



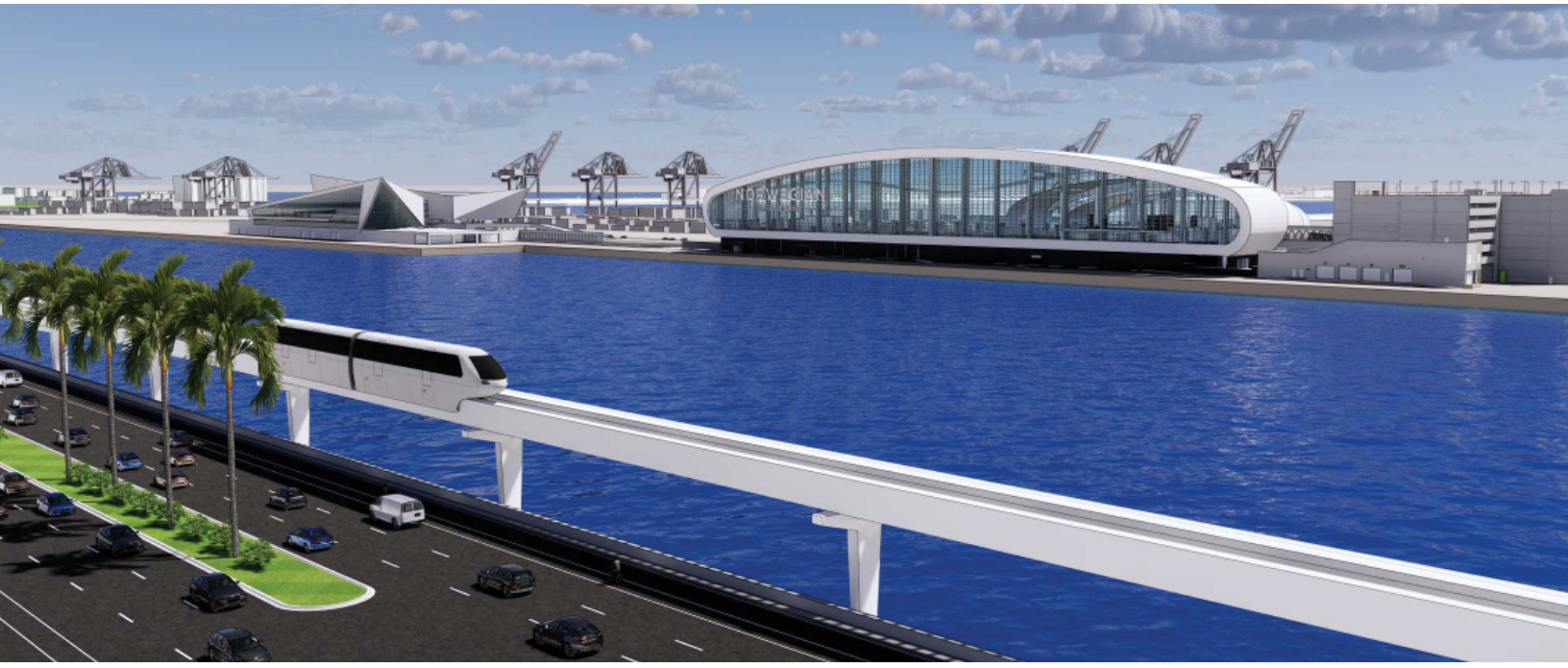

BEACH CORRIDOR RAPID TRANSIT PROJECT

VISUAL IMPACT ASSESSMENT

MIAMI-DADE COUNTY

PARSONS

April 1, 2021

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1. EXECUTIVE SUMMARY

A. General Description

The Visual Impact Assessment (VIA) evaluates the visual affectations to the natural and built environment caused by constructing the two lines that comprise the Beach Corridor Rapid Transit Project. The project serves a highly urbanized area. The VIA examines the two system alternatives that are part of the Locally Preferred Alternative (LPA). The two lines are:

- The Trunk Line, the line from Miami's Museum Park/Omni Herald Plaza area that traverses Miami's beautiful waterfront sector and extends to the urbanized area of Miami Beach at 5th Street and Washington Avenue. For this line, the Locally Preferred Alternative (LPA) establishes an Automated People Mover (APM) option and a Monorail transit system option.
- The North Miami Avenue Line spans an urbanized area that is in the process of redevelopment and growth. The Locally Preferred Alternative extends Miami's Downtown Metromover, an Automated People Mover (APM) from the School board Station at NW 15th Street to North Miami Avenue. It follows the North Miami Avenue Corridor and terminates at the Design District Station.

Both the Automated People Mover (APM) and the Monorail are elevated transit systems running on rubber wheels; both transit systems are driver-less and automatic. The monorail operates on a concrete beam guideway with rubber drive wheels that runs on the top of the beam and guide wheels running along the two sides. The APM consists of a four-wheeled vehicle running on an elevated track platform. The study follows FHWA's "Guidelines for the Visual Impact Assessment of Highway Projects" and identified the assessment method. The process consisted of several steps:

- Definition of the study area and the Area of Visual Effect (AVE) for each line;
- Evaluation of the regulatory context; To arrive at an assessment of the visual impacts and mitigation measures
- Assessment of the visual character of the project environment that is a highly urbanized area with similar existing structures;
- Defined visual quality, which is the experience of having pleasant visual perceptions;
- Carry an identification of Visual Assessment Units that define areas of the project with similar observable characteristics;
- Identification within the Visual Assessment Units of Key Views representing a condition where the proposed system's guideway and stations may impact the visual quality of the area;
- Insert the visual appearance of the project, assess visual impacts, and offer mitigation measures to offset any potential negative visual changes;
- The Executive Summary pages provide a condensed description of the study area, the process, the affected viewers, and mitigation and enhancement measures. The report's main body, beginning in Section 2, describes in detail the two lines' Visual Impact Assessment.

B. Bay Crossing Area (Trunk Line Miami to Miami Beach)

The Area of Visual Effect (AVE) for the Trunk Line and the affected environment extends along the MacArthur Causeway, Watson Island, and the City of Miami Beach. While once a natural environment and still a beautiful water body, the nearby bay areas are surrounded by man-made

islands occupied by urban development. The AVE for the Trunk Line, the affected environment, can be categorized as a Cultural Environment set among a natural setting. The visual character of the built environment is attractive. Substantial horizontal distance separates the alignment and the surrounding uses. The elevated guideway runs parallel along MacArthur Causeway to Miami Beach.

PortMiami, with its cruise vessels and architecturally significant terminals, is across the Port of Miami Channel and visible from the alignment. To the north, across the median, six traffic lanes, and over seven hundred feet of the waterway are the high-end, high-priced celebrity homes of Star, Hibiscus, and Palm Islands. A beautifully landscaped median lined with royal palm trees and a distance of over 700 feet separates the elevated guideway from these residential islands that are accessed by bridges from the MacArthur Causeway.

Just as there are different viewer groups within the AVE, there are also two different viewsheds: dynamic and static. The viewshed is dynamic, both for roadway users on the MacArthur Causeway and for future transit passengers. The future elevated guideway's dynamic views will be spectacular, providing a high view of one of Miami's most iconic highways and settings. The neighbors on the south-facing waterfront residences of Star, Hibiscus, and Palm Islands will have static views of the proposed guideway, separated by over 800 feet of distance. Cruise passengers at PortMiami cruise terminals will also have static views of the proposed guideway as they move in and out of their berths. The affected populations, those impacted by the proposed elevated guideway, are the motoring public, commuters, and tourists. Additionally, affected populations include residents and visitors on the adjacent islands.

Several Landscape Units and Key Views provide a basis to assess the potential visual impacts created by the proposed elevated guideway. Key Views identify those critical from the MacArthur West Bridge over the Intracoastal Channel for motorists in the east and west direction; MacArthur Causeway motorists in the east and the west approach; and static views of the guideway for neighbors in the residential islands to the south. In Miami Beach, key views are from the commercial, residential, and office buildings lining the 5th Street corridor and pedestrians and motorists.

These analyses evaluate the baseline qualities of the visual environment. Views relate to the distance zones, most defined by what is known as the foreground, which is the approximate distance (.25 to .5 miles) from the viewer. The landscape units and key views are the following: MacArthur Causeway Bridge West; Watson Island; MacArthur Causeway; Terminal Island; MacArthur Causeway East Bridge; Miami Beach 5th Street.

As defined by FHWA's "Guidelines for the Visual Impact Assessment of Highway Projects 2015", view sensitivity is "the degree to which viewers are sensitive to changes in the visual character of a visual resource." Please note that the following is a subjective analysis.

The public outreach process has spanned three years. While not including this Visual Impacts Analysis, this public outreach effort's focus addressed numerous alignment issues and incorporated aesthetic considerations for the final selection of the alignment and station locations. These considerations included the affectations to the aesthetics of existing landscape features such as the palm tree-lined median of the MacArthur Causeway; visual impacts to existing buildings for station and guideway locations; impacts to the palm tree-lined sidewalks on Miami Beach's 5th Street Boulevard; and the tree-lined area in front of the City of Miami Cemetery on the North Miami Avenue Alignment among others.

Additionally, the Visual Impact Assessment Analysis refined the viewer sensitivity analysis through a professional observation approach conducted by the evaluation team. It makes assumptions

about the visual preferences of the affected population. Evaluation of viewer sensitivity of the Trunk Line's affected population indicates that the impacts that are more visible and require protection are from the MacArthur Causeway.

THE VIEWS FROM THE ROAD

These views are of the Port of Miami Channel and Turning Basin, PortMiami and their terminals, Downtown Miami for travelers moving in from Miami to Miami Beach and in the other direction. For this viewer group incorporating the guideway structure into the landscape will be a significant priority.

The viewer sensitivity of neighbors in the residential islands to the north will be moderate to high. FHWA defines viewer sensitivity as the degree to which viewers are sensitive to changes in the visual resource's visual character.

While visible, two conditions limit the view to the guideway: The 750 feet distance of the guideway from the back yards; and the partial visual blockage of the guideway by the native vegetation on the south side of the causeway, the royal palms on the median. This viewer group will prioritize the aesthetic design of the guideway.

Viewer sensitivity to the impacts to visual resources determines the degree of impacts to visual quality. The degree of the effects can be defined as follows: adverse, where it will negatively affect the visual resource; beneficial, where it will improve the aesthetics of the visual resource; or neutral, where there will be no impact on the visual resource.

Viewer sensitivity to the new guideway and station impacts will be neutral. As with the Trunk Line, a viewer sensitivity analysis was carried out through a professional observational approach. Evaluation of viewer sensitivity analysis indicates a need to create an aesthetically pleasing guideway structure, the mitigation of the impacts of station design through innovative architecture, and attractive and well-organized pedestrian access. Nighttime illumination of the guideway and the stations will be another potential aesthetic benefit.

In the Miami Beach, 5th Street segment of the Trunk Line is an elevated guideway that runs along the median of 5th Street. Viewer sensitivity will be to the visual impacts of the proposed stations and the aesthetic design, including the guideway's landscape and the areas under it.

i. Mitigation and Enhancement Measures

Mitigation and enhancement measures for the Trunk Line will include defining the correct elevation above the MacArthur Causeway roadway, from the present low-level horizontal barriers (jersey barrier and bridge railings) to the underside of the guideway, and maintaining as much of the motorist's view of the cultural scenery, as possible. Additionally, the guideway's aesthetic design will be of interest to neighbors of the residential islands to the north. A pleasing aesthetic design enhancement will mitigate the residential areas' views that are substantially distant to the south.

Mitigation and enhancement measures for the guideway along 5th Street in Miami Beach include an aesthetic design for the guideway beams and columns, creative design for the stations, and the inclusion of adequate landscape and pedestrian improvements under the guideway structure.

C. Midtown/Design District Area (North Miami Avenue Line)

The Area of Visual Effect (AVE) for the North Miami Avenue Line and the affected environment starts at NW 15th Street. It extends to NW 41st Street in the Design District. The proposed alignment will run on the center of North Miami Avenue's right-of-way.

The North Miami Avenue Line's AVE is categorized as a Cultural Environment composed of low-rise commercial structures, one-story warehouse structures, and high-rise residential in newly developed sites. The urban location of the AVE limits the visibility of the guideway within the roadway. The AVE may extend at intersections. In all, it will be a limited foreground.

As the North Miami Avenue Corridor redevelops with higher density residential buildings, the AVE will not be substantially affected. The taller buildings will look down upon the guideway and stations.

The identified landscape units and key views are NW 15th Street to the FEC ROW; FEC ROW to NW 29th Street; NW 29th Street to SR 112; SR 112 to NW 41st Street. Viewer groups include motorists moving at slow speeds on North Miami Avenue as well as pedestrians and bicyclists. Other viewer groups will consist of the commercial establishments, shoppers, and residents of the new high-rise structures existing in the Midtown Project and those under construction on the corridor.

Viewer sensitivity to the impacts to visual resources determines the degree of impacts to visual quality. The degree of the effects is defined as adverse, where it will negatively affect the visual resource, or beneficial, improving the visual resource's aesthetics, or neutral, where there will be no impact on the visual resource. Viewer sensitivity to the new guideway and station impacts will be neutral. As with the Trunk Line, a viewer sensitivity analysis was carried out through a professional observational approach. Evaluation of viewer sensitivity analysis indicates a need to create an aesthetically pleasing guideway structure, the mitigation of the impacts of station design through innovative architecture, and attractive and well-organized pedestrian access. Nighttime illumination of the guideway and the stations will be another potential aesthetic benefit.

i. Mitigation and Enhancement Measures

Mitigation and enhancement measures for the North Miami Avenue line will include the elevated guideway's sensitive and aesthetic design. The stations' design physically and visually integrates into the urban environment. The nighttime illumination of the system creates a pleasant atmosphere.

2. PURPOSE OF STUDY

The purpose of this Visual Impact Assessment (VIA) is to document potential visual impacts caused by a proposed project and offer measures to lessen the detrimental effects identified in the process. Visual impacts are demonstrated by identifying visual resources in the project area, measuring the amount of change that occurs, and predicting how the affected public would respond to those changes.

This VIA addresses the approved Locally Preferred Alternative (LPA). Aesthetic impact considerations formed part of Tier I and Tier II alternative evaluations. This VIA builds and expands upon those evaluation considerations, which shaped the selection of the LPA.

The LPA recommended solution is to extend one of two different alignments served by an elevated rubber tire vehicle. These would be an Automated People Mover (APM) or a Monorail.

For the City of Miami area, the LPA recommends an Automated People Mover (APM) extension from the existing Miami Metromover (APM) station at the School Board to a station at the Miami Design District. The alignment will follow the course of North Miami Avenue north to the Design District.

For the Miami Beach area, the LPA recommends the options of an APM or a Monorail system and would extend from the present Herald Plaza/Museum Park Metromover station to Washington Avenue and 5th Street in Miami Beach.

The LPA also includes extending a bus/trolley on dedicated lanes for the Miami Beach extension from 5th Street and Washington Avenue to the Miami Beach Convention Center. The VIA does not include this extension. Buses within dedicated lanes in the existing right-of-way will have no visual impact different from current roadway conditions, where vehicles and traffic currently operate. This project will be implemented by the Miami-Dade County Department of Transit and Public Works (DTPW) separately. There will be no changes to visual impact.

3. PROJECT LOCATION AND SETTING

The project location and setting provide the context for determining the type and severity of changes to the existing visual environment. For this report, the terms visual character and visual quality are defined below when describing the visual environment:

- Visual Character: a descriptive assessment of the view
- Visual Quality: the aesthetics of the view

The project setting is also referred to as the project corridor or corridor. It may be defined as the area of land visible from, adjacent to, or outside the roadway right-of-way, determined by topography, vegetation, and viewing distance.

The project location, and a description of the proposed system, can be further identified and described in the following pages. A more detailed description of the project setting is provided in analyzing each of the project corridors.

4. PROJECT DESCRIPTION

The Project proposes constructing the Beach Corridor Rapid Transit connecting the City of Miami to the City of Miami Beach. The Beach Corridor is located at the epicenter of population and economic growth within Miami-Dade County. Downtown Miami's Central Business District (CBD) and Miami Beach have undergone rapid population and employment growth over the past decade. These trends are projected to continue over the next 20 years. The population densities in the study area are among the highest in the nation, where the CBD is at 17,800 persons per square mile and Miami Beach at 11,500 persons per square mile, according to the 2010 U.S. Census. Downtown Miami saw a dramatic 172 percent increase in population density over the last decade.

Due to the region's temperate climate, attractive beaches, and convenient access to the Caribbean and Latin America, it has become an important tourist destination for national and international visitors. The County hosts millions of annual visitors and seasonal residents, traveling mainly via tour bus, taxi, ride-share, or rental car without a complete public transportation network.

Downtown Miami and Miami Beach are the two most popular locations for overnight stays. These areas account for 60 percent of all 2012 visitors, with approximately 5.8 million total guests. Over 40%, or 2.4 million of these guests, stay overnight. Additionally, four of the six most-visited attractions are near the Beach corridor, including South Beach, the beaches, Lincoln Road, Downtown Miami, and PortMiami.

The project corridor is characterized by:

- A mixed-use development, including areas of high residential and employment density
- A diverse population with a higher-than-county-wide minority percentage and a lower median household income than the county and national levels
- Limited transportation pathways, with high average daily traffic volumes and congestion on the expressways and major roadways
- Historical, cultural, and recreational resources
- Wetlands and critical habitats for protected species
- Land uses sensitive to noise and vibration effects
- Special Flood Hazard Area (SFHA) designation for nearly 50 percent of the corridor
- The Port of Miami Harbor Channel which is a navigable waterway serving the cruise terminals at Port Miami as well as recreational vessels during non-cruise days and allows access to Biscayne Bay and the Port of Miami Turning Basin
- The areas of Biscayne Bay north and south of the MacArthur Causeway and the Intracoastal Waterway

For the VIA, two Areas along this project corridor have been assessed. These two areas feature distinct travel demand and origin/destination pairs and vary in their land use and environmental characteristics.

The two Areas that compose the VIA are the following:

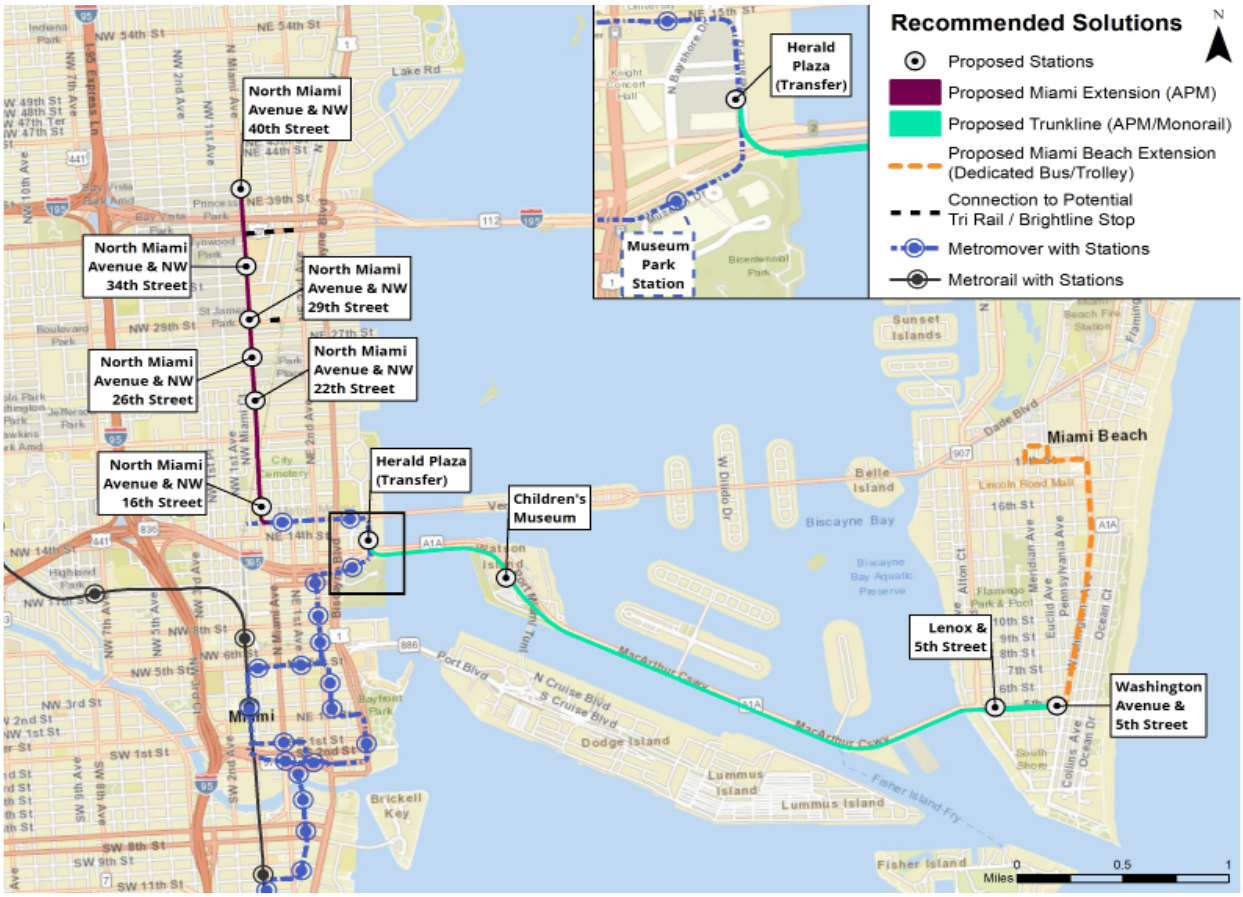

Figure-1. Locally Preferred Alternative/Proposed System Alignment

THE BAY CROSSING AREA

This area is an east-west corridor between Miami Beach and Downtown Miami that would form the "Trunk Line."

The Trunk Line limits begin at Herald Plaza, specifically the proposed new station in the City of Miami to a transit hub at Washington Avenue and 5th Street in Miami Beach. The Trunk Line's logical termini should connect major destination/activity centers directly to existing transit. The western terminus is Miami's CBD, and to the east, it connects to Miami Beach's Entertainment District.

The Bay Crossing Area is characterized by view corridors, monumental scale, sensitive natural resources, and signature architecture. The built and natural environments in this Area can accommodate the introduction of an elevated transit guideway. Still, the guideway alignment and structural components must be sensitively located to minimize perceived impacts.

The Tier I and Tier II Analysis of the natural and built environment considered factors such as view/ aesthetics, natural and cultural resources, and significant infrastructure. These factors informed the decision to determine the area's suitability to accommodate an elevated system.

In the Bay Crossing Area, the limits of the existing seawall on the south side of the MacArthur Causeway were necessary for horizontal and vertical alignment. Locating the guideway structural columns within the existing seawall's footprint minimizes environmental impacts to a sensitive marine environment. It spares impact to the picturesque royal palm-lined vegetated median on the MacArthur Causeway. The structure is elevated to extend out and above the existing roadway to fit within this horizontal envelope.

THE MIDTOWN/DESIGN DISTRICT AREA

This Area is a north-south corridor between the Midtown/Design District and Downtown Miami and is characterized by a mix of warehouses and retail uses. It is undergoing extensive redevelopment featuring new mid-rise and high-rise condominium/apartment buildings, the emergence of a nightlife district, and other retail services. The current land use and redevelopment of the corridor make it suitable for introducing new transit infrastructure.

TRANSIT SYSTEM ALTERNATIVES RECOMMENDED IN THE LPA

This VIA examines two-different system alternatives. Each option has independent utility, so they have been divided separately into the Bay Crossing Area and the Midtown/Design District Area. The proposed system alignment is illustrated in *Figure-1*. The alternatives assessed in this study are:

- An Automated People Mover (APM) system to serve the Trunk Line from Miami to Miami Beach;
- A Monorail system as an alternative serving the Trunk Line from Miami to Miami Beach;
- The extension of the present APM transit system from the terminus station at 15th Street extending to N. Miami Avenue and north on North Miami Avenue to 41st Street.

BAY CROSSING AREA TECHNOLOGICAL FEATURES

Automated People Mover (APM) is a fully automated transportation system with driver-less vehicles operating on a fixed guideway within exclusive rights-of-way (elevated in urban areas or tunnels at airports). APM trains run on a two-rail guideway system with rubber tires on steel or concrete guideways. Miami's existing Metromover is an example of this system that features concrete columns that support a steel guideway. Typically, an APM, regardless of the technology or manufacturer, is defined by the following characteristics:

- Driver-less/fully automated
- Operate on fixed guideway (usually elevated)
- Vehicles have rubber tires on concrete or steel surface

AUTOMATED PEOPLE MOVER (APM)

Miami currently has an APM system in place, which is known as the Metromover. The existing vehicles have an overall body length of 39 feet, 8 inches, and a body width of 9 feet, 4 inches. The minimum turning radius of the CX100 vehicle is 75 feet, and the maximum grade is 10 percent. The top operating speed is 25 miles per hour (mph). Still, newer cars are anticipated to achieve maximum operating speeds of 35 mph. While in Downtown Miami, curves and stop spacing limit the existing Metromover to average operating speeds of 10 mph. Still, the new APM would be capable of travel at or near the maximum operating speed along the Trunk Line. Available modern APM technology can reach up to 50 mph.

The APM Alternative alignment is depicted in *Figure-1*. In the Trunkline, the APM alternative would extend from the proposed Herald Plaza Station with a Metromover connection (*Figure-2)*, then along the south side of the MacArthur Causeway to 5th Street near Washington Avenue. New stations would be provided at the Children's Museum and 5th Street and Washington Avenue, with a potential additional station on 5th Street between Alton Road and Lenox Avenue. The consideration of all proposed station locations included the enhancement of bicycle and pedestrian accessibility

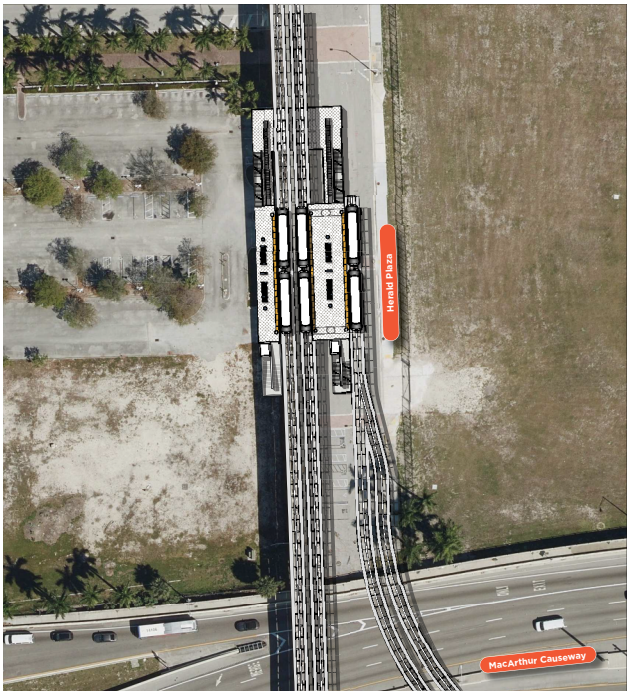

Figure-2. Proposed Herald Plaza Station

The APM Alternative would terminate at 5th Street & Washington Avenue, where passengers transfer to bus/trolley. Service continues in a dedicated bus lane from Washington Avenue to the Miami Beach Convention Center.

The guideway structure would be elevated with a minimum clearance of 16.5 feet above the roadway, supported oblong-shaped columns with a typical spacing of 130 feet and a standard diameter of four to six feet. The elevated stations would measure approximately 100 feet by 40 feet, typically supported by two columns.

MONORAIL ALTERNATIVE

In the Bay Crossing area, the Monorail Alternative would extend from a proposed station at Herald Plaza and transfer to a Metromover platform within the same station house. Service continues east on a new elevated guideway structure across the MacArthur Causeway. As with the APM, the Monorail Alternative would terminate at 5th Street & Washington Avenue, where passengers may transfer to a bus/trolley. Service would continue in a dedicated bus lane extending along Washington Avenue to the Miami Beach Convention Center.

The Monorail system, regardless of the technology or manufacturer, is defined by the following characteristics:

» Driver-less/fully automated

- Operate on a fixed elevated guideway
- Operate on concrete beam guideway, with rubber drive wheels that run on the top of the beam and guide wheels running along the two sides.
- Require additional structure to support emergency walkway along the alignment

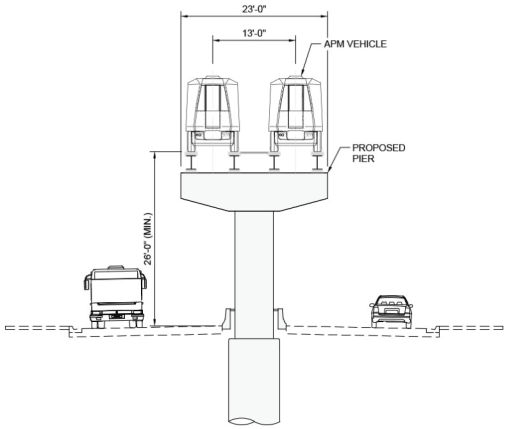

Figure-3. APM Section at MacArthur Causeway

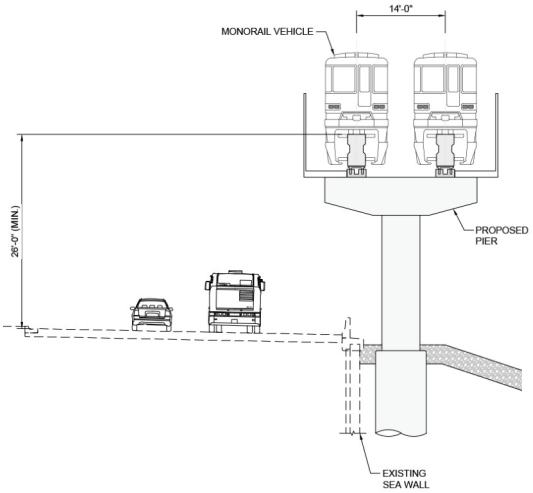

Figure-4. Monorail Section at MacArthur Causeway

5. ASSESSMENT METHOD

This VIA generally follows the guidance outlined in the publication Guidelines for the Visual Impact Assessment of Roadway Projects US Department of Transportation, FHWA, January 2015. This document was used as guidance, although the Beach Corridor is a rapid transit project.

The following steps were followed to assess the potential visual impacts of the proposed Project. A general definition of commonly used terms (bold) is provided below each step. The abbreviation following the description indicates the agency definition source*: BLM- Bureau of Land Management, Wyoming State Office; FHWA - U. S. Department of Transportation, Federal Highway Administration; NPS - U.S. National Park Service; USFS- U.S. Forrest Service.

- Define the project location and setting
- Identify Area of Visual Effect (visual assessment units and key views)
  - **Area of Visual Effect (AVE):** The area in which views of the project would be visible as influenced by the presence or absence of intervening topography, vegetation, and structures. (FHWA). The FHWA VIA process is based on the concept of transactional perception. That is the idea that visual quality is the product of a relationship between the environment and the people.
  - **Viewshed:** The entire landscape seen, or potentially seen from a point, or all the travel route or a logical part of it, use area, or water body. (BLM, FHWA, NPS, USFS). There are two types of viewsheds- static and dynamic. Both viewshed areas are defined by what people can see in the environment and are the result of the intersection between the physical constraint of the environment and the physiological limits of human perception. For this analysis, we have divided the viewer groups into Static Viewers and Dynamic Viewers.
  - **Visual Assessment Units:** An "outdoor room" typically defined by the limits of a particular viewshed and will often correspond to a place or district that is commonly known among local viewers.
  - **Key Views:** A location from which a viewer (traveler or neighbor) can see either iconic or representative landscapes, with or without the highway, of the project corridor. Usually there is at least one key view for each landscape unit. Used for visual simulations. (FHWA)
- Perform Desktop Analysis to identify and consider additional information and conditions necessary for the project's assessment
  - **Desktop Analysis:** A professional observational investigation using experience, site visits, photographic details and commonly accessible base data/information, mapping and aerial photography to gain insight and information to aid in the assessment.
- Analyze existing visual resources, resource change, and viewer response
  - **Visual Resources:** Any object (natural and built, moving and stationary) or feature, such as a land form or water body, that is visible on a landscape. (BLM, FHWA, NPS)
- Depict (or describe) the visual appearance of project alternatives
- Assess the visual impacts of project alternatives
  - **Visual Impacts:** Any modification in landforms, water bodies, or vegetation, or any introduction of structures or other human-made visual elements, that negatively or positively affect the visual character, or visual quality of a landscape and the visual

*https://blmwyomingvisual.anl.gov/glossary/?init=A; Bureau of Land Management, Wyoming State Office, State Lead for Visual Resource Management, 2021, Cheyenne, Wyoming

experience of persons viewing the landscape through the introduction of visual contrasts in the basic elements of form, line, color, and texture. (NPS, BLM, FHWA)

- **Visual Character:** The description of the visible attributes of a scene or object typically using artistic terms such as form, line, color, and texture. (FHWA)
- **Visual Quality:** Measure of the beauty of land form, water form, or vegetation in the landscape, as well as any additions or alterations to the landscape by humans.
- **Sensitivity to Change:** Measures of public concern for the maintenance of scenic quality (e.g., high, moderate, low)
- **Mitigation:** Propose measures to offset visual impacts

The evaluation team conducted numerous tours of the areas, driving where only vehicular access was possible and walking where the safe passage was possible. These were done to become more familiar with the existing conditions along the corridors. The field visits served to ascertain the different land uses, urban design, natural environment, and architectural style that the proposed transit system alternatives would traverse.

The evaluation team, composed of local architects/urban designers, is intimately familiar with the study area, having completed numerous projects within the vicinity. Their evaluation addressed Visual Assessment Units' definition based on the team's understanding of the different functional areas, land uses, and corridors' visual characteristics. Professional judgment was used in the identification of significant visual effects.

Aerial maps were prepared to illustrate the Visual Assessment Units along the project corridors *(Figure-10)*. Further desktop analyses were carried out to determine key views within the Visual Assessment Units.

Field surveys were undertaken to provide photographic documentation that represents the actual visual conditions within the corridors. A photo survey of each Key View within the specific Visual Assessment Unit was completed.

These analyses formed the basis for the field surveys. The evaluation of the different viewer groups and the development of 3D computer modeling provide a vision of the proposed systems within the urban/natural context and analyze the visual impacts upon the existing corridors and their viewer groups.

6. REGULATORY CONTEXT

FEDERAL

Several programs codify the federal statutes on visual impacts and are described below.

- **National Environmental Policy Act – The National Environmental Policy Act** (NEPA), 42 USC 4321, Section 101(b)(2) states that "it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy" to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings."
- **Federal implementing regulations are at 23 CFR 771 (FHWA)** – "This regulation prescribes the policies and procedures of the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA) for implementing the National Environmental Policy Act of 1969 as amended (NEPA), and the regulation of the Council on Environmental Quality (CEQ), 40 CFR 1500-1508. This regulation sets forth all FHWA, UMTA, and Department of Transportation (DOT) requirements under NEPA for the processing of roadway and urban mass transportation projects".

STATE

- **Florida Department of Transportation (FDOT) Project Development and Environment Manual Aesthetic Effects** PART 2, CHAPTER 5, AESTHETIC EFFECTS Effective: June 14, 2017;

LOCAL POLICIES

The following Comprehensive Plans for Miami Dade County and the municipalities of the City of Miami and City of Miami Beach provide local policies on visual impacts and aesthetics:

- **Miami Dade County Comprehensive Development Master Plan–** Transportation Element - Policy Objective TC-6 –"Plan and develop a transportation system that preserves environmentally sensitive areas, conserves energy and natural resources, addresses climate change impacts, and promotes community aesthetic values."
- **City of Miami Comprehensive Neighborhood Plan–** Policy TR-1.1.6: "The City will design and promote transportation facilities that are consistent with adjacent land uses, preserve natural features, protect historic and cultural resources, and enhance community appearance and vibrancy."
- **City of Miami Beach Year 2025 Comprehensive Plan, Adopted April 13, 2011–** Transportation Element, Policy 3.3: "Context Sensitive Design (CSD) -All roadway, planning and design projects should follow context sensitive design defined as a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility." Policy 7.13: Context Sensitive Design….The City should provide CSD by integrating projects into the built environment in a sensitive manner through careful planning, consideration of different perspectives, and tailoring designs to project circumstances. All CSD in coordination with FDOT and MDPWD within the City should promote six key principles: 1. Balance safety, mobility, community, and environmental goals in all projects. 2. Involve the public and affected agencies early and continuously. 3. Use an interdisciplinary team tailored to project needs. 4. Address all modes of travel. 5. Apply flexibility inherent in design standards. 6. Incorporate aesthetics as an integral part of good design".

7. VISUAL CHARACTER OF THE PROJECT ENVIRONMENT

Existing Roadway Infrastructure Construction Vocabulary and Roadway Characteristics

For the Bay Crossing Area, the project environment's topography is flat. The MacArthur Causeway roadway generates the only variations in grade. It must rise to allow navigation both at the Intracoastal Channel and the Meloy Channel near Miami Beach. The guideway geometry follows the course of the MacArthur Causeway. As with the rest of the alignment, Miami Beach's 5th Street section is a flat topography. The topography of the Midtown/Design District Area is also flat with no topographical features.

The constructed elements of the proposed guideway and stations can be presently found in the vocabulary of bridge construction of the MacArthur Causeway and the present Downtown Miami's APM system known locally as the Metromover. The system's form will be consistent with the current elevated transportation construction in the Downtown area and the bridge construction along the Causeway (*Figure-5)*. The guideway and stations will provide a similar construction method, large pilaster and steel beams for the APM and concrete precast beams for the Monorail in the Bay Crossing Area segment.

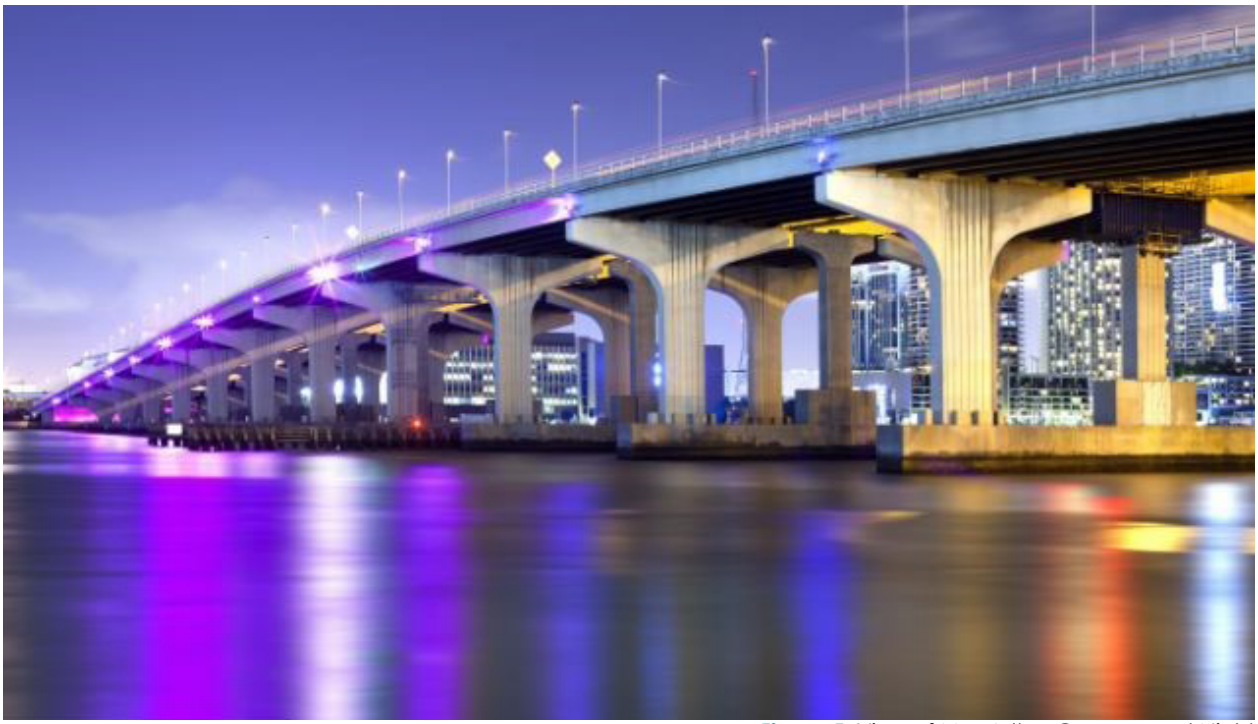

Figure-5. View of MacArthur Causeway at Night

The scale of the columns, beams, and stations has been set for the system's adequate construction and functioning. The new station plans replicate the geometry of the existing Metromover (APM) stations. The scale of the roof covering for the stations has been kept within a reasonable height yet reflective of contemporary architectural design aesthetics. The station's design minimizes the roof structure's massing by creating a higher space that will read more open and separate roofs according to function; the stairway roofs are separated from the station's canopy.

During the Tier 1 and Tier 2 process, the MacArthur Causeway's vegetative cover's evaluation

played a significant role in the alignment's determination. The location considered prioritizes the median's vegetation, including a beautiful mature line of royal palms in the median. The guideway alignment is placed on the south side of the MacArthur Causeway beyond the travel lanes, outside of the jersey barrier, and in the rip-rap that stabilizes the water's edge.

Streetscape, including the urban tree-lined streets along the Midtown/ Design District Area, are limited to NE 15th Street to NE 18th Street. The new mixed-use Midtown development that starts at NE 29th Street provides enlarged sidewalks that include a generous tree canopy. The area from NE 18th to NE 29th Street has not undergone significant redevelopment. It has a small scattering of trees along this segment of the corridor. As private investment redevelops the corridor, the zoning regulations require that sidewalks be expanded and reconstructed with shade trees. The alignment of the guideway on the median will not impact existing and future street trees.

Proposed Bay Crossing Area Segment and Midtown/Design District Area Piers and Station Column Supports

The Project will construct the Bay Crossing Area segment and the Midtown/Design District Area with more aesthetically attractive piers. The construction creates a more visually pleasing guideway pier form for these new transit extensions. These piers may be illuminated at night to create an attractive ambiance and enhance both guideway and roadway aesthetics. Illustrated in *Figure-8* are the concept designs for the new piers.



Figure-6. APM System in Downtown Miami



Figure-7. APM System at Terminus Station in Brickell

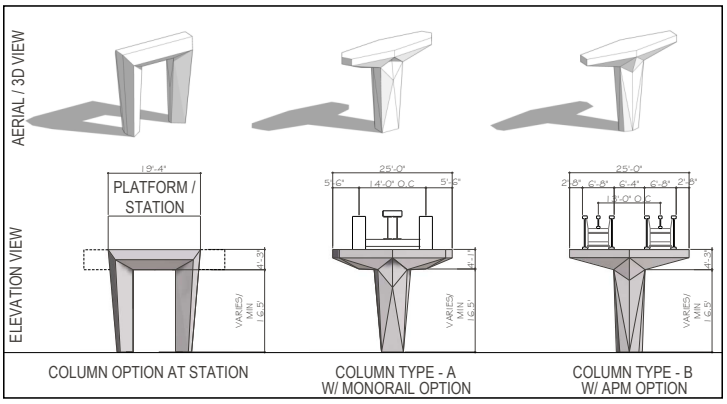

Figure-8. Structural Column Concepts

8. DEFINITION OF VISUAL QUALITY

Visual quality is the experience of having pleasant visual perceptions. Perceptions are aesthetics that are pleasant to the viewer. The FHWA VIA guidelines identify three types of visual perception that correspond to the three types of visual resources:

- **Natural Harmony** – occurs when viewing the natural harmony of the existing scene
  - Natural Harmony can be considered any modification in landforms, water bodies, or vegetation, or any introduction of structures or other human-made visual elements, that negatively or positively affect the visual character or quality of a landscape and the visual experience of persons viewing the landscape through the introduction of visual contrasts in the basic elements of form, line, color, and texture. (NPS, BLM, FHWA)
- **Cultural order** – occurs when viewing the built environment to determine if the composition is orderly or disorderly
  - Cultural Order can be considered how the built environment's components, buildings, structures, paved surfaces, etc., interact to form a composition with specific visual features that may be viewed or not as ordered.
- **Project Coherence** – occurs to determine whether the project composition is coherent or incoherent and is determined by viewer preferences
  - Project Coherence can be considered the ability of the project to blend seamlessly with the natural and built environment.

The proposed Beach Corridor Rapid Transit Connector Project, both the Bay Crossing Area and the Midtown/Design District Area, will be constructed in an urban environment. The Bay Crossing Area is proposed within a beautiful but human-impacted natural setting. It reflects the interplay of the natural environment and the cultural order of the urban environment.

The process of defining visual quality is viewer driven and, as such is subjective. One may argue that visual quality is subjective. However, there are visual qualities shared among the majority if not the totality of the population. We see this in the advertisements for tourism attractions, the image of the city's area created for promotion. We can say that, to no small extent, there are shared perceptions of visual qualities. For this work, we have defined visual quality as "high," "medium," and "low." The definitions of these rankings are as follows:

- High Visual Quality exists when there is a strong visual coherence and contrast between the built environment, the cultural environment, and the natural environment. As a natural environment that has been impacted by human intervention, the difference established by water views and the built environment define "high" visual character. Colors are vivid, view perspectives terminate in landmarks, and the sense of open space is high; there is a sense of coherence to the views.
- Medium Visual Quality is present when there is little contrast of the built environment with the surrounding natural environment. In this context, distant views of water areas and the architectural environment's quality define "medium" visual quality. There is a limited sense of coherence to the view.
- Low Visual Quality is present when there is no contrast between the built environment, the cultural environment, and its surrounding natural environment. In these cases, there is a limited architectural quality to the surrounding environment. There is very little coherence between the elements that compose the view.

VISUAL ASSESSMENT UNITS AND KEY VIEWS

The project alignment has been divided into Visual Assessment Units that define areas of the project with similar visual characteristics. At least one Key View has been identified in each Visual Assessment Unit. The Key Views represent a condition where the proposed system's guideway or station may impact the view shed's visual quality.

Visual Assessment Units were identified for the Bay Crossing and the Midtown/Design District Areas. There are seven (7) Visual Assessment Units identified for the Trunk Line and four (4) Visual Assessment Units identified for Midtown/Design District.

VIEWER SENSITIVITY & AFFECTED POPULATIONS

Viewer Sensitivity

The FHWA VIA process is based on the concept of transactional perception. That is the idea that visual quality is the product of a relationship between the environment and the people.

Different viewer groups compose the Area of Visual Effect (AVE) and the other Visual Assessment Areas. Viewsheds, also known as what can be seen from a particular position, are both dynamic and static.

A viewshed may be defined by what people can see in the environment and the intersection between the physical constraints of the environment and human perception's physiological limits. For this analysis, we have divided the viewer groups into Static Viewers and Dynamic Viewers. Static viewers are determined by land use and location and are what viewers see from a fixed location.

Dynamic viewers are what travelers on the roads and streets see as they move through the roadways that parallels the proposed system. Viewers within the corridor may shift during different times of the day. For example, residential viewers may be static from their own home and dynamic as a motorist or transit rider.

Affected Populations

A desktop viewer sensitivity analysis was carried out to identify the viewer sensitivity to the Project. The viewer sensitivity analysis was conducted via a professional observational approach. Different Viewer groups were identified from the Consultant team's familiarity with the surrounding land uses in the foreground, within .25 to .50 miles from the proposed transit corridor alignment and stations.

The public outreach process has spanned three years. The focus of this public outreach effort addressed numerous alignment issues. While input on visual impact was not the central theme, the analyses and presentations incorporated aesthetic considerations for the final selection of the alignment and station locations. These considerations included the affectations to the aesthetics of existing landscape features such as the palm tree-lined median of the MacArthur Causeway; visual impacts to existing buildings for station and guideway locations; implications to the palm tree-lined sidewalks on Miami Beach's 5th Street Boulevard; and the tree-lined area in front of the City of Miami Cemetery on the North Miami Avenue Alignment, among others.

Defining and Assessing Impacts

The insertion of the transit system in the environment will create visual changes. As indicated in

FHWA's Guidelines for the Visual Impact Assessment of Roadway Projects: "Impacts are simply changes to the environment (measured by the compatibility of the impact) or to viewers (measured by the sensitivity to the impact"). The Guidelines further define the impact on visual quality by the evaluation of three criteria:

- Compatibility of the Impact is defined as the environment's ability to absorb the proposed Project due to the Project and the environment having compatible visual characteristics. The proposed project can be considered compatible or incompatible. By itself, the impact's compatibility should not be confused or conflated with the value of the impact.
- Sensitivity to the Impact is defined by viewers' ability to see and care about a project's impacts. The sensitivity to impact is based on viewer sensitivity to changes in the visual character of visual resources. Viewers are either sensitive or insensitive to impacts. The impact's sensitivity should not be confused or conflated with the value of the impact by itself.
- Degree of the Impact is defined as either a beneficial, adverse, or neutral change to visual quality. A proposed project may benefit the visual quality by enhancing visual resources or creating better views of those resources, and improving viewers' visual quality. Similarly, it may adversely affect visual quality by degrading visual resources or obstructing or altering desired views.

The following pages provide the Visual Impact Evaluation for the two Areas that compose the Project. The evaluation is divided into the Bay Crossing Area and The Midtown/Design District. The sections that describe the assessment of visual impacts area as follow:

- Area of Visual Effect (AVE)– defined as the area where visual impacts may be expected from the construction of the proposed system.
- Visual Character of the AVE – that includes a description of the visual characteristics and significant landmarks of the AVE.
- Visual Assessment Units and Key Views - Identification of the different "rooms" or Visual Assessment Units that compose the AVE and the Key views identified for evaluation of impacts. Each of the Visual Assessment Units that comprise the project corridor has visual character and visual Quality that is typically defined by the limits of a viewshed. For this project, given its urban character, identifying the Visual Assessment Units has been to determine geographic areas with similar visual character and visual Quality. Thus, we have divided the Visual Assessment Units into sectors of the Causeway, 5th Street in Miami Beach, and N. Miami Avenue.

Viewshed Description

- Affected Population – identifies population affected by the construction of the system and the degree of sensitivity to its inclusion;
- Impact Analysis – evaluates the impact and presents the proposed system in the context of the existing urban and natural environment
- Mitigation – presentation of the proposed system in the context of the existing Key View and evaluation of impacts

9. BAY CROSSING/TRUNK LINE

A. Area of Visual Effect (AVE)

The MacArthur Causeway is perhaps one of the most iconic roadways of Miami and Miami Beach. With six lanes of traffic and its beautiful royal palm-lined landscaped median, its beautiful waterway surroundings, Downtown Miami's high-rises in the background, and the high-end residential islands to the north, this roadway is featured as a local Miami Landmark. It has been featured in many movies and television programs. The MacArthur Causeway is separated from surrounding land uses by waterbodies. The residences on Star and Palm Islands immediately to the north of the MacArthur Causeway are nearly 800 feet from the Trunk Line guideway. Within the 800 feet are a channel of 600 feet, a natural landscape on the north side of the Causeway, three lanes of traffic, the median, and an additional three lanes of traffic.

The AVE for the Bay Crossing/Trunk Line extends along the MacArthur Causeway, Watson Island, and the City of Miami Beach. The beautiful bay areas surrounding the guideway context was once a natural environment and is presently surrounded by man-made islands occupied with urban development. The AVE for the Trunk Line can be categorized as a Cultural Environment set within a beautiful impacted natural setting. The visual character of the built environment is attractive. Substantial horizontal distance separates the proposed alignment from the surrounding adjacent uses. The elevated guideway runs parallel to the southern edge of the MacArthur Causeway to Miami Beach. The limits of the AVE are indicated in *Figure*-9.

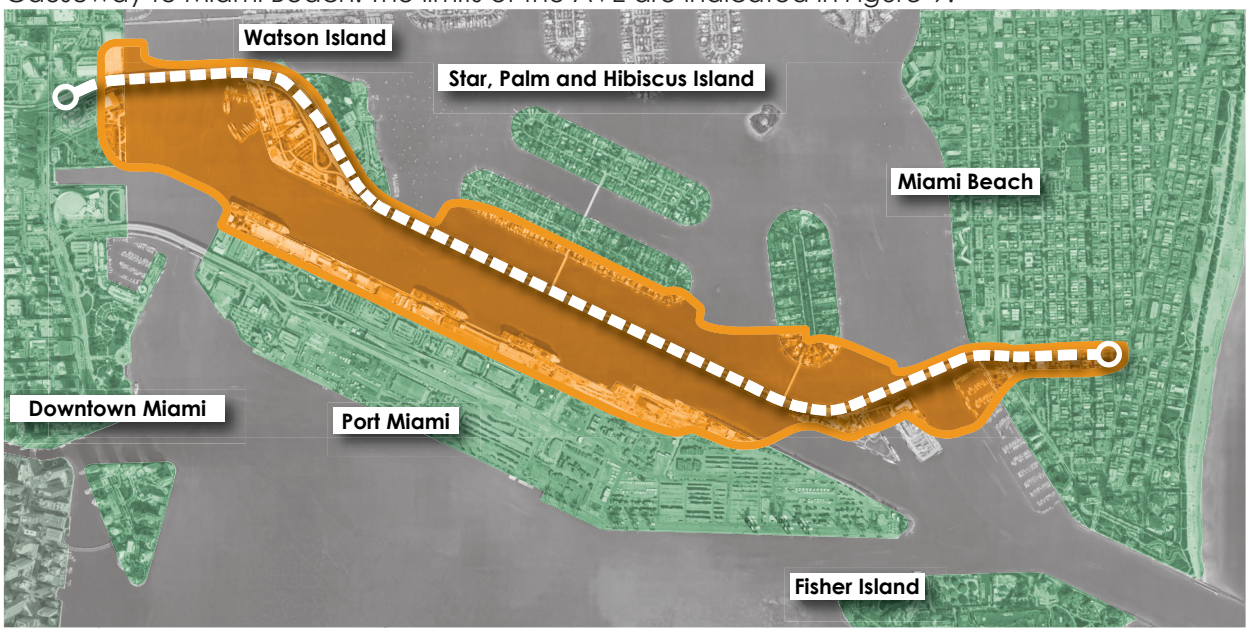

Figure-9. Area of Visual Effect (View Shed)

As one leaves the Beach Corridor Rapid Transit Station at Herald Plaza, the guideway turns parallel to the MacArthur Causeway West Bridge. It continues over the Intracoastal Waterway, where the visual effect area extends into the channel and the Port of Miami Turning Basin. The guideway enters Watson Island, where it passes the Port of Miami Tunnel entrance structure on the east

and the proposed mixed-use hotel/commercial development on the west. The Miami Children's Museum is further on Watson Island, south of the proposed development.

The guideway and MacArthur Causeway define the north side of the Port of Miami Channel. PortMiami is to the south. Its visible cruise vessels and architecturally significant cruise terminals are notable landmarks in this section of the AVE. The Port maintains substantial visibility from the Trunk Line.

In the following pages, the Visual Assessment Units (VAU) that compose the Trunk Line are further explained and defined. For each Visual Assessment Unit, the following are provided:

- View Shed Description and Visual Character - where we define the extent of the viewshed and the visual and describe the visible attributes of the scene or object.
- Visual Quality– this is where we define the beauty of land form, water form, or vegetation in the landscape and any additions or alterations to the landscape by humans.
- Affected Population - where we identify the Population affected by the construction of the system and the degree of sensitivity to its inclusion.
- Impact Analysis – evaluates the impact and presents the proposed system in the context of the existing urban and natural environment.
- Mitigation – presentation of the proposed system in the context of the existing Key View and definition of any mitigation measures that may or may not be needed to address the identified visual impacts.

B. Visual Assessment Units and Key Views

Several Visual Assessment Units and Key Views are identified to provide a basis to assess the potential visual impacts created by the proposed elevated guideway. Key Views are identified as those from the MacArthur West Bridge over the Intracoastal Channel for motorists in the east and west direction; MacArthur Causeway motorists in the east direction and the west direction; and static views southward of the guideway for neighbors in the residential islands to the north. In Miami Beach, key views are from the commercial, residential, and office buildings lining the 5th Street corridor and pedestrians and motorists.

This assessment *Table-1* evaluates the visual environment's baseline qualities, the visual resources, the viewer groups, and the overall visual character. Given the VIA's cultural environment, the evaluation of impacts and mitigation of said impacts are presented in evaluating the Visual Assessment Units.

Key views are identified. The proposed transit system is inserted in the key view to evaluate the impacts of visual resources and mitigation methods. The views are related to the distance zones, with most views within the foreground (defined as 1/4 to 1/2 miles) from the viewer. Visual Assessment units that include key views are identified as:

- MacArthur Causeway Bridge West
- Watson Island
- MacArthur Causeway

Visual Assessment and Key Views		
Landscape Unit	Description	
MacArthur West Bridge	Image Type	Cultural environment set in an affected but beautiful natural environment of Biscayne Bay/ Intracoastal Waterway
	Viewer Groups	Motorists, pedestrians on bridge, transit users, museum visitors, Biscayne Boulevard condominium residents, future development on vacant land;
	Visual Resources	PortMiami cruise terminals, Cruise Vessels Watson Island, Intracoastal Waterway/PortMiami Turning Basin; Sea Island Mega-yacht Marina;
	Overall Visual Character	Vivid visual character of the water, man-made islands and cultural environment of PortMiami and Watson Island
Watson Island	Image Type	Cultural environment that comprises roadway, Port of Miami Tunnel Building, vacant land/proposed mixed-use development, Miami Children Museum,
	Viewer Groups	Motorists, bicyclists, Watson island visitors, future development users;
	Visual Resources	Open roadway space, Children Museum building, future development on vacant land.
	Overall Visual Character	Character is mostly defined by the roadway environment;
MacArthur Causeway	Image Type	Cultural environment set in an affected but beautiful natural environment of the Port of Miami Channel and the , Port of Miami terminal buildings;
	Viewer Groups	Motorist, residential neighbors of Palm, Hibiscus and Star Island, cruise passengers, PortMiami cruise terminal visitors, boaters, cyclists;
	Visual Resources	Port of Miami Cruise Terminals; Port of Miami Channel water views, cruise vessels while in dock; roadway and landscape median
	Overall Visual Character	Vivid visual character of the water, man-made islands and cultural environment of PortMiami with its cruise terminals and cruise vessels, traffic of boats on Port of Miami Channel

Table-1. Visual Assessment and Key Views

- Terminal Island
- MacArthur Causeway East Bridge
- Miami Beach 5th Street Lenox/ Michigan Avenue
- Miami Beach 5th Street Michigan Avenue to Washington Avenue

Table-1 identifies the different Visual Assessment Units' characteristics and includes Image Type, Viewer Groups, Visual Resources, and Overall Visual Character.

Figure-10 illustrates the visual assessment units and key views further described and evaluated in the following pages.

Visual Assessment and Key Views (Continued)		
Landscape Unit	Description	
Terminal Island	Image Type	Cultural environment composed of ferry terminal surrounding wall; electrical substation; City of Miami Beach maintenance facility, parking structure, future high rise condominium and the Coast Guard base;
	Viewer Groups	Motorists, transit users.
	Visual Resources	Terminal Island contained a number of port uses and City of Miami Beach Maintenance Facility, new parking structure for Fisher Island and Fisher Island Ferry Terminal
	Overall Visual Character	Character is mostly defined by the roadway environment and the perspectives of Miami Beach and water in the distance.
MacArthur East Bridge	Image Type	Cultural environment of Miami Beach South Beach area, high-rise condominiums, Miami Beach Marina, Meloy Channel Waterway, Government Cut Channel (waterway)
	Viewer Groups	Motorists, transit users, high-rise residents, Miami Beach Marina users, boaters, Coast Guard personnel, pedestrians on bridge and bicyclists
	Visual Resources	High-rise residential buildings, view from the road, Miami Beach Marina
	Overall Visual Character	Vivid visual character of the water, Miami Beach Marina, the architectural character of the Miami Beach skyline.
Miami Beach 5th Street Pedestrian Bridge	Image Type	Cultural environment of Miami Beach South Beach area, high-rise condominiums, and roadway overpass to Alton Road northbound.
	Viewer Groups	Motorists, transit users, high-rise residents, Miami Beach Marina users, boaters, pedestrians on bridge and bicyclists
	Visual Resources	High-rise residential buildings, view from the road
	Overall Visual Character	Roadway entrance to Miami Beach, the architectural character of the Alton Road corridor.
Miami Beach 5th Street	Image Type	Cultural environment of the immediate surrounding area
	Viewer Groups	Immediate commercial and office users, limited residential uses
	Visual Resources	Mid-rise commercial buildings,
	Overall Visual Character	Coherent visual character defined by the wide boulevard of 5th Street, the row of Royal Palms on the south and north of the boulevard and the low-rise architecture of the buildings.
	Image Type	Cultural environment of the immediate surrounding area
	Viewer Groups	Immediate commercial and office users, limited residential uses
	Visual Resources	Mid-rise commercial buildings,
	Overall Visual Character	Views of the surrounding land use

Table-2. Visual Assessment and Key Views (Continued)

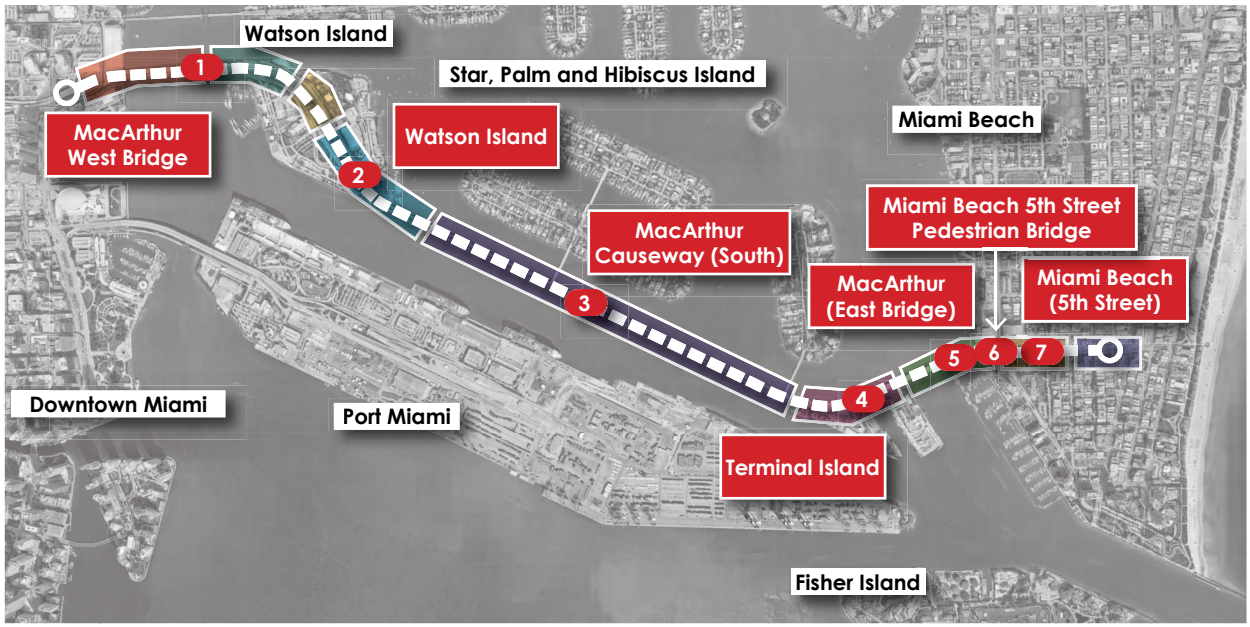

Figure-10. Visual Assessment Units and Key Views

Visual Character of the AVE

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Figure-11. Bay Crossing/Trunk Line Land Use Map



Visual Character Of The Area of Visual Effect

Different viewer groups compose the AVE as well as other viewsheds, both dynamic and static. Different Viewer groups were identified from the Consultant team's familiarity with the surrounding land uses in the foreground, within .25 to .50 miles from the proposed transit corridor alignment and stations.

Static viewers are determined by land use *Figure-11* and location and are what neighbors of the road see from a fixed site. Dynamic viewers view travelers on the streets as they move through the roadways that parallel the proposed system. Viewers within the corridor may shift during different times of the day. For example, residential viewers may also be motorist viewers and system transit rider viewers as they move through the area to reach their destination.

The viewshed is dynamic for travelers on the MacArthur Causeway, both as roadway users and potential future transit passengers. The Causeway presents iconic views of Miami to all those who travel the roadway. The proposed elevated guideway's dynamic views will be spectacular for the prospective transit users, offering a unique view of one of Miami's most iconic roads and settings.

The neighbors on the south edge of the islands, with waterfront facing residences, will have static views of the proposed guideway. Separated by nearly 800 feet from the elevated guideway and rubber-tired vehicles, the proposed system will be viewed from a static point for the island property owners.

The view from the PortMiami cruise terminals will also be a static view of the proposed guideway. The views will be dynamic for cruise passengers aboard the vessels going into and out of their berths. Still, the vessels' scale and height are such that the proposed guideway will have no impact on their views. In effect, the cruise ships are part of the viewshed and a major visual component of MacArthur Causeway and the AVE's cultural landscape.

Summary of AVE (Affected Populations)

Those who are considered affected populations by the Project are the motoring public, commuters, and tourists. Those who are considered the affected population within the islands are the residential neighbors and visitors.

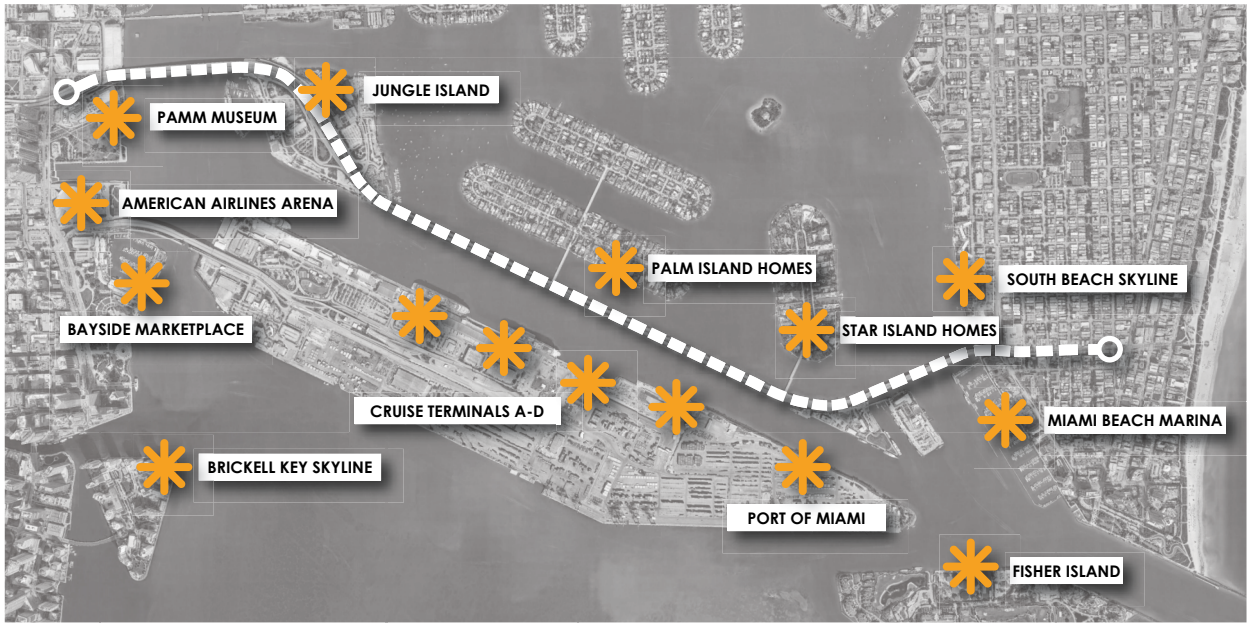

Figure-12. Points of Interest (Trunk Line)

A desktop viewer sensitivity analysis was carried out to identify the viewer sensitivity to the Project. The viewer sensitivity analysis was conducted via a professional observational approach. A professional observation approach is carried out by the evaluating team who make assumptions about the affected population's visual preferences.

Evaluation of viewer sensitivity of the Trunk Line's affected population indicates that the most visible impacts that require protection are the views from the road along the MacArthur Causeway in *Table-3*. These are views of the Port of Miami Channel and Turning Basin, PortMiami and its

terminals, Downtown Miami, and travelers moving from Miami to Miami Beach, and vice versa. For this viewer group limiting the prominence of the elevated guideway to views of the water will be of interest.

For the Bay Crossing Area, there are three (3) groups of affected population: residential neighbors; the motoring public that includes commuters, tourists, and residential neighbors; Institutional neighbors such as PortMiami and the Children's Museum.

Viewer sensitivity of neighbors in the residential islands to the north is elevated. While distant from the elevated guideway and somewhat buffered by the royal palm trees in MacArthur Causeway's median, the system's visual impact on residential views will be limited. For this viewer group, the guideway's aesthetic design is as important as understanding the mitigating power of distance and landscape.

It is worth noting that the background views from the islands looking south refer to what is visible behind the proposed guideway, including significant port facilities. These port facilities include cruise terminals and cruise vessels that are exciting and active views. Also, there are numerous highly visible gantry cranes, over one hundred and fifty feet in height. These high industrial type structures are more obtrusive than the limited size of the proposed guideway. The existing landscape substantially blocks the guideway's visibility from the homes on the south side of the island along the MacArthur Causeway.

Along the Trunk Line's Miami Beach 5th Street segment, where the elevated guideway will run down the median, viewer sensitivity will be notable for the proposed stations' visual impacts and aesthetic design. This includes the landscape of the guideway and the areas beneath it. Viewer groups will be city and neighboring residents, commerce and building owners, shoppers, and tourist visitors.

MacArthur Causeway Visual Assessment Units Evaluation						
Unit #	Visual Assessment Unit	Project Elements	Visual Character	Visual Quality	Sensitivity to Change	Viewer Groups
1	MacArthur West Bridge	Elevated Guideway	High	High	High	Causeway Drivers; Pedestrians; Cyclists; High-Rise Multi-Family Residents; Museum And Park Visitors; Cruise Passengers
2	Watson Island	Elevated Guideway; Transit Station	Moderate	Moderate	Moderate	Causeway Drivers; Pedestrians; Cyclists; Future Mixed-Use Project Visitors And Residents; Cruise Passengers
3	MacArthur Causeway South	Elevated Guideway	High	High	High	Causeway Drivers; Pedestrians; Cyclists; Cruise Passengers; Recreational Boaters; Single-Family Residents
4	Terminal Island	Elevated Guideway	Moderate	Moderate	Moderate	Causeway Drivers; Pedestrians; Cyclists
5	MacArthur East Bridge	Elevated Guideway	High	High	High	Causeway Drivers; Pedestrians; Cyclists; High-Rise Multi-Family Residents; Museum And Park Visitors; Recreational Boaters
6	Miami Beach 5th Street Pedestrian Bridge	Elevated Guideway	Medium	Medium	High	Causeway Drivers; Pedestrians; Cyclists; High-Rise Multi-Family Residents; Recreational Boaters
7	Miami Beach (5th and Alton to Lenox)	Elevated Guideway; Transit Station	Moderate	Moderate	Moderate	Causeway Drivers; Pedestrians; Cyclists; High-Rise Multi-Family Residents
	Miami Beach (5th and Washington)	Elevated Guideway	High	High	High	Causeway Drivers; Pedestrians; Cyclists;

Table-3. MacArthur Causeway Visual Assessment Units Evaluation

C. MacArthur Causeway West Bridge Visual Assessment Unit

i. View Shed Description/Visual Character

The MacArthur Causeway Bridge West Visual Assessment Unit defines an expansive view comprised of PortMiami, its west Cruise Terminals, Watson Island, the PortMiami Harbor Channel, and Turning Basin. On any day and particularly on a clear day, it is a vivid view that presages the developing scenery as one travels from Miami to Miami Beach on the MacArthur Causeway. It is a contrasting view of the natural bay environment, the human-made affectations to the islands and bay, and the constructions of infrastructure and buildings that define this area of Miami and Miami Beach.

The proposed Herald Plaza Station is part of the MacArthur Causeway West Bridge Visual Assessment Unit. A new station to allow transfers from Downtown Miami's Automated People Mover system, the "Metromover" to the proposed Beach Corridor Rapid Transit line, will be constructed at Herald Plaza. Herald Plaza is a street that allows access to the waterfront parcel that once housed the Miami Herald building now demolished. Presently the sites surrounding the proposed Herald Plaza Station are vacant land parcels. A future large-scale development is planned for this site. It is anticipated that the future Project will visually and aesthetically incorporate the station in its overall design.

A concept plan for the station level is presented in *Figure-2*. The Beach Corridor Rapid Transit Project, either the Monorail or the APM guideway, will come into the station at the same level as the Downtown Metromover APM. Depending on travel direction, the Downtown Metromover APM passengers will either transfer at the same level or descend to a mezzanine level to transfer to cars traveling in the other direction.

Interstate I-395 connects directly to the MacArthur Causeway West Bridge. Drivers traveling over the MacArthur Causeway West Bridge in the west direction are exposed to the mentioned views. Traveling west from the Miami side, the bridge rises to approximately 60 feet above the water, providing an expansive view of the bay and surrounding islands.



Figure-13. Visual Assessment Unit 1 (MacArthur West Bridge)

The MacArthur West Bridge is a six-lane bridge. Views vary according to which travel lane one occupies and travel direction. A jersey barrier protects drivers and creates a limit to the available views while sitting in an automobile. The aerial photo *Figure-13* indicates the MacArthur West Bridge's key views as one travels east. Traffic traveling in the west direction has their views more limited by the jersey barrier that divides traffic and is not as impacted by the new guideway structure.

While pedestrian traffic on the bridge is limited, pedestrians walking on the south side of the bridge enjoy unimpeded views of the bay and the surrounding islands. The Visual resources of the natural, cultural, and project environment are presented in *Figure-14* to *Figure-17*.

Visual Quality

The visual quality of the MacArthur Causeway West Bridge Visual Assessment Unit indicates the following:

- Natural Harmony - The proposed guideway structure and system will be in harmony with the existing natural environment of this sector of the Intracoastal Navigation Channel, the mainland, and Watson Island.
- Cultural Order – The present MacArthur Causeway West Bridge is the background to the guideway and its structure. Viewing the proposed guideway from multiple viewpoints, while it will not change the built environment's composition, the guideway will visually blend with the existing bridge and its structure.
- Project Coherence - Our professional desktop evaluation of viewer preference for the Project indicates that the new system is coherent with the existing built environment.



Figure-14. Birdseye View of the MacArthur West Bridge

MacArthur Causeway Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	Medium	View of the Port of Miami and Port of Miami Turning Basin
Pedestrians and Bicycle Travelers	Dynamic	Medium	
Perez Art Museum, Museum Park Visitors	Static	High	View of the MacArthur West Bridge, View of the guideway and vehicles as they turn to Herald Plaza Station
Biscayne Boulevard High-Rise Residents	Static	Low	Guideway system in the distance
Boaters on Intracoastal	Dynamic	Low	View of elevated guideway as boaters travel north

Table-4. MacArthur Causeway West Bridge (Viewer Sensitivity Chart)

ii. Affected Population

Several groups compose the affected population. Affected views will be both dynamic and static. The affected population with dynamic views will be the travelers on I-395, both vehicular and pedestrian. The affected population with static views will be the Perez Art Museum Miami (PAMM), Museum Park Users, and the residential high-rises lining Biscayne Boulevard.

Residential Viewers.

Substantial distance separates high-rise condominiums on Biscayne Boulevard from the proposed guideway. As viewed from the units above, the guideway will blend into the existing bridge's structural form. The sensitivity of these static viewers will not be substantial. The sensitivity to the

visual change created by the guideway will not be significant either.

As the guideway enters Watson Island, the proposed mixed-use development views will be the affected population and the boaters in the Sea Island Garden Marina.

Institutional Viewers.

For the PAMM and Museum Park users, the MacArthur West bridge defines the views from the land. It is the primary visual character element as one looks from the land to the north.

Separated by fifteen feet from the MacArthur West Bridge, the guideway will pass on the side of the PAMM. It will be visible from the front open space of the building.

The rendering in *Figure-15*, "Monorail Station at Downtown Miami Terminus" provided by the Miami Beach Monorail Project Proposal of March 17, 2020, MBM Partners, illustrates a concept aerial view of this station as the proposed guideway turns from the MacArthur West Bridge to the Herald Plaza Station. It also shows a bus transfer station to the west of the Herald Plaza Station.

The impacted view for the Perez Art Museum Miami (PAMM) will be the view of the guideway from the open entrance of the museum. Here, the guideway parallels the MacArthur Causeway and tuns to align with the existing Downtown Metromover and enters the future Herald Plaza Station.

The Herald Plaza Station will not create any visual impact on the Perez Art Museum Miami. It is on the other side of the I-195 ramp, on the north, away from the PAMM. The proposed Herald Plaza Station will not be visible from the museum's open portico oriented to the waterfront. It does not directly face the land area to the north of I-195. Given the limited window openings characteristic of art museums' exhibition areas, the Herald Plaza Station will not present a substantial visual impact on views from the museum's upper levels..

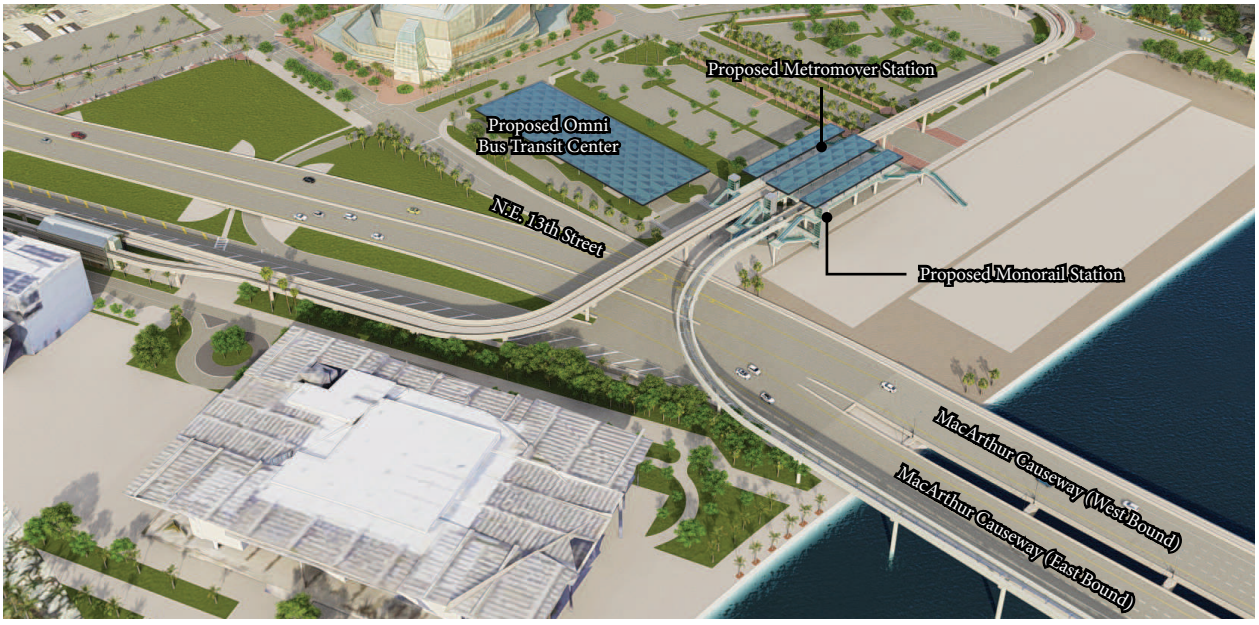

Figure-15. Proposed Herald Plaza Metromover Station

Vehicular and Pedestrian Viewers. Vehicular and pedestrian travelers on the MacArthur Causeway will be the most visually affected population. The dynamic view that vehicular travelers have as they circulate east on the MacArthur West bridge will be impacted. As a driver, or for that matter,

a pedestrian or bicyclist moves east on the MacArthur West bridge; the bridge rises to provide the vertical clearance needed for vessel navigation on the Intracoastal Navigation Channel. The bridge offers an expansive view of the PortMiami Turning Basin, cruise terminals, and cruise vessels. The insertion of the guideway structure will impact the views from the road. The duration of the impacts will be small in the time given the speed of vehicles. For the pedestrian, the view impacts will be much less as they will have more time to view through the structure's openings.

The MacArthur Causeway West Bridge Viewer Sensitivity Chart outlines the viewer groups, view types, viewer sensitivity, and resource impacts.



Figure-16. Aerial View East towards PAMM



Figure-17. View at Causeway Entrance at PAMM

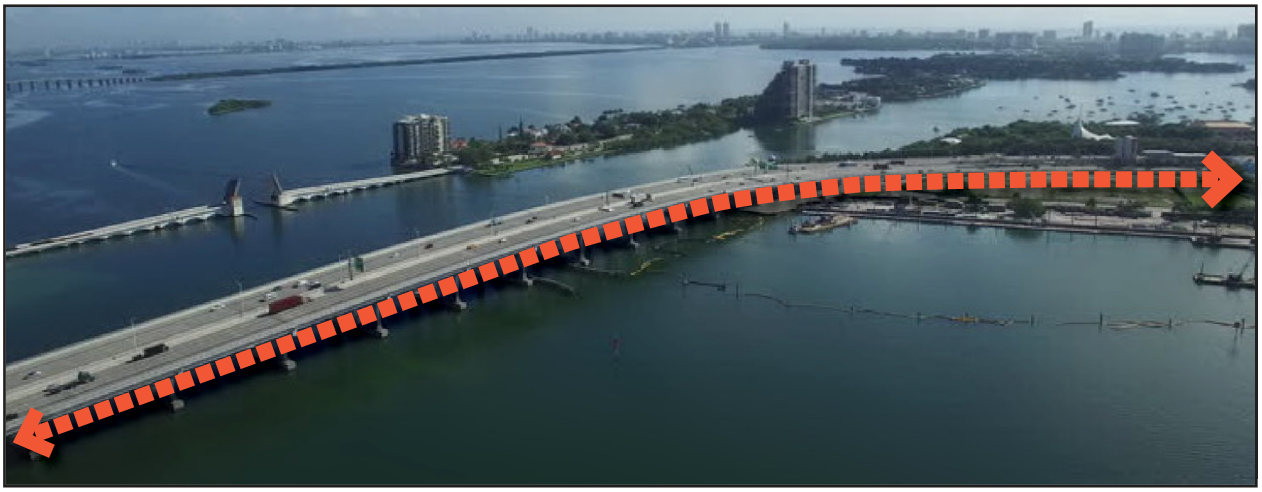

Figure-18. Proposed Guideway Location South of Causeway

iii. Impact Analysis

Viewer sensitivity to the proposed visual change will, in most cases, be limited. The overall visible change and impacts associated with the construction of the guideway will also be limited. The Project will be in keeping with the existing setting's cultural order where there is already

Summary of Visual Quality Impacts			
MacArthur West Bridge Key View			
System Option	Compatibility	Sensitivity	Degree of Impact
Monorail	Compatible	Medium	Neutral
Automated People Mover	Compatible	Medium	Neutral

Table-5. MacArthur Causeway West Bridge (Summary of Visual Quality Impacts)

an APM. The extension of the system to Miami Beach is visually compatible and will visually integrate with the current structure of the MacArthur West Bridge; and will be coherent with the direction of travel and the lineup of the views. As shown in the rendering (*Figure-20*, *Figure-21*), the guideway structure's elevation will allow views between the jersey barrier and the guideway beam's underside. This view will be blocked for a short duration as traffic rises to the bridge's cusp and then descends.

Visual Impacts to Perez Art Museum Miami (PAMM)

The visual impact to the PAMM as the guideway enters the mainland and turns to the Herald Plaza Station on the north side of I-395 will be limited. Given the PAMM building's orientation and its front open space angled to the north-east, this space's views will be minimally impacted. There will be a substantial distance between the new guideway and the waterfront open space in front of the building. Additionally, the existing Downtown People Mover runs between the PAMM and I-395, and the new system will integrate into this setting.

Paralleling to the bridge, with guideway columns aligned with bridge columns, the visual impacts of the new elevated guideway and its structure will not be substantial for those viewers on both the museum and the park. The sensitivity of the viewers to the proposed change will be limited. The proposed system will not substantially affect the current views from the park and the PAMM.

The guideway system and the vehicles will add a new dimension to this cultural and natural setting, composed of continuous movement systems: yachts, cruise ships, and cars.

iv. Mitigation

The mitigation to address the impacts to the traveler's view on the MacArthur West Bridge will be the elevation of the guideway to allow views of the water body and the urban development from under the beams as the guideway spans from the mainland to Watson Island. The duration of the view blockage at the top of the bridge's curvature will be short for drivers.

The mitigation for the PAMM and Museum Park views to the north will be the design of the pier system and the piers' placement to align with those of the existing MacArthur West bridge.

The proximity of the guideway, fifteen feet, to the MacArthur West Bridge will also limit the visual impacts. This proximity affects both. It spans the Intracoastal Navigation Channel and on land near the PAMM, west, and the Sea Island Garden Marina on the east.



Figure-19. View 1: MacArthur West Bridge (Existing)



Figure-20. MacArthur West Bridge (Monorail View)



Figure-21. MacArthur West Bridge (APM View)



Figure-22. View 2: MacArthur West Bridge (Existing)



Figure-23. MacArthur West Bridge (Monorail View)



Figure-24. MacArthur West Bridge (APM View)

D. Watson Island Visual Assessment Unit

i. View Shed Description/Visual Character

As the MacArthur Causeway connects to Miami Beach, it bisects Watson Island and provides access to a perimeter road that connects the different uses in the island. In Watson Island, the MacArthur Causeway is a major urban form determinant separating landmasses home to cultural, entertainment, and water-oriented activities.

On the southwest side of the MacArthur Causeway is the Miami Children's Museum, the Sea Island Garden Mega Yacht Marina, a future hotel/retail/residential complex, and an unused seaplane terminal.



Figure-25. Visual Assessment Unit 2 (Watson Island)

A new large-scale development project is proposed for a vacant site on the northwest side of Watson Island, immediately visible as one descends the MacArthur West Bridge. This future mixed-use high-rise development proposes a significant parking structure on the MacArthur Causeway side and several restaurants/retail on the ground floor, and residential/hotel units facing the perimeter road and the MacArthur Causeway. As to be expected, the mixed-use development will be oriented towards the bayfront and the Sea Island Garden Mega-Yacht Marina.

The proposed Watson Island Station will serve the island. A pedestrian bridge over the MacArthur Causeway will allow pedestrian access to Jungle Island, an eco-adventure theme park, and the Miami Yacht Club.

A Maintenance and Operations Facility (MOF) building is required for future Monorail or Automated People Mover (APM) systems depending on which constructed. The potential future design-builder

for the Monorail has identified a possible MOF site at the same location that the Planning, Design, and Environmental (PD&E) study has identified. The PD&E identified the area on Watson Island to provide maintenance and operations for either the Monorail system or the Automated People Mover System.



Figure-26. Proposed MOF Facility at Watson Island

The rendering in *Figure*-26 "Centralized Control System Located in the Depot and Operations Center Located on Watson island" provided by the Miami Beach Monorail Project Proposal of March 17, 2020, MBM Partners, illustrates a concept aerial view of the proposed MOF building, the proposed guideway, and a potential future Monorail station on Watson Island.

As one drives towards Miami Beach, the PortMiami Tunnel entrance, directly off the MacArthur Causeway, creates a building mass that limits and defines the northwest views. MacArthur Causeway's western viewshed is limited to the immediately adjacent uses on the island's west side.

Traffic in the west direction of the MacArthur Causeway, opposite of the PortMiami Tunnel entrance, will not have views of the guideway. The proposed pedestrian bridge will frame the view for westbound traffic through Watson Island.

In summary, the Watson Island Visual Assessment Unit is defined by the built environment corridor framed by the PortMiami Tunnel entrance, its slope down into the bay, the Children's museum, and vacant land areas to be developed on the southeast side.

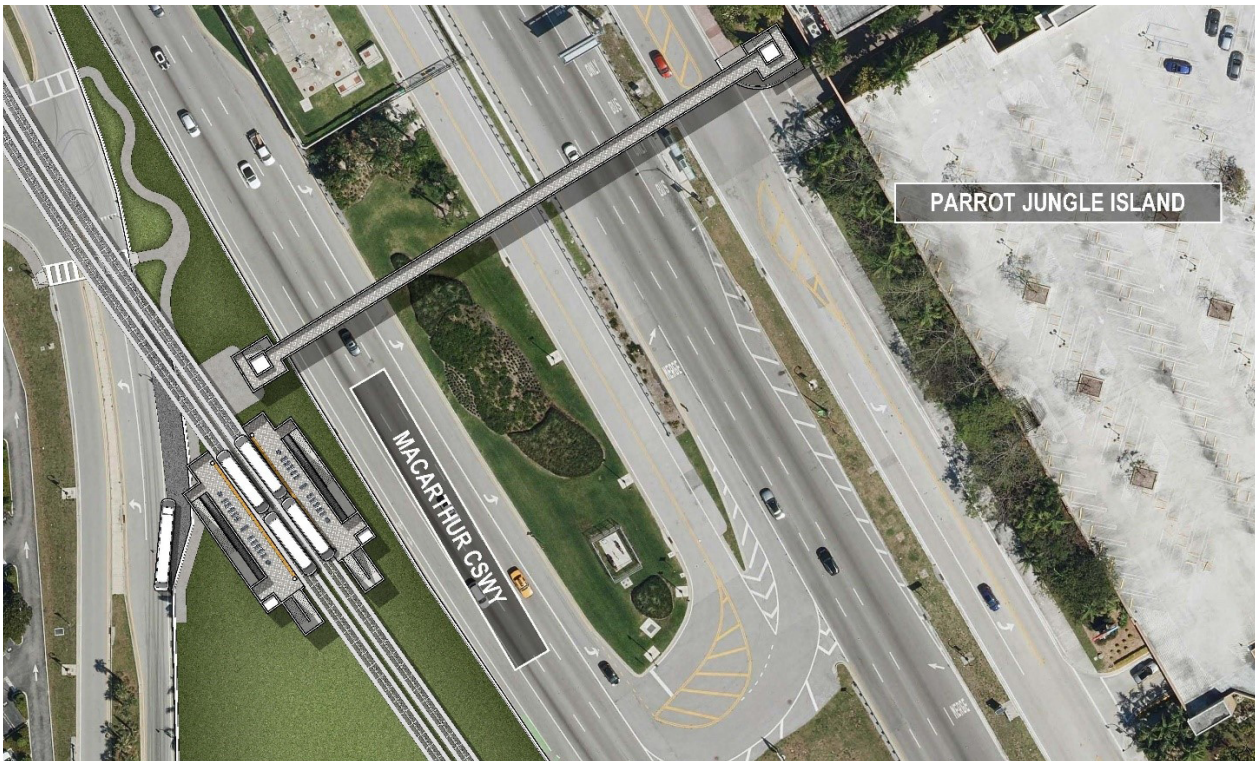

Figure-27. Plan View of Station Area at Watson Island with Pedestrian Bridge

ii. Visual Quality

- The Natural Harmony of the MacArthur Causeway's visual environment as it passes through Watson Island is limited to the landscape on the east side along with the PortMiami tunnel entrance structure.



Figure-28. Aerial View East Across Terminal Island

- The Cultural Order of the built environment is built-out with limited cultural order. While the PortMiami Tunnel entrance defines the east side of the causeway, the west side presents an undefined edge. The Miami Children's Museum is the primary visible structure..
- Project Coherence- The east side is mostly vacant. The absence of a visual edge to the Causeway at this sector of Watson Island provides no coherence to the road's views or the internal perimeter road's views.

iii. Affected Population

The affected population on Watson Island are the roadway travelers who are most viewers to be impacted in this area; the visitors to the Miami Children's Museum; the visitors to the future proposed mixed-use development; yacht owners and visitors to the Sea Island Mega-Yacht Marina.

For the users on the east side of the MacArthur Causeway the Watson Island Station and its pedestrian bridge over the Causeway will allow access to the proposed transit system to both sides of the island. Limited, if any, visual impacts will be felt by users on the east side of the Causeway. The PortMiami Tunnel entrance building, and its south service ramps create a visual barrier to the west side.

iv. Impact Analysis

There are four areas on Watson Island with specific viewer groups and users. For each, the impacts will be different.

Island Garden Harbor Marina and Proposed Mixed-use Development Impacts. The Island Garden Harbor Marina will have an elevated guideway on its northern boundary. The guideway will be visually compatible with the MacArthur West Bridge that it parallels. When the elevated guideway turns to



Figure-29. View of Island Garden Harbor Marina

Watson Island Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Sea Island Marina Boaters/Visitors	Static	High	View of guideway from the marina
New High-Rise Hotel/ Mixed-Use Development	Static	High	Views from the lower part of the development facing towards the internal access roadway and the MacArthur Causeway will have their views impacted. Upper levels of the development will not be impacted
Roadway Travelers	Dynamic	Low	Guideway blocking of view from the road. View of Miami Children's Museum
Children's Museum Visitors	Static	Medium	Views from the Miami Children's Museum

Table-6. Watson Island (Viewer Sensitivity Chart)

follow the Causeway's edge, it will pass in front of the proposed mixed-use development. The elevated guideway will be visible to potential ground floor users and upper-level users. The sensitivity of these viewers to the guideway will be high. Distance separation will be the only mitigating factor to the view from the lower levels of the proposed development. The impacts on the new development will be neutral.



Figure-30. Proposed Island Garden Harbor Marina Development

Miami Children's Museum. The elevated guideway will limit the view towards the Miami Children's Museum from the MacArthur Causeway to a certain degree. The facade of the Museum is used for advertising. This view may also be limited by the construction of the new mixed-use development.

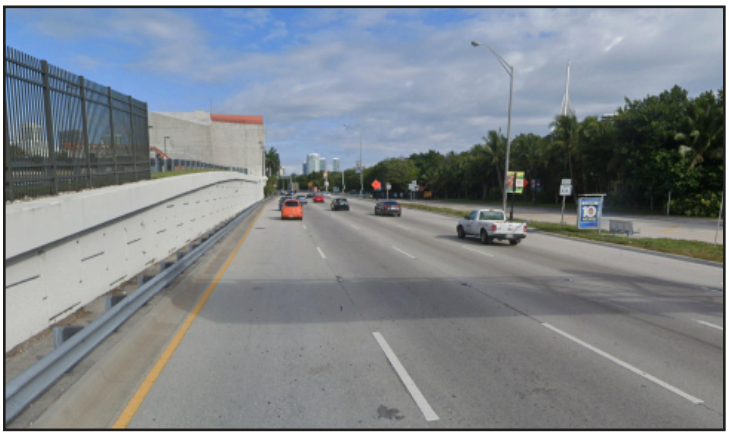

Figure-31. View of MacArthur Causeway (Watson Island West)

Roadway Visual Impacts. Descending the MacArthur Causeway West bridge, the visual openness narrows. This section of Watson Island does not open to the water. It is surrounded by the PortMiami Tunnel entrance building on the east and the access road to the west side of Watson Island. Alterations to the visual quality will be limited for roadway travelers. Still, they may help define the more people-oriented sector to the west while providing a needed transit connection to Watson Island.

The elevated guideway structure will provide a visual edge to the west side of the Causeway, creating separation between the fast-moving roadway and the slower activity-oriented perimeter road. The inclusion of the Watson Island Station will further accentuate this visual separation. Overall, the impacts to the view from the road will be beneficial.

The inclusion of the Watson Island Station and the Maintenance and Operations Facility (MOF) building will further accentuate the visual separation of the MacArthur Causeway from the activities on the east side of Watson Island.

The insertion of the elevated guideway and the Watson Island Station will be beneficial to this cultural, built, environment helping to define the edge of the roadway.

v. Mitigation

The cultural order and the built environment may benefit from the system's construction. The Miami Children's Museum is the only predominant element affecting the area's visual quality. The guideway and supporting piers will be spaced between the Causeway and the internal roadway (*Figure-32* and *Figure-33*). The proposed station will help make this sector of Watson Island more pedestrian-oriented and create a visual landmark on this high-speed, heavily traveled roadway.

The new station will provide a landmark and point of reference in the visual environment of Watson Island. Presently Watson Island is not a pedestrian-friendly environment. The new station will increase pedestrian connectivity and improve the overall pedestrian experience of Watson Island. A view of the station area before construction is Illustrated in *Figure-34*. Ultimately, the station, illustrated in *Figure-35*, will provide a new plaza area, a pedestrian bridge over the MacArthur Causeway to Jungle Island, a potential vehicular drop-off, and a landmark as previously stated.

The construction of both the station and the MOF building will not significantly impact the road's view. It will block the view of the present surface parking areas that served the Miami Children's Museum. A future multi-level parking structure is proposed to be constructed on this surface parking area immediately to the west of the proposed station and MOF building. Fine-tuning the location of the future Watson Island Station, the MOF building, and its support elements will need to be coordinated to enhance the road's view.

This Project may help bring more visual coherence and improve pedestrian connectivity in this sector of the MacArthur Causeway on Watson Island.



Figure-32. View at Watson Island (Existing)



Figure-33. View at Watson Island (APM View)

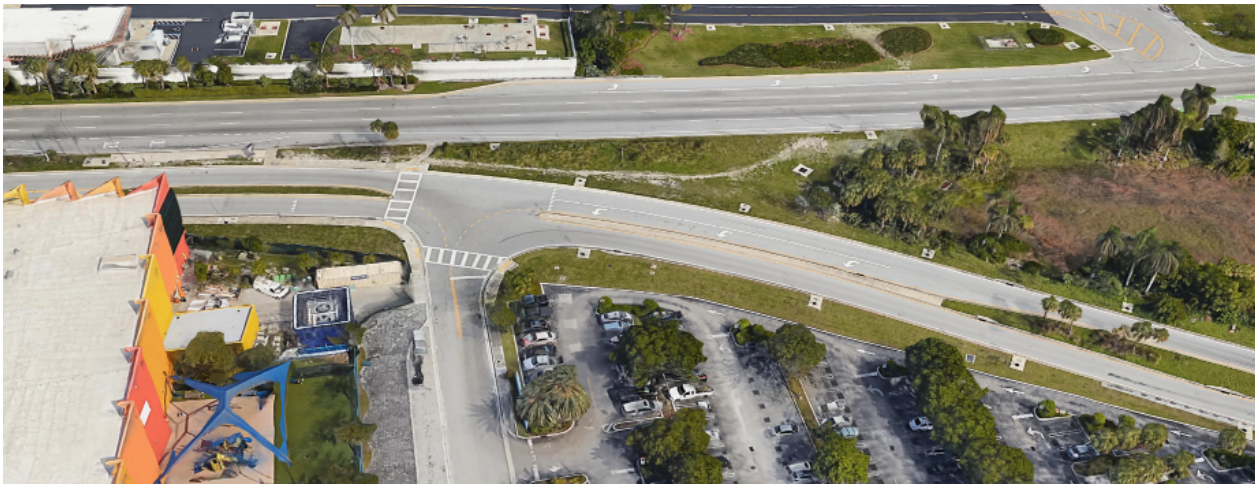

Figure-34. Birdseye View of Watson Island Station Area (Existing)

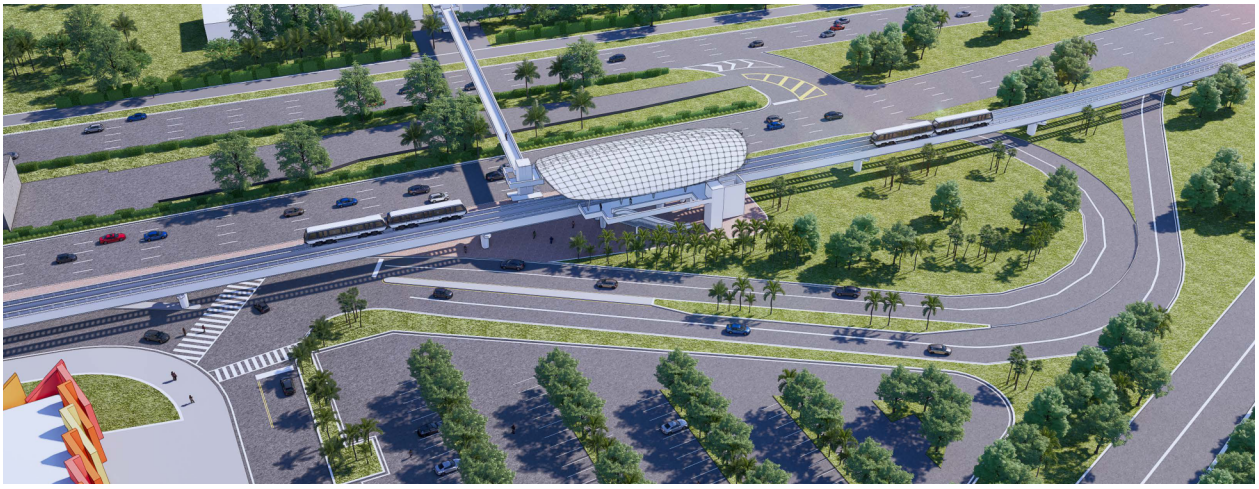

Figure-35. Birdseye View of Watson Island Station Area (Proposed)



Figure-36. View 2 at Watson Island (Existing)



Figure-37. View 2 at Watson Island (APM View)



Figure-38. View 2 at Watson Island (Monorail View)

E. MacArthur Causeway Visual Assessment Unit

i. View Shed Description/Visual Character

The MacArthur Causeway Visual Assessment Unit comprises the area on the east to Terminal Island on the west. Though not a designated scenic roadway, this land-filled island from Miami to Miami Beach is one of the most picturesque vehicular routes in Miami-Dade County. With a royal palm lined median, the MacArthur Causeway has been featured in numerous Hollywood movies. It is an iconic roadway of South Florida.

Signature cruise terminal buildings and cruise vessels line this beautiful view from the MacArthur Causeway. PortMiami is the primary land use to the south. The PortMiami cruise terminals sit on the north side of the Port's land, overlooking Miami Harbor Channel's south side. This channel is the southern boundary of the MacArthur Causeway Landscape Unit.



Figure-39. Visual Assessment Unit 3 (MacArthur Causeway)

Topographically flat, the Causeway offers vehicular and bicycle travelers a colorful, vivid, sharp, expansive view of its surroundings to the south for eastbound travelers and the north if traveling west.

The project alignment parallels the south travel lanes of the MacArthur Causeway. The guideway runs on the south side of the present jersey barrier within the rip-rap edge that slopes to the water. Eastbound travelers are afforded views over the waterway's jersey barrier, the cruise terminals, and cruise ships.

North of the Causeway, separated by a body of water, are Palm and Star Islands. On these islands,

the south-facing residences will have static views of the guideway over 800 feet away from their homes.

To the south, across the Port of Miami Channel, over 850 feet away, the cruise terminal and cruise vessels will have a view of the guideway. From the top of the ships, cruise passengers are afforded excellent views of the MacArthur Causeway, the residential islands, and the whole bay. Travelers west on the MacArthur Causeway have views of PortMiami. However, these are interrupted by the vegetation hedge and royal palm trees that line the median.

ii. Visual Quality

- Natural Harmony- The MacArthur Causeway Visual Assessment Unit's visual quality creates a unique natural harmony with the play of the causeway's linearity and the waterways. The water's vivid color contrast and the roadway's linearity directs views south to PortMiami and its cruise terminals/vessels.
- Cultural Order- The view provides a coherent cultural order where the cruise terminals are the main focus when no cruise vessels are in port.



Figure-40. View (East) Towards Palm Island

- Project Coherence- The MacArthur Causeway defines the edge of a movement system that includes vehicles, cruise vessels, seaplanes, and watercraft. The elevated guideway structure is coherent with the built environment of the MacArthur Causeway and the PortMiami structures. It is also coherent with the utility of the movement systems present and the

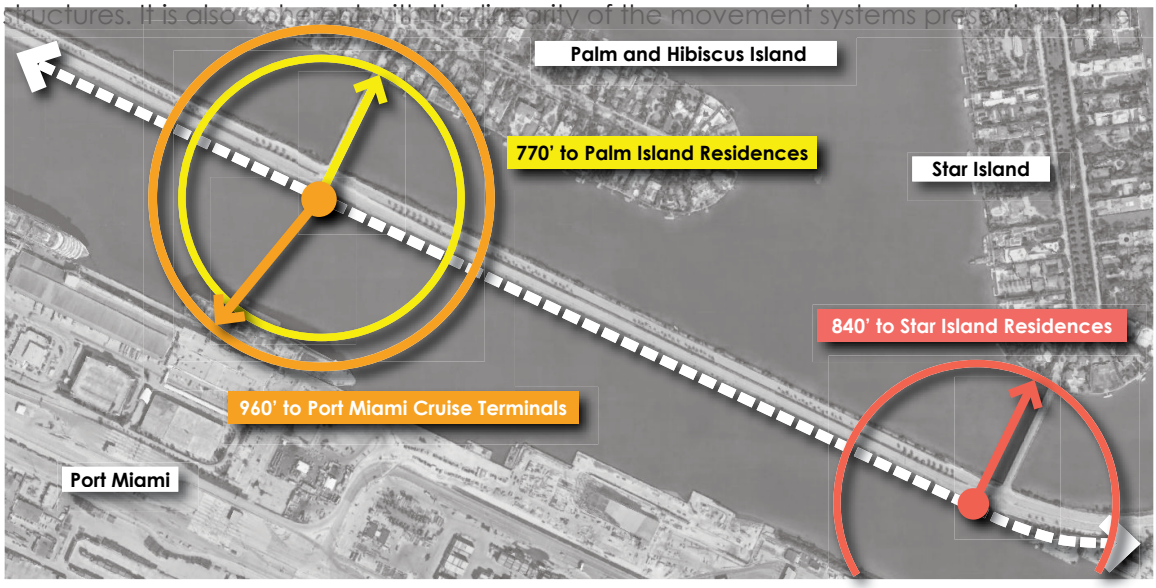

Figure-41. Proximity to Guideway (Trunk Line)

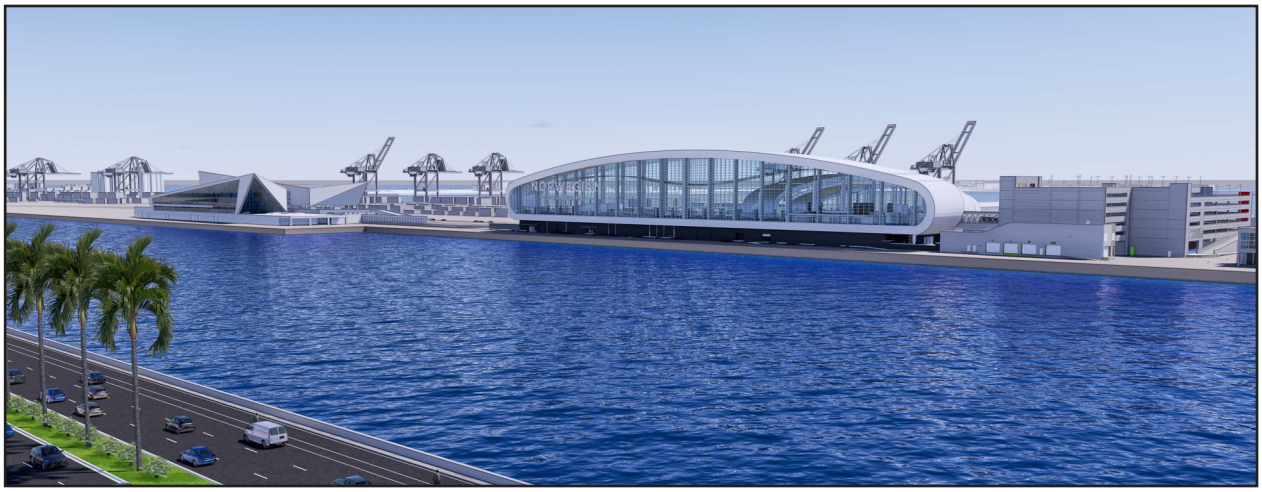

Figure-42. View of MacArthur Causeway South (Existing)



Figure-43. MacArthur Causeway South (Monorail View)



Figure-44. MacArthur Causeway South (APM View)

roadway landscape alignment.

iii. Affected Population

There are three major groups of affected population: 1—roadway travelers; 2. South facing residents on Palm and Star Island; Hibiscus Island residents and all residents of the three islands as they enter and exit; 3. Cruise passenger, cruise terminal users, boaters.

Travelers on the Roadway. The MacArthur Causeway's iconic views are a valuable resource because of the vividness and clarity of this cultural environment and the tourism value to Miami, Miami Beach, and South Florida. The corridor provides exceptional visual quality for the travelers.

Maintaining the PortMiami cruise terminal's views and ships to all who travel on the roadway is essential. It is also worth noting the exceptional view from any transit car. All of PortMiami, the cruise vessels, the channel, the downtown skyline, and South Beach will be visible.

These illustrations (*Figure-46- Figure-51*) depict the viewshed for travelers going from the Miami mainland to Miami Beach. There are visual impacts associated with the proposed guideway and columns. The human-made nature of the roadway, a filled island, provides compatibility for this system's inclusion in this cultural environment. The different transportation systems visible from the Causeway, including vehicles, cruise ships, yachts, ferries, and the proposed transit system, will provide an exciting contrast.

MacArthur Causeway Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	High	Iconic roadway with excellent views of the terminals at Port of Miami and the cruise vessels at berth and sailing
Palm, Star and Hibiscus Island Residents	Static	High	High sensitivity given residential use. The guideway is on the other side of the Causeway and buffered by vegetation.
Port of Miami, Cruise Ship Passengers, Boaters	Static	Medium	The view from the cruise ships and terminals

Table-7. MacArthur Causeway (Viewer Sensitivity Chart)



Figure-45. View from Palm Island West Towards City

For westbound travelers on the Causeway, the guideway's elevation will allow views of Miami's Downtown skyline, PortMiami, and the cruise vessels. The illustrations in (*Figure-52- Figure-54*) depict the Causeway view, before and after, introducing the transit system. The guideway's elevation avoids adverse impacts on the current views, mitigates and compensates for the system's inclusion



Figure-46. View of MacArthur Causeway East (Existing View)

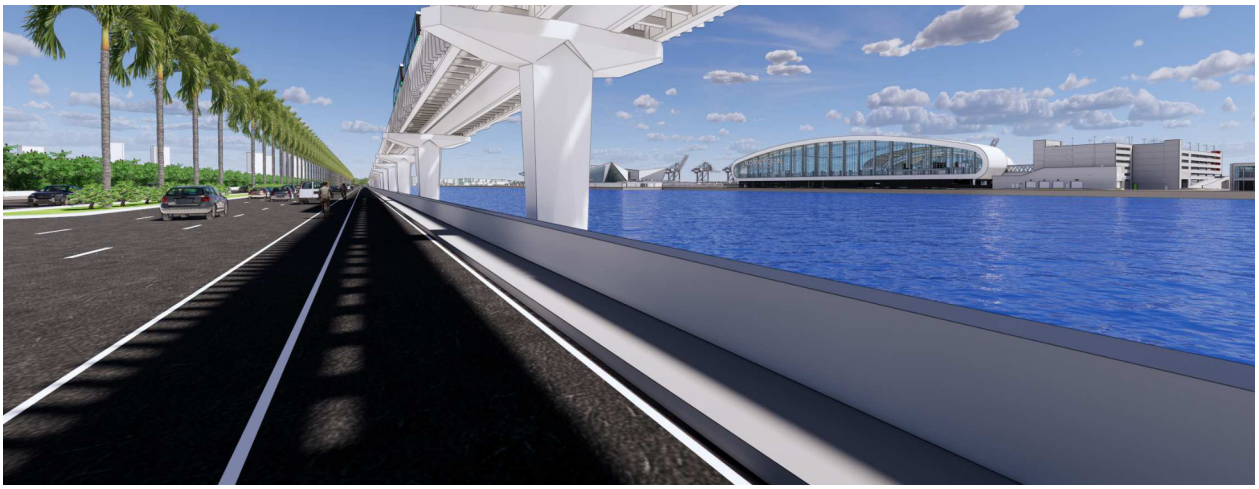

Figure-47. View of MacArthur Causeway East (APM View)

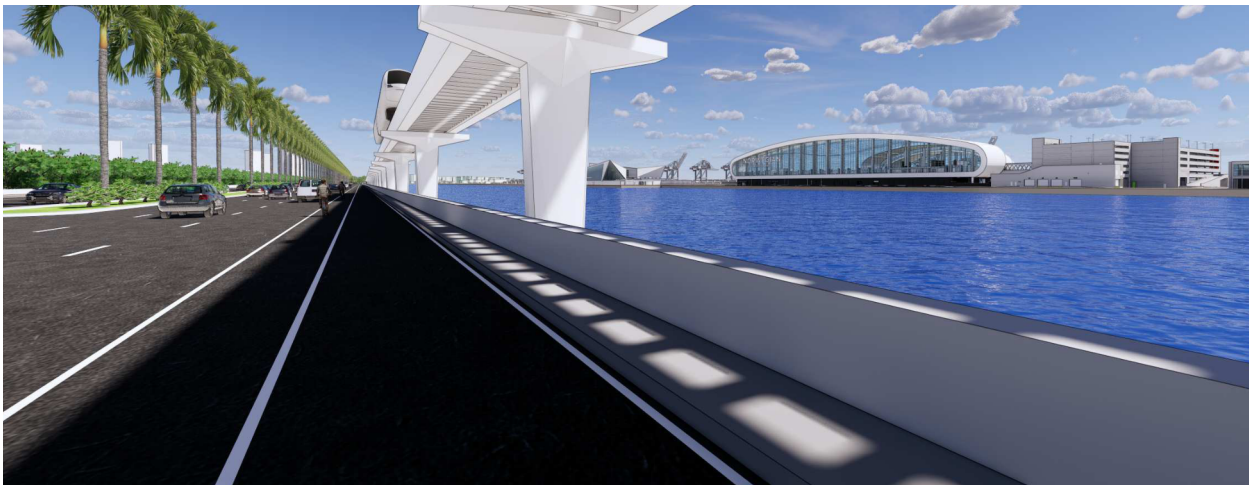

Figure-48. View of MacArthur Causeway East (Monorail View)



Figure-49. View 2 of MacArthur Causeway East (Existing View)



Figure-50. View 2 of MacArthur Causeway East (Monorail View)



Figure-51. View 2 of MacArthur Causeway East (APM View)



Figure-52. View 3 of MacArthur Causeway West (Existing View)



Figure-53. View 3 of MacArthur Causeway West (APM View)



Figure-54. View 3 of MacArthur Causeway West (Monorail View)

in this viewshed westbound on the MacArthur Causeway.

Palm Island and Star Island Residents/Visitors. The view from homes on the south side of Palm Island and Star Island is the only significant residential land use view considered in the AVE for the proposed transit system. The residential areas are separated from the guideway structure by over +/-750 linear feet of a waterway, native landscape on the rip-rap edge, three travel lanes, a median, and three travel lanes.

The figures below (*Figure-55, Figure-56*) shows the southeast view from a potential backyard of a home.

Figure-57 shows a view from the entrance to Palm Island towards the southwest. This view is representative of the backyard views on Palm Island.

PortMiami and its uses provide the background view to the MacArthur Causeway. The cruise



Figure-55. View from Palm Island Residences (Existing View)



Figure-56. View from Palm Island Residences (Guideway View)

terminals are visible, and the Port's high gantry cranes are highly visible in the distant background, especially compared to the proposed project. Vegetation has grown on the rip-rap north edge of

the MacArthur Causeway. This vegetation provides a buffer to the traffic on the road.

As expected, viewer sensitivity for the project is high for the islands' residents, whose primary concern is visibility from home. The aesthetics of the guideway and columns were paramount to the resident's interests, as expressed in the Palm- Hibiscus-Star Islands Homeowner's Association presentation.

PortMiami Cruise Terminals, Cruise Ship Passengers and Boaters. The affected population includes cruise passengers, port personnel, and visitors to the cruise terminals on special event days on non-sailing days.

The affected population's view sensitivity is low given the guideway's distance from the vessels and the PortMiami terminals. The view from the cruise vessel afforded to the passengers is from a high elevation, the viewing decks. Again, a waterbody separates the guideway system from the viewers when ships are sailing through the canal or berthed. From a berthed cruise vessel, there are over 750 feet from the deck of the vessel to the guideway. On non-cruise days, PortMiami employees both at the terminals and the dock apron will be separated by a substantial distance of over 800 feet across the Port of Miami Channel from the guideway. Visitors to the terminals during non-cruise days will be at a longer distance from the guideway. The sensitivity of these viewers to the guideway will be low, given the distance and exposure time.

iv. Impact Analysis

The impacts are analyzed in three categories: Compatibility, Sensitivity, Degree of Impact.

The inclusion of the elevated guideway is compatible. It can be successfully absorbed in the



Figure-57. View from Port Miami (Guideway View)

MacArthur Causeway built environment as illustrated in the presented aerial and eye-level renderings.

Viewer sensitivity to the inclusion of the guideway is high. There are views of the PortMiami terminals, cruise vessels, and water bodies that need to be carefully maintained in this environment. Elevating the guideway provides a reasonable response to this need. Having decided to locate the guideway waterside of the existing jersey barrier, the views of the royal palm lined MacArthur Causeway and beyond the underside of the guideway are preserved.

The project's degree of impact is neutral to viewers from the road. The guideway location and the excellent views that will be afforded to the transit rider are beneficial. This line will provide one of the most beautiful and uplifting views of any transit system. The view from the cars as one travels from Miami to Miami Beach will be spectacular.

Palm and Star Island. *The rendering, Figure-57, shows a rendering of the guideway from the rear yard of a typical home in Palm Island. Note that the design team could not access an actual back yard of a home, given these are private homes. For Palm and Star Island, the proposed guideway's visual impact is mitigated by distance, vegetation, and PortMiami in the background. While visible, the residential viewer experience will not be heavily impacted.*

The proposed system will be either the Monorail or the Automated People Mover that runs on rubber tires. Neither system will create noise to impact the existing residential uses.

Mitigation

The guideway beams will be substantially elevated from the roadway allowing views to a person sitting in a car, on a bike, or for other motorists. *Figure-3* shows the supporting T-beams' elevation at a minimum of 16.5 feet and the guideway beams that will be much higher. The supporting piers will be located at 130 feet on center and will provide visual permeability to the views of PortMiami. The guideway's elevation is required to protect the system from storm surges during major hurricanes and minimize environmental impacts on the marine environment. The guideway's elevation will mitigate view impacts to travelers in both MacArthur Causeway directions. Project enhancements such as the proposed designs for the system's piers and beams and the potential to provide night illumination will better integrate the proposed guideway system structure into the MacArthur Causeway setting.

The included renderings illustrate the different key views on the MacArthur Causeway and how the proposed guideway and its structure will allow views of the water environment and the built environment of PortMiami. As a linear transport system, the guideway's insertion will be coherent with the roadway's existing built environment.

Figure-46 shows the present conditions at the Key View of the MacArthur Causeway roadway on the previous pages. Also, *Figure-47* and *Figure-48* illustrate the impact mitigation of the proposed guideway elevation to allow views across the Port of Miami Channel. The drawings show the Automated People Mover and the Monorail Guideway.

As illustrated, *Figure-49* shows the Port of Miami Channel's current view from the MacArthur Causeway's outside lane. *Figure-50* and *Figure-51* show the proposed guideway's visual impact for the Automated People Mover and the Monorail. Note the visibility afforded under the guideway.

Figure-52 through *Figure-54* show another view of the existing roadway, the royal palm lined median, and the proposed elevated guideway system.

F. Terminal Island Visual Assessment Unit

i. View Shed Description/Visual Character

The Visual Assessment Unit of Terminal Island is defined by the bend on the MacArthur Causeway and a break of the expansive waterway vistas of the MacArthur Causeway. The view traveling east changes to heavy vegetation, protective walls, and buildings that line the east side of the roadway on Terminal Island. These create a defined visual edge to the road. Colors change from ocean to land; the landmass breaks the vivid views and the blue waters' high contrast.

Almost on the MacArthur Causeway axis are the high-rise buildings of South Beach, those at Alton Road and 1st Street, and South Pointe further east. Three factors play in the view of these high-rise buildings as one travels on the MacArthur Causeway.

The first factor is the viewer's distance as these buildings are over a mile away as one enters Terminal Island. They are in the background, and the limited elevation of the guideway as it turns into Terminal Island will not block the view of the high-rise buildings in the distance.

The second factor is the time exposure to the view of the high-rise buildings in the distance as one enters Terminal Island. The time to view is a short duration given the driving speed of 45 MPH on the MacArthur Causeway.

The third factor is the angle of view change as one enters Terminal Island. The existing vegetation and existing buildings block these views even without constructing the guideway. Once within Terminal Island, the view of the high-rise buildings in the background is greatly diminished.

The guideway's construction will impact the existing vegetation on the south side of the MacArthur Causeway at Terminal Island. The present palm trees and other vegetation will need to be relocated and a new landscape plan developed.

The Fisher Island Ferry Terminal at the southwest end of Terminal Island is surrounded by a large masonry wall heavily landscaped. An FPL substation is buffered by a masonry wall and heavy landscape further northeast. The City of Miami Beach Public Works Facility is also in Terminal Island. A proposed luxury high-rise will be constructed in the only vacant site on the island. A traffic light on MacArthur Causeway provides a pause to the rapidly moving heavy traffic on this segment of the roadway. Pedestrian traffic on the south side of the causeway is limited by the lack of sidewalks south of the traffic light.

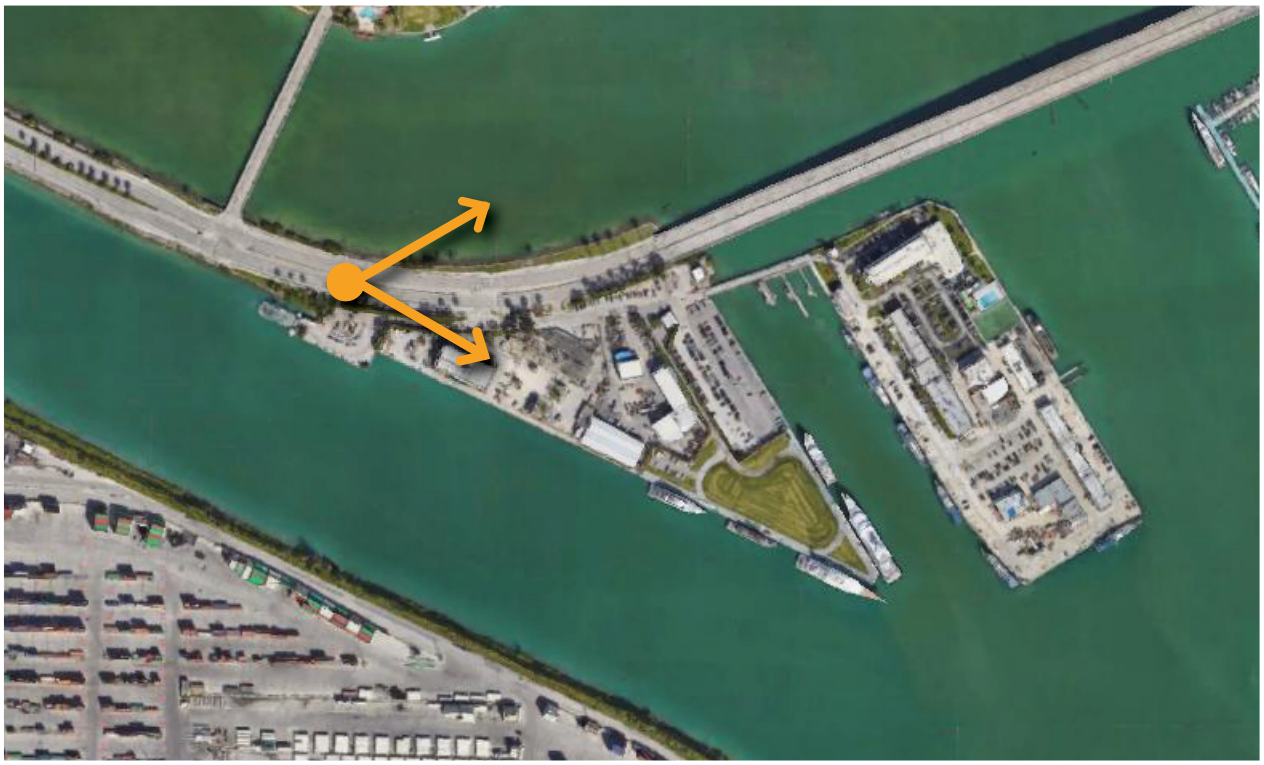

Figure-58. Visual Assessment Unit 4 (Terminal Island)

As in the rest of the Causeway, the views vary depending on the travel direction. Traveling west, looking north, views of Star Island and the blue water define this Visual Assessment Unit. For travelers looking southeast in the same travel direction, the view is determined by the heavy vegetation.

ii. Visual Quality

- Natural Harmony- Terminal Island is a built environment with varied uses. The natural environment has been drastically altered.
- Cultural Order- There is no real composition to the constructed elements of the island.
- Project Coherence- Given the types of uses, viewer preference may reflect coherence between the proposed elevated guideway and the built environment in Terminal Island.

iii. Affected Population

The affected population in the Terminal Island Visual Assessment Unit is indicated in Table-8. The people most affected will be the travelers on the MacArthur Causeway going to Miami Beach

and users of the activities on Terminal Island.

The single-family residential homes in Star Island are too distant from the elevated guideway, over 840 feet, to present any visual impact to the residences.

High-rise residential areas are not near the elevated guideway. Their view will be one of a very distant background.

iv. Impact Analysis

Figure-60 shows the Key View. Figure-61 shows the insertion of the elevated guideway in the Key View. The rendering portrays the compatibility of the elevated guideway with the island context. The project and its surrounding environment have a similar character. Terminal Island provides uses such as the Fisher Island Ferry Terminal, the City of Miami Beach Maintenance Facility, an electrical substation, and access to the U. S. Coast Guard Base. Given the nature of the uses, viewer sensitivity to the elevated guideway can be assumed as low.

The elevated guideway will help define the MacArthur Causeway's east edge as it moves through Terminal Island. The project impact can be categorized as neutral.

v. Mitigation

No mitigation to the elevated guideway's visual impacts other than the supporting pilasters' proposed aesthetic design is required.



Figure-59. Birdseye View of Terminal Island

Terminal Island Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	Medium	Views of high-rises will not be blocked; view of Meloy Channel may be blocked sporadically.
US Coast Guard Personnel, US Coast Guard Station	Static	Low	View of guideway will blend with bridge structure.
Meloy Channel Transient Boaters	Dynamic	Low	View of guideway will blend with bridge structure for travelers in the north direction.
Alton and 5th Area High Rise Condo Residents	Static	High	Distance separation will not impact residential views
Star Island East Side Residents	Static	High	Distance separation will not impact residential views

Table-8. Terminal Island (Viewer Sensitivity Chart)



Figure-60. View East at Terminal Island (Existing View)



Figure-61. View East at Terminal Island (APM View)

G. MacArthur Causeway East Bridge Visual Assessment Unit

i. View Shed Description/Visual Character

This visual assessment unit is the gateway to Miami Beach from the MacArthur Causeway. The proposed elevated guideway system will travel on the southeast side of the MacArthur Causeway East Bridge as it runs to Miami Beach. The guideway will parallel and rise with the existing bridge to clear the Meloy Channel required clear height from the water..



Figure-62. Visual Assessment Unit 5 (MacArthur Causeway Bridge East)

For motor vehicles and pedestrians, the bridge's gradual rise opens views to Biscayne Bay Channel, Miami Beach Marina, and the high-end apartments/condominiums north and south of the bridge. The mix of water and the high-rise residential towers of the human-made environment provide expansive, vivid, colorful, and memorable views—the views to those traveling in vehicles and pedestrians walking to Miami Beach, open to the southeast. Views to the west for cars traveling in both directions will not be impacted.

For vehicles and pedestrians leaving Miami Beach on the MacArthur Causeway East bridge, once one ascends to the bridge's crest, the views become expansive in all directions. The proposed elevated guideway will not impact any of these views.

ii. Visual Quality

- Natural Harmony- is defined by the vivid contrast of the built environment with the blue of the water and the Meloy Channel's view.
- Cultural Environment- is defined by the cultural and built environment that comprises the

views of Miami Beach's high-rises lining Alton Road to the south; and the affected natural environment of the Meloy Channel. As one drives to Miami Beach and looks to the east, the Miami Beach Marina can be seen. Viewing to the north is the waterways and the continued skyline of Miami Beach.

» Project Coherence- Parallel on the south side of the MacArthur East Bridge, the guideway will be coherent with the bridge elevation and built form. The elevated guideway will parallel the bridge at the same height as Terminal Island and rise to clear the Meloy Navigation Channel. It rises further to clear a proposed pedestrian bridge that continues the waterfront promenade to the other side of the MacArthur Causeway East Bridge.

iii. Affected Population

The view of the water to passengers on vehicles will be affected. Still, the views of the high-rises that form the gateway to Miami Beach will not be affected. Pedestrians and bicyclists on the bridge will have the water's views partially affected as they move on the bridge from Terminal Island to Miami Beach. The impact to the views can be considered medium as there will be spaces where the view of the Meloy Navigation Channel and Miami Beach Marina will be available.

Viewer sensitivity from the U.S. Coast Guard base is low. The elevated guideway structure will be aligned with the MacArthur Causeway East Bridge. It will not present a significant blockage of views from the bottom. Boaters on the Meloy Channel will



Figure-63. Birdseye View of MacArthur East Bridge

MacArthur East Bridge Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	Medium	Views of high-rises will not be blocked; view of Meloy Channel may be blocked sporadically.
US Coast Guard Personnel, US Coast Guard Station	Static	Low	View of guideway will blend with bridge structure.
Meloy Channel Transient Boaters	Dynamic	Low	View of guideway will blend with bridge structure for travelers in the north direction.
Alton and 5th Area High Rise Condo Residents	Static	High	Distance separation will not impact residential views
Miami Beach Marina Boaters	Static	Medium	View from the marina to the north

Table-9. MacArthur East Bridge (Viewer Sensitivity Chart)

experience the same integration of the bridge with the elevated guideway. Their sensitivity to the view change will be low.

The elevated guideway will be high off the ground. It parallels the MacArthur Causeway East bridge and rises to clear the proposed pedestrian bridge across the Causeway entrance to Miami Beach. At an elevation of +45 feet, the guideway will be highly visible from the marina and the waterfront pedestrian promenade. Only a very few boats will be close to the elevated guideway at this marina sector. For the existing bridge and the high-rise condominiums, the viewer group's sensitivity to the elevated guideway paralleling the MacArthur East Bridge may be low.

iv. Impact Analysis

View impacts to observers, boaters, and the U.S. Coast Guard Station will be low given the elevated guideway's structural compatibility with the bridge. The view impacts will be neutral. For those on the MacArthur Causeway East bridge, views of the water and the Miami Beach Marina will be blocked for a limited duration. Views from the bridge south will be impaired as the bridge rises. They will open as the elevated guideway rises to clear the proposed pedestrian bridge and the MacArthur Causeway East bridge descends into Miami Beach. View impacts to travelers on the road will be medium. *Figure-64* shows the present view from the MacArthur Causeway East bridge as one goes to Miami Beach. *Figure-65* and *Figure-66* illustrate the impact of the Monorail guideway option and the Automated People Mover option.

Views from Miami Beach Marina will be impacted by the elevated guideway forming the marina's north side's background. The elevated guideway will be relatively high at this point, at thirty-five to forty-five feet. View impacts from the marina will be medium.

Views from the adjacent condominium's recreation deck to the south will be impacted by the guideway's presence at the required elevation to clear the proposed pedestrian bridge.

v. Mitigation

Mitigation measures include the aesthetic design of the guideway and its supporting piers. Mitigation for the guideway visual impact to the recreation deck of the adjacent high-rise will require buffering the view of the guideway and the cars as they go by. This may be accomplished within the recreation deck proper. There will be no limited view affectation created by the guideway and cars to the residential units above.



Figure-64. MacArthur East Bridge (Existing View)



Figure-65. MacArthur East Bridge (APM View)



Figure-66. MacArthur East Bridge (Monorail View)

H. Miami Beach 5th Street Pedestrian Bridge

i. View Shed Description/Visual Character

A pedestrian bridge at 5th Street to be located over the MacArthur Causeway East Bridge and 5th Street will allow safe pedestrian access over this major thoroughfare. The 5th Street Pedestrian Bridge will provide an uninterrupted pedestrian connection from the South Beach waterfront to the areas north of 5th Street.

The location of the Pedestrian Bridge is illustrated in *Figure-68 and Figure-69*. An elevation drawing of the 5th Street Pedestrian Bridge looking from the west is presented in *Figure-72*; as well as an elevation from the east shown in *Figure-73*.

As one enters or leaves Miami Beach on the MacArthur Causeway, the 5th Street Pedestrian Bridge will become a landmark to those traveling on private vehicles, transit, and pedestrians in the area. The bridge design is conceived as a multi-colored glass-covered vault over the bridge span structure. The rendering in *Figure-71* shows the proposed 5th Street Pedestrian Bridge, its relationship to the road and the adjacent residential condominium structures.

The guideway will need to rise to clear the bridge glass vault structure. Coordination between the Beach Rapid Transit Corridor project team and the bridge's architectural designers has taken place. In response to the future transit project, the bridge architects have indicated in the Pedestrian Bridge's elevation drawing the section where the guideway will pass over the vault and the panels that the guideway's insertion will impact. The note indicates "panels to be removed for DTPW."

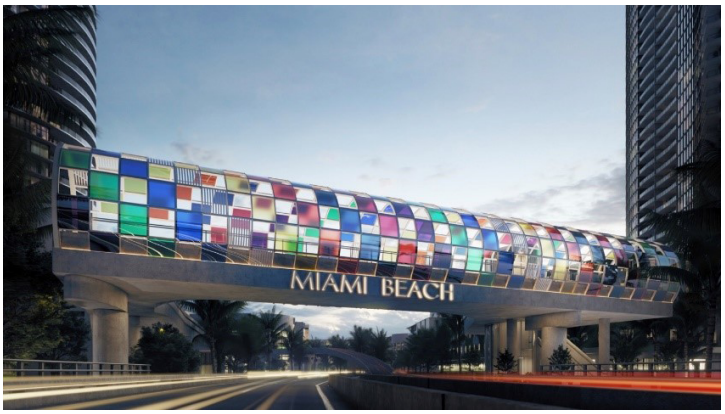

Figure-67. 5th St. Pedestrian Bridge- "Coming to Miami Beach"

Miami Beach 5th Street Pedestrian Bridge Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	Medium	Views of high-rises will not be blocked; view of Meloy Channel may be blocked sporadically.
Meloy Channel Transient Boaters	Dynamic	Low	View of guideway will blend with bridge structure for travelers in the north direction.
Alton and 5th Area High Rise Condo Residents	Static	High	Short distance separation will effect residential views
Miami Beach Marina Boaters	Static	Medium	View from the marina to the north

Table-10. 5th Street Ped Bridge (Viewer Sensitivity Chart)

The underside of the guideway beams as it crosses over the Pedestrian Bridge glass vault cover will

need to be at an elevation of +47 feet to clear the structure. The supporting structure of the transit guideway, the beams, will have a depth in the range of +6.0 feet. This required depth will place the guideway track at an elevation of +/- 53 feet above the waterfront promenade's present grade. If one adds the train cars' height, the vehicles' passenger platform may be at an elevation +/- 55 feet above the waterfront promenade's present elevation.

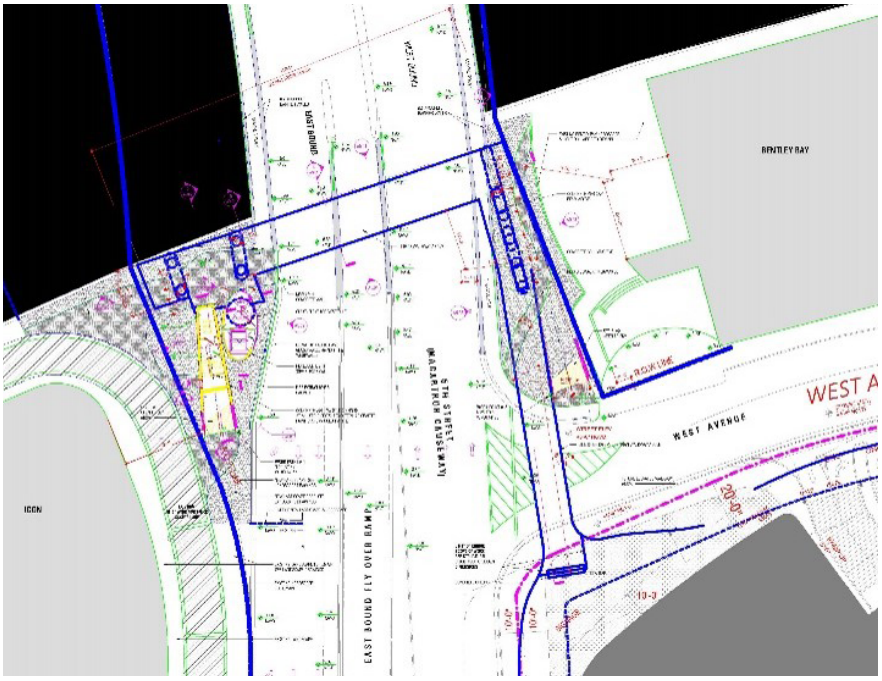

Figure-68. Proposed Pedestrian Bridge Structure

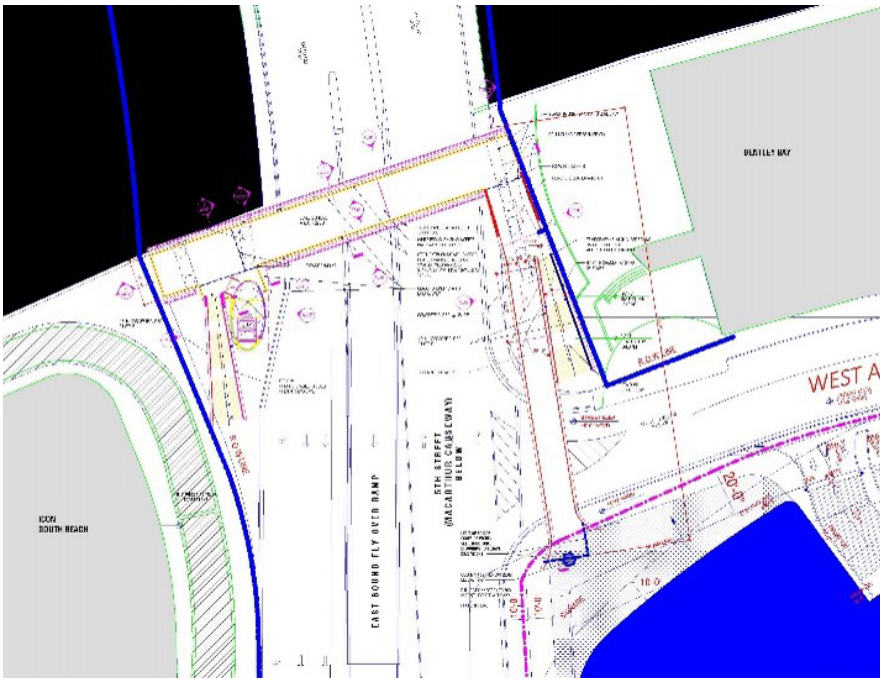

Figure-69. Proposed Pedestrian Bridge Plan

ii. Visual Quality

» Natural Harmony- There is no natural environment at the intersection of the MacArthur Causeway and 5th Street in Miami Beach. This intersection is a dense urban area defined by significant roadways and high-rise buildings. Views of the Meloy Channel and the waters blue are not part of this Visual Assessment Unit.



Figure-70. Proposed New Development at Entrance to Miami Beach

» Cultural Environment- the built environment dominates this Visual Assessment Unit, one of the principal vehicular gateways into the island of Miami Beach. To the driver and the pedestrian arriving at this juncture, the dominant features are the roadway and the high-rise buildings that flank this entrance to Miami Beach; the overpass carries traffic traveling to Alton Road in the north direction intersection of 5th Street with Alton Road. The roadway's visual cone and the adjacent buildings dominate vehicle drivers, pedestrians, and bicyclists' visual experience as two large building parking decks flank this entrance to Miami Beach. The multi-storied parking deck of the Icon Condominium and the blank walls of the Bentley Condominium to the north create the visual edge. Views of the buildings to the east on 5th Street are glimpses in the distance, as are the pedestrian promenade's views, Miami Beach Marina, and the Meloy Channel's blue water, which are left behind.

» Project Coherence- Like a built environment, the guideway's future construction, its supporting columns, and the transit vehicle's circulation will be coherent with the level of

intense urban transportation movement, activity, and dense building construction in this area.

iii. Affected Population

The population most affected will be the north tower of the Icon Condominium immediately to the south of the proposed Beach Rapid Transit Project guideway. The affected people will also include the residents of the south tower of the Icon Condominium complex. However, this building is more distant from the MacArthur Causeway East Bridge and the proposed guideway. As such, the high-rise apartments, and condominiums to the south of the Icon Condominium complex will be much less affected as the guideway will be substantially distant, over 1,600 feet from the nearest high-rise structure.



Figure-71. Proposed Pedestrian at the Entrance to Miami Beach

On the north side of the MacArthur Causeway are the Bentley Condominium, and on the east side of West Avenue at 5th Street, the proposed high-rise condominium "Park on 5th". As the guideway travels to Miami Beach's 5th Street, the guideway and vehicles will be visible to the residential units of the Bentley Condominium "Park on the 5th Condominium. Because of its design, the Bentley condominium is oriented towards the bay and has no window on the tower's south side. Visual impacts to this building will be minimal as it will only have views of the guideway as it comes across the bridge and will be at a distance from the building's bayside. Park on the 5th has not been constructed. This high-rise building will also be further away from the guideway, and the parking podium will also buffer views of the guideway.

iv. Impact Analysis

As can be seen in the aerial rendering in *Figure-71*, it illustrates the bridge's relationship to the Icon Condominium recreation deck. The Pedestrian Bridge's elevation on *Figure-71* shows that the transit vehicle passenger platform will be near the level of the Icon Condominium's recreation deck once the guideway rises to clear the Meloy Channel navigation required clear height and further rises to clear the 5th Street Pedestrian Bridge. The guideway will be visible from the recreation deck and all the apartments above. The Icon Condominium recreation deck will be visible from the transit vehicles as the guideway crosses over the MacArthur East Bridge's highest part and keeps rising to clear the 5th Street Pedestrian Bridge.

The guideway and vehicles will also be visible from the recreation deck and the units immediately above. For a short distance as the guideway and cars will be close to the recreation deck level. After crossing over the 5th Street Pedestrian Bridge, the guideway will begin sloping, descending to Lenox and 5th Street's elevated station.

The transit system will be visible from the recreation deck and create views of the recreation deck from the transit vehicles as they move to and from Miami Beach. The units on the levels

immediately above the platform and the lower-level residential units oriented to the north will have a view of the guideway and the vehicles as they come over the MacArthur East Bridge and into Miami Beach. The guideway will introduce a new visual element in the built environment and water views from the subject building.

At the entrance to Miami Beach at 5th Street, the guideway will be elevated. For drivers coming into Miami Beach descending from the MacArthur Causeway East Bridge, given the guideway's height at this point, the visual impact will be mostly the views of the supporting columns and guideway. Given this intersection's high-intensity urban environment, the drivers' views will not be substantial as the piers will integrate into the urban environment and the intense activity of the intersection with Alton Road.

v. Mitigation

Views of the guideway and train from the Icon Condominium looking to the southwest as the guideway crosses over the MacArthur Bridge will not require mitigation because of the guideway's distance from the recreation deck of the Icon Condominium. The guideway will be in the background.

Mitigation of the guideway's views as it passes on the land on the south side of the Icon Condominium and over the 5th Street Pedestrian Bridge may necessitate some form of a visual barrier. The recreation deck's exposure and the units to the vehicle will be for a concise duration as it travels across this section of Miami Beach's entrance. Another mitigation option is reconstructing the 5th Street Pedestrian Bridge to allow a lower elevation for the guideway to pass over it. These mitigation measures will need to be further detailed and evaluated once the project moves forward to construction.

Credit: All Design and Graphics included related to the design of the 5th Street Pedestrian Bridge are courtesy of Arquitectonica.

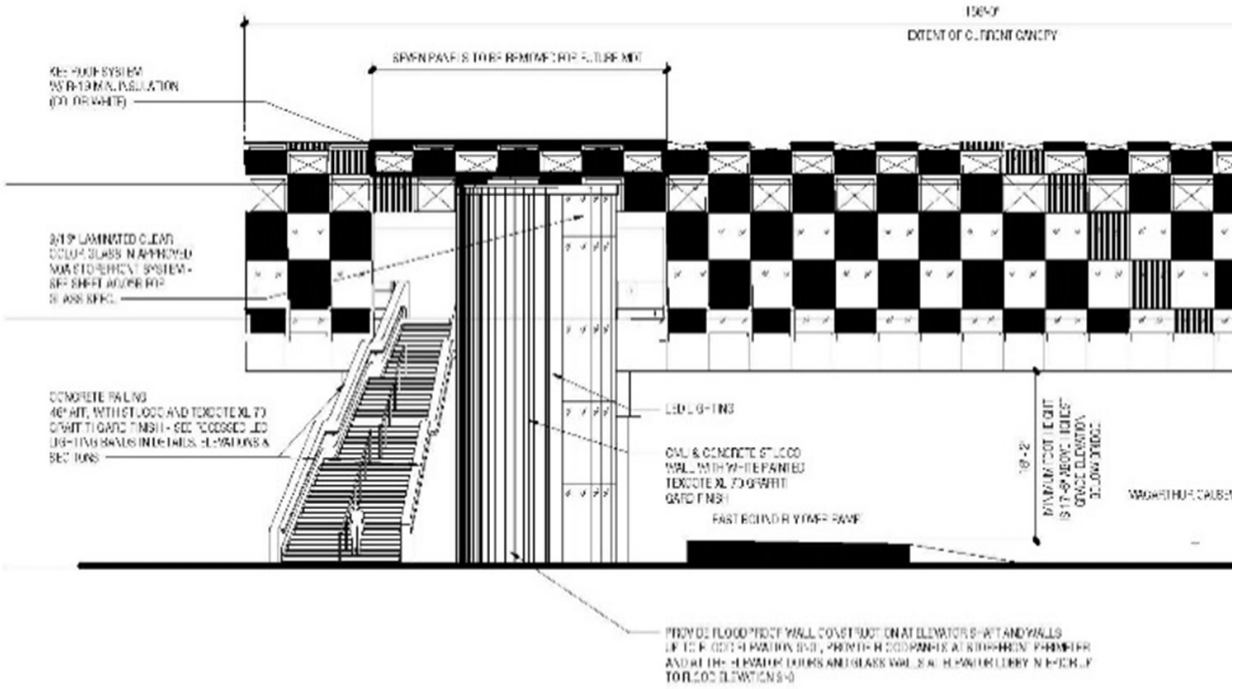

Figure-72. View of 5th Street Pedestrian Bridge South East Side Looking West

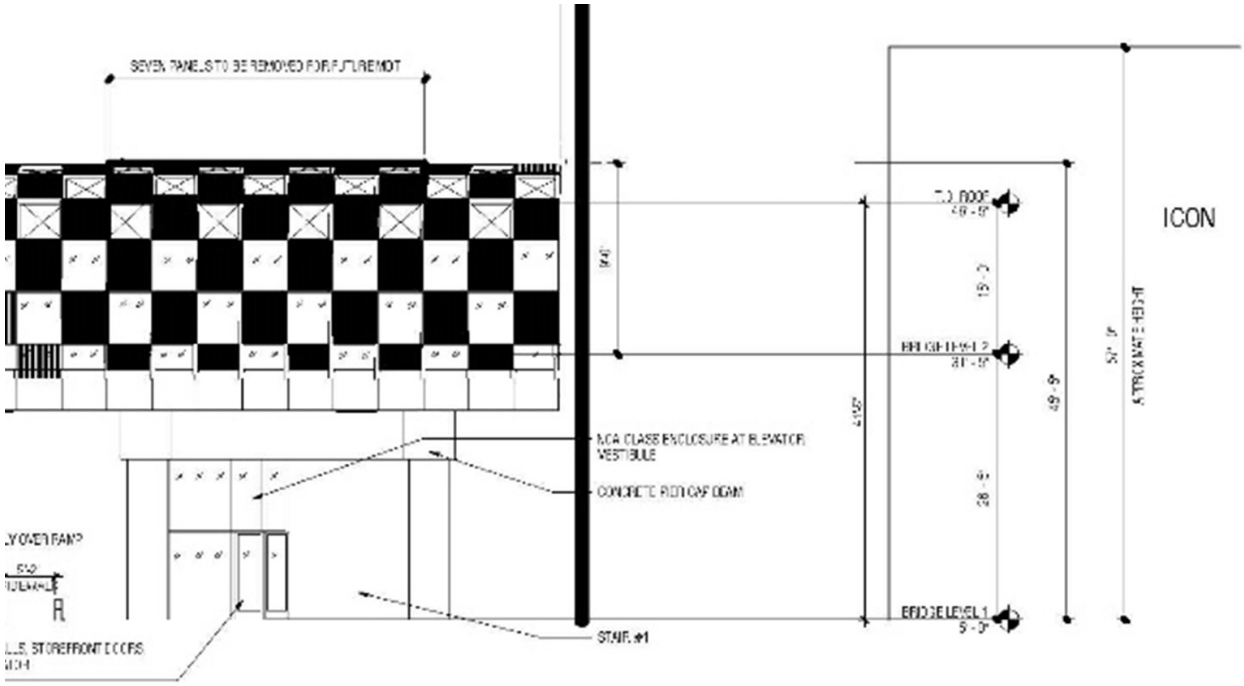

Figure-73. View of 5th Street Pedestrian Bridge South Side Looking from the West

I. Miami Beach 5th Street Visual Assessment Unit

i. View Shed Description/Visual Character

5th Street is one of the main entrances to Miami Beach for traffic and public transportation arriving from the City of Miami mainland. A six-lane boulevard with a landscaped-median, 5th Street is a significant traffic collector distributing traffic to the South Beach area. It serves to define the lower South Beach area from the rest of South Beach. On either side of the boulevard are wide sidewalks lined with royal palms and landscape. It is a Florida Department of Transportation (FDOT) State Road, SR A1A. The Intersection of Alton Road and 5th Street marks the southern terminus of State Road 907 (SR907), a major north-south artery in Miami Beach. Alton Road continues as a local street south.



Figure-74. Visual Assessment Unit 6 (Miami Beach 5th Street)

The 5th Street AVE spans from Alton Road to Washington Avenue. The AVE is limited to the right-of-way of 5th Street and the buildings immediately facing this Boulevard. It is an urban corridor with human-made vistas. What characterizes the AVE of 5th Street is the openness of the road. There is ample roadway open space and visual expansion as one circulates either in vehicles, walking, or bicycling on 5th Street.

The Visual Assessment Units that comprise the Area of Visual Effect (AVE) include low and mid-rise commercial buildings with a few low-rise residential apartments. The Visual Assessment Unit ends at Washington Avenue, which is where the last station will be located.

5TH STREET STATIONS

Two stations are proposed for 5th Street, at Lenox Avenue and the end of the line at Washington Avenue. For the VIA, an analysis of the visual quality and affected population is done for both stations. There is no substantial difference in land use and character across the 5th Street Corridor.



Figure-75. Birdseye View of 5th Street Area

ii. Visual Quality

The substantial width of 5th Street right-of-way creates an activity separation between the two sides of the street. Parcels of land have evolved in recent times by adding new mid-rise buildings and big-box shopping centers at Alton Road and Lenox Avenue. It is an urban environment where the roadway's visual quality is made coherent by the generous green space and sidewalks on both sides of the boulevard lined with royal palms.

The median that creates the boulevard does not provide a strong landscape image that emphasizes

Miami Beach 5th Visual Assessment Units Evaluation			
Viewer Sensitivity Chart			
Viewer Group	View Type	Viewer Sensitivity	Resource Impact
Roadway Travelers	Dynamic	Medium	
Alton Road High-Rise Building Residents	Static	Low	Elevated guideway will be visible in the distance.
Pedestrian/ Bicyclists	Dynamic	Medium	Elevated guideway will be another built system included in the urban landscape.
Office Building Users	Static	Medium	
Retail Shoppers	Static	Medium	
Retail Business Owners	Static	Medium	

Table-11. Miami Beach 5th Street (Viewer Sensitivity Chart)

the corridor's linearity. The parcels fronting on 5th Street have experienced substantial investment. It is an evolving corridor with new construction of differing heights.

iii. Affected Population

The affected population will be the residents, office building users, shoppers, and business owners. Viewer sensitivity is moderate. Running the elevated guideway in the median provides a substantial buffer to the structures on either side of 5th Street. The stations' median location will provide safe access to station areas and refuge to those crossing the street.

The stations' placement in the median will allow the pedestrians to enter the stations from a pedestrian promenade on the east and west sides of the station, within the median.

iv. Impact Analysis and Mitigation

Kevin Lynch, In his book The image of the City*, a seminal book in the analysis and definition of the image of the City and a widely accepted authority and reference on the matter, defines five types of image creating elements in cities. He states: "The contents of the city image…..which are referable to physical forms, can conveniently be classified into five types of elements: paths, edges, districts, nodes, and landmarks". Partially quoting the definitions from his book:

- **Paths** are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths, other environmental elements are arranged and related.
- **Edges** are the linear elements not used or considered as paths by the observer. They are boundaries between two phases…..
- **Districts** are the medium-to-large sectors of the city, conceived of as having a two-dimensional extent. The observer mentally enters "inside of" and is recognized as having some common, identifying character.
- **Nodes** are strategic points in a city where an observer can enter and become the intensive focus to and from which they are traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another.
- **Landmarks** are another type of point-reference, but in this case, the observer does not enter them; they are external. They are usually defined as a physical object: buildings, signs, or mountains.

The 5th Street Boulevard, as previously stated, is a wide path that channels all types of movement from Alton Road on the west to Ocean Drive on the east. Washington Avenue is a major path that runs north-south. The Washington Avenue Station is the terminal station in Miami Beach. Washington Avenue is a major north-south corridor that starts at Inlet Boulevard in South Beach and ends at Dade Boulevard on the north. The intersection of the 5th Street boulevard and Washington Avenue provides a wide area defined by the two rights-of-way.

Spatial qualities, the roadway's width, and other characteristics such as uses will contribute to a particular path's image. The right-of-way of 5th Street is 150 feet, and that of Washington Avenue is 100 feet. The intersection of these two major paths creates a large identifiable physical and visual node of activity. This node presently includes public bus transportation on Washington Avenue and 5th Street; and retail uses on all sides of the intersection. It is a node of activity both from the point of view of movement and its image as an edge. This intersection defines sectors of the South

Beach District both to the south, north, and east with the beach and the hospitality, open space, and entertainment activities of Ocean Drive.

Landmarks exist in paths and can also be created there. Given the spatial qualities of 5th Street, the transit system and its stations can create a point of reference in the 5th Street Boulevard path and the 5th Street and Washington Avenue node. The insertion of the 5th Street and Lenox Avenue Station coupled with the recently created large box retail stores and the proposed bus transfer facility part of the Beach Corridor Rapid Transit project can create a new pedestrian driven node of activity at this intersection.

The ample right-of-way space will allow the elevated guideway to be inserted in the median and generate limited visual impacts. The roadway and the facing buildings are in scale with the elevated guideway and the stations. Effects on the median vegetation can be mitigated by planting species that will grow under the guideway.

There is an opportunity for a pedestrian mall in the median of 5th Street, spanning avenue to avenue where stations are proposed. This connector may allow access from both sides of the station; from the Lenox Station at Michigan, from the Washington and Meridian at the 5th Street and Washington Station.

The elevated guideway's impact will be neutral and benefit both pedestrian movement and scale of the 5th Street Boulevard. The station's visual impacts may be beneficial by adding structures of interest and landmarks amongst relatively low buildings facing the wide right-of-way.

The station's placement on the west or east side of the intersection of 5th Street and Washington Avenue will create a pedestrian refuge for people crossing the street. Given both the visual and physical amount of right-of-way, the insertion and architectural design should create a new landmark in this sector. As such, the station's visual impact may be assumed to be beneficial to this node's visual image. On a comparable basis, the 5th Street and Lenox Avenue Station will create a new architectural landmark on this 5th Street Boulevard sector. The new station will be beneficial to the image of this area of 5th Street.

**Kevin Lynch, The Image of the City, Massachusetts Institute of Technology and the President and Fellow of Harvard College, The MIT Press, Cambridge Massachusetts, and London England. June 1960*



Figure-76. View of 5th Street East (Existing View)



Figure-77. View of 5th Street East (APM View)



Figure-78. 5th Street and Washington West (Existing View)



Figure-79. 5th Street and Washington West (APM View)

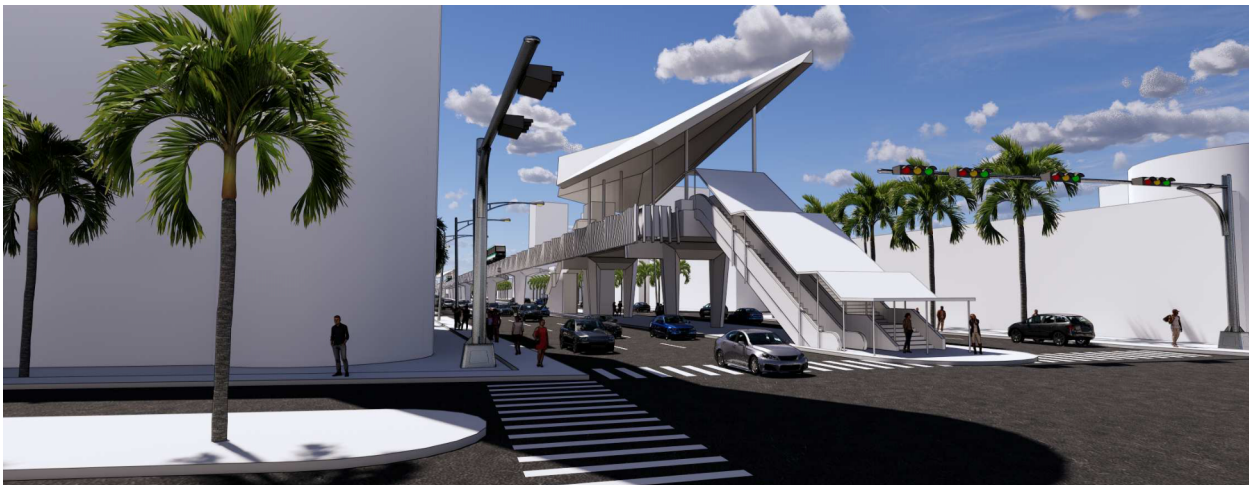

Figure-80. 5th Street and Washington West (Monorail View)

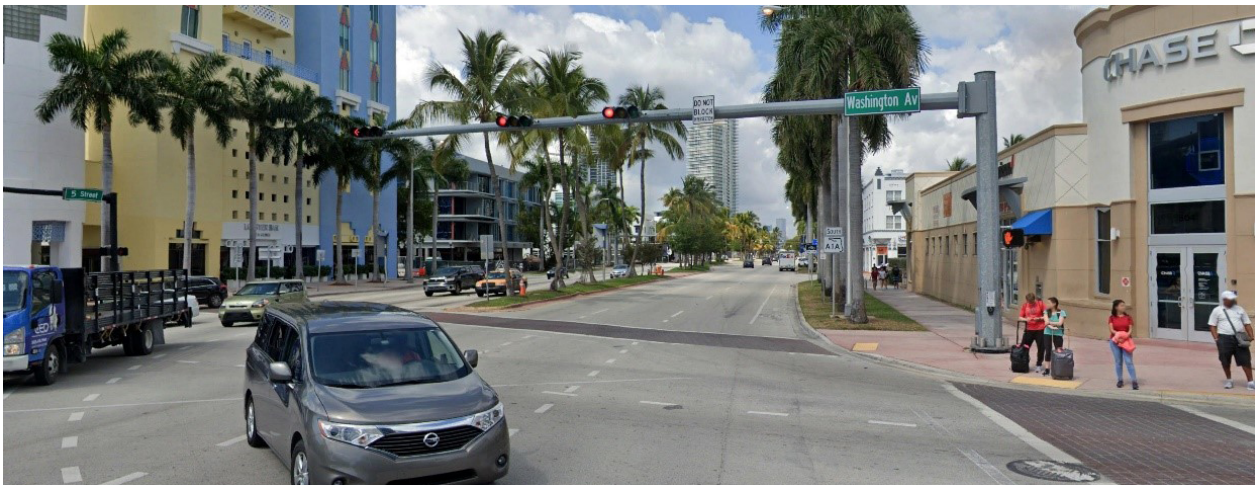

Figure-81. View 2 5th Street and Washington West (Existing View)



Figure-82. View 2 5th Street and Washington West (APM View)



Figure-83. View 2 5th Street and Washington West (Monorail View)

10. MIDTOWN/DESIGN DISTRICT SUBAREA

Overview

The North Miami Avenue Line extends from the present Metromover (APM) School Board Station at 15th Street to the proposed Design District's station at 41st Street. The North Miami Avenue corridor is undergoing substantial mixed-use development. The right-of-way of North Miami Avenue defines a corridor with a moderate to low visual quality experience, depending on the sector.

The North Miami Avenue Corridor has been historically segmented into various distinct land-use sectors that respond to Miami's historical development and the Florida East Coast (FEC) rail line. The FEC rail line provided rail access to warehouses/light industrial sectors along the corridor when this access was crucial for the city's economic development.

The corridor and its surrounding area lay dormant for a long time. But the corridor is rapidly redeveloping as a major center of entertainment, including new residential areas and the development of large land parcels.

The area south of 17th street is redeveloping with significant mixed-use residential buildings. Its proximity to Downtown Miami makes this area attractive. The FEC line has acted as a dividing line. South of 20th Street and to the west of the FEC rail line is a low-rise residential community.



Figure-84. Visual Assessment Units (Midtown/Design District Area)

20th Street is an essential east-west street that connects Biscayne Boulevard on the east to 27th Avenue and North River Drive on the west. Many of its sectors to the west are important commercial and residential areas.

From 20th Street to 29th Street, the North Miami Avenue corridor is evolving through the Wynwood Neighborhood/entertainment district's redevelopment thrust. In this area, we see numerous mid-rise and high-rise mixed-use residential buildings being constructed. This North Miami Avenue Corridor sector is one of Miami's older warehouses/light industrial sectors. As the city grew, these uses moved further west, leaving behind this older area currently experiencing substantial urban redevelopment.

North of 29th Street to SR 112, the development of Midtown has transformed this sector. Occupying the east side of the corridor, Midtown includes major retail/entertainment and high-rise, high-density residential sectors that span east to the FEC rail line. It is a new-town in-town. Traditionally, the area to the west of the corridor from 29th to 36th Street has been a single-family residential district.

The land uses referenced in the paragraphs above are illustrated in *Figure-85*.

Visual Assessment Units

The North Miami Avenue corridor has four visual assessment units: the 15th Street to the FEC Rail Line including the 16th Street Station; the FEC Rail Line to 29th Street including two stations at 22nd and 26th Street; the Midtown Mixed-Use development spans from 29th Street to SR 112 and includes the 29th Street and 34th Street Station; the 29th Street to SR 112; and the segment from SR 112 to 41st Street that includes the end of the line 40th Street Station serving the Miami Design District. Each of these sectors' visual quality is described in the Key Views, where changes to the visual environment occur given the elevated guideway's insertion and the stations.

The key views represent sectors where

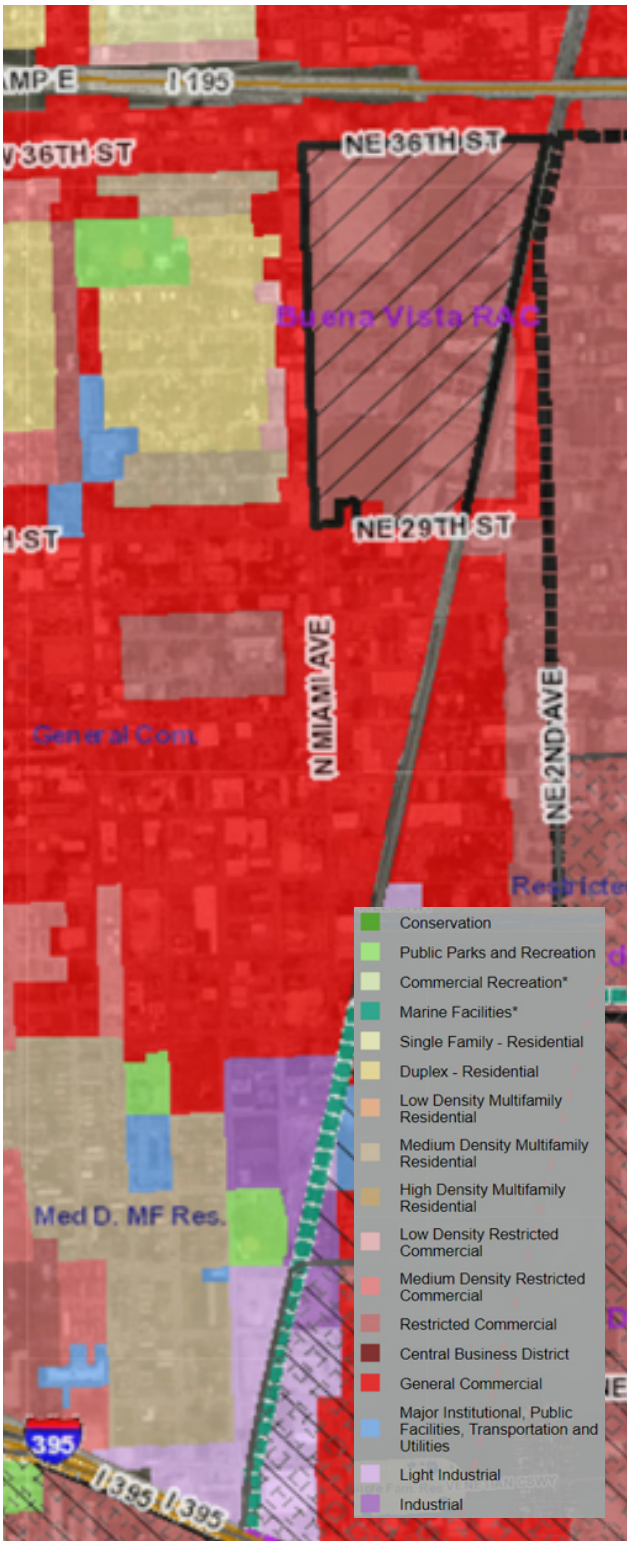

Figure-85. Midtown/Design District Land Use Map

changes to the visual environment could occur due to the Automated People Mover elevated guideway and stations' insertion. Photos of the existing conditions are provided, and simulation renderings are included to portray the changes to the visual environment generated by the new elevated transit line. Following is a description of the four visual assessment units and key views that comprise the North Miami Avenue Line.

Visual Quality

The North Miami Corridor's visual quality has some specific conditions applied to the corridor's totality. These are:

- Natural Environment - Being a wholly built-up area, the natural environment has been altered, and the natural harmony is not a driving visual quality element.
- Cultural Environment - The corridor is a cultural environment built-up over decades of urban development. The visual quality of the cultural environment is evolving as a more matured, increased-density urban corridor. The cultural environment's visual quality is improving. The Automated People Mover North Miami Avenue extension will fully integrate with the existing and new construction.
- Project Coherence - The form of the Automated People Mover is coherent with the existing and evolving urban environment. The new guideway and stations are coherent with this urban context.

In the following pages, the Visual Assessment Units (VAU) that compose the North Miami Avenue Line are further explained and defined. As part of the analysis, a three-dimensional rendering of the station/guideway in each sector's urban context is provided.

For each Visual Assessment Unit, the following are provided:

- View Shed Description and Visual Character - where we determine the extent of the viewshed and the visual and describe the visible attributes of the scene or object.
- Visual Quality– this is where we define the beauty of land form, water form, or vegetation in the landscape and any additions or alterations to the landscape by humans.
- Affected Population - where we identify the Population affected by the construction of the system and the degree of sensitivity to its inclusion.
- Impact Analysis – evaluates the impact and presents the proposed system in the context of the existing urban and natural environment.
- Mitigation – presentation of the proposed system in the context of the existing Key View and definition of any mitigation measures that may or may not be needed to address the identified visual impacts.

A. 15th Street to Florida East Coast Railway Rail Line Visual Assessment Unit

The guideway is aligned on North Miami Avenue's west side, cantilevering over the swale and the travel lane. The 16th Street Station will be a center loading platform and will require land acquisition from the adjacent open site.

This sector of the Midtown/Design District Area has a mix of land uses. The rest of the corridor is experiencing converting warehouse/light industrial sites to mid-rise and high-rise mixed-use buildings. Uses on the west side of the corridor range from lodging at the corner of 15th Street, followed by a CEMEX concrete mixing plant that spans to 17th street to a row of warehouses on an angled site that borders the FEC line on the west and north.

Uses on the east side of this segment of the Midtown/Design District Area include surface parking and warehouse/office/retail one-story buildings from 15th Street to nearly 17th Street where a recently constructed mid-rise mixed-use loft apartment building has been built. Given the mixed-use zoning of the area, the inclusion of the transit connection, and the high residential demand, the residential development trend of low-intensity use sites will continue.

To the north of 17th Street is an empty site that is being redeveloped and immediately adjacent is the City of Miami Cemetery, a historic cemetery of the City and the primary factor that influenced the alignment of the guideway on the west side of

N. Miami Avenue in this sector of the corridor hosts a healthy row of street trees in front of the cemetery that should be protected.



Figure-86. North Miami Avenue at 15th North (Existing View)

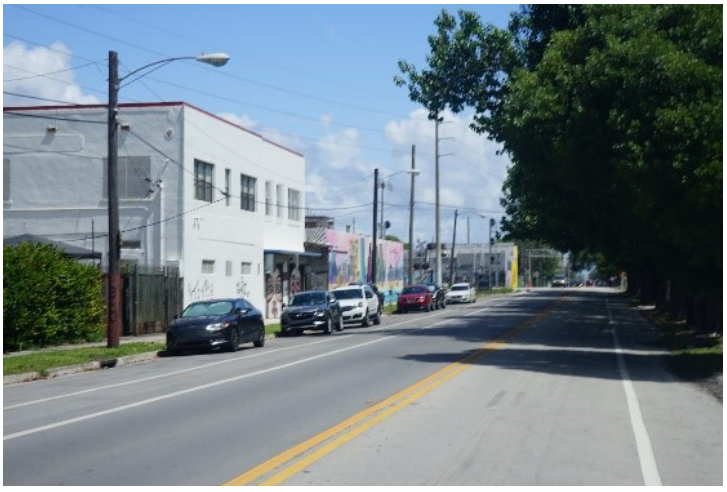

Figure-87. North Miami Avenue at 15th North (Existing View)

i. Visual Quality

The visual quality of the cultural environment can be considered of medium quality. It has several new mid-rise and high-rise structures, street trees, landscape, and a beautiful historic cemetery with a matured landscape. Additionally, development trends in the area will improve the overall quality of the views by including new buildings, expanded sidewalks, and street trees. *Figure-86* and *Figure-87* illustrate the views of N. Miami Avenue and the street scene of this sector.

ii. Affected Population

The affected population will include present residents of the area, motorists, bicyclists, pedestrians, and workers in the sector.

The N. Miami Avenue Line viewer groups will include institutional users, commerce owners, shoppers, residents of both multi-family and single-family units, motorists, pedestrians, and bicyclists. Given N. Miami Avenue's nature, viewer sensitivity to the transit system's extension may be moderate.

iii. Impact Analysis

The elevated guideway will run on the west side of N. Miami Avenue, separated from the new residential uses on the east side and the historic City of Miami Cemetery. The 16th Street Station will occupy part of the adjacent concrete mixing plant's vacant land and not impact any existing construction.

Figure-89 shows the view of the site where the 16th Street Station will be placed. *Figure-90* shows the view of the station on the site. The station will add a small open space in front of the vertical access area and provide a point of interest on this barren segment of the Avenue.

The inclusion of the system will be beneficial to the present views of the area.

iv. Mitigation

The station's creative design, guideway, support piers, and improvements to the pedestrian environment adjacent to the station that improves accessibility will be the only mitigation required.



Figure-88. 15th Street Station Area (Plan View)



Figure-89. North Miami Avenue at 17th South (Existing View)



Figure-90. North Miami Avenue at 17th South (APM View)

B. Florida East Coast Rail Line (FEC) to 29th Street Visual Assessment Unit

The elevated guideway will rise to clear the FEC rail line and align with N. Miami Avenue's centerline. All stations will be center loading platforms and in the center of the avenue. The right of way on this segment to 29th Street is 70' – 0".

This sector of the N. Miami Avenue corridor forms part of the Wynwood Neighborhood and Arts District. The corridor is undergoing major development pressures. Several mid-rises and high-rise mixed-use residential buildings are being constructed. It is an old manufacturing and warehouse sector of Miami that has been transformed into a major entertainment, food, and beverage attraction.

Two stations are proposed for this sector: 22nd Street Station and the 26th Street Station.

i. Visual Quality

As a manufacturing/warehouse district, the visual quality of the street scene is low. The street scene has a vacant site, parking lots facing the avenue without any buffering, and some buildings that are not of an attractive architectural design. However, this corridor is rapidly changing, and there are several new mixed-use high-rise buildings under construction. These buildings will improve the streetscape and provide an attractive ground level background to the street scene. Today the visual quality of the right-of-way is low.

ii. Affected Population

The affected population will include residents, N. Miami Avenue motorists, bicyclists, pedestrians, and workers in



Figure-91. Birdseye View Looking North at 22nd Street



Figure-92. Birdseye View Looking North at 26th Street



Figure-93. Birdseye View Looking North at 29th Street

the sector.

iii. Impact Analysis

Given the visual quality of this sector of the corridor, the station's visual impact may help define each sector through the station's construction. It will add nighttime illumination to this sector and provide a point of visual interest both day and night. New building setbacks with expanded sidewalks and streetscape improvements will provide additional visual right-of-way space to mitigate the station volume. It will not affect the view of motorists.

iv. Mitigation

Provide an attractive station and guideway piers design to create visual interest in the corridor. Streetscape improvements will help to integrate the station into the evolving urban context.



Figure-94. 22nd Street Station Area (Plan View)



Figure-95. North Miami Avenue at 21st East (Existing View)



Figure-96. North Miami Avenue at 21st East (APM View)

C. 29th Street to SR 112 Visual Assessment Unit

Once N. Miami Avenue crosses 29th Street, the right-of-way expands to 90'. This provides more space to locate the station and more distance of the guideway from the adjacent buildings. This station is one of the two to serve Midtown's major development that consists of large box retailers, entertainment uses, and nearly 4,000 residential units. The station's location also responds to high-rise development occurring east of the FEC line, where several other high-rise residential buildings have been constructed.

The additional right-of-way available provides space for a median where the guideway will run and extra space to construct the stations.

29th Street Station. The station at 29th Street will serve the area south of 29th Street and sectors of Midtown. A multi-story residential mixed-use building is being constructed on the vacant site on the northwest side of the intersection where the station is proposed. This is the empty, fenced site that can be seen in the rendering.

34th Street Station. On 34th Street, the new station will serve the Midtown Center's central core and the uses on 36th Street. The architectural scale of the Midtown Center is in keeping with the scale of the Automated People Mover.

i. Visual Quality

The visual quality of this sector of the corridor can be considered as medium quality. There are elements in the foreground, new construction, and elements in the background, the high-rise mixed-use residential units.



Figure-97. Birdseye View Looking North at 29th Street



Figure-98. Birdseye View Looking North at 34th Street



Figure-99. Birdseye View Looking South at 34th Street

ii. Affected Population

The affected population will include the Midtown Center residents, shoppers, and visitors; single-family residents to the west; N. Miami Avenue motorists, bicyclists, pedestrians, and workers in the sector.

iii. Impact Analysis

The 29th Street Station and the elevated guideway inclusion in this key view will not negatively impact the current views. The additional right-of-way and the scale of new development and the scale of the station are compatible.

The guideway will blend with the urban view both in the foreground and background. Overall, the construction of the Automated People Mover may be beneficial to this viewshed.

Further north, the 34th Street Station and elevated guideway inclusion in its key view will not negatively impact the present viewshed. For both stations and the guideway, the view impacts will be neutral at worst.

iv. Mitigation

Provide an attractive station and guideway piers design to create visual interest in the corridor. Pedestrian access improvements will further connect the station to its surroundings.

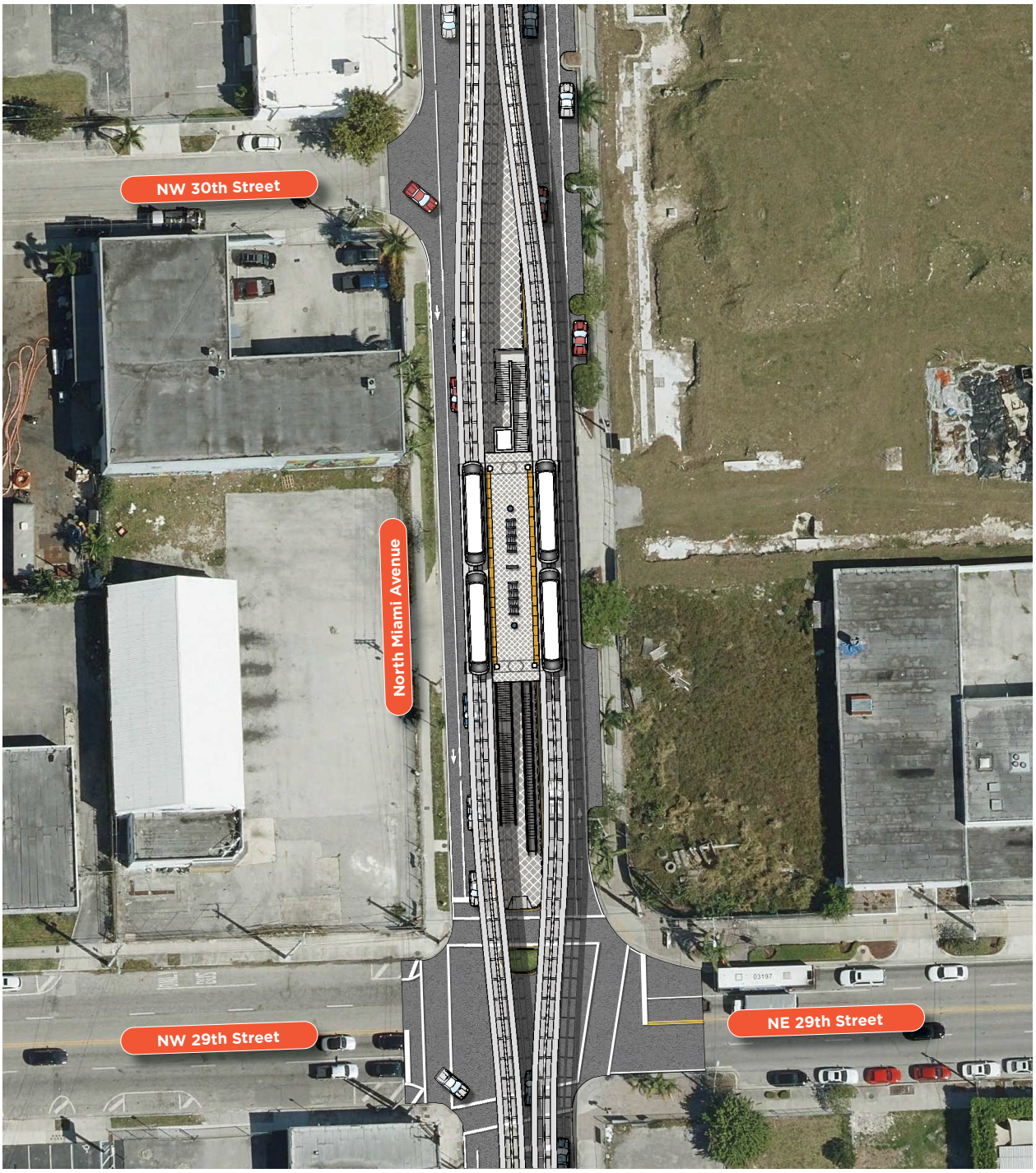

Figure-100. 29th Street Station Area (Plan View)



Figure-101. North Miami Avenue at 29th North (Existing View)



Figure-102. North Miami Avenue at 29th North (APM View)



Figure-103. 34th Street Station Area (Plan View)



Figure-104. North Miami Avenue at 32nd West (Existing View)



Figure-105. North Miami Avenue at 32nd West (APM View)



Figure-106. View at NW 34th west (Existing View)



Figure-107. View at NW 34th west (APM View)

D. SR 112 to 41st Street Visual Assessment Unit

The 41st Street Station will serve the Miami Design District and the residential and commercial uses to the north of SR112. This is the end-of-the-line station with a single track on the east side. The short blocks of urban plan and the need to have a second means of egress from the station platform requires that the second exit is on the west side encroaches into the adjacent site. A large wall with artwork is the only remaining vestige of a building on the site. The drawings indicate the second egress's extension into the property and integrate the existing wall into the station's plan.

The station will be accessed from the 41st Street intersection. Several large buildings, including the DeLa Cruz Collection Art Museum. The station's scale is in keeping with the surrounding buildings and the development direction of this area.

The guideway will slope to rise over SR 112 to reach 41st Street. The higher elevation of the guideway will make it more visible. However, given North Miami Avenue's context at SR 112, the exit ramps' presence, the proposed high-rise structure on the north corner of NE 36th Street and North Miami Avenue, the guideway's higher elevation will integrate into the urban context. For drivers on SR 112, the elevated guideway could provide a landmark with welcoming signs or another feature. The guideway will be visually compatible with SR 112.

i. Visual Quality

The visual quality of this sector of the corridor can be considered as medium quality. There are elements in the foreground, new construction, and elements in the background, the high-rise mixed-use residential units.

ii. Affected Population

The affected population will include visitors and shoppers to the Miami Design District, commercial property owners, retail store owners, single-family residents to the west of N. Miami Avenue, motorists, bicyclists, and pedestrians.

iii. Impact Analysis

The 34th Street Station and the elevated guideway inclusion in this key view will not negatively impact the current views. The additional right-of-way and the scale of new development and the scale of the station are compatible.

The guideway will blend with the urban view both in the foreground and background. Overall, the construction of the Automated People Mover may be beneficial to this viewshed.

Further north, the 34th Street Station and elevated guideway inclusion in its key view will not negatively impact the present viewshed. For both stations and the guideway, the view impacts will be neutral at worse.

iv. Mitigation

Provide an attractive station and guideway piers design to create visual interest in the corridor.

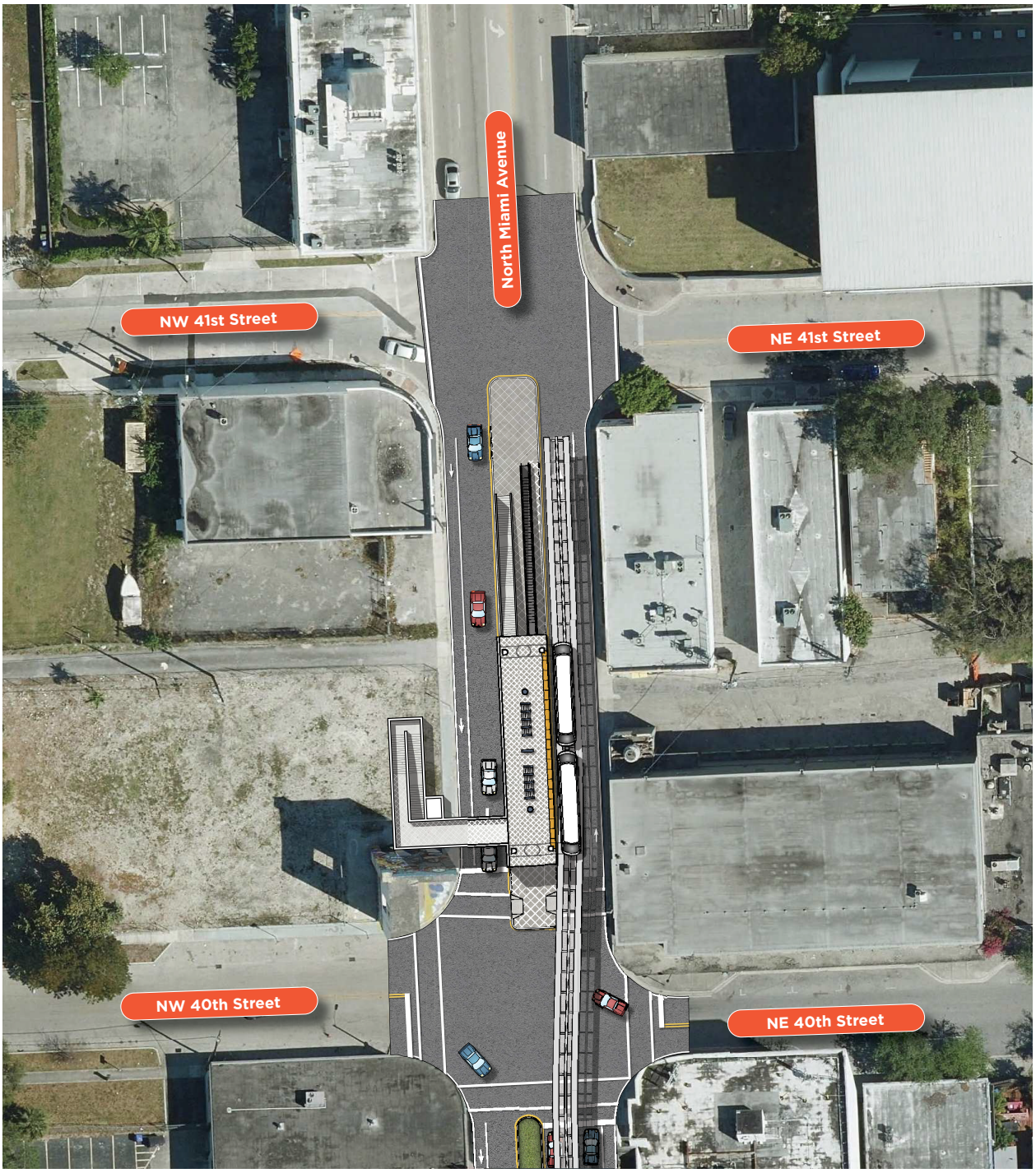

Figure-108. 41st Street Station Area (Plan View)



Figure-109. View at NW 41st north terminus (Existing View)



Figure-110. View at NW 41st north terminus (APM View)

11. SYSTEM MAINTENANCE AND OPERATIONS FACILITY SITE ID ANALYSIS REPORT

The System Maintenance and Operations Facility (MOF) Site Identification Analysis Report, part of the Preliminary Engineering Report (PER), summarizes the evaluation of identified potential sites to locate the proposed MOF building. The report identifies the potential sites for each system's alignments; for the Automated People Mover (APM) on the North Miami Avenue Line; the Monorail of the Trunk Line from Miami-to-Miami Beach. The report provides an evaluation of various site conditions to select a Preferred Site(s) for siting each facility.

The approach/methodology employed to identify, evaluate, and recommend the potential site(s) for the Maintenance and Operations Facility location follows sequential steps that commence with an analysis of the required land area. It culminates in the identification of Preferred Maintenance and Operations Facility Location Site(s). The steps carried out as part of the research and selection methodology are the following:

1. **Fleet Size and MOF Site land Area Requirements-** Identification of the fleet size, the number of cars required, and the definition of the site land area needed for the facility type.
2. **Identification of Potential Sites in Proximity to the Alignment-**
3. **Potential Sites Contamination Review Summary-** A summary of the site's environmental screening for the purposes of identifying sites that would have substantial contamination and require clean-up, which results in higher cost and longer time-frame for development.
4. **Potential Sites Historic and Archaeological Review Summary-** Identification of any historical or archaeological condition that will be problematic for the Maintenance and Operations Facility location.
5. **Potential Sites Characteristics and Conditions-** An analysis of the site-specific conditions including the location on the alignment or distance from the alignment as may be the case; site area; assessed market value; the number of owners for the purposes of acquisition, and urban context to define long term impacts that are generated by the location of the MOF on the specific site.
6. **Potential Sites Evaluation Matrix-** Development of an Evaluation Criteria to compare the different attributes, positive and negative, that each site presents for the MOF location. A definition of the criteria, the generation of an evaluation matrix to display all sites and their different attributes, and the selection of Preferred Potential MOF Site(s) Location.
7. **Selection of Preferred Site(s)-** Based on the analysis results, the Preferred Potential Maintenance and Operations Facility Location Site(s) selection for further evaluation and final choice.

A total of twelve (12) potential sites were identified in the System Maintenance and Operations Facility (MOF) Site Identification Analysis. *Figure-111* and *Figure-117* show the potential MOF candidate sites.

Preferred Sites

The Evaluation Matrix yielded two sites selected as the Preferred Sites:

- **Site at NW 20th Street and NW 1st Avenue** (No. 7 in the report). This is the only vacant land parcel in the immediate area of the alignment north of the Florida East Coast Railway line. It is under one single ownership. The site is approximately 800 feet west of the North Miami Avenue alignment. This site presents no impacts to future redevelopment on the N. Miami Avenue corridor.
- **Site at NW 1st Avenue at 15th Street** (No. 9 in the report). This is a vacant parcel that backs

to the Florida East Coast (FEC) Railway line and is directly across Downtown Miami's Metromover guideway extension from the School Board station at NW 15th Street. This extension of the guideway is presently used to store Metromover vehicles and maintenance rolling equipment. The residential uses on the west side of NW 1st Avenue will not be negatively impacted by the sensitive insertion of the Maintenance and Operations Facility.

Most Sites identified for the MOF location were not in proximity to any residential uses, except the NW 20th Street and NW 1st Avenue site (No.7) and the NW 1st Avenue and 15th Street site (No. 9). Site No. 7 is on the east side of an existing school; Site No. 9 has residential uses on the west side across NW 1st Avenue.

Several factors that cannot be foreseen at the time of this report's preparation may influence the final selection of a site to locate the Maintenance and Operations Facility. Following, we describe each site's urban context, concept site plan layouts, affected populations, the potential visual impacts of the facility, and mitigation actions.

A. Site at NW 20th Street and NW 1st Avenue – Whole Block from NW 1st Avenue to NW 1st Court – Site No. 7 of the "Maintenance and Operations Facility Sites Identification & Preferred Sites Evaluation Report"

i. Site Selection Considerations

The proposed site is located in *Figure-111* on the south side of NW 20th Street and is bordered on the south by NW 19th Street, east by NW 1st Avenue, and on the west by NW 1st Court. This is one of the few vacant sites identified on or near the APM Alignment. The site is approximately .15 miles(780 feet) from the North Miami Avenue APM Alignment. It will require the extension of the guideway to reach this property. The site is north of the intersection of N. Miami Avenue and the FEC right-of-way.



Figure-111. Potential MOF Site Location at NW 20th Street and NW 1st Avenue

Site selection evaluation considered the cost of extending the guideway to reach the site versus the lower property acquisition cost that the vacant site represents. The land area of the site is 2.49 acres and is under single ownership. There is no contamination of concern on the site.

Uses to the west of the site, on the other side of NW 1st Court, include a narrow one-story retail building facing NW 20th Street and an elementary school playfield. The Elementary School is south of the site, south of NW 19th Street that dead-ends at the school site. There are residential uses on the south side of NW 19th Street. To the east, there is what appears to be a commercial baseball practicing area with batting cages and a canvas-covered structure.

Construction on this site will have to be designed to respond to the adjacent residential and educational uses. The site is under the jurisdiction of the City of Miami. It is zoned T6-8 that allows mixed-use construction up to eight stories in height. The zoning category allows the construction of Transit Facilities. Transit Facilities as per Miami 21 are permitted as of "W," which means: "By Warrant: Administrative Process -CRC (Coordinated Review Committee).

ii. Site Context and Visual Character

NW 20th Street is an essential east-west arterial that runs uninterrupted from NE 2nd Avenue on the east to NW 27th Avenue on the west, where it merges with North River Drive. North River Drive connects the City of Miami to the urbanized areas to the west. It includes, among others, the cities of Hialeah and Miami Springs, as well as Miami International Airport.

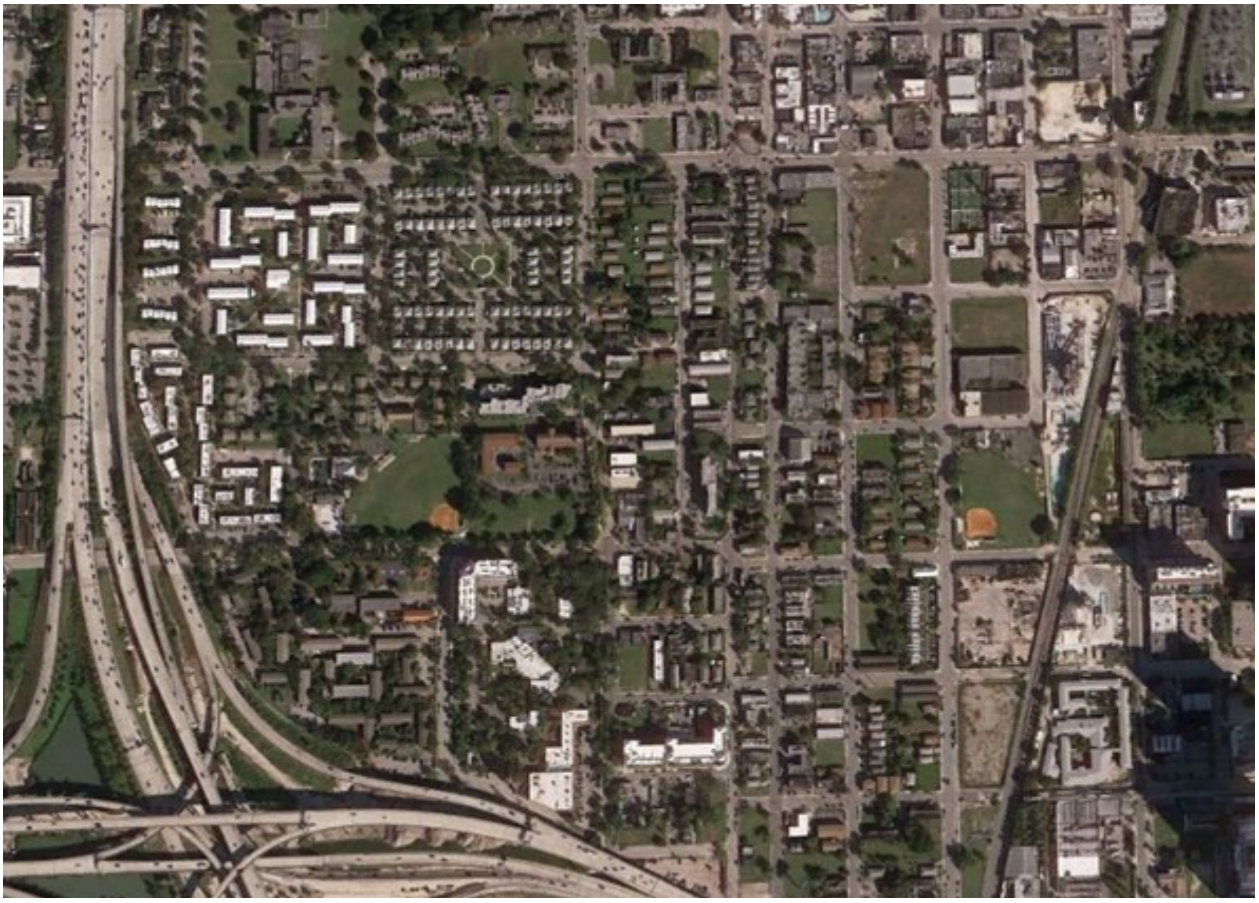

Figure-112. Greater Site Area in the Urban Core

Commercial uses occupy the NW 20th Street frontage from NE 2nd Avenue to NW 1st Place. A multi-family residential area is located west of NW 1st Place. As the City of Miami's urban pattern evolved, light industrial land uses shifted location in response to the city's growth and the changes in warehousing and industrial demand and technology.

NW 20th Street is a dividing line that defines different urban districts. The areas north of NW 20th Street in this section of the city developed as light industrial and warehouse use. The area to the north of NW 20th Street is the Wynwood Neighborhood, which has developed as an entertainment area attracting visitors from all over Miami-Dade County. However, these changes have not reached south to the frontage of NW 20th Street.



Figure-113. View West on NW 20th Street

A path that forms a demarcation line, NW 20th Street defines a more residential oriented use area. South of NW 20th Street from the intersection with the FEC line right-of-way to NW 3rd Avenue is a district composed of mostly residential structures. To the west of NW 3rd Avenue to I-95 south to I-395 is a district consisting of government-assisted housing.

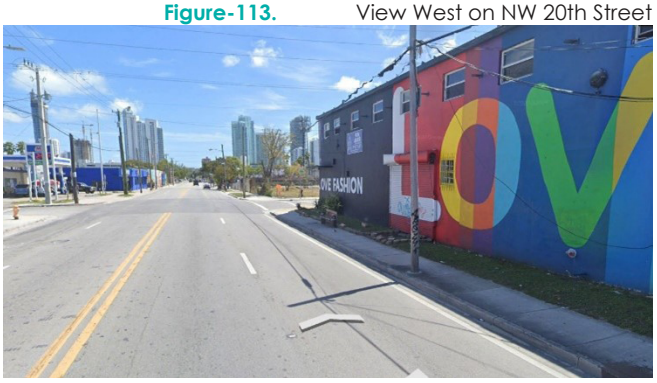

Figure-114. View East on NW 20th Street

The segment of NW 20th Street in the immediate area of the proposed Maintenance and Operations Facility building site comprises one- and two-story structures commercial and warehouse structures. On the east side of the site, on NW 1st Avenue and 20th Street, is a baseball practice facility with batting cages facing NW 20th Street. Most buildings in the vicinity of the proposed site are of utilitarian design and construction with little architectural design quality. South of NW 20th Street and facing the site are no residential uses.



Figure-115. View South on NW 1st Avenue

The west side of the proposed site at 20th Street is a large open field and the playground of the Phillis Wheatley Elementary School. The school is south of NW 19th Street, and its entrance is on NW 1st Place, away from the proposed MOF building.

South of NW 19th Street is a residential area that spans south to the barrier created by the I-395 expressway. The north-south NW 1st Court is a line that demarcates the residential uses to the west and south of NW 19th Street. The residential uses face either NW 1st Court or NW 1st Place. Residential uses in the area are a mixture of duplexes, single-family homes, and townhouses. The proposed MOF building and guideway will not face any existing residential uses.

iii. Visual Quality

As defined on page 13 of this Visual Impact Assessment, the low visual quality is present when there is limited architectural quality to the surrounding environment. The surrounding environment also includes streetscape and the urban form created by the physical enclosure of roadways or paths by the surrounding architecture. There is little architectural quality in the area. A well designed, attractive Maintenance and Operations Facility (MOF) building can create a landmark in the bland environment surrounding the NW 20th Street path in this area.

iv. Affected Population

Several groups compose the affected population. The affected population will be the drivers on NW 20th Street, the commercial/warehouse users of NW 20th Street and north in the Wynwood neighborhood, and the housing areas south and west of the proposed site.

Given the urban condition of NW 20th Street site, an area in need of redevelopment, our desktop viewer sensitivity professional observation analysis assumes that the affected population will perceive the impacts of the new facility to be at a minimum neutral with an inclination to be beneficial to the visual appearance of the area. The evaluating team carries out a professional observation approach. It makes assumptions about the visual preferences of the affected population, the viewers.

v. Proposed Concept Site Plan

The required building program analysis to identify potential Maintenance and Operations Facility building indicated the need for a building with an internal area of 27,000 square feet. This will allow five bays for vehicle maintenance and sufficient space to support the maintenance and operations requirements. It will be a two-story building with the maintenance area on the upper level where the guideway spurs allow access to the different maintenance bays.

The building's lower level can be used to store materials, deliveries, and additional potentially parking for the facility personnel. Illustrated in *Figure-116* is a site plan reflecting the 27,000 square feet footprint, the guideway extension, and the different vehicle maintenance bays. The guideway and the guideway spurs will all be on NW 20th Street, which, as mentioned, is a major arterial roadway and a commercial corridor in this sector. As such, the guideway will not visually impact the uses to the south.

The facility will be extensively landscaped. A contemporary MOF building design will be provided to create a point of reference on the NW 20th Street corridor.

vi. Impact Analysis

Given the urban conditions of the immediate area, our professional observations indicate that the proposed visual changes that will result from the construction of the guideway on 20th Street from the FEC line right-of-way to the proposed MOF building at NW 1st Court will be neutral to beneficial in their impact. Construction of the facility on the vacant land will provide an infill project that will help to bring activity to this sector.

Evaluating the sites' urban context and quoting from Kevin Lynch's" Image of the City" seminal book:

- Paths are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths, other environmental elements are arranged and related.
- Landmarks are another type of point-reference, but in this case, the observer does not enter within them; they are external. They are usually a rather simply defined physical object: building, signs, or mountain.

The potential construction of the MOF building in this site, a well-designed attractive structure, will create a landmark in this sector of NW 20th Street. The Streetscape and building site landscape paths will improve both the pedestrian environment and the area's aesthetics. The new building could also spur economic development and job creation in this sector of NW 20th Street by providing major investment in the area that will bring employment with its concomitant demand for services and the image of stability that a new facility of this nature could create.



Figure-116. Potential MOF Site at NW 20th

vii. Mitigation

Should this site be developed as the future Maintenance and Operations building, care should be taken to ensure that the building is designed as an attractive architectural addition. The design should provide a landmark structure that will highlight the community and its surroundings. Also, improvements to the streetscape environment with street trees, wider sidewalks, delineated pedestrian crossings, and adequate street lighting will make the area of the MOF building attractive. These improvements create a more pedestrian-friendly environment in the surrounding neighborhood.

B. Site at NW 1st Avenue and NW 15th Street – Whole Block from NW 15th Street to NW 16th Street and from NW 1st Avenue to the Florida East Coat Railway Right of Way. This is Site No. 9 of the "Maintenance and Operations Facility Sites Identification & Preferred Sites Evaluation Report"

i. Site Selection Considerations

This site's benefits lie in its proximity to the present guideway spur at NW 15th Street. This proximity will substantially lower the cost of extending the guideway to reach a site further from the main guideway.

The NW 1st Avenue and NW 15th Street site is located on the west side of the FEC right-of-way and comprises the land facing NW 1st Avenue from NW 15th Street to NW 16th Street. Reaching the proposed site will necessitate the extension of the Downtown Metromover (APM) system service guideway. The system service guideway spur is where presently the Metromover APM system maintenance rolling stock equipment is stored. At present, this section of the guideway dead ends on NW 15th Street at the FEC rail line right-of-way. The guideway will have to be extended a short distance over the FEC right-of-way to reach the proposed site. Being a vacant land parcel and the proximity of the guideway to the site makes this an attractive site for the MOF's siting. Residential uses are facing the south part of the site.

The site is 1.75 acres in land area and is presently a vacant land parcel. The land parcel occupied by the yard of the concrete plant, site to the north of NW 16th Street, is not contemplated to be used for the MOF building. A concrete manufacturing plant occupies this site to the north of NW 16th Street.



Figure-117. Potential MOF Site at NW 15th

ii. Site Context and Visual Character

This potential MOF site is located at the edge of this sector; it abuts the Florida East Coast rail line. Only one frontage has a street of any significance, NW 1st Avenue. Both NW 15th Street and NW 16th Street dead end on the FEC railway right-of-way. The small segment of NW 15th Street and NW 16th Street that dead-end at the FEC railway can be incorporated into the Maintenance and Operations Facility (MOF) site.

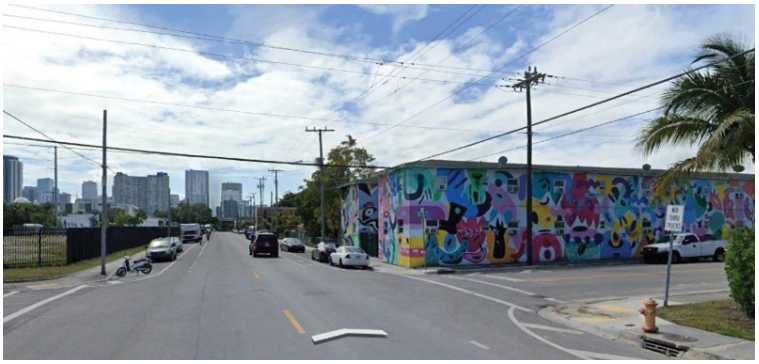

Figure-118. View South on NW 1st Avenue

There are several single-family homes, duplex homes, and a larger multi-family building to the south of NW 14th Street. On the west side of NW 1st Avenue, south of NW 15th Street, and a row of townhouses north of NW 16th Street facing NW 1st Avenue. The area to the west of NW 1st Avenue is predominantly residential.

The area's visual character is of modest construction, low rise, and a need for infill housing to improve the area further. Several new single-family homes can be seen in the area.

iii. Visual Quality

As defined on page 13 of this Visual Impact Assessment, the medium visual quality is present when there is limited architectural quality to the surrounding environment. There is a limited sense of visual coherence to the view and coherence is meant an integration of the buildings with the streetscape to create an area that has a memorable identity.

The vacant site where the MOF building may be located creates a sense of emptiness in the street scene and the overall community. The vacant site negatively impacts the visual quality of the area. The site's infill with a well-designed building could help create a better sense of place and a visually more complete urban area.

The urban environment also includes streetscape and the urban form created by the physical enclosure of roadways or paths by the surrounding architecture. The architectural quality of the buildings in the area is modest. A well designed, attractive Maintenance and Operations Facility (MOF) building can create a landmark in the bland environment that is now the land parcel at NW 15th Street and NW 1st Avenue.

iv. Affected Population

The affected population will be the persons occupying the residential uses on the west side of NW 1st Avenue. The same people are also the drivers who circulate through this part of this district south of NW 20th Street.

Given the urban condition of the NW 15th Street and the NW 1st Avenue site, a site in need of redevelopment, our desktop viewer sensitivity professional observation analysis assumes that the affected population may perceive the impacts of the new facility to be at a minimum neutral, with an inclination to be beneficial to the visual appearance of the area. The evaluating team carries out a professional observation approach. It makes assumptions about the visual preferences of the affected population, the viewers.

Once a site is selected and a more definitive design prepared, community input should be solicited to ascertain that the building design aesthetics are pleasing to the community.

v. Proposed Concept Site Plan

The development program will provide 27,000 square feet of building area and five bays to maintain vehicles as previously mentioned for the site on NW 20th Street. The proposed concept site plan is shown in *Figure-119*. Given the guideway's location at the south side of the site on NW 15th Street and the required turning radius to reach the Maintenance and Operations Facility building, the guideway will have to parallel NW 1st Avenue. From NW 1st Avenue the guideway will provide access to the five bays of the building.

The building's lower level can be used to store materials, deliveries, and additional potentially parking for the facility personnel. Illustrated in *Figure-119* is a site plan reflecting the 27,000 square feet footprint, the guideway extension, and the different vehicle maintenance bays. As shown in

the site plan, the guideway will be visible to the residential uses on the west side of NW 1st Avenue. Undoubtedly, the MOF building's location on this site will bring activity and eyes on the street to an area that needs infill development.

vi. Impact Analysis

The guideway's location on the NW 1st Avenue site will visually impact the residential uses on the street's west side. The guideway will be the most impacting visual element of this site, where the MOF building is in the background, as shown in the site plan.

vii. Mitigation

Should this site be developed as the future Maintenance and Operations building, care should be taken to ensure that the building is designed as an attractive architectural addition to the community. It should provide a landmark structure that will highlight the community and its surroundings.



Figure-119. Potential MOF Site at NW 15th

Buffering the view of the guideway from the residential uses will require an analysis of zoning code requirements. Streetscape improvements to include substantial landscape may serve to soften the visual impact of the guideway. Improvements to the streetscape environment should make the area more pedestrian-friendly and inclusive of street trees, ample sidewalks, delineated pedestrian crossings, and adequate street lighting.

In general creative architectural designs of both the building and the area of the guideway will serve to mitigate the visual impact of the guideway and the MOF building.

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