages and all abilities the opportunity to safely experience the Everglades at a slow pace, outside of vehicles. The path would be used by walkers, cyclists, bird-watchers, photographers, fishermen and more, while providing a focus on environmental education and stewardship. The desire is for ROGG to be a sustainable piece of the landscape with the absolute least amount of environmental impact* .'
76	Acknowledgements	pg. 100	Acknowledgments for project are included in TOC spread.
77	Add "via Krome trail" to Corridor Workshop summary	pg. 100	Added on pg. 100 in summary box after "Greenway to Miami"
78	Move order of bullets so that cultural comments are first	pg. 100	Completed in all columns on pg. 100
79	Add "existing maintenance road" labels on levee concepts	pg. 103, 107	Labels added to existing conditions sections on page. 105 and proposed levee concepts on page 109
80	Remove utility poles and adjust leaders	multiple	See response to AC # 37
81	Show maintenance vehicles on toe of levee concept	pg. 107	Vehicle changed to a smaller, lighter colored-truck that appears more like a maintenance vehicle
82	Add L-29 when discussing the levee	multiple	Added to concept descriptions on page 109
83	Change "Toe of Levee" to "Levee Bench"	multiple	All references to the "toe of the levee" have been changed to 'Levee Bench'
84	Add note directing to matrix evaluation page	multiple	Note added to all cross-sections that reads, 'Refer to pg. XXX (corrected to final page number, currently 133) for feasibility evaluation results. Not deterimination of feasiblity has been made as part of this diagram.'
85	Discrepancy over whether or not utility lines in concept A3 are existing or proposed, and if text in feasibility notes should be included	pg. 108	Proposed utilities have been removed. Existing utilities added to north side of canal consistent to existing conditions.
86	Add "safety" before "railing" in description	multiple	Added to concepts that include railings on the boardwalks
87	General text edits	pg. 107-120	All text edits completed per MDPROS notes per pg. 109-122
88	Add a note next to concept C1 that this is not a preferred alternative	pg.117	Statement is incorrect. Feasiblity of concept is determined on pg. 133. C1 is a feasibilty alternative and a preferred option in select locations.
89	Add descriptions of scoring pg. 130	pg. 130	Scoring range is defined on pg. 133. Furthermore, scoring description for each concept is contained on pg. 134-139.
90	Reorder matrix categories.	pg. 130, 131	Matrix categories have been reordered on pg. 132 and 133.
91	Text edits and adjustments to scoring summaries for alternative sections	pg. 132-137	All text edits completed per MDPROS notes per pg. 134-139.
	Steering Committee Comments (Fakahatchee)		
92	Cannot block access by staff and existing users. Referring to bridge selection for the Brewski Canal.	pg. 143	Land manager's preferred route align has been noted on plans. Additional evaluation of existing conditions did not indicate conflicts with highest scoring concept as shown.
93	6B - #1 - B13A to **B14** #2 - B9 to **B9A** #3 - B12 to **B14**	pg. 143	Land manager's preferred route alignment has been noted on plans. Note B14 concept requires a variance to FDOT PPM Section 8.6.10 standards and is therefore lower in constructability, higher in costs and potential impacts to wetlands and lower in perceived safety. B9A concept requires additional impacts to designated wetlands, additional fill with high costs. Perceived safety is higher than B9.
94	7A & 7B - #1 - B13A to **B14** #2 - B9 to **B9A** #3 - B12 to **B14**	pg. 144	See response to AC # 93
95	8A & 8B - #2 - B9 to **B9A** #3 - B12 to **B14** #4 - B13 to **B14** - Label Private Property - Weaver Station	pg. 145	See response to AC # 93; label added for private property and Weaver Station.
96	9A & 9B - #1 - B13A, C2 to **B14** #2 - B9 to **B9A** #3 - B12 to **B14**	pg. 146	See response to AC # 93
97	10A & 10B - #2 - B9 to B9A #3 - B12 to **B14** - Eliminate **C2**	pg. 147	See response to AC # 93; C2 alignment eliminated as preferred route and changed to B9.
98	11A & 11B - #1 - B13A, C2 to **B14** #2 - B9 to **B9A** #3 - B12 to **B14**	pg. 148	See response to AC # 93

99	12A & 12B - #1 - B13A, C2 to **B14** #2 - B9 to **B9A** #3 - B12 to **B14**	pg. 149	See response to AC # 93
100	13A & 13B - #1 - B13A, C2 to **B14** #2 - B9 to **B9A**	pg. 150	See response to AC # 93
101	14A & 14B - #2 - B9 to B9A #3 - B12 to **B14**	pg. 151	See response to AC # 93
102	15A & 15B - #2 - B9 to B9A	pg. 152	See response to AC # 93
	Jamie Comments from SC Meeting		
103	For B12 concept, make fishing opportunity longer, possibly full length of bridge	pg. 115	Fishing platform is sized at 8'x12' which provide ample room for fishing from three directions off of bridges and is sized for typical canal clearance. No changes required.
104	B14 concept, add fishing opportunity	pg. 116	Fishing platform added to B14, B13A, and B13 concepts
105	Highway crossing "B"- check most arm distances	pg. 121	Plan diagram has been reviewed by Miami-Dade County Traffic Engineer and found suitable. No changes needed.
106	Add Yellow routes that are preferred by land managers- include note	pg. 130	General note. Land managers preferred routes have been identified on maps per responses to AC # 93-102.
107	Add note regarding fatal flaws	pg. 131	Information regarding fatal flaws is included in existing text located on pg. 133. No changes needed.
108	A1 and A2- Add bollards	pg. 132	Bollards are discouraged due to maintenance and safety concerns. No changes needed.
109	Remove "compatibility"- occurs throughout section	pg. 134	See response to AC # 49. No changes needed.
110	See notes- note to be inserted on Pg. 130	pg. 137	See response to AC # 50. No changes needed.
111	1A- Remove A3 route to Collier Seminole State Park Trail	pg. 138	Removed A3 route to Collier Seminole Park Trail from map 1A on pg. 140.
112	1B- Add crossing at park entrance	pg. 138	Removed symbol and label for 'Driveway Crossing B' and relabeled 'Driveway Crossing A' to be B. Also add 'Highway Crossing B' to map 1B at State Park Entrance. Cost estimates have also been updated in accordance with this change.
113	Change B12 to B14	pg. 140	See response to AC # 93
114	5A- Change B12 to B14: Address boat ramp	pg. 142	See response for AC # 48
115	6A-Change B13A to B14	pg. 143	See response to AC # 93
116	Highlight C2 construction material	pg. 144	See response to AC # 14
117	Prefer B14 instead of B13	pg. 145	See response to AC # 93
118	C3 will not work in 8B, pg. 145	pg. 145	Changed preferred routes alignment from C3 to B9.
119	Weaver Station not in proper location	pg. 145	Moved label to correct location. Information based on available GIS data.
120	9A- Identify private property on plan	pg. 146	Private property parcel is identified on 9A map. Label added to 8B as well.
121	Identify B7 in yellow in BICY	pg. 156-158	Land manager's preferred route align has been noted on plans. Note B7 concept requires a variance to FDOT PPM Section 8.6.10 standards and is therefore lower in constructability perceived safety.
122	Change B12 to B14	pg. 159	See response to AC # 93
123	Change B9 to B9A in BICY	pg. 161-171	See response to AC # 93
124	Remove Phones	pg. 163	See response to AC # 26
125	Concerns over safety of crossing at Oasis	pg. 171	See response to AC # 64
126	Bridge cannot impede boat traffic	pg. 182	Pg. 184, map 45B, changed B12 label for canal crossing to B13B. Also changed route leading to bridge to be C2, in accordance with the B13B alternative
127	Check on trail head 48B	pg. 185	See response to AC # 15
128	Move B12 to South Side	pg. 188	Preferred alignment selection has been moved to B12 located on the south side of water control structure on map 51A
129	Consider C1 or C2 instead of C3	pg. 198	Preferred alignment selection has been changed from C3 to C1 on map 61B. Cost estimates for ROGG East have also been updated
130	Consider concrete connection over spillway	pg. 198, 200	Note added to map 61 A and 63A to indicate concrete approach to spillway to extend a minimum of 100' on either side.

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