DRAFT

Urban Expansion Area Report

provided pursuant to CDMP Policy LU-8J

March 10, 2021

Miami-Dade County
Department of Regulatory and Economic Resources

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Executive Summary

This report is provided in response to Policy LU-8J in the County's Comprehensive Development Master Plan (CDMP) which directs completion of a study of (i) additional areas that may be identified as urban expansion areas, with a goal of replacing the 1,993 acres that were proposed for removal in Application No. 5 of the Evaluation and Appraisal Report Amendments in the May 2019 CDMP Amendment Cycle, and (ii) potential additional uses that would be appropriate for the Urban Expansion Areas, particularly near the Homestead Air Reserve Base.

CDMP POLICY LU-8J

BY NO LATER THAN THE TIME TO FILE AN APPLICATION IN THE MAY 2021 CDMP AMENDMENT CYCLE TO AMEND THE URBAN EXPANSION AREAS (UEA), MIAMI-DADE COUNTY SHALL COMPLETE A STUDY OF (I) ADDITIONAL AREAS THAT MAY BE IDENTIFIED AS URBAN EXPANSION AREAS, WITH A GOAL OF REPLACING THE 1,993 ACRES THAT WERE PROPOSED FOR REMOVAL IN APPLICATION NO. 5 OF THE EVALUATION AND APPRAISAL REPORT AMENDMENTS IN THE MAY 2019 CDMP AMENDMENT CYCLE, AND (II) POTENTIAL ADDITIONAL USES THAT WOULD BE APPROPRIATE FOR THE URBAN EXPANSION AREAS, PARTICULARLY NEAR THE HOMESTEAD AIR RESERVE BASE. A DRAFT OF THIS STUDY SHALL BE MADE AVAILABLE FOR REVIEW BY THE PUBLIC BY MARCH 15, 2021.

In the May 2019 CDMP Amendment Cycle, the County Department of Regulatory and Economic Resources filed a series of amendments related to the 7-year Evaluation and Appraisal Report (EAR) update of the CDMP, as mandated by state law. On July 22, 2020, the Miami-Dade Board of County Commissioners (Board) adopted Ordinance Nos. 20-77, 20-78, and 20-79 taking final actions on EAR Application Nos. 6 and 7 and a portion of Application No. 5 in the May 2019 Cycle to Amend the CDMP. The Board bifurcated the portion of Application No. 5 that proposed to contract the boundaries of the Urban Expansion Areas and deferred final action pending completion of a study that was directed by the Board through Policy LU-8J.

Urban Expansion Areas (UEA) were first depicted on the CDMP Land Use Plan Map in 1983. Policies related to military compatibility and ecosystem protection and restoration have changed since the UEAs were first depicted which has resulted in certain areas within the current UEAs being identified in the CDMP as areas where urban development is considered undesirable (as outlined in Policy LU-8G). Amendments proposed by County planning staff in the May 2019 CDMP Amendment Cycle recommend contractions to the boundaries of the current Urban Expansion Areas to exclude areas that "shall not be considered" for expansion of the UDB pursuant to Policy LU-8G. These areas include the Bird Drive Wetlands, Comprehensive Everglades Restoration Plan (CERP) areas identified through detailed engineering and Homestead Air Reserve Base (HARB) accident potential zones. The proposed changes will provide for internal consistency within the CDMP. With the proposed contractions, the acreage within the Urban Expansion Areas would be reduced from ±6,718 acres to ±4,725 acres. The proposed changes to the UEAs are depicted on Figure 1 of this report.

In order to provide recommendations in accordance with CDMP Policy LU-8J, this study assesses the areas generally located within two miles of the Urban Development Boundary (UDB). The Study Area, as identified on Figure 1, was selected to allow for an analysis of boundary conditions along the UDB, it does not represent the area that would be considered for future growth. The report analyzes the various

policy considerations that make areas within the Study Area more or less suitable for development and provides recommendations.

Among the primary considerations when assessing the need for new Urban Expansion Areas is the development capacity inside the current UDB and UEAs. The UDB and UEAs are tools used to plan for near-term and long-term growth while protecting important resources. The County's near-term planning period, currently 2030, serves as the planning horizon for the UDB and land use patterns and densities expressed on the Land Use Plan map, as well as for near-term facility planning. The long-term planning period, currently 2040, is used principally for identifying areas most appropriate for long-term urban growth (Urban Expansion Areas) and facilities with long-term consequences.

The recommendations provided in this report are underpinned by analysis demonstrating that the UDB and UEAs, including proposed contractions, are sufficient to accommodate long-term population growth. As noted in the Background section (Chapter 1) of this report, there is sufficient residential capacity within the UDB beyond 2040, which is beyond the County's short-term and long-term planning horizons. In addition, there are approximately 2,000 acres in the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) that are generally suitable for residential development. Within the UDB, there is sufficient capacity of industrial land countywide and within each analysis tier beyond 2040, except for the South-Central Tier which has a projected depletion year of 2030. In addition, there are approximately 2,700 acres in the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) that are generally suitable for non-residential uses. Therefore, no additional Urban Expansion Areas are recommended in this report.

As is detailed in the Policy Considerations (Chapter 2) of this report, land outside of the UDB serves important human health, environmental and economic functions for the County. Decisions regarding where future growth should be accommodated outside of the current UDB requires a balancing of the anticipated benefits of growth against the loss of those functions. Once there is a need to identify additional Urban Expansion Areas, the County should look to areas with fewer constraints and good access to infrastructure such as the Detailed Analysis Areas assessed in Chapter 3 of this report. These areas include ±1,398.8 acres located in the C-9 Basin area south of NW 170th Street, between Okeechobee Road and the Turnpike and ±596.5 acres generally located within one-half mile of the South Dade Transitway SMART Plan Corridor. Together, these areas are roughly equivalent to the acreage proposed for contraction in Application No. 5 of the May 2019 CDMP Amendment Cycle. Recommendation No. 1 of this report provides recommended measures to address potential impacts associated with growth into new Urban Expansion Areas that may be identified in the future.

CDMP Policy LU-8J also directs the study to address potential additional uses that would be appropriate for the Urban Expansion Areas. Recommendation Nos. 2 and 3 of this report address the second portion of the policy by recommending the incorporation of criteria into the CDMP to address uses that have a unique need to locate outside of the UDB and providing for a reassessment of commercial truck parking needs by 2030. The analysis provided in this report brought to light numerous issues that are also addressed in the Recommendations (Chapter 4) including the need to increase housing diversity, the need for County governance of areas outside of the UDB and the need to clarify policies related to the Redland area.

This report was prepared by the Department of Regulatory and Economic Resources, Planning Division in coordination with the Division of Environmental Resources Management, Development Services, Office of Resilience, Agricultural Manager, Water and Sewer Department, Department of Transportation and Public Works, and the Miami-Dade Transportation Planning Organization.

Chapter 1

Background

Urban Development Boundary and Urban Expansion Areas

The Urban Development Boundary (UDB) is included on the CDMP Land Use Plan map to distinguish the area where urban development may occur through the year 2030 from areas where it should not occur. Adequate countywide development capacity is maintained within the UDB by increasing development densities or intensities inside the UDB, or by expanding the UDB, when the need for such change is determined to be necessary through the plan review and amendment process. Applications to move the UDB are accepted every other year in odd numbered years. The criteria for applications requesting expansion of the UDB are primarily contained in CDMP Policies LU-8F, LU-8G and LU-8H which are included in Appendix 1: Relevant CDMP Policies.

There are currently four Urban Expansion Areas (UEA) totaling approximately 6,718 acres as depicted on Figure 1. Urban Expansion Areas were first depicted on the CDMP Land Use Plan map in 1983. The Urban Expansion Areas are located outside of the UDB and represent areas where urban development may be warranted within the 2040 long-term planning horizon of the CDMP based on an analysis of available capacity inside of the UDB. However, the CDMP further notes the uncertainty in the timing and amount of expansion that will be needed due to unpredictability in the long-term rates of population and economic growth; housing and community preferences; availability and price of energy, water, agricultural and mineral resources; and State, federal and international influences. Once a need to expand the UDB is established pursuant to Policy LU-8F, the CDMP indicates that the Urban Expansion Areas should be prioritized for inclusion (Policy LU-8G(iii)(b)). Until the Urban Expansion Areas are brought into the UDB through the CDMP review and amendment process, they are permitted to be used in a manner consistent with the applicable "Agriculture" or "Open Land" CDMP Land Use Plan Map designation.

As summarized in Table 1, approximately 1,993 acres of the current UEAs are identified as areas that shall not be considered for expansion of the UDB pursuant to Policy LU-8G. These areas include the Bird Drive Wetlands, Homestead Air Reserve Base Accident Potential Zones and Comprehensive Everglades Restoration Plan (CERP) projects identified through a Project Implementation Report or Tentatively Selected Plan. The remaining areas of UEA Nos. 3 and 4 (with the exception of ±26 acres) are within the Coastal High Hazard Area which is identified as an area that shall not be considered for residential development pursuant to Policy LU-8G. Therefore, there are between 1,875 and 2,210 acres in the current UEAs that may generally be suitable for residential development barring additional restrictions. There are between 2,541 and 2,850 acres in the current UEAs that may be suitable for non-residential uses.

Table 1: Urban Expansion Area Acreage

UEA No.	Current Acreage	Shall Not Be Considered for Expansion of UDB (per LU-8G)*	Remaining Acreage
1	±309	0	±309
2	±2,825	±950	±1,875
3	±3,124	±667	±2,457
4	±460	±376	±84
TOTAL	**±6,718**	**±1,993**	**±4,725**

Prepared by: Miami-Dade County RER-Planning Division
** Including isolated parcels*

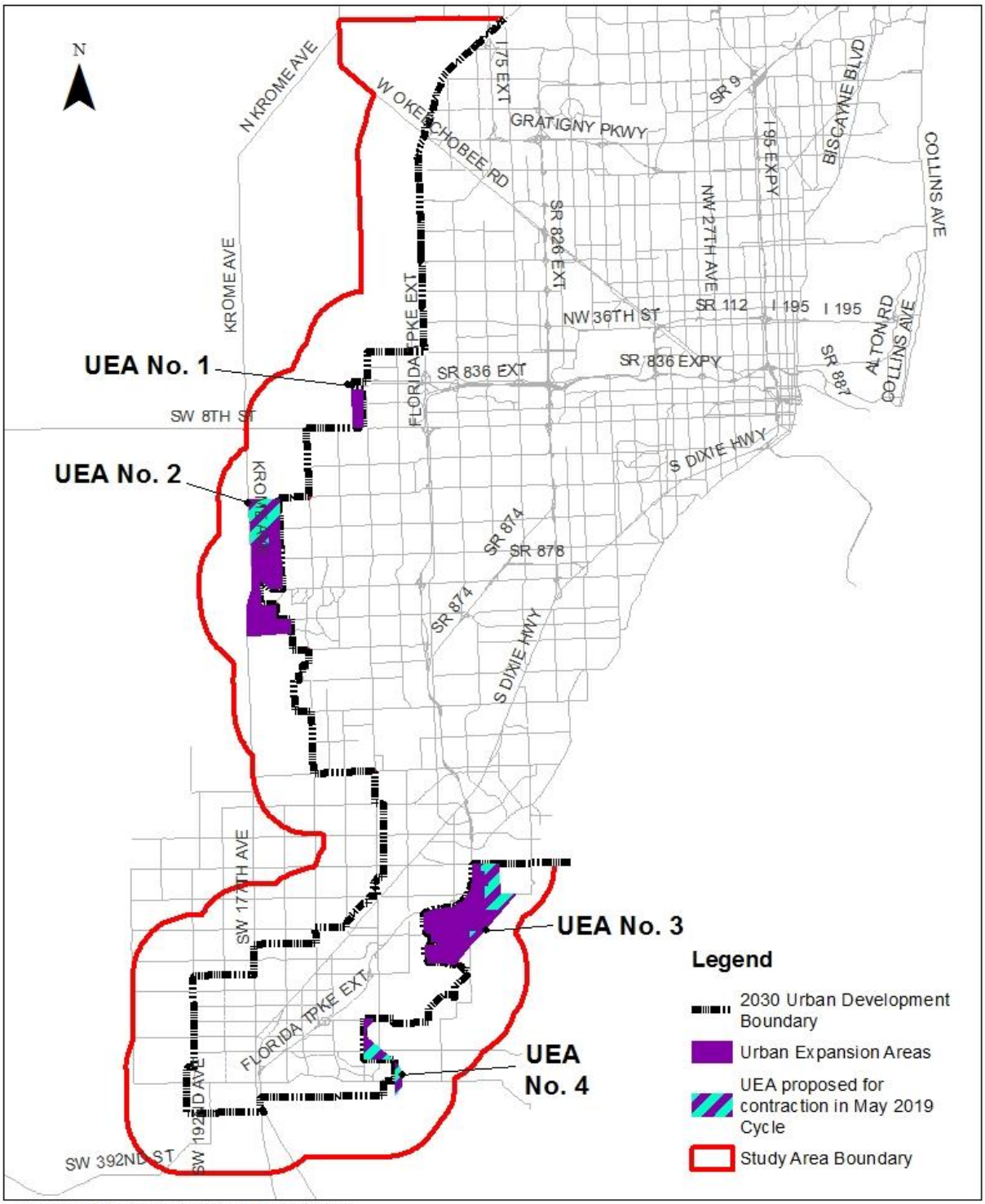


Figure 1

Study Area and Urban Expansion Areas

Development Capacity Analysis

The County conducts a development capacity analysis for the purpose of ascertaining the amount of land available for future residential growth inside of the Urban Development Boundary (UDB). Demand for residential units is determined based on projected population growth and "persons per household" data provided by the U.S. Census Bureau. Capacity of land within the UDB is determined by assessing the development potential of vacant land and the redevelopment potential of underdeveloped parcels. The full Development Residential Capacity Methodology is included as Appendix 2.

CDMP Policy LU-8F states that the UDB should contain developable land having capacity to sustain projected countywide residential demand for a period of 10 years. Further, state law requires the CDMP Land Use Plan Map to accommodate the minimum amount of land required to accommodate projected population growth for at least a 10-year planning period. Based on the County's current Development Capacity Analysis, there is sufficient residential capacity within the UDB to accommodate projected population growth beyond 2040 (see Table 2.1). As noted previously, there are approximately 2,000 acres within the current Urban Expansion Areas (UEA) that may be suitable for residential development. At the minimum density of 10 dwelling units per acre for UDB amendment applications (pursuant to Policy LU-8H), this would be expected to accommodate a minimum of 20,000 residential units. Therefore, there is sufficient acreage within the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) to accommodate projected growth well beyond 2040, the County's long-term planning horizon.

Pursuant to CDMP Policy LU-7F, the adequacy of non-residential land supplies is determined on the basis of land supplies in subareas of the County appropriate to the type of use, as well as the Countywide supply within the UDB. Tiers, Half-Tiers and combinations thereof are considered along with the Countywide supply when evaluating the adequacy of land supplies for regional commercial and industrial activities. The adequacy of land supplies for neighborhood- and community-oriented business and office uses is determined on the basis of localized subarea geography such as Census Tracts, Minor Statistical Areas (MSAs) and combinations thereof. As shown in Table 2.2, there is sufficient countywide capacity of industrial beyond 2040. In addition, there is sufficient capacity of industrial land in each of the Planning Tiers beyond 2040, except for the South-Central Tier which has a projected depletion year of 2030. As noted previously, there are between 2,541 and 2,850 acres in the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) that may be suitable for non-residential uses.

While there is sufficient overall capacity inside the UDB to accommodate projected countywide population growth, the supply of single family residential uses in the County is projected to be depleted by 2024. A review of current residential land uses in the County shows that single family residential (including detached single family and townhomes) comprises approximately 87% of the residential land area. However, due to the land intensive nature of single family housing, it does not contribute significantly to residential capacity. The gap in depletion years between single family and multi-family housing warrants consideration of how the County can ensure a sufficient mix of housing options, particularly for families. A closer look at the current residential land uses in the County shows that townhome development is underrepresented within the single-family category, comprising only six percent. With its lower land costs, townhome-type development provides an important housing option for moderate income families. The County should aim to strategically increase the diversity of housing options, focusing primarily within the UDB, while maintaining the character of established neighborhoods.

Table 2.1
Residential Land Supply/Demand Analysis
Miami-Dade County, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Structure Type		
	Single Family	Multi-Family	Both Types
Capacity in 2019	28,581	233,655	262,236
Annual Demand in 2015-2020	4,728	8,391	13,119
Capacity in 2020	23,853	225,264	249,117
Annual Demand in 2020-2025	5,478	5,263	10,741
Capacity in 2025	0	198,949	195,412
Annual Demand in 2025-2030	5,482	5,007	10,489
Capacity in 2030	0	173,914	142,967
Annual Demand in 2030-2035	5,405	4,806	10,211
Capacity in 2035	0	149,884	91,912
Annual Demand in 2035-2040	5,292	4,587	9,879
Capacity in 2040	0	126,949	42,517
Depletion Year	2024	2040+	2040+

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, November 2019.

Table 2.2
Projected Absorption of Industrial Land
Miami-Dade County, Florida 2020 - 2040

Analysis Tier*	Vacant Industrial Land 2020 (Acres)	Industrial Land in Use 2020 (Acres)	Avg Annual Absorption Rate 2020-2040 (Acres)	Projected Year of Depletion
North Tier	1,127.46	3,510.10	30.24	2040+
North Central Tier	983.02	8,230.00	48.80	2040+
South-Central Tier	102.38	949.30	10.15	2030
South Tier	447.85	637.30	5.11	2040+
Countywide	2,660.71	13,326.70	94.30	2040+

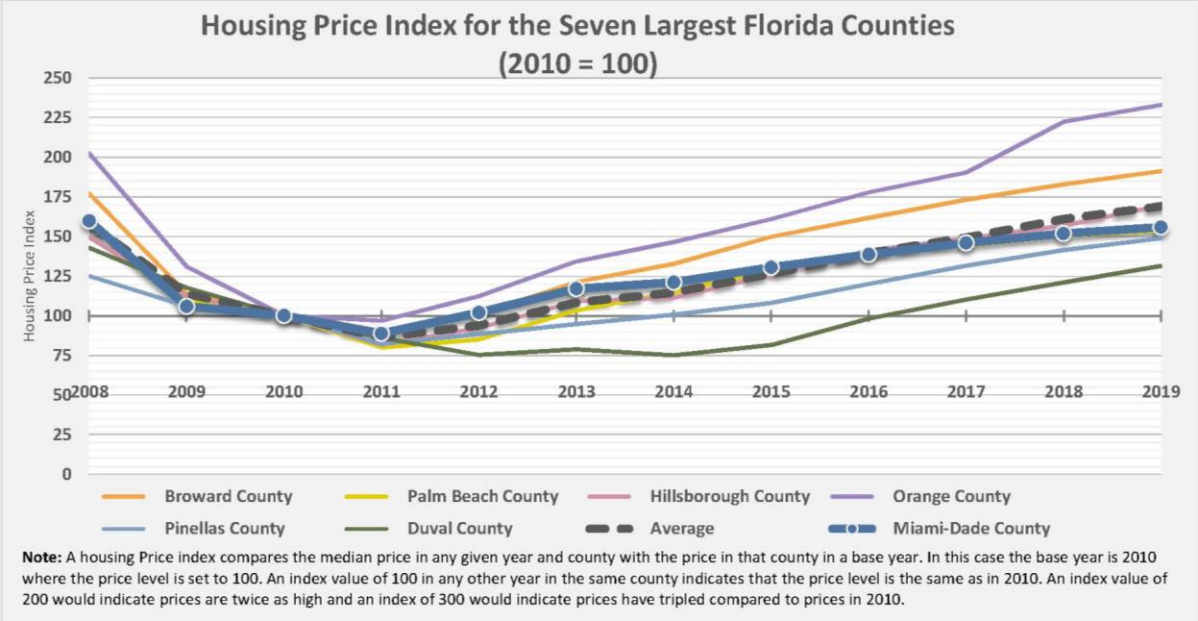
Source: Miami-Dade County, Department of Regulatory and Economic Resources, Planning Division, Research Section, December 2020.

* A map of the Analysis Tiers can be found on Appendix Page 22 of this report.

Impact on Housing Prices

Miami-Dade County, like other major metropolitan areas, has experienced sharp increases in housing costs in recent years. Analysis conducted by the County's Planning Division has found that it is not possible to isolate the Urban Development Boundary as a contributing factor to housing price inflation. There are numerous factors that affect the cost of housing including locational factors, neighborhood amenities, and influence by foreign markets, among others. Housing price changes since 2008 in Miami-Dade County were compared with the seven largest counties in Florida (see Table 3). Similar to Miami-Dade County, the comparison counties have policies that constrain development in certain areas and prioritize development in other areas. However, none of the comparison counties were found to have a growth boundary as restrictive as Miami-Dade County. The data shows that price fluctuations in Miami-Dade County over time were consistent with the average price increases of the comparison counties which supports a conclusion that the UDB does not appear to be exerting inflationary pressure on housing prices.

Table 3



Data Source: Zillow.com accessed on October 21, 2019; Planning Research and Economic Analysis

Miami-Dade County Urban Expansion Area Task Force

The Miami-Dade County Urban Expansion Area Task Force was created in 2017 for the purpose of providing recommendations on the following topics:

1) Changes to the current boundaries of the Urban Expansion Areas;
2) Creation of new Urban Expansion Areas; and
3) Changes to the criteria that should be considered for applications requesting expansion of the UDB.

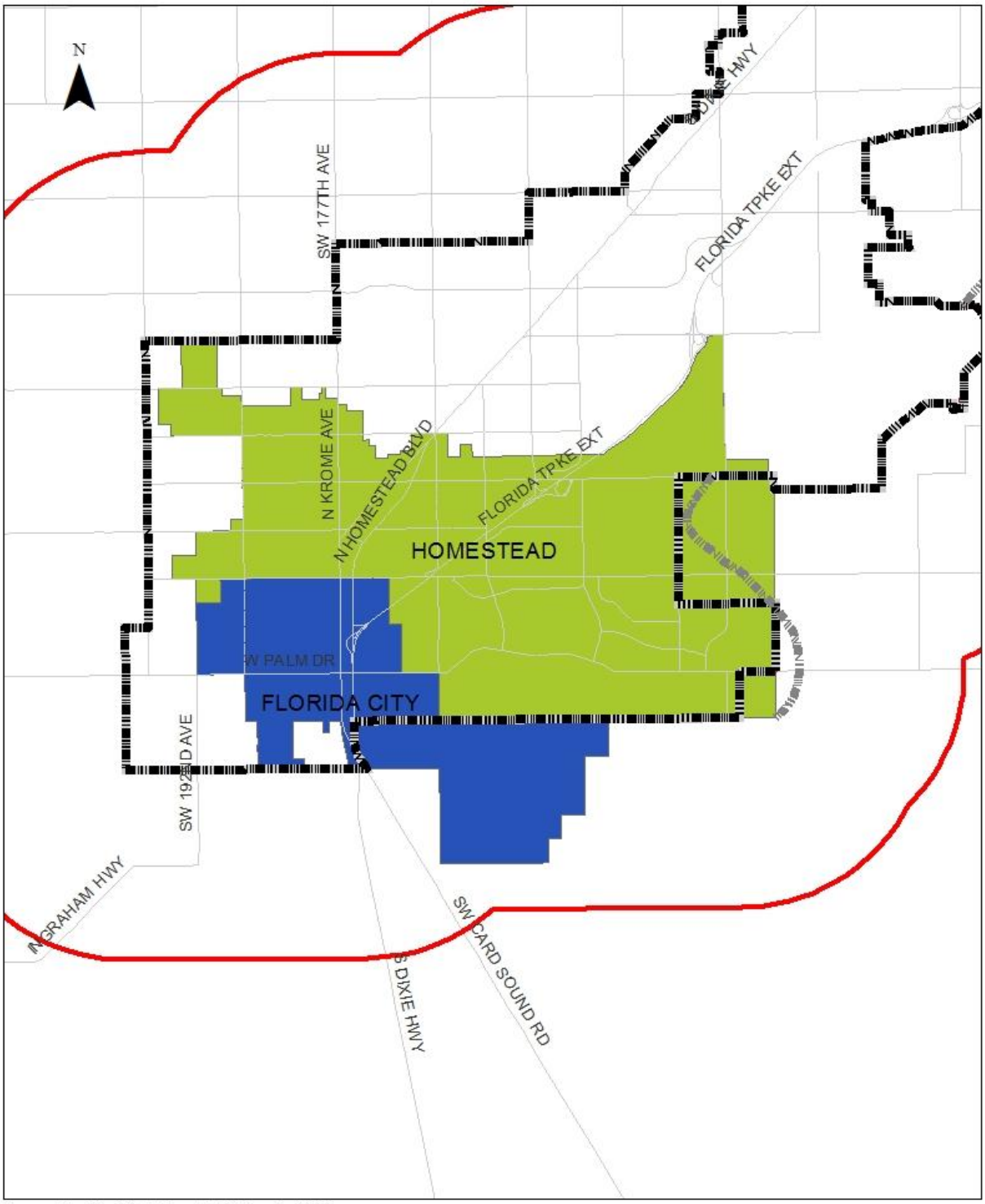
The Task Force met 14 times between August 2017 and May 2018. During the course of the meetings, Task Force members heard presentations from governmental agencies and various experts on issues pertinent to the charge of the Task Force. Recommendations of the Task Force were compiled through member surveys and only those recommendations receiving at least 51% support were advanced as recommendations of the Task Force in the Final Report.

Many of the recommendations of the Task Force have already been considered within Application No. 5 of the May 2019 CDMP Amendment Cycle including the bifurcated portion addressing contraction of the current Urban Expansion Areas. As previously noted, the Task Force was charged with providing recommendations on the creation of new Urban Expansion Areas, however, they did not garner majority support for the identification of any new UEAs. There was, however, majority support against maintaining a minimum amount of acreage in the UEAs and against the designation of a new UEA in the area bounded on the north by UEA No. 2, south by SW 184th Street, and west by Krome Avenue. Details on the UEA Task Force and the Final Report can be found at: www.miamidade.gov/planning/urban-expansion-area-task-force.asp

Municipal Boundaries Outside the UDB

Two cities in Miami-Dade County contain land outside of the Urban Development Boundary, Homestead and Florida City, as depicted on Figure 2. Section 2-116.1.2 of the County Code sets out the applicability of the County's CDMP to municipalities, as follows:

a) The location of the Urban Development Boundary (UDB) and permitted land uses outside the UDB shall be governed by the Miami-Dade County comprehensive Development Master Plan (CDMP) notwithstanding the fact that the UDB may lie within a municipality.
b) Any amendments to the UDB line or land uses permitted by the CDMP shall be filed and processed in accordance with procedures for applications located within the unincorporated area.
c) All municipal land use decisions outside the UDB line shall be consistent with the CDMP.


N
SW 177TH AVE
FLORIDA TPKE EXT
N KROME AVE
N HOMESTEAD BLVD
HOMESTEAD
FLORIDA CITY
W PALM DR
SW 192ND AVE
N GRAHAM HWY
S DIXIE HWY
SW CARD SOUND RD
Prepared By: Miami-Dade County RER-Planning Division
Figure 2
Municipal Boundaries Outside UDB
0 3,300 6,600
SCALE IN FEET

Chapter 2

Policy Considerations

I. Wetlands and CERP Water Management Areas

Wetland systems serve significant functions including filtering and purifying surface and groundwater, providing habitat for wildlife, providing direct recharge of water to the Biscayne Aquifer (the County's primary source of drinking water), and providing natural flood protection. Figure 3 below identifies Wetlands of Regional Significance which are also identified in the CDMP (Page I-88). Figure 3 does not represent an exhaustive list of wetland communities in the County, it depicts the general boundaries of wetland systems that serve regionally significant functions. The ownership pattern of land in the Wetlands of Regional Significance are depicted on Figure 4.

The CDMP notes that the most important factors affecting the future viability of these wetland systems will be the ability of Miami-Dade County and the South Florida Water Management District (SFWMD) to maintain more natural water table levels or hydroperiods in these areas; the ability of the U.S. Army Corps of Engineers to recreate a more natural flow of water into the NE Shark River Slough, Everglades National Park and Biscayne National Park; the speed with which biological or other controls for the spread of invasive exotic plant species such as Melaleuca can be found, tested and implemented; and the commitment to wetland management and restoration efforts including the Comprehensive Everglades Restoration Plan (CERP).

CDMP Policy CON-7A indicates that the degradation or destruction of Wetlands of Regional Significance is limited to activities that 1) are necessary to prevent or eliminate a threat to public health, safety or welfare; or 2) are water dependent and no other reasonable alternative exists; or 3) clearly in the public interest and no other reasonable alternative exists; or 4) are carried out in accordance with an approved basin management plan; or 5) are in areas that have been highly disturbed or degraded and where restoration of a wetland with an equal or greater value in accordance with federal, State and local regulations is feasible. Policy CON-7A further states that habitats critical to endangered or threatened species shall not be degraded or destroyed.

Portions of the Wetlands of Regional Significance are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. These areas include Everglades National Park, Biscayne National Park, Water Conservation Areas, Pennsuco Wetlands, Bird Drive Wetlands and CERP project footprints identified in a Tentatively Selected Plan and/or Project Implementation Report. The remaining portions of the Wetlands of Regional Significance are identified as areas that should be avoided for expansion of the UDB. CDMP Policy CM-1A also prohibits the alteration of mangroves within and adjacent (to the landward extent of the mangroves) to Biscayne National Park, Everglades National Park, Card Sound, Manatee Bay, Florida Bay and Barnes Sound. Those areas of the Wetlands of Regional Significance that are identified as areas that shall not be considered for the expansion of the UDB are described in more detail below:

National Parks. Everglades National Park is identified as a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO). The 2017 Conservation Outlook for World Heritage Sites prepared by the International Union for Conservation of Nature (IUCN) identified the current state of Everglades National Park to be critical and documented the need for ecosystem restoration projects outside of the Park boundaries that deliver more clean

water to the site.[1] The shoreline area of Biscayne National Park includes mangrove wetlands that serve to filter the water reaching the Bay, stabilize the shoreline, provide habitat for animals, birds and marine life and provide storm surge attenuation for inland areas. For this reason, mangrove and scrub mangroves within and adjacent to Biscayne National Park and Everglades National Park to the landward extent of the mangroves are designated as Mangrove Protection Areas pursuant to CDMP Policy CM-1A.

Pennsuco Wetlands. The Pennsuco Wetlands are generally bounded on the west and north by Levee 30, on the east by the Dade-Broward Levee and on the south by the Tamiami Canal (C-4). The area has been identified as a mitigation area for wetland impacts associated with limestone mining activities in the Miami-Dade County Lake Belt. Land acquisition and restoration efforts are ongoing, although nearing completion. Approximately 88% of the Pennsuco Wetlands have been or are actively being restored, however additional land acquisition and restoration is anticipated.

Bird Drive Wetlands. The Bird Drive Wetlands are identified as a prime recharge area by the SFWMD which includes areas displaying infiltration rates greater than or equal to 42 inches/year. Further, the Bird Drive Everglades Basin Special Area Management Plan found that the area has several characteristics that give it a high potential for aquifer recharge. The area experiences abundant rainfall, has a fairly high water infiltration rate and, due to elevations in the surrounding area, loses very little water to surface flow out of the area. In addition, the water flowing to the area is of high quality due to limited upstream sources of pollution. The area also contains high-quality wetland resources that improve the quality of the water filtering to the aquifer and could provide foraging habitat for federally-designated threatened and endangered species.

Comprehensive Everglades Restoration Plan. The Comprehensive Everglades Restoration Plan (CERP) as authorized in the Water Resources Development Act (WRDA) of 2000, also referred to as the "Restudy", included 68 projects necessary to restore important functions and values of the Everglades and south Florida ecosystems and plan for the long-term water resource needs of south Florida. CERP project footprints are depicted on Figure 3 below. The CERP projects, as presented in the April 1999 "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement", are conceptual in nature and were expected to take approximately 30 years to implement. Project Implementation Reports (PIR) are finalized for each CERP project to evaluate its effectiveness and identify needed refinements or modifications. Project Implementation Reports are prepared by multi-jurisdictional Project Delivery Teams (PDT) in accordance with the CERP Programmatic Regulations. Identification of the tentatively selected plan occurs as part of the PIR process following plan formulation and evaluation and before plan design.[2]

CERP projects authorized through the Restudy in Miami-Dade County are shown in Table 4. CERP projects that have been deauthorized pursuant to Section 6001(d) of the Water Resources Reform and Development Act include the Lake Belt In-Ground Reservoir Technology project and

[1] Accessed online at: https://worldheritageoutlook.iucn.org/explore-sites/wdpaid/2012

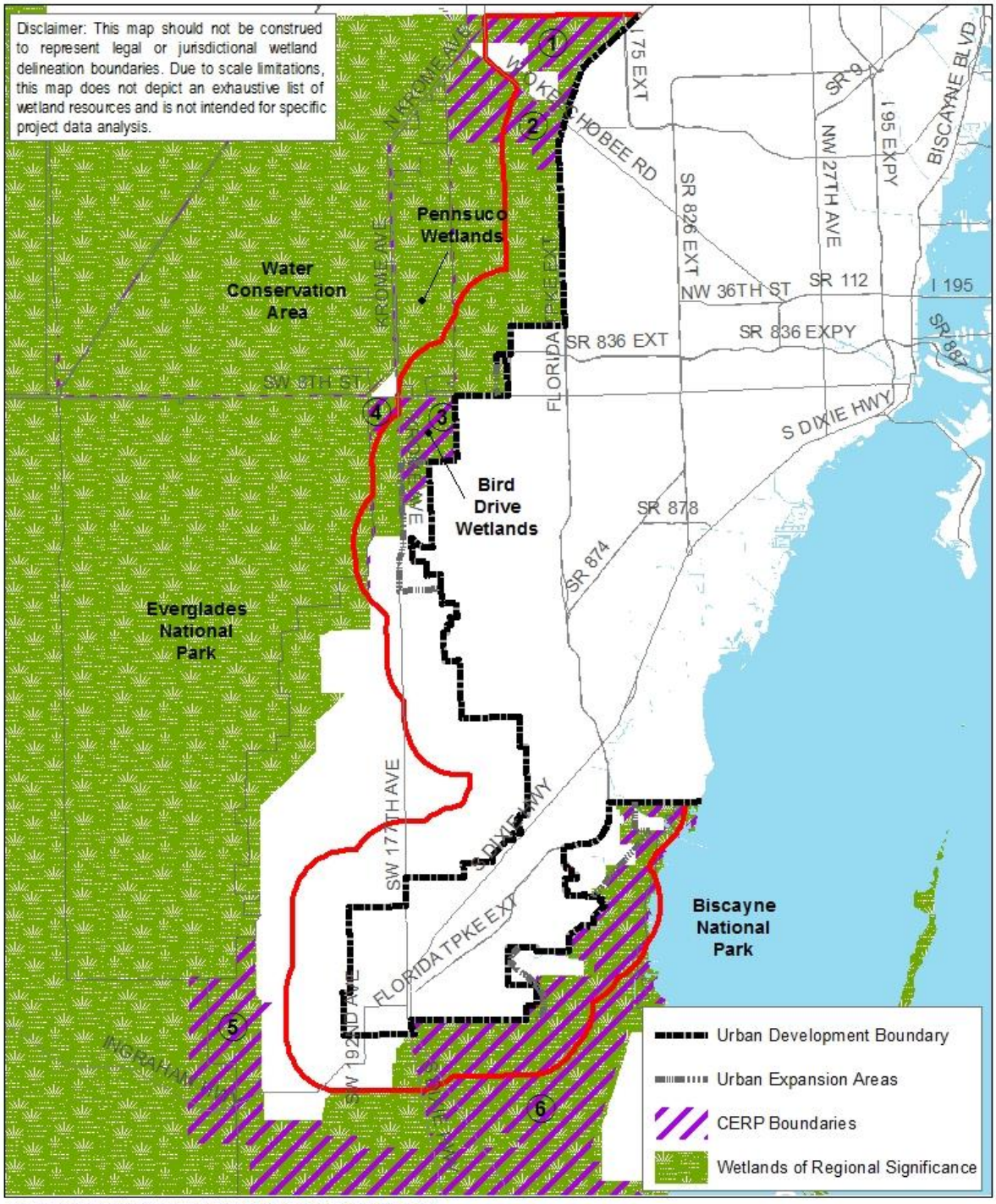
[2] USACE and SFWMD. Central and Southern Florida Project CERP Programmatic Regulations: Six Program-Wide Guidance Memoranda. April 2005.

the Wastewater Reuse Technology project. The Bird Drive Wetlands are also depicted as being within a CERP project footprint, however, this CERP project was not found to be feasible for the purposes envisioned in the 2000 CERP authorization and has not been authorized for construction. There is general consensus that the project as conceptually designed would need to be modified or redesigned based on aquifer characteristics in the area. Alternatives are being considered to recapture some of the anticipated benefits from the Bird Drive Wetlands CERP project. In 2020, the US Army Corps of Engineers began the Project Implementation Report process for the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) project of CERP. The primary focus of the project is on Phase II of the Biscayne Bay Coastal Wetlands project and Phase II of the C-111 Spreader Canal project, however, the study will also encompass other CERP areas. Most notably the study also involves the CERP area in and adjacent to the Lake Belt in an effort to determine whether additional water can be stored and/or delivered from this area to restore southern Biscayne Bay and northeast Florida Bay including the adjacent wetlands. The BBSEER planning effort, which is scheduled to conclude in several years, is expected to provide additional insight into the feasibility of water delivery for benefit of these areas and also to reduce salt intrusion in the groundwater for the protection of well fields in south Miami-Dade County.

Table 4: Miami-Dade County CERP Projects

ID# on Figure 3	Project Name	Project Description
1	North Lake Belt Storage Area	In-ground 90,000 acre-foot capacity storage reservoir including canals, pumps, and water control structures. To be located within a proposed rock mining area
2	Central Lake Belt Storage Area	Combination above-ground and in-ground 190,000 acre-foot storage reservoir including stormwater treatment area, pumps and water control structures. To be located within the Northwest Wellfield Protection Area
N/A	Dade-Broward Levee/Pennsuco Wetlands	Water control structures and modifications to the Dade-Broward Levee and associated conveyance system designed to reduce seepage losses to the east from the Pennsuco Wetlands and southern WCA3B, enhance hydroperiods in the Pennsuco Wetlands, and provide recharge to the Northwest Wellfield
N/A	C-4 Control Structures	Two water control structures located in the C-4 (Tamiami) Canal designed to enhance wetland hydroperiods and recharge to Northwest Wellfield.
3	Bird Drive Recharge Area	Above-ground 11,500 acre-foot capacity recharge area including pumps, water control structures and canals designed to recharge groundwater and reduce seepage from Everglades National Park buffer areas
4	L-31 N Improve for Seepage Mgmt and S-356 Structures	Relocation and enhancement of L-31N, groundwater wells, and sheet flow delivery system designed to improve water deliveries to Northeast Shark River Slough and restore wetland hydro patterns in Everglades National Park
N/A	West Miami-Dade County Reuse	Expansion of a future West Miami-Dade Wastewater Treatment Plant to produce advanced treatment of wastewater to meet demands for the Bird Drive Recharge Area, South Dade Conveyance System, and Northeast Shark River Slough
5	C-111 Spreader Canal	Construction, modification or removal of levees, canals, pumps, water control structures and a stormwater treatment area in the Model Lands and South Glades (C-111 Basin) designed to improve deliveries and enhance connectivity and sheet flow, reduce wet season flows, and decrease potential flood risk in far south Miami-Dade County
6	Biscayne Bay Coastal Wetlands	Pump stations, spreader swales, stormwater treatment areas, flowways, levees, culverts, and backfilling canals covering 13,600 acres from Deering Estate at C-100C, south to FPL Turkey Point Nuclear Power Plant, generally along L-31E.

N/A	South Miami-Dade County Reuse	Expansion of existing South District Wastewater Treatment Plan located north of the C-1 (Black Creek) Canal to produce advanced treatment of wastewater to be supplied to the South Biscayne Bay Coastal Wetlands Project
N/A	Restoration of Pineland & Hardwood Hammock in C-111	Re-establishment of native slash pine and hardwood hammock forest in a portion of rock plowed land in the Frog Pond purchased by the SFWMD in order to restore the Taylor Slough portion of the Everglades.
*Source: Central and Southern Florida Project Comprehensive Review Study, US Army Corps of Engineers, 1998** **This table depicts projects authorized in the CERP 1999 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement and does not account for project revisions.*		



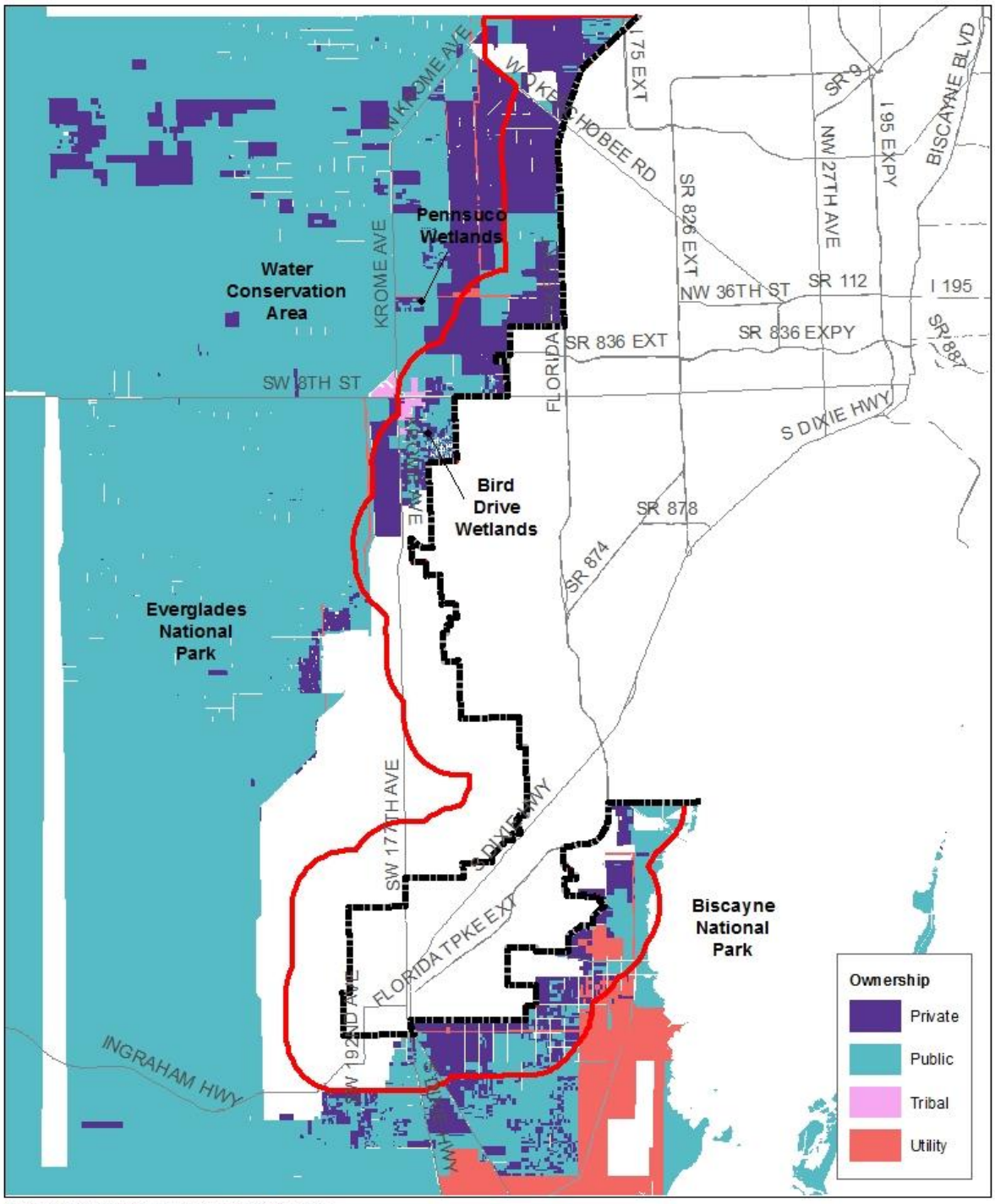
* Source: Miami-Dade County Division of Environmental Management

Figure 3

Wetlands of Regional Significance (outside UDB)

0 2.5 5 Miles

N



Source: Miami-Dade County Property Appraiser Data

Figure 4
Ownership Pattern

II. Threatened and Endangered Species

Miami-Dade County is a biological hotspot for a number of species and habitats. Appendices A and B of the CDMP Conservation Element enumerate over 400 federal-, state- and county-listed species of plants and animals that are either present or were historically present in the County. Some, but not all, listed species have critical habitat that has been designated under the Federal Endangered Species Act.

Federal designation of critical habitat affects development applications that involve federal permits or federal funding. Local protections are also important to ensure protection of listed species. CDMP Policy CON-9A states that "all activities that adversely affect habitat that is critical to federal or State designated, endangered or threatened species shall be prohibited unless such activity(ies) are a public necessity and there are no possible alternative sites where the activity(ies) can occur." CDMP Policy CON-9B states that "all nesting, roosting and feeding habitats used by federal or State designated endangered or threatened species, shall be protected and buffered from surrounding development or activities and further degradation or destruction of such habitat shall not be authorized." A detailed analysis of specific threatened and endangered species is presented in the following paragraphs.

State and Federally Listed Bird Species

State and federally listed bird species, as listed in Appendix B of the CDMP Conservation Element, utilize a range of habitats in Miami-Dade County such as freshwater wetlands, tidal marshes, farm fields, open urban spaces and forests. Occurrence data is frequently collected by the public during the annual winter bird count and through the eBird birding program. While providing lower quality data (sightings need to be verified three times before considered research quality), the data, at a minimum, gives an indication of relative abundance of these species. Two federally listed bird species known to be present in or near the Study Area, the Wood Stork and Everglades Snail Kite, are discussed in more detail below.

Wood Stork. The Wood Stork is currently designated as "threatened" under the federal Endangered Species Act and by the State of Florida. The species was upgraded from a designation as "endangered" in 2014 due to successful conservation and recovery efforts. There are currently three wood stork rookeries located near Krome Avenue and Tamiami Trial (see Figure 5). The foraging area for the wood stork can extend approximately 18 miles around the rookery and include freshwater and estuarine wetlands with depths less than 12 inches. Wood storks prefer to establish rookeries over wetlands that maintain high water stages since these conditions provide protections from potential predators. However, ideal foraging areas include shallow wetland depressions where fish tend to become concentrated. According to the United States Fish and Wildlife Service (FWS) report "Habitat Management Guidelines for the Wood Stork in the Southeast Region" wetlands with varying hydroperiods provide important feeding sites for the Wood Stork as excerpted below:

> *Successful nesting colonies are (sic) those that have a large number of feeding site options, including sites that may be suitable only in years of rainfall extremes. To maintain the wide range of feeding site options requires that many different wetlands, with both relatively short and long annual hydroperiods, be preserved. For example, protecting only, the larger wetlands, or those with longer annual hydroperiods, will result in the eventual loss of smaller, seemingly less important wetlands. However, these small scale wetlands*

are crucial as the only available feeding sites during the wetter periods when the larger habitats are too deeply flooded to be used by storks.

The FWS notes that regional declines in wood stork numbers have been largely due to the loss or degradation of essential wetland habitat.[3] In order to address this issue, the Habitat Management Guidelines for the Wood Stork in the Southeast Region provide recommended land use restrictions for areas within 2,000 feet of the rookeries. Further, the U.S. Fish and Wildlife Service has identified Core Foraging Areas that extend approximately 18 miles around established Wood Stork rookeries but noted that suitable foraging habitat proximate to the nesting colonies is particularly important to the success of wood stork populations.[4] Characteristics that make wetlands more suitable to Wood Stork foraging include sparse or no vegetative canopy and longer hydroperiods that allow for greater fish densities.[5]

Everglade Snail Kite. The Everglade Snail Kite has been designated as "endangered" pursuant to the Endangered Species Act since 1967. Critical habitat was designated in 1977 and is reflected on Figure 7. It is also designated as "endangered" by the State of Florida. The medium-sized raptor primarily feeds on apple snails. Foraging habitat for the Snail Kite primarily consists of freshwater marshes, as well as natural and man-made lakes that contain apple snails. Roosting sites for the Snail Kite primarily consist of Cypress trees.[6] In Miami-Dade County, Snail Kites have been documented in Everglades National Park, Water Conservation Area 3, the C-111 Basin and smaller dispersed wetlands within this range.[7] The Everglade Snail Kite Recovery Plan notes that the principal threat to the species is the loss or degradation of wetlands.

Florida Bonneted Bat

The Florida Bonneted Bat has been listed as "Endangered" under the Endangered Species Act since 2013. They have been documented in a variety of natural habitats including: pine flatwoods, pine rocklands, cypress, hardwood hammocks, mangroves, wetlands, rivers, lakes, ponds and canals. In addition to natural roosts, bats will also roost in artificial structures such as bat houses and building crevices in urban and rural areas. However, the US Fish and Wildlife Service notes that roosting sites may be at risk of inadvertent or purposeful removal or disturbance when located near residences.[8] In Miami-Dade County, primary foraging habitat includes areas that provide a combination of open area and water sources within urban and agricultural areas. For example, one area of high utilization includes artificial freshwater lakes adjacent to intact pine rocklands. Known active roosting sites include seven bat houses at or near Zoo Miami.[9]

In June 2020, the US Fish and Wildlife Service issued proposed rulemaking to designate critical habitat for the Florida Bonneted Bat which focuses on large connected natural areas which are

[3] United States Fish and Wildlife Service's "Habitat Management Guidelines for the Wood Stork in the Southeast Region"
[4] US Fish and Wildlife Service. Wood Stork: Multi-Species Recovery Plan for South Florida. Accessed online at: https://www.fws.gov/verobeach/msrppdfs/woodstork.pdf
[5]https://www.fws.gov/verobeach/BirdsPDFs/20120712_WOST%20Forage%20Assessment%20Methodology_Appendix.pdf
[6] https://www.fws.gov/verobeach/MSRPPDFs/EvergladeSnailKite.pdf
[7] https://www.fws.gov/verobeach/MSRPPDFs/EvergladeSnailKite.pdf
[8] Federal Register. Volume 85, Number 112. June 10, 2020.
[9] Federal Register. Volume 85, Number 112. June 10, 2020.

relatively free of human disturbances. In Miami-Dade County, the proposed critical habitat includes the last remaining high-quality natural habitat on the east coast of Florida.[10] Figure 7 depicts the proposed critical habitat for the Florida Bonneted Bat in Miami-Dade County. The proposed rule notes that special management considerations or protections may be needed for the designated area. The US Fish and Wildlife Service is expected to detail this guidance in a forthcoming recovery plan for the Florida Bonneted Bat.

Florida Panther

The Florida Panther has been designated as "Endangered" under the federal Endangered Species Act since 1967. It is also designated as "Endangered" by the State of Florida. Large contiguous areas of land are needed in order for Panther populations to expand and thrive. Areas with dense understory vegetation provide important habitat for panthers.[11] While USFWS has not designated critical habitat for the Florida Panther, it has identified a series of "zones" that are considered important to supporting the protection and expansion of panther populations (see Figure 6). The Florida Panther Recovery Plan (March 1995) establishes the goal of maintaining the quantity and quality of habitat in the Primary Zone, maintaining the quantity and improving the quality of habitat in the Secondary Zone, as well as preventing negative impacts of roads. The Recovery Plan further details the vulnerabilities to panther habitat as follows:

> *Habitat loss, degradation, and fragmentation is the greatest threat to panther survival, while lack of human tolerance threatens panther recovery. Panther mortality due to collisions with vehicles threatens potential population expansion. Potential panther habitat throughout the Southeast continues to be affected by urbanization, residential development, road construction, conversion to agriculture, mining and mineral exploration, and lack of land use planning that recognizes panther needs.*

Bartram's Scrub Hairstreak and Florida Leafwing Butterflies

The Bartram's scrub-hairstreak and Florida leafwing butterflies were listed as "endangered" under the federal Endangered Species Act in 2014. Critical habitat was designated at the same time (see Figure 7). The species have also been designated "endangered" by the State of Florida.

The Bartram's scrub-hairstreak and Florida Leafwing occur only within pine rocklands, specifically those with pineland croton, the only known hostplant for the butterflies.[12] The US Fish and Wildlife Service notes that the extent of pineland croton within remaining pine rockland habitat fragments is not fully known, however a review of County land by the Miami-Dade County Division of Environmental Resources Management (DERM) has identified abundance within certain natural areas. Additional studies are ongoing to identify the presence of pineland croton within remaining pine rockland habitat. The Florida Natural Areas Inventory identifies pine rockland as "critically imperiled globally" due to its rarity and high risk of extinction. Both species of butterfly are teetering on the edge of extinction, with Florida Leafwing only regularly being found in a small area of Everglades National park and with rare sightings in a County preserve near Florida City.

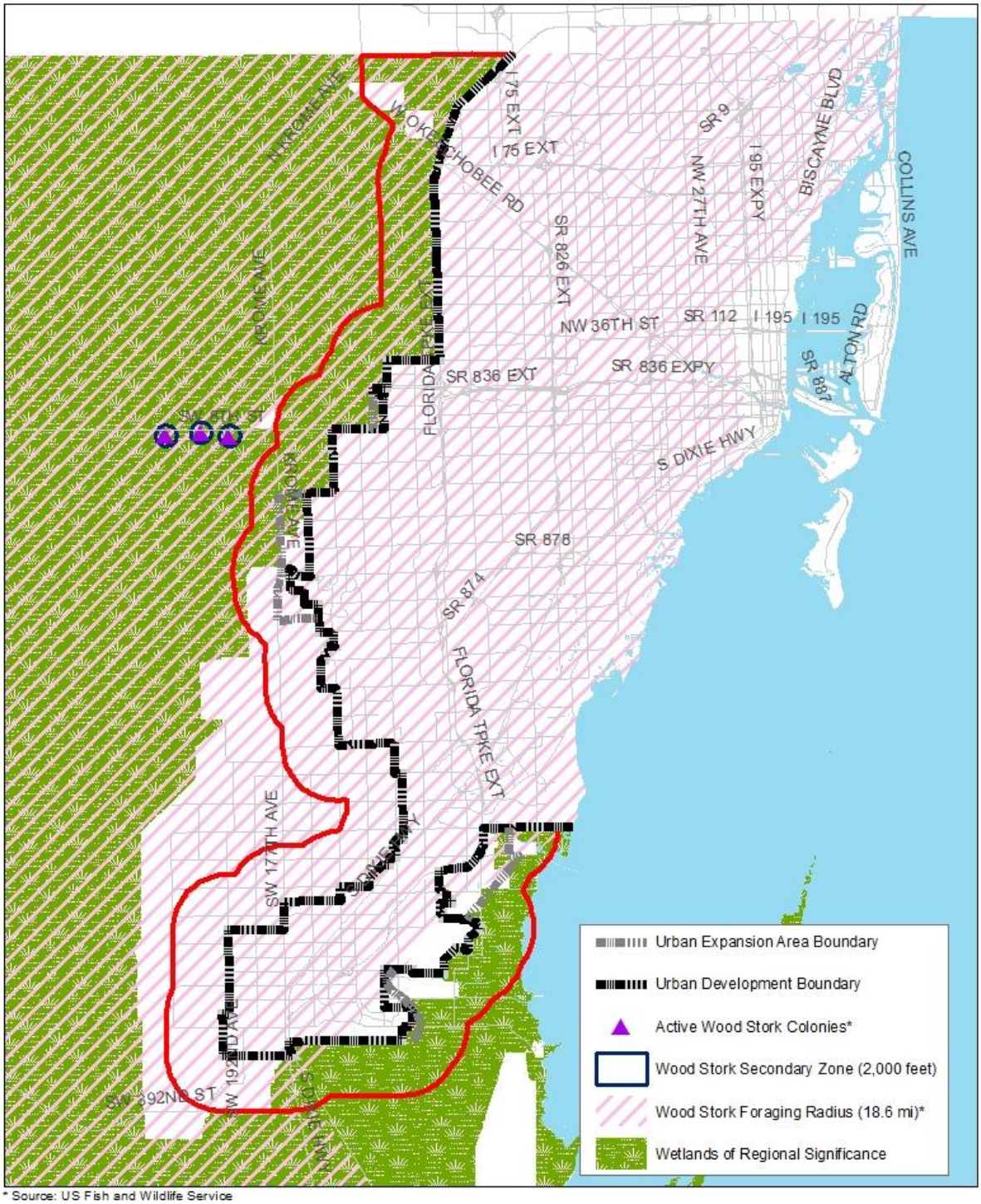
[10] Federal Register. Volume 85, Number 112. June 10, 2020.
[11] U.S. Fish and Wildlife Service. Florida Panther Recovery Plan. March 1995.
[12] https://www.fws.gov/verobeach/StatusoftheSpecies/20151006_SOS_BartramsScrubHairstreak.pdf

Fire maintenance is essential to maintaining the viability of pine rockland communities. Land uses that inhibit the ability to maintain the necessary fire regimen can threaten the remaining pine rockland communities. To support the reestablishment of pine rockland vegetation, Fairchild Tropical Botanic Gardens, has partnered with Federal, State, local, and nonprofit organizations, to establish the “Connect to Protect Network” which encourages property owners to plant native pine rockland species.

Federal and State Listed Plant Species

Florida Brickell Bush, deltoid spurge, pineland sandmat, Gould’s sandmat, garber’s spurge, small’s milk pea, crenulate lead plant, Blodgett’s silver bush, Florida prairie clover, sandflax, tiny polygala, Florida bully, and Carter’s Sandflax are plant species listed under the endangered species act that are found in the pine rockland in Miami-Dade County. Additional plant species listings include Florida Bristle Fern (in rockland hammocks) and coastal upland plants: fragrant prickly apple, beach jacquemontia, and Florida semaphore cactus. Those portions of the study area containing hammocks and pine rocklands are likely to contain the designated upland plants typical of those areas.

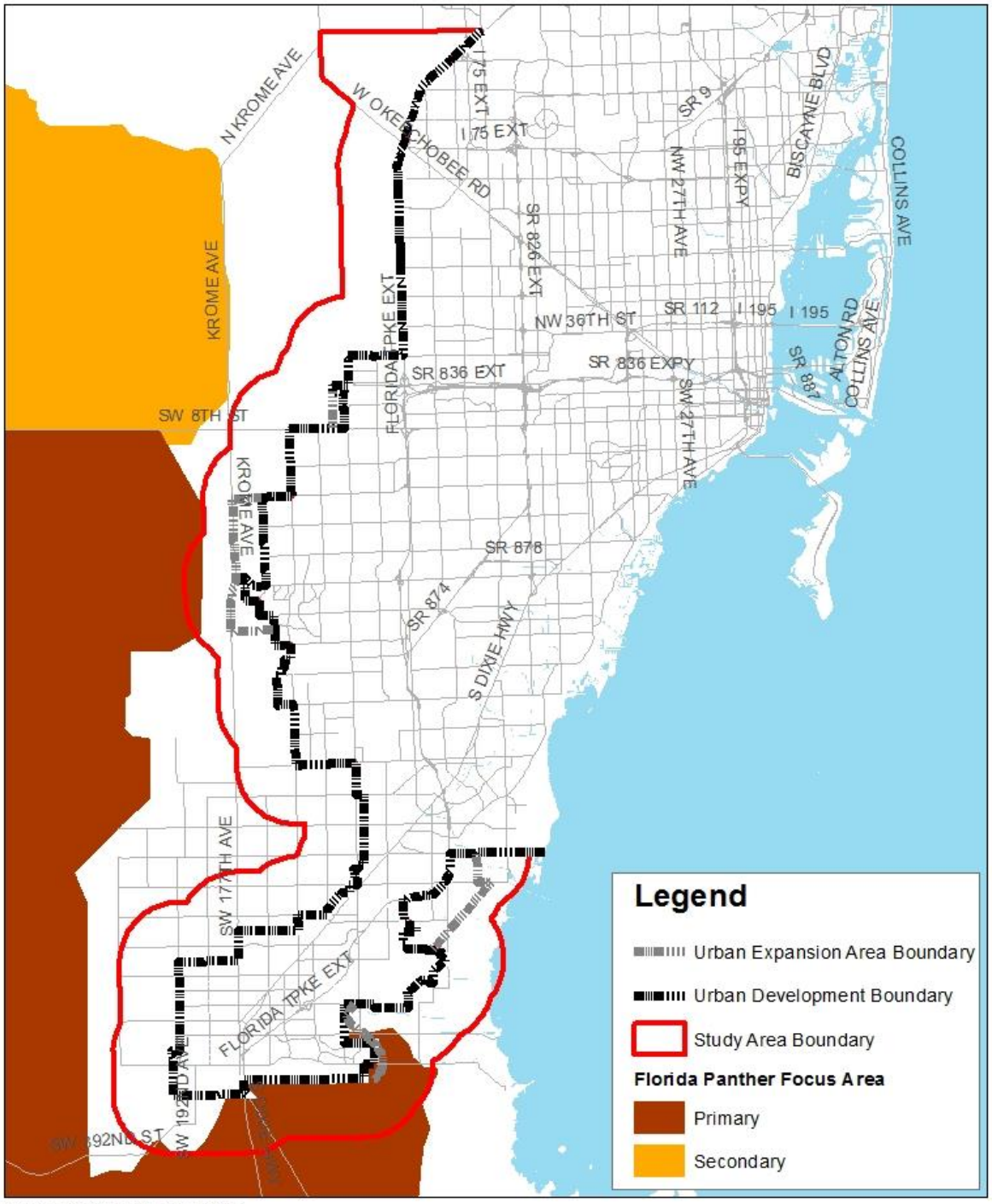
Critical habitat for the Florida brickell bush and Carter’s Sandflax was designated in 2015 and is depicted on Figure 7. In 2020, the US Fish and Wildlife Service issued proposed rulemaking to designate critical habitat for the Florida Bristle Fern. The extent of the proposed designated habitat is depicted on Figure 7.



* Source: US Fish and Wildlife Service

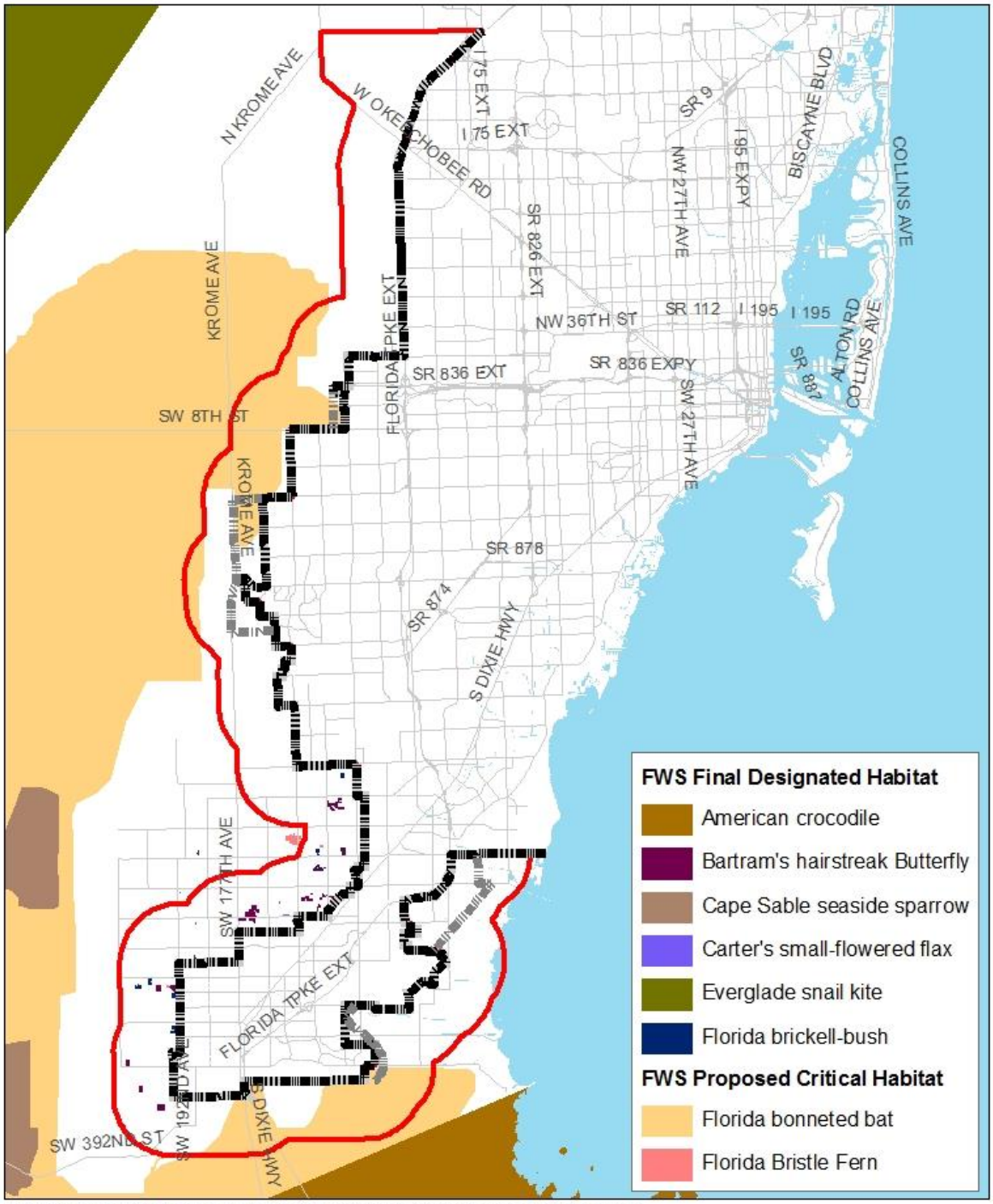
Figure 5

Wood Stork Considerations Map



* Source: US Fish and Wildlife Service

Figure 6
Florida Panther Focus Areas



* Source: US Fish and Wildlife Service (FWS) - only resources located outside of the UDB are depicted

Figure 7

Federal Designated Critical Habitat

III. Aquifer Recharge and Wellfield Protection

The Biscayne Aquifer is a highly transmissive unconfined aquifer that serves as the County's primary source of drinking water. Recharge of the Biscayne Aquifer occurs throughout the County but is greatest in undeveloped areas with high infiltration rates and abundant precipitation. Due to the importance of these areas, Objective CON-4 states that the "aquifer recharge and water storage capacity of the presently undeveloped areas in western and southern Miami-Dade County shall be maintained or increased." Since urban uses change the water quality and timing of runoff when compared with open land, Policy CON-5F requires cut and fill criteria in order to "protect natural hydrological characteristics of the basins, protect against flooding of developed land in the basins and downstream, and ensure continued proper recharge of groundwater supplies". The SFWMD identifies areas displaying infiltration rates greater than or equal to 42 inches/year as prime recharge areas. Figure 8 depicts aquifer recharge potential, which includes prime recharge areas and average precipitation rates.[13]

The County's water supply system includes eight major Biscayne Aquifer wellfields and twelve minor water supply wells (located in south Miami-Dade County). In addition, there is one wellfield located in the County that serves Monroe County, the Florida Keys Aqueduct Authority. The characteristics of the Biscayne Aquifer make it highly vulnerable to contamination from activities on the land surface. The Miami-Dade County Board of County Commissioners has adopted ordinances that establish wellfield protection zones in response to the documented association between land use and groundwater contamination. These ordinances prohibit land uses that use, handle, generate, dispose of or store hazardous materials and hazardous waste within wellfield protection areas.

To protect water quality at the County's wellfields, Chapter 24 also includes limitations on sewage loading within the wellfield travel time contours which are based, in part, on generalized survival times of bacteria and viruses in soils and groundwater. These restrictions may limit the amount of development that can be achieved on a given site. For example, land uses within the 10 day travel-time of a wellfield protection area that are served by public sanitary sewers are subject to a sewage loading restriction of 850 gallons per day (gpd) per acre. Based on Chapter 24-43.1 of the Code of Miami-Dade County, sewage flows for a single family residence are estimated to be 210 gpd/unit. This would allow for a maximum of 4 units per acre within the 10-day travel-time contour.

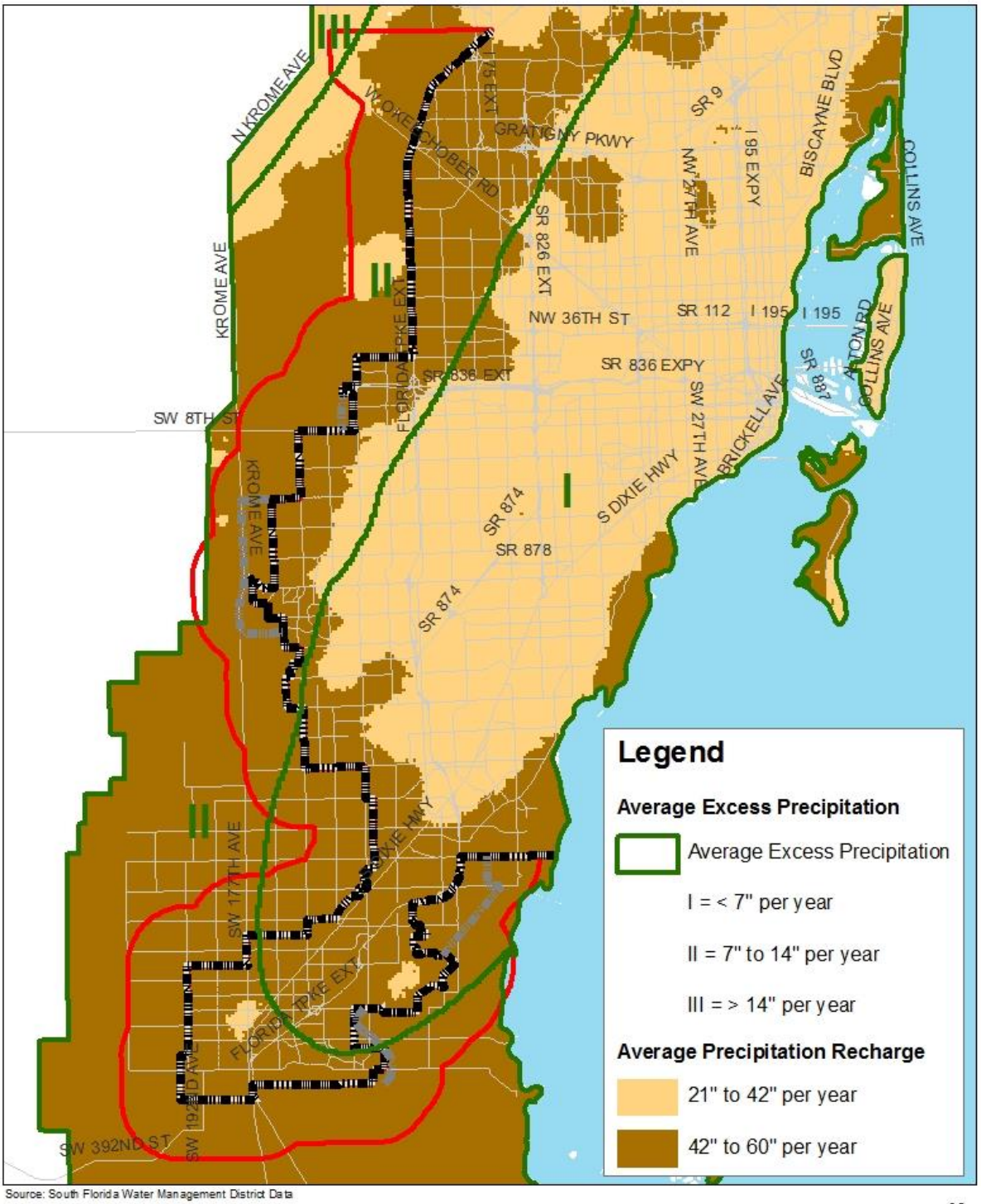
The adopted wellfield protection areas are depicted on Figure 9. Miami-Dade County is in the process of developing new groundwater flow and transport models for the Northwest and West Wellfield Protection Areas of Miami-Dade County which will form the basis for revising the travel time and drawdown contours for these wellfields and updating the wellfield protection area maps. The four wellfields located in or near the Study Area are described below:

1) **Northwest Wellfield (NWWF).** The Northwest Wellfield is a major source of drinking water for Miami-Dade County. It consists of fifteen wells, with the installed design capacity for up to 225 MGD. Land uses and activities within the cone of influence from the wellheads have the potential to directly impact the quality of water ultimately withdrawn from the

[13] Figure 8 is derived from SFWMD Technical Publication 95-02: Mapping Recharge Throughout the South Florida Water Management District. Excess Precipitation, as depicted on Figure 8, reflects the difference between long-term average annual rainfall and actual evapotranspiration data.

wells. The CDMP affords a high level of protection for the Northwest Wellfield recognizing that this wellfield provides the opportunity to maintain pristine water quality since the area within the full extent of the cone of influence is largely undeveloped (CDMP, Page I-78). CDMP Policy CON-3E states that the entire area west of the Turnpike, north of NW 25th Street and south of Okeechobee Road shall remain unurbanized.

2) **West Wellfield (WWF).** The West Wellfield was originally proposed as a 140 MGD wellfield. However, due to concerns regarding the impact of wellfield drawdown on hydrologic resources of Everglades National Park, a Memorandum of Understanding between the County, SFWMD, FDEP and the US Department of the Interior was executed to limit withdrawals at the West Wellfield to a peak pumpage of 40 MGD, provided the authorized withdrawal meets the applicable criteria pursuant to Chapter 373, Florida Statutes. However, the County may request additional allocation upon satisfactorily demonstrating that the additional pumpage will have no adverse impacts to Everglades National Park. The County is permitted under the current 20-year Water Use Permit (#13-00017-W) to withdrawal 15 MGD from the Biscayne Aquifer at the West Wellfield.
3) **Everglades Labor Camp (ELC).** Everglades Labor Camp is part of the South Dade Water System which serves a population of approximately 43,207. It has an installed design capacity of 5.04 MGD.
4) **Florida Keys Aqueduct Authority (FKAA).** The Florida Keys Aqueduct Authority (FKAA) has supply wells, a treatment facility and a transmission main in southern Miami-Dade County. The facilities provide service to Monroe County and do not serve Miami-Dade.



Source: South Florida Water Management District Data

Figure 8
Aquifer Recharge Potential

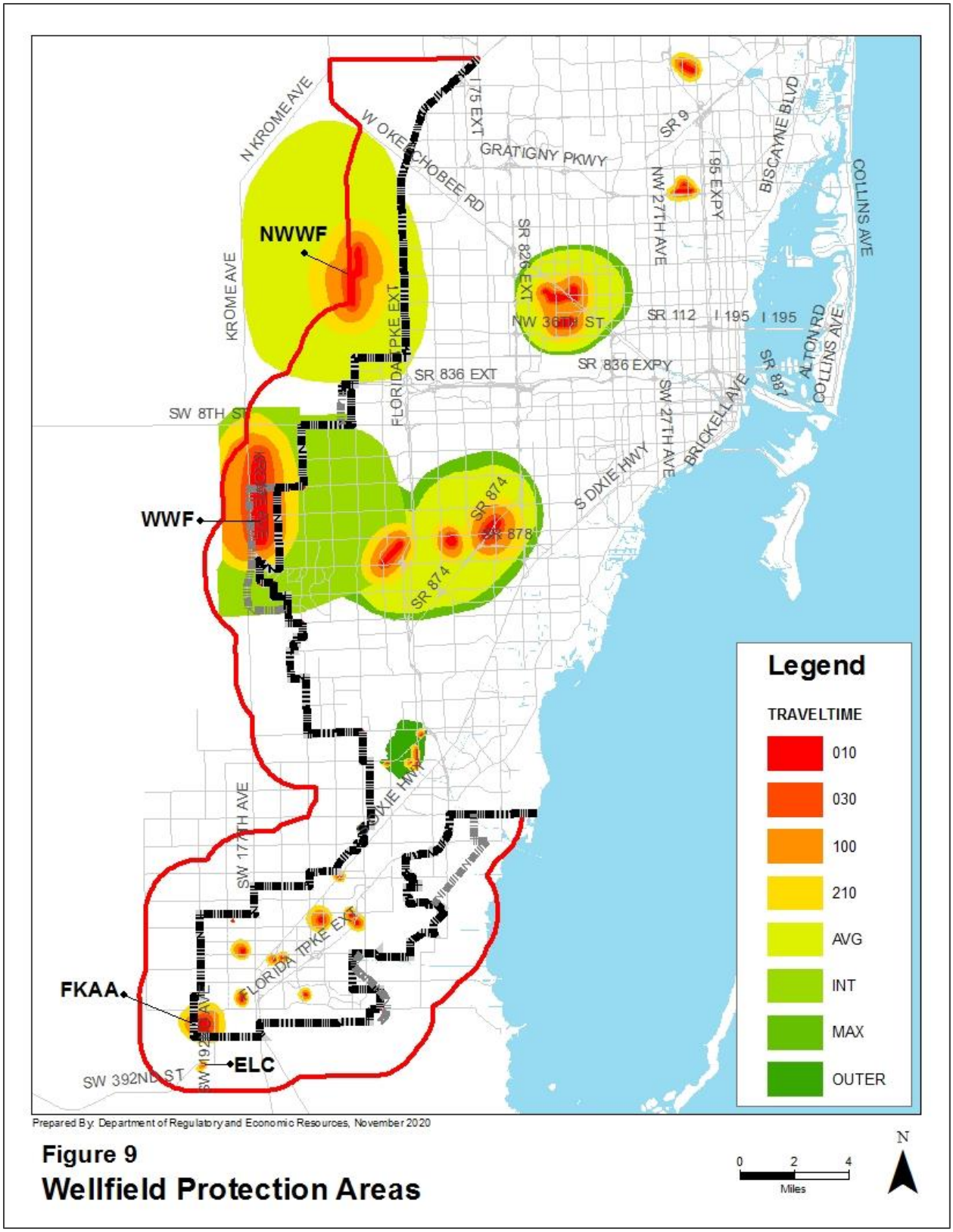


Figure 9
Wellfield Protection Areas

IV. Agricultural Suitability

South Florida's subtropical climate allows for year-round production of tropical fruits, tropical vegetables and ornamentals which provides a unique agricultural advantage. Agriculture employment and output adds to the economic diversity of Miami-Dade County's economy. It creates jobs and at the same time is part of a base economy that generates millions of dollars. Miami-Dade County is currently second in the state in terms of market value of agricultural products sold at $837,734,000.[14] In 2018, the agriculture sector had 11,329 jobs and generated $1.45 billion in GDP (Gross Domestic Product). This accounted for 0.7% of total private-sector jobs and 0.6% of total private-sector GDP in the County.[15]

Given the importance of agriculture to the local economy, the policies of the CDMP have long supported agriculture as a viable economic use of suitable lands (CDMP, Page I-73). Further CDMP Policy LU-1R states, in part, that Miami-Dade County shall take steps to reserve the amount of land necessary to maintain an economically viable agricultural industry. A 2002 study by the Miami-Dade County Planning Division found that 52,000 acres are needed to maintain an economically viable agriculture industry. There are approximately 64,287 acres identified as Farmland of Unique Importance by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) within the area designated "Agriculture" on the CDMP Land Use Plan Map. Within this area, parcels with an agricultural classification from the Miami-Dade County Property Appraiser comprise approximately 53,000 acres. This figure is important because it represents the properties that contain agricultural uses within the area best suited for agricultural production due to the soil capacity and land use. The remaining acreage within the area identified as Farmland of Unique Importance may be used for purposes other than agriculture or in public ownership.

Farmland of Unique Importance

The U.S. Department of Agriculture, NRCS identifies areas that are considered important farmlands and classifies them as Prime Farmland and Farmland of Unique Importance. Prime farmland is land that has the best combination of physical and chemical characteristics for meeting the Nation's food supply. The NRCS classifies Farmland of Unique Importance as land other than prime farmland that is used for the production of specific high-value food and fiber crops such as tree nuts, fruits, and vegetables.[16] It is commonly identified in areas where there is a special microclimate.[17] There are no areas within Miami-Dade County that are identified as Prime Farmland, however, land with the following five soil types are classified as Farmland of Unique Importance by NRCS: 1) Biscayne gravelly marl, drained; 2) Perrine marl, drained; 3) Krome very gravelly loam; 4) Biscayne marl, drained; and 5) Chekika very gravelly loam.

[14] United States Department of Agriculture. Census of Agriculture. 2017

[15] Miami-Dade County Department of Regulatory and Economic Resources, Planning Research Section.

[16] Federal Register Vol. 43, No.21, January 31, 1978

[17] United States Department of Agriculture, Natural Resources Conservation Service. Accessed online at: https://efotg.sc.egov.usda.gov/references/Delete/2014-12-6/FL686_Prime_and_other_Important_Farmlands--Miami-Dade_County_Area_Florida.pdf

Descriptions of these soils and their suitability for agricultural production are included in Appendix 3. The location of these soils is shown on Figure 10.

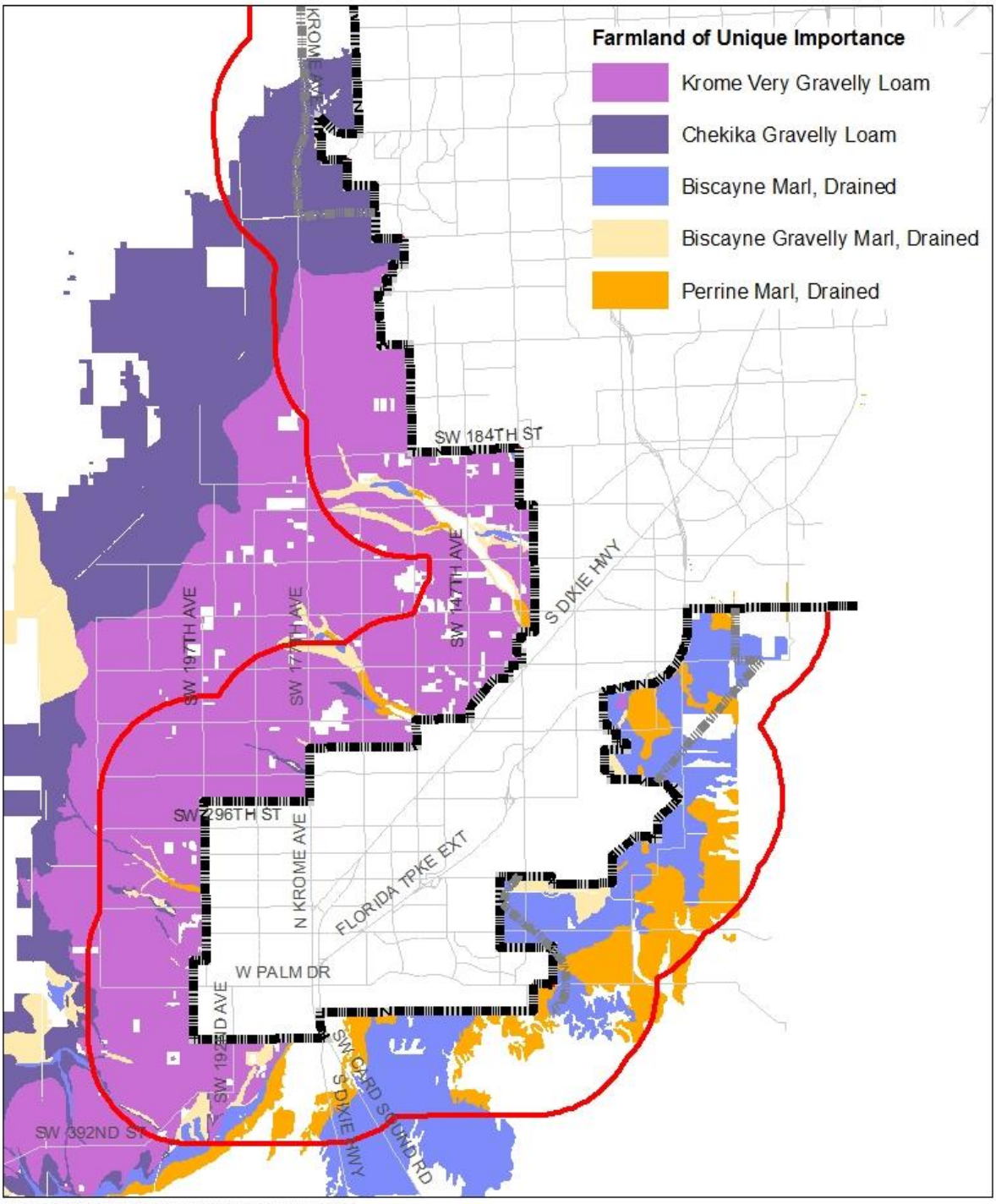
Agricultural Land Characteristics and Trends

There are approximately 64,287 acres of land that are identified as Farmland of Unique Importance in the area designated "Agriculture" on the CDMP Land Use Plan Map. Parcels with an agricultural classification from the Miami-Dade County Property Appraiser comprise approximately 53,000 acres.[18] Parcels with an existing residential land use that do not have an agricultural classification comprise approximately 4,500 acres. These areas are identified on Figure 11.

The total acres outside of the Urban Development Boundary with an agricultural classification from the Miami-Dade County Property Appraiser has decreased by 3,026 acres between 2011 and 2019. Generally, the number of farms in Miami-Dade County have been increasing since 1992 while the size of farms has been decreasing.[19]

Lot sizes within the agricultural area vary greatly. The average lot size of parcels with an agricultural classification north of SW 184th Street is 23.3 acres. For the area between SW 184th Street and SW 296th Street, the average lot size is 6.6 acres. South of SW 296th Street, the average lot size is 9.6 acres. In the East Glade area (south and east of the Urban Development Boundary), the average lot size is 24 acres.

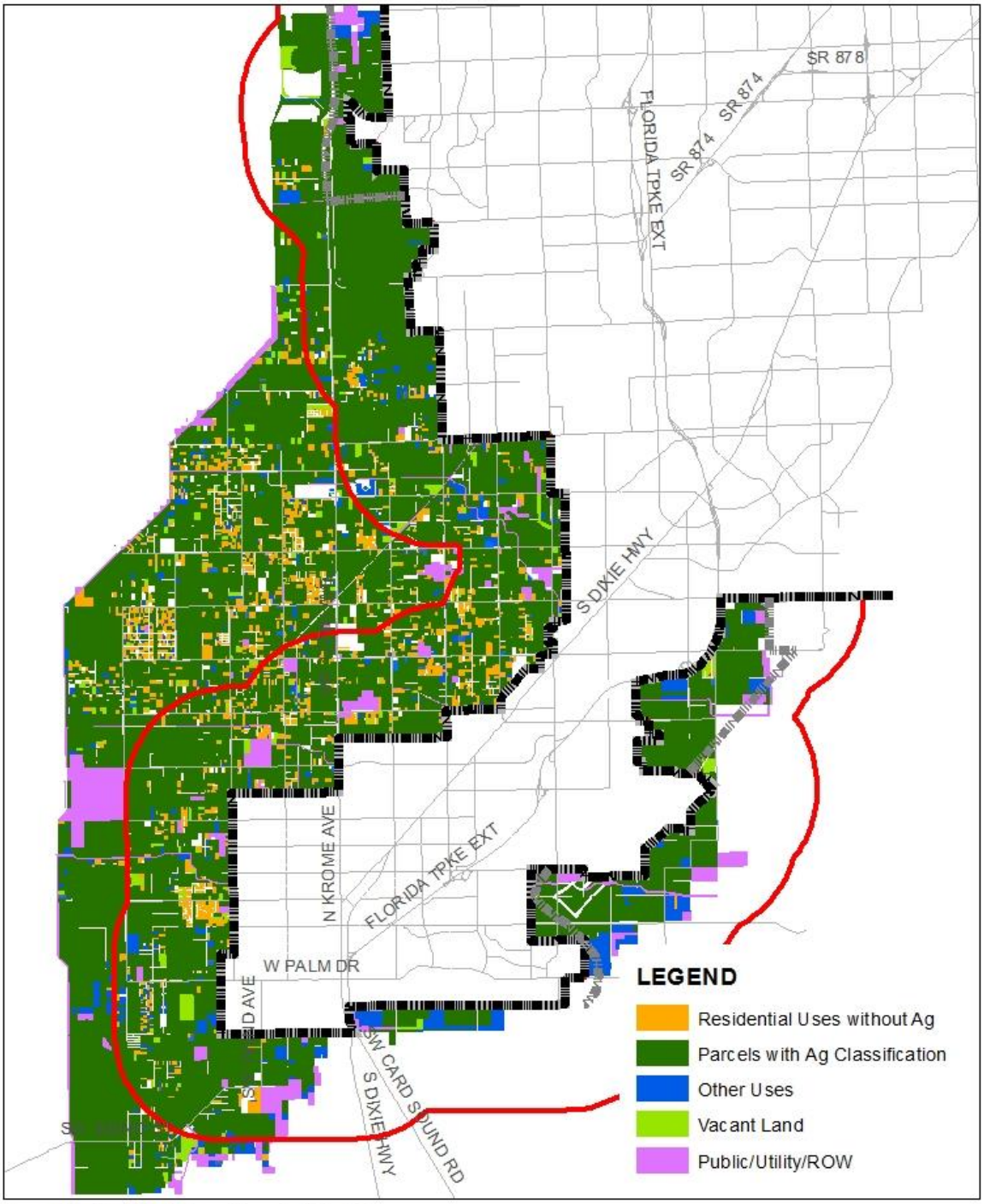
[18] This includes the total lot size for parcels with an agricultural classification from the Miami-Dade County Property Appraiser, not the portion of the property with a bona fide agricultural use.
[19] United States Department of Agriculture. 2017 Census of Agriculture.



Source: USDA, Natural Resources Conservation Service

Figure 10

Farmland of Unique Importance



Source: Miami-Dade County Property Appraiser Data, 2020

Figure 11

Land Uses in the Agricultural Area

Agricultural Commodities in Miami-Dade County

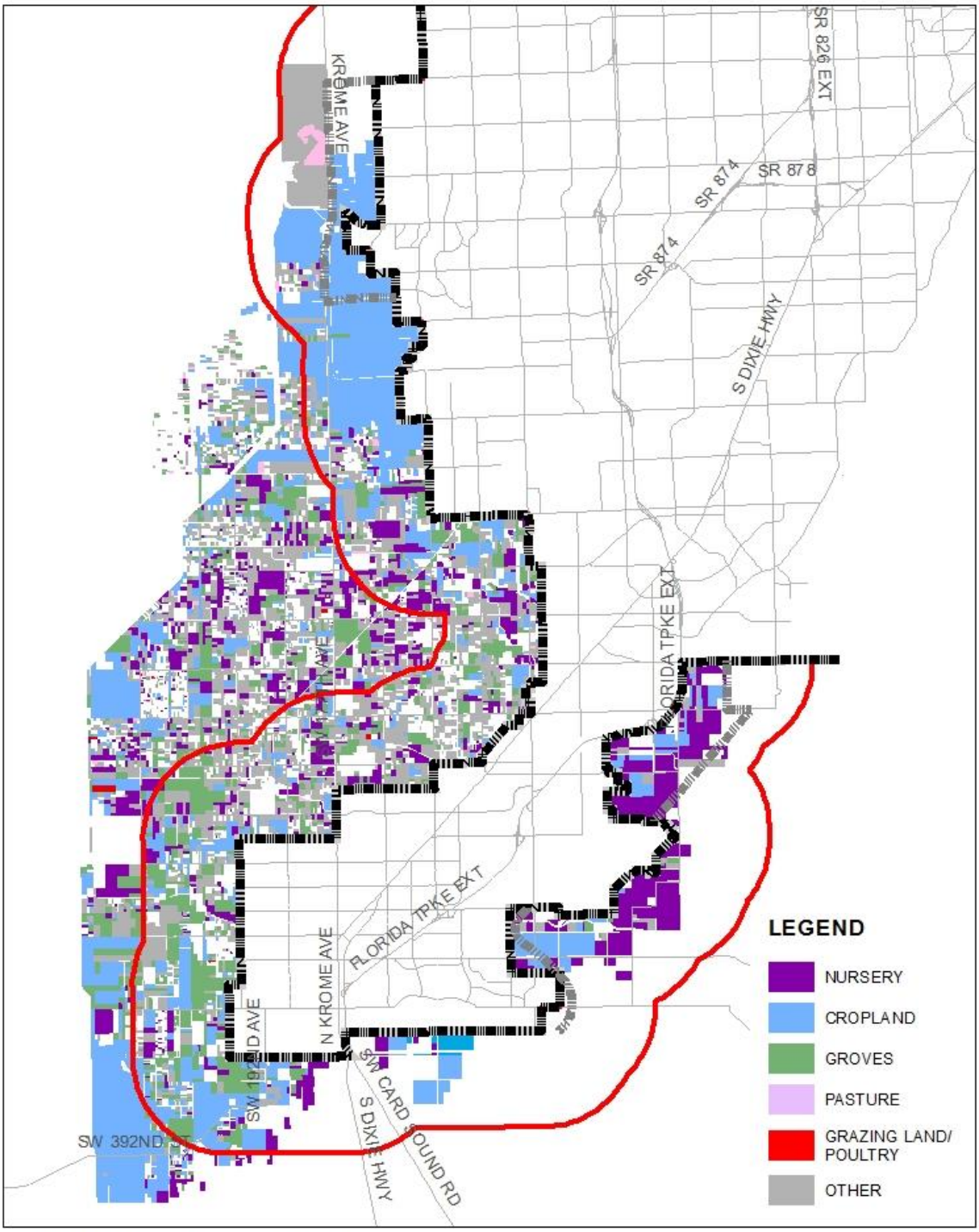
Figure 12 shows the location of agricultural commodities in Miami-Dade County. However, it should be noted that agricultural commodities on a given site can change seasonally and over time. As shown, the primary areas for cropland in the County include the area west of Miami Executive Airport and south near Ingraham Highway. The Redland agricultural area contains a mix of cropland, groves, nurseries and pasture. Both of these areas are underlain by loam soils. The East Glade area, which is underlain by marl soils, primarily contains nurseries and cropland.

Table 5 shows the acres harvested for the main crops and fruits cultivated in Miami-Dade County based on the 2017 Census of Agriculture and the change in acreage since 2012. Primary agricultural commodities in Miami-Dade County include Snap Beans, Tomatoes, Squash, Sweet Corn, Sweet Potatoes, Avocados and Mangos. Combined, these crops represented more than half of all Harvested Cropland in 2017.[20]

Table 5
Acreage Trends for Major Vegetable and Fruit Crops
Miami-Dade County

Commodity	2017 Acreage 1,000 Acres	Change from 2012 - 1,000 acres/year
Snap Beans	7.55	-0.71
Tomatoes	2.35	-0.29
Squash	1.62	-0.11
Sweet Corn	3.33	-0.38
Sweet Potatoes	3.19	N/A
Avocados	6.91	-1.17
Mangos	1.81	0.00

[20] October 2020. Agricultural Land in Miami-Dade County. Miami-Dade County Department of Regulatory and Economic Resources, Planning Research Section.



Source: Miami-Dade County Property Appraiser Data

Figure 12

Agricultural Commodities

Environmental and Land Use Considerations

The viability of agriculture in Miami-Dade County is dependent upon various issues that are beyond the scope of this study including market conditions, federal trade policies, diseases, and natural disasters. Due to the limited scope of this study, this section focuses on local conditions and policies that may affect the future viability of agricultural operations.

Land designated for agricultural uses may be further limited by environmental conditions. As Depicted on Figure 13, approximately 1,203 acres of land that are identified as Farmland of Unique Importance are located within Wetlands of Regional Significance. Formal wetland delineation would be needed to determine the exact extent and quality of jurisdictional wetlands within the area. Agricultural uses may also be limited on sites with Natural Forest Communities as depicted on Figure 13.

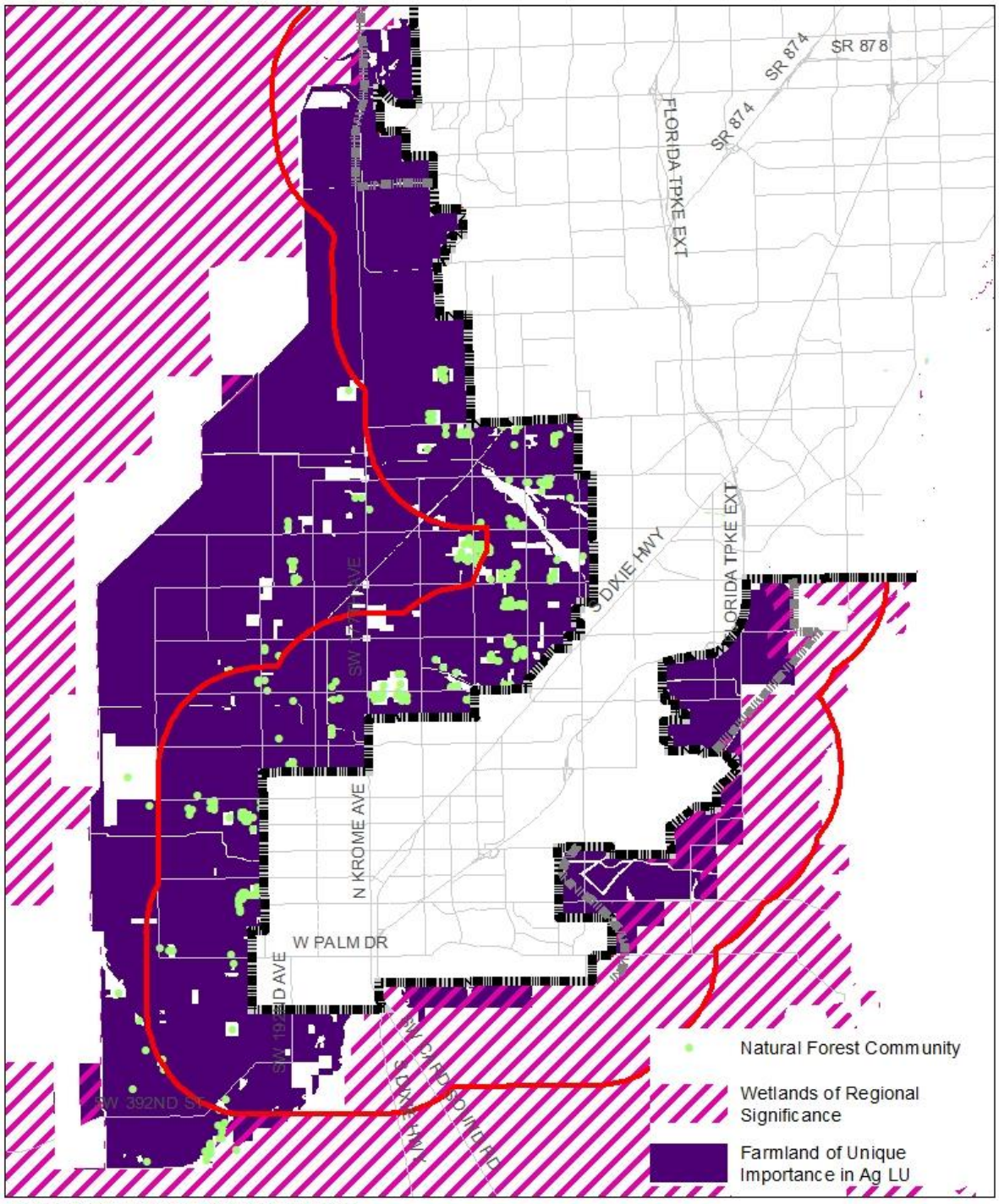
The East Glade agricultural area (east of the UDB) is made farmable by seasonal drawdowns of the water table that have occurred since 1981. The area affected by the seasonal drawdown is depicted on Figure 14. The SFWMD has identified negative impacts to Biscayne Bay as a result of the seasonal drawdown including increased salinity levels at the end of the dry season. However, without these seasonal drawdowns, there is a high probability of ground water penetrating the crop root zone for periods long enough to cause crop damage or crop loss.[21] These seasonal drawdowns may also become harder to maintain as groundwater levels increase in the East Glade area as a result of sea level rise.

Conflicts can occur where agricultural activities occur near developed areas. Conflicts primarily arise from pesticide spray drift, odor, noise, and farm traffic. These conflicts are more pronounced with large-scale vegetable production operations that rely on aerial application of pesticides. The potential for these land use conflicts is greatest where agricultural uses are immediately adjacent to moderate and high-density residential development. In addition, the conversion of agricultural land to non-agricultural land uses can increase the potential for land use conflicts.

Relevance to the Study

Currently, approximately 86% of the area identified as Farmland of Unique Importance is comprised of parcels with an agricultural classification demonstrating the suitability of the area to support agriculture. However, it is important to continue to monitor pressures that may impact the viability of farming operations such as operational changes to the East Glade seasonal drawdown and the conversion of agricultural land to non-agricultural land uses.

[21] 2010. South Florida Water Management District. Seasonal Operations Overview Presentation.



Source: USDA, Natural Resources Conservation Service

Figure 13

Environmental Considerations for Agriculture

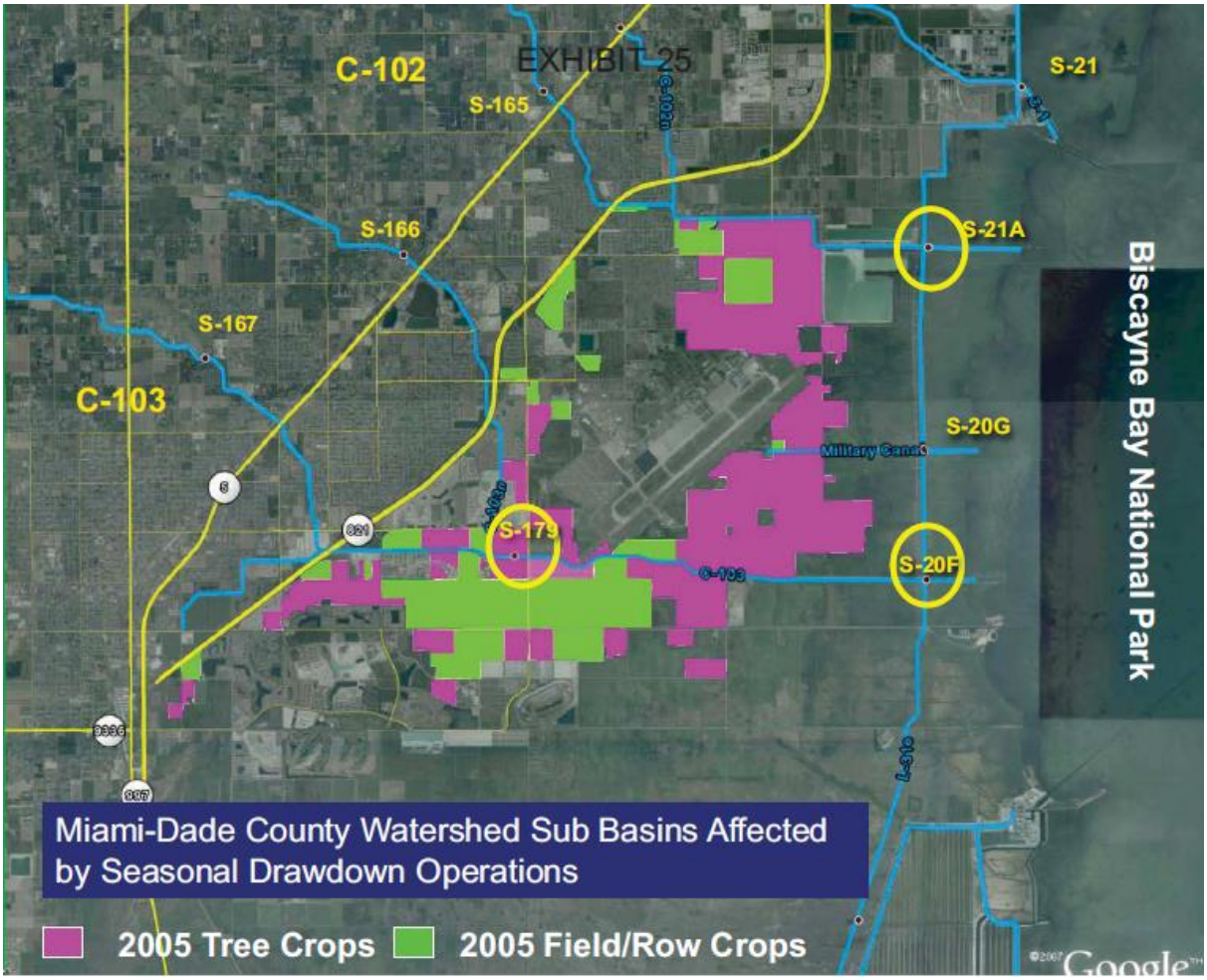


Figure 14: Watershed Sub Basins Affected by Seasonal Drawdown
Source: South Florida Water Management District (2005)

V. Military and Airport Compatibility

Homestead Air Reserve Base (HARB)

Section 163.3177(6)(a)(3)(a), Florida Statutes requires local governments' comprehensive plans to achieve compatibility of lands adjacent or closely proximate to military installations. In addition, the Miami-Dade County Zoning Code contains land use restrictions for areas proximate to airports and military installations that may impact development potential in certain areas.

Figure 15 depicts the accident potential zones and noise contours of the Homestead Air Reserve Base (HARB) as identified in the Air Installation Compatible Use Zone (AICUZ) Study prepared by the United States Air Force. The accident potential zones represent the areas with potential for aircraft accidents and are comprised of three zones; Clear Zone, Accident Potential Zone I (APZ I), and Accident Potential Zone II (APZ II). The AICUZ indicates that all land uses except agriculture are incompatible in the Clear Zones. The AICUZ indicates that residential uses and uses with large congregations of people are incompatible in APZ I and only very low density residential is compatible in APZ II.

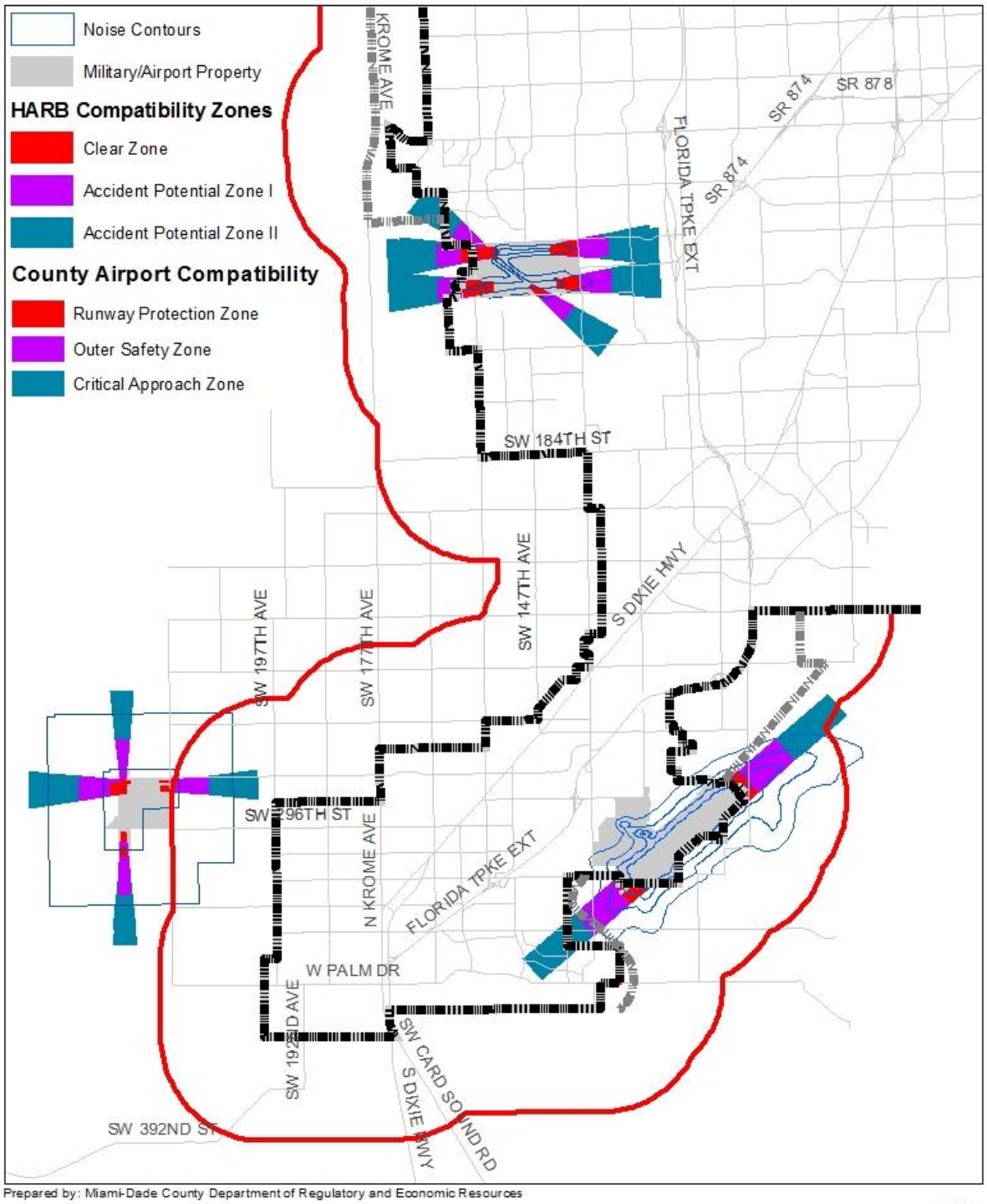
The AICUZ also provides recommended compatible land uses for areas within the HARB noise contours which represent areas that may be impacted by aircraft noise exposure. Cumulative noise levels, resulting from multiple single events, are used to characterize community noise effects from aircraft operations and are expressed in A-weighted decibels (dBA). The AICUZ indicates that residential uses are incompatible in the 75dBA and greater noise contours. Residential uses are discouraged within the 65dBA to 69dBA noise contour and strongly discouraged in the 70dBA to 74dBA noise contour. Where residential uses are permitted, the AICUZ recommends that measures be included to achieve outdoor to indoor noise level reduction.

Chapter 33, Article XXXV (Homestead Air Reserve Base Zoning) of the Miami-Dade County Code regulates land uses proximate to Homestead Air Reserve Base (HARB). Section 33-295 prohibits buildings with large congregations of people including schools, hospitals, apartment buildings, and religious facilities within the Accident Potential Zones and the 75 dBA and greater noise contours. Further, residential uses at densities greater than 1 dwelling unit per 5 acres are prohibited in the 75 dB DNL and greater noise contour zones. Outdoor to indoor noise level reduction is required for residential uses located within the noise contour zones. The HARB Accident Potential Zones are also identified as areas that shall not be considered for expansion of the UDB pursuant to Policy LU-8G.

Airport Land Use Compatibility

A portion of the Study Area includes areas subject to airport compatibility restrictions for Miami Executive Airport and Miami Homestead General Aviation Airport. Article XXXVII (Airport Zoning) governs County owned and managed airports. The land use compatibility restrictions contained in Section 33-333 assure compatible land uses in the areas surrounding these airports and compliance with Chapter 333, Florida Statutes, which addresses airport hazards and the incompatible use of land in airport vicinities.

- ***Runway Protection Zones (RPZ).*** The following uses are prohibited in the RPZ: (1) Within the RPZ, new stormwater retention/detention facilities shall be permitted, following receipt of an opinion from the FAA. All other new buildings and structures, recreational uses, transportation facilities, fuel storage facilities, hazardous material storage, wastewater treatment facilities, and above-ground utility infrastructure proposed to be located within the RPZ shall only be permitted after review and approval by MDAD to assure compatibility with airport operations, following receipt of an opinion from the FAA. (2) Uses prohibited in the Outer Safety Zone (OSZ) and Critical Approach Zone (CAZ) shall also be prohibited in the RPZ. (3) In no event shall these prohibitions be varied.
- ***Outer Safety Zone (OSZ).*** The following uses are prohibited in the OSZ: (1) Within the OSZ, new residential construction, educational facilities, hospitals, religious facilities, and other buildings for public assemblage, shall be prohibited. In no event shall these prohibitions be varied with respect to Miami International Airport. It is provided, however, that aviation-related schools, hotels and motels and their ancillary uses, and structures used in connection with public transportation shall not be subject to this prohibition. (2) Uses prohibited in the Critical Approach Zone (CAZ) shall also be prohibited in the OSZ.
- ***Critical Approach Zone (CAZ).*** The following uses are prohibited in the CAZ: (1) Hospitals, stand-alone emergency rooms, urgent care facilities, skilled nursing facilities, assisted living facilities, adult day care facilities, day nurseries, and educational facilities, excluding aviation-related schools are prohibited. In no event shall the prohibition on educational facilities be varied. (2) Establishments or uses that emit smoke, gases, or dust in quantities or densities sufficient to jeopardize the safe use of the airport. In no event shall these prohibitions be varied. (3) Establishments or uses that create electrical interference with radio communications between the airport and aircraft; make it difficult for aircraft pilots and tower control operators to distinguish between airport lights, aircraft and others; result in glare in the eyes of aircraft pilots using the airport, or tower control operators; impair visibility in the vicinity of the airport; or otherwise endanger the landing, taking off, or maneuvering of aircraft. In no event shall these prohibitions be varied. (4) Landfills, as defined in Section 403.703, Florida Statutes; and any associated uses that attract or sustain birds and bird movements. In no event shall these prohibitions be varied.
- ***Noise Compatibility Restriction Zones (NCRZ).*** The following restrictions apply within the NCRZ: (1) New residential construction and educational facilities, excluding aviation-related schools, are prohibited within the 75 DNL Zone. (2) All new uses in the 65 to 74 DNL Zone shall incorporate at least a 25 decibel outdoor-to-indoor Noise Level Reduction (NLR) into design and construction. For Miami Homestead General Aviation Airport, new residential construction and educational facilities, excluding aviation-related schools, are prohibited within the full extent of the noise contour depicted on Figure 15.


Noise Contours
Military/Airport Property
HARB Compatibility Zones
Clear Zone
Accident Potential Zone I
Accident Potential Zone II
County Airport Compatibility
Runway Protection Zone
Outer Safety Zone
Critical Approach Zone
KROME AVE
FLORIDA TPKE EXT
SR 874
SR 878
SW 184TH ST
SW 147TH AVE
S DIXIE HWY
SW 197TH AVE
SW 177TH AVE
SW 296TH ST
N KROME AVE
W PALM DR
SW 192ND AVE
SW CARD SOUND RD
S DIXIE HWY
SW 392ND ST
Prepared by: Miami-Dade County Department of Regulatory and Economic Resources
Figure 15
Military and Airport Compatibility
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Miles
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VI. Rockmining Considerations

The Lake Belt is a 77.5 square mile area in northwestern Miami-Dade County that was established by the Florida Legislature in 1997 to provide a comprehensive plan for limestone extraction. The limestone mined in the Lake Belt is used for construction of buildings, roads, and infrastructure. The Lake Belt provides approximately one-half of the total limestone demand in the State of Florida.[22] Major mines located within the Lake Belt are depicted on Figure 16. The Lake Belt area, as defined in state law, is depicted on Figure 17.

The Lake Belt Report and Plan Phase I (1997) identified specific areas for mining within the County, provided recommendations for streamlining the permitting process and a strategy for wetland mitigation. Areas identified in the report for wetland mitigation include the Pennsuco and Bird Drive wetlands. The recommendations of the report are adopted by reference into state law and form the basis for the lake belt provisions contained in s. 373.4149, Florida Statutes which are summarized in Table 6.

Key provisions of state law related to the Lake Belt area include the requirement that amendments to local comprehensive plans located within one mile of the Lake Belt be compatible with limestone mining activities and that Miami-Dade County strongly consider limestone mining activities and ancillary operations (i.e., lake excavation, use of explosives, rock processing, cement, concrete and asphalt products manufacturing) when amending local comprehensive plans. State law also prohibits amendments to the local comprehensive plan for residential uses in a specified area of the County (as depicted on Figure 17) until there is no active mining within two miles.

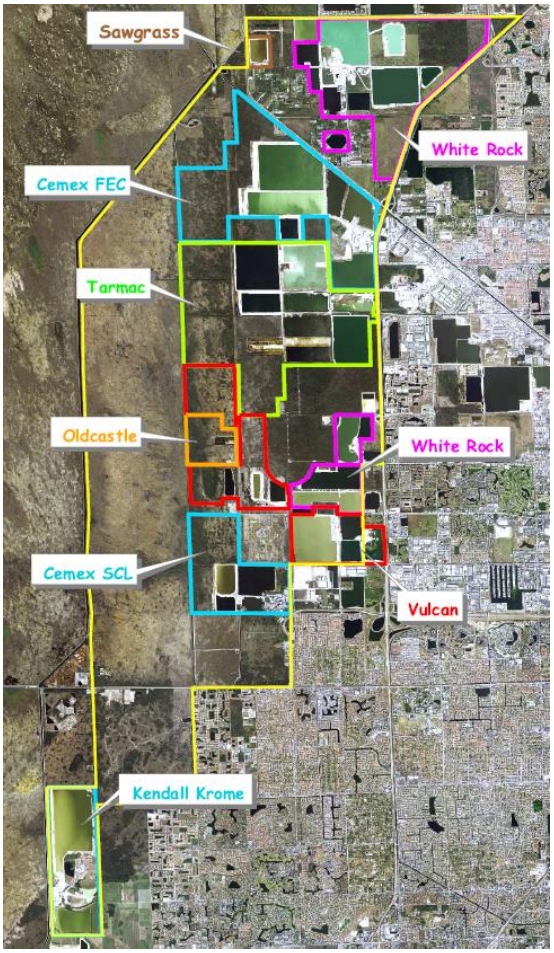


Figure 16: Major Mines in Lake Belt
Source: Alan Whitehouse, FDEP Mining and Mitigation Program

Table 6: Rockmining Considerations

State Law (Florida Statutes)

s. 373.4149(4), Florida Statutes. The identification of the Miami-Dade County Lake Belt Area shall not preempt local land use jurisdiction, planning, or regulatory authority in regard to the use of land by private land owners. When amending local comprehensive plans, or implementing zoning regulations, development regulations, or other local regulations, Miami-Dade County shall strongly consider limestone mining activities and ancillary operations, such as lake excavation, including use of explosives, rock

[22] South Florida Water Management District Lake Belt Mitigation Committee website. Accessed on November 20, 2020 at https://www.sfwmd.gov/our-work/lake-belt-committee.

processing, cement, concrete and asphalt products manufacturing, and ancillary activities, within the rock mining supported and allowable areas of the Miami-Dade County Lake Belt Plan adopted by subsection (1); provided, however, that limerock mining activities are consistent with wellfield protection. Rezonings, amendments to local zoning and subdivision regulations, and amendments to local comprehensive plans concerning properties that are located within 1 mile of the Miami-Dade County Lake Belt Area shall be compatible with limestone mining activities. No rezonings, variances, amendments to local zoning and subdivision regulations which would result in an increase in residential density, or amendments to local comprehensive plans for any residential purpose may be approved for any property located in sections 35 and 36 and the east one-half of sections 24 and 25, Township 53 South, Range 39 East until such time as there is no active mining within 2 miles of the property. This section does not preclude residential development that complies with current regulations.

Policy CON-6A of the CDMP states that "Areas of highest suitability for mineral extraction in Miami-Dade County shall be reserved for that use and shall be protected from encroachment by incompatible uses." To that end, CDMP Policy CON-3E states that "The area west of the Turnpike, east of the Dade-Broward Levee, north of NW 12th Street and south of Okeechobee Road shall be reserved for limestone mining and approved ancillary uses as provided for in Chapters 24 and 33 of the Miami-Dade County Code and the entire area west of the Turnpike, north of NW 25th Street and south of Okeechobee Road shall remain unurbanized." The CDMP indicates that limestone quarrying and ancillary uses may be considered for approval within Open Land Subareas 1, 2 (in keeping with the Northwest Wellfield Protection Plan and environmental regulations), 3 and 5 as identified in the CDMP Land Use Element.

Miami-Dade County further defines the area where rockmining uses are permitted in Article XLI of the Code which identifies the Rockmining Overlay Zoning Area (ROZA) as depicted on Figure 17. The Rockmining Overlay Zoning Area is within the area designated Open Land on the CDMP Land Use Plan Map and specifically within Open Land Subarea 1, 2 and 3. Within the ROZA, rockmining uses are permitted in all zoning districts without a public hearing, subject to compliance with specified criteria. Rockmining uses are not permitted in any other area of unincorporated Miami-Dade County unless approved after public hearing pursuant to the unusual use criteria contained in the County Code and consistency with the CDMP.

The use of explosives associated with rockmining activities can have negative impacts on nearby structures and cause human distress. Section 552, Florida Statutes vests regulation of the use of explosives for limestone extraction solely and exclusively with the State Fire Marshal. The rules governing ground vibration limits for construction materials mining activities are contained in Chapter 69A-2.024 of the Florida Administrative Code. The ground vibration limits are generally based on the particle velocity and frequency.[23] However, the use of explosives within two miles of a residential subdivision containing 25 or more occupied residences within the urban development boundary, is not permitted to exceed a peak particle velocity of more than 0.5 inches per second. Vibration at this level was found to be generally tolerable to about 95% of people perceiving it as distinctly perceptible and reduces the risk for structural damage.[24]

[23] Limits referenced in Ch. 69A-2.024 FAC are contained in the United States Bureau of Mines Report of Investigations No. 8507.

[24] United States Bureau of Mines. Report of Investigations No. 8507. Structure Response and Damage Produced by Ground Vibration from Surface Mine Blasting

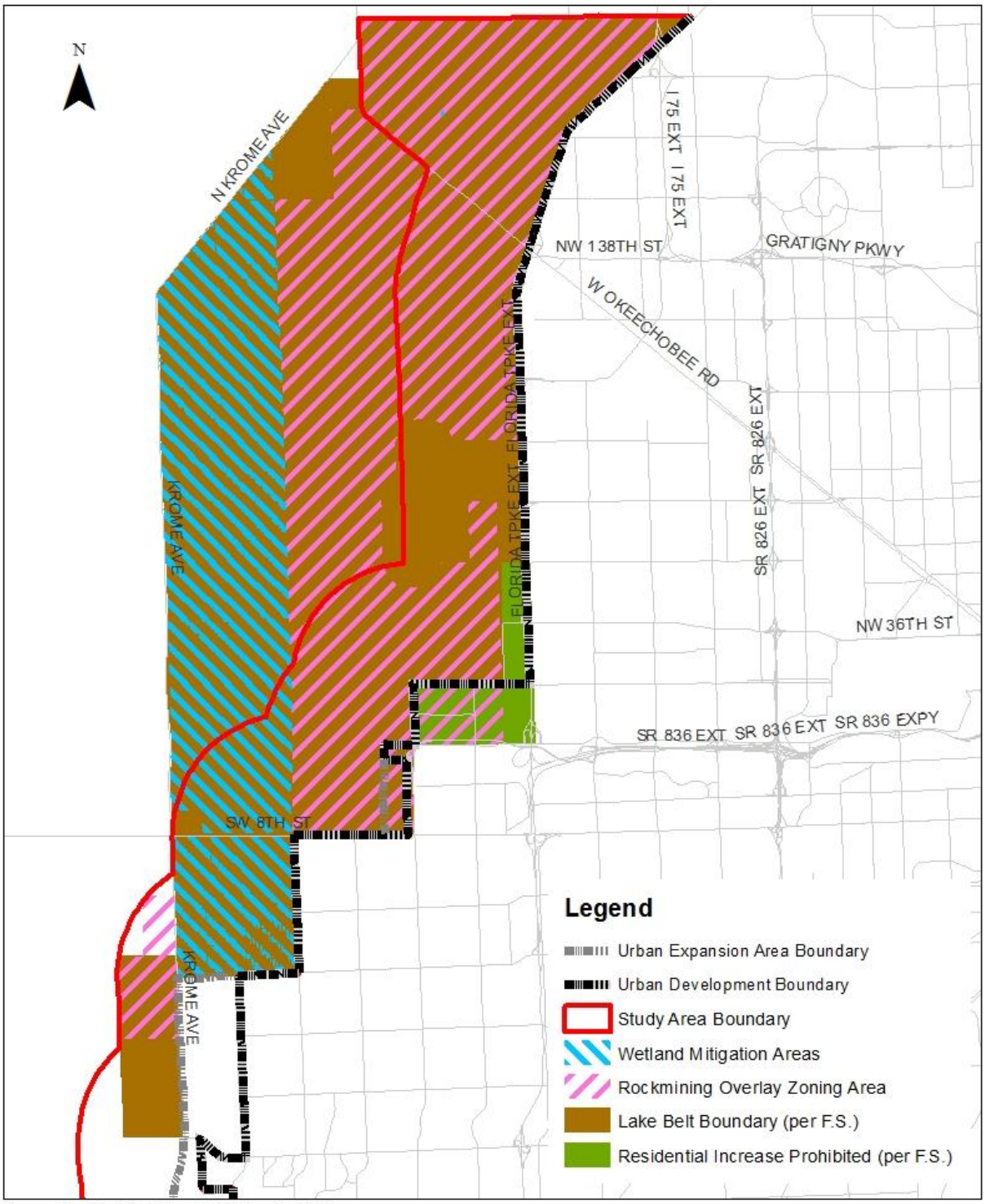


Figure 17

Rockmining Considerations Map

VII. Vulnerability to Flooding and Natural Disasters

The region's current land development pattern and unique geophysical and socioeconomic conditions lead to a broad and heightened level of exposure to the effects of climate change. Miami-Dade County's vulnerability to flooding is being compounded by rising sea and groundwater levels. Other climate change consequences may also exacerbate flood risk such as more intense tropical storms and more extreme rainfall events. The increase in flood risk also increases the County's need for infrastructure retrofitting and the cost for those measures.

Vulnerability to flooding is not only a coastal concern. Low-lying inland areas of the County are also vulnerable to flooding and rely upon the drainage provided by the South Florida Water Management District, the County, and local stormwater infrastructure to reduce flooding risks. Projects such as the C-4 basin emergency stormwater detention area are designed to manage these flooding risks. These inland areas are also expected to experience increased flooding as sea level rises due to higher groundwater levels and decreased capacity of the stormwater drainage systems. Because of these factors, maintaining the region's delicate balance of water management to serve multiple needs will likely become more challenging and expensive in the face of climate change and increased tidal flooding.

Sea level in Miami has risen approximately 10 inches since 1931, when tide gauge records began locally.[25] According to the 2019 Unified Sea Level Rise Projection published by the Southeast Florida Regional Climate Change Compact, sea levels are projected to rise between 10 and 17 inches within the CDMP long-term planning horizon of 2040 and between 21 and 40 inches by 2070. These projections are depicted on Table 7.

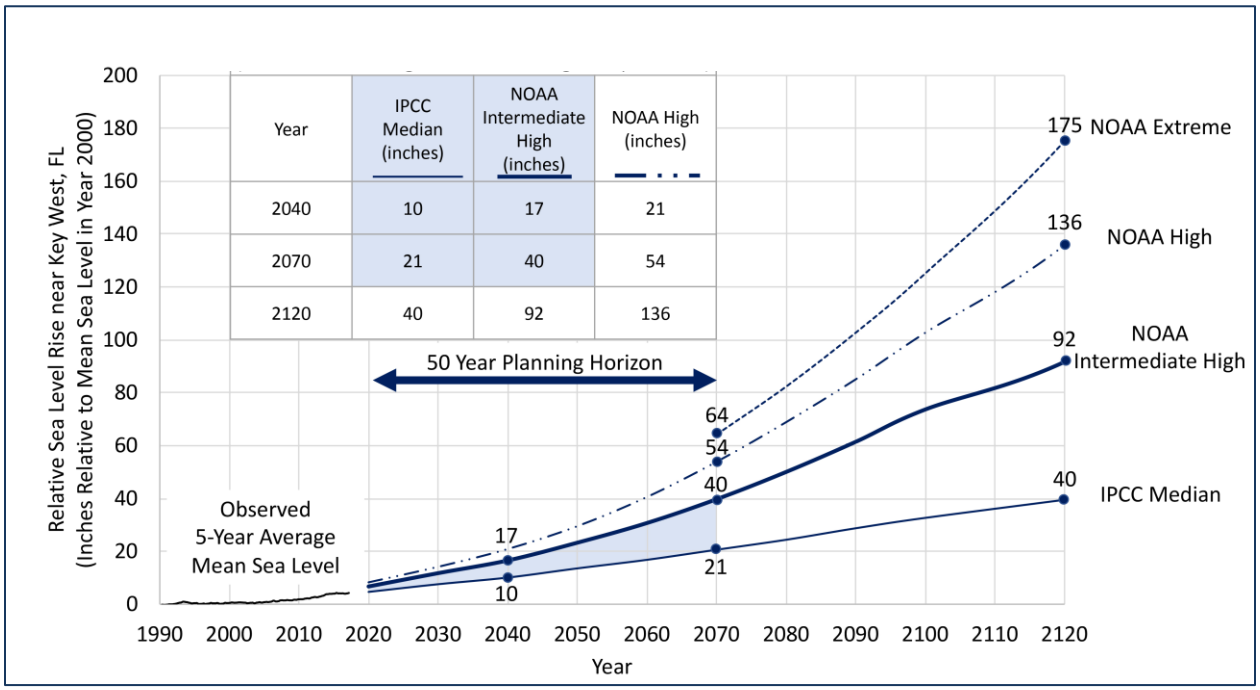


Table 7: Sea Level Rise Projections, Southeast Florida Regional Climate Change Compact (2019)

[25] Sea Level Trends - NOAA Tides & Currents (the observed change in 2.92 mm/year over a period of 89 years)

The County has completed multiple studies of the potential impact of sea level rise on existing infrastructure systems such as roadways, septic systems, sewer infrastructure, and stormwater systems.[26] While these risks are manageable, all previous reports have indicated that rising water levels will require existing infrastructure to be modified or replaced. The pace of repairs, improvements, and replacements is likely to increase as sea level rise increases.

The Urban Land Institute worked with the Southeast Florida Climate Change Compact to analyze the business case for resilience in the region which included Miami-Dade County, Broward County, Palm Beach County, and Monroe County.[27] The graph below in Table 8 shows the estimated property tax revenues that could be lost over the next half century, based on property identified to be vulnerable to permanent sea level rise and the modeled daily high-tide conditions from the Unified Sea Level Rise Projection. The analysis identified Miami-Dade County as most vulnerable of the four counties in the study to property tax revenue loss out to 2070 with a total loss of approximately $1.345 billion. This study illustrates that Miami-Dade County will need to carefully consider how and where future development expansion is allowed or encouraged since there is already a substantial amount of the County's tax revenue base at risk to impacts of sea level rise.

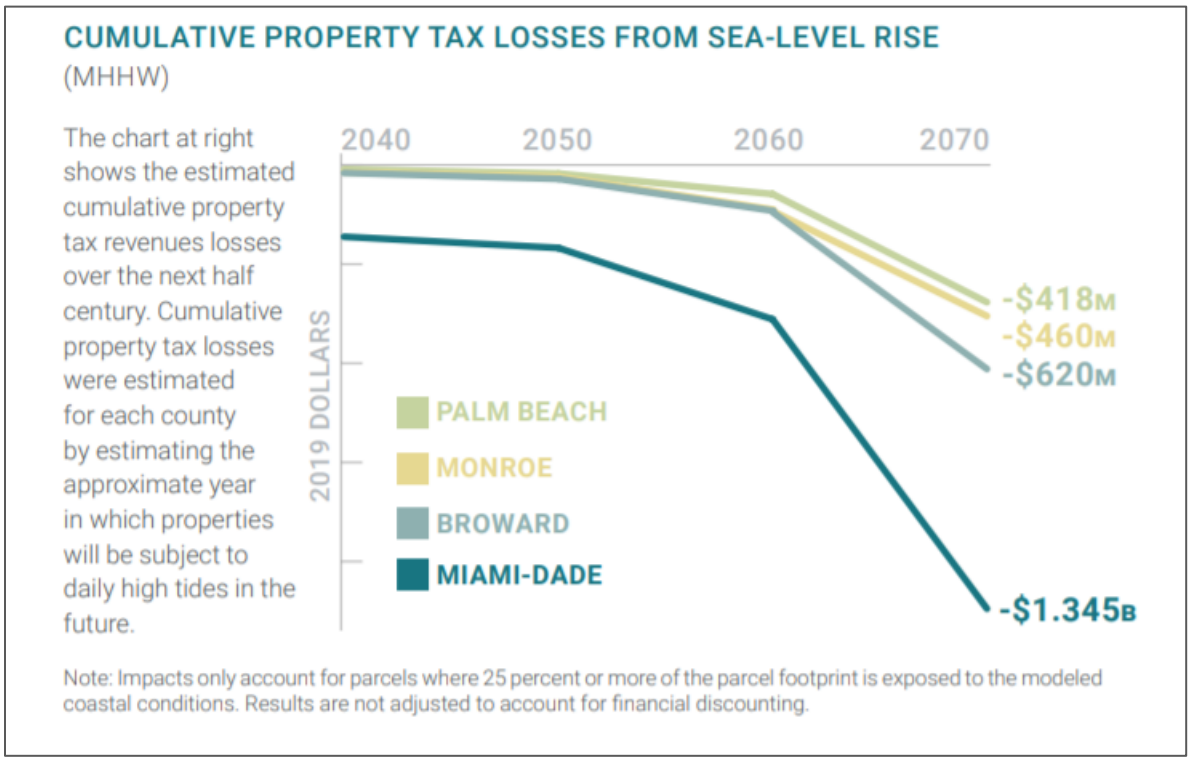


Table 8: Estimated cumulative property tax revenue loss by County out to 2070 (ULI 2020)

[26] Miami-Dade County Office of Resilience. Accessed online at: https://www.miamidade.gov/global/economy/resilience/home.page
[27] Urban Land Institute. The Business Case for Resilience in Southeast Florida: Regional Economic Benefits of Climate Adaptation. Washington, DC: Urban Land Institute, 2020. Accessed online at: https://knowledge.uli.org/-/media/files/research-reports/2020/the-business-case-for-resilience-in-southeast-florida_final.pdf?rev=81609c7f6b72479d89c49aff72fea446&hash=FB2E953B8A456CFE781169A0CAA82333

Floodplain Management. The Flood Insurance Rate Maps (FIRMs) prepared by the Federal Emergency Management Agency (FEMA) provide the foundation for the National Flood Insurance Program (NFIP) regulations and flood insurance requirements. It is expected that FEMA will release updated FIRMs for Miami-Dade County in 2021. The Code of Federal Regulations, Chapter 44, Part 60 sets forth the minimum criteria local governments must follow in order to be eligible for flood insurance through the NFIP. Miami-Dade County implements standards that meet or exceed the criteria contained in 44 C.F.R. Part 60 through the CDMP, Chapter 11C (Development within Flood Hazard Districts), Chapter 24 (Environmental Regulations), and Chapter 8 (Building Code) of the County Code which adopts the Florida Building Code and addresses unsafe structures.

The FIRM identifies the Special Flood Hazard Area (SFHA) which is that portion of the floodplain subject to inundation by the base flood (1% annual chance) and/or flood-related erosion hazards. However, the FIRM does not depict the heightened level of flooding expected as a result of sea level rise. Floodplain management regulations must be enforced, and mandatory purchase of flood insurance applies within the SFHA. The Special Flood Hazard Areas, as defined by FEMA, are depicted on Figure 18 and described below:

- Zones A, AE and AH (Moderate to High Flooding Risk). Includes areas subject to inundation by the 1-percent-annual-chance flood event. Development in this zone must incorporate floodproofing techniques. Projects within the portion of the floodplain that conveys the majority of the floodwater, known as the floodway, must include analysis from a registered professional engineer demonstrating that the project will not increase flooding or that any increases do no impact structures on other properties. Property owners can also petition FEMA to change the floodplain designation if the property has been elevated above the base flood by the placement of earthen fill.
- Zone VE (High Flooding Risk). Areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action of 3 feet or more. Coastal waves lead to a heightened exposure to property losses and life safety risks in the VE Zone. The NFIP regulations prohibit the placement of structural fill and require that the lowest horizontal member of buildings in the VE Zone be elevated on engineered piles or columns to or above the base flood elevation. CDMP Policy LU-8G identifies the FEMA VE Zone as an area that should be avoided for expansion of the Urban Development Boundary.

FEMA also administers the NFIP Community Rating System (CRS) which is a voluntary incentive program that provides insurance premium discounts for local governments that implement floodplain management activities that exceed the minimum NFIP requirements. Unincorporated Miami-Dade County participates in the NFIP Community Rating System (CRS) Program and has achieved a Class 5 Community rating on a scale of 1 (highest) to 10 (lowest). As a result, policyholders in special flood hazard areas of the Unincorporated Municipal Service Area of the County are eligible to receive a premium discount of up to 25%. CDMP Policy CM-9H establishes the goal of achieving a Class 4 rating in the NFIP community rating system for unincorporated Miami-Dade County.

Storm Surge. Storm surge is an abnormal rise of water caused primarily by the strong winds in a hurricane or tropical storm. The winds associated with the storm produce vertical circulation in the ocean. As the storm reaches shallower waters near the coast, the vertical circulation pushes

up and inland creating storm surge that can travel several miles inland. According to the National Oceanic and Atmospheric Administration (NOAA), storm surge can result in large loss of life and cause massive destruction.[28]

NOAA models storm surge using the Sea, Lake and Overland Surges from Hurricanes (SLOSH) computerized storm surge model. In Florida, the SLOSH model outputs are further refined by the Florida Division of Emergency Management (FDEM) which takes the surge height outputs from SLOSH and compares them to local high-resolution ground elevation data. Miami-Dade County uses the SLOSH outputs, as refined by FDEM, for purposes of establishing storm surge planning zones that inform emergency evacuation decisions. The data provided by NOAA and FDEM do not account for the compounding effects of sea level rise on future storm surge depths.

State law defines the Coastal High Hazard Area as the area vulnerable to storm surge from a Category 1 storm event. CDMP Policy LU-8G identifies the Coastal High Hazard Area (CHHA) as an area that shall not be considered for expansion of the Urban Development Boundary for residential land uses due to the public safety risks of placing additional population in the CHHA. CDMP Policy CM-9A states that development and redevelopment activities in the CHHA (as well as the areas vulnerable to storm surge from a Category 3 storm event) shall be limited to those land uses that have acceptable risks to life and property and includes a series of guidelines that encourage development density and intensity to be maintained at current levels within the CHHA. These various considerations are summarized in Table 9 below. The Coastal High Hazard Area is depicted on Figure 18.

TABLE 9: Storm Surge Considerations

State Law (Florida Statutes)

Section 163.3178(2)(f), Florida Statutes requires local governments to include, development and redevelopment principles, strategies, and engineering solutions in their comprehensive plans that reduce flood risks and losses in coastal areas, which result from high-tide events, storm surge, flash floods, storm water runoff, and the related impacts of sea-level rise.

Chapter 163.3177, Florida Statutes requires local governments to incorporate policies into the Coastal Management Element that limit public expenditures that subsidize development in Coastal High Hazard Areas.

Strategic Regional Policy Plan

Goal No. 19 of the Strategic Regional Policy Plan for South Florida (2004) prepared by the South Florida Regional Planning Council states that local governments should reduce allowable residential development densities in the Coastal High Hazard Area to densities no greater than the current use of the property and require any development or redevelopment that occurs in a Coastal High Hazard Area to include features that mitigate hazard impacts and promote public safety and welfare.

Comprehensive Development Master Plan

Policy CM-9A. Development and redevelopment activities in the Coastal High Hazard Area (CHHA), and the Hurricane Vulnerability Zone shall be limited to those land uses that have acceptable risks to life and property. The basis for determining permitted activities shall include federal, State, and local laws, the pre-disaster study and analysis of the acceptability of various land uses reported in the County's Comprehensive Emergency Management Plan required by Policy CM-10A, when approved, and the following guidelines:

i. Discourage development on the CHHA, including the barrier islands and shoreline areas susceptible to destructive storm surge;

[28] National Oceanic and Atmospheric Administration. Accessed online at: https://www.weather.gov/media/owlie/surge_intro.pdf

ii. Direct new development and redevelopment to high ground along the Atlantic Coastal Ridge and inland environmentally suitable lands;
iii. Maintain, or reduce where possible, densities and intensities of new urban development and redevelopment within the Coastal High Hazard Area; to that of existing development and zoning;
iv. Prohibit construction of new mobile home parks and critical facilities in the Coastal High Hazard Area;
v. Prohibit Land Use Plan map amendments or rezoning actions that would increase allowable residential density in the FEMA "V" Zone, the CHHA or on land seaward of the Coastal Construction Control Line (CCCL) established pursuant to Chapter 161, F.S. unless it can be demonstrated that measures will be undertaken to maintain the existing evacuation period in accordance with Policy CM-8F; and,
vi. Continue to closely monitor new development and redevelopment in areas subject to coastal flooding to implement requirements of the federal flood insurance program.

Policy CM-9E. Land use approvals, or zoning or other development permits or development orders that would allow for the construction or operation of new non-water dependent industrial or business facilities that would generate, use or handle more than 55 gallons of hazardous wastes or materials per year shall be prohibited in the Coastal High Hazard Area unless demonstrated that: no suitable site exists outside of these areas and appropriate measures will be taken to prevent an accidental release during a storm event. Miami-Dade County shall take steps to ensure that existing County facilities of this type are adequately protected to prevent an accidental release during a storm event.

Policy CIE-2A. Public funds will not be used to subsidize increased overall density or intensity of urban development in coastal high hazard areas. However, public beach, shoreline access, resource restoration, port facilities or similar water-dependent projects may be constructed.

Relevance to the Study.

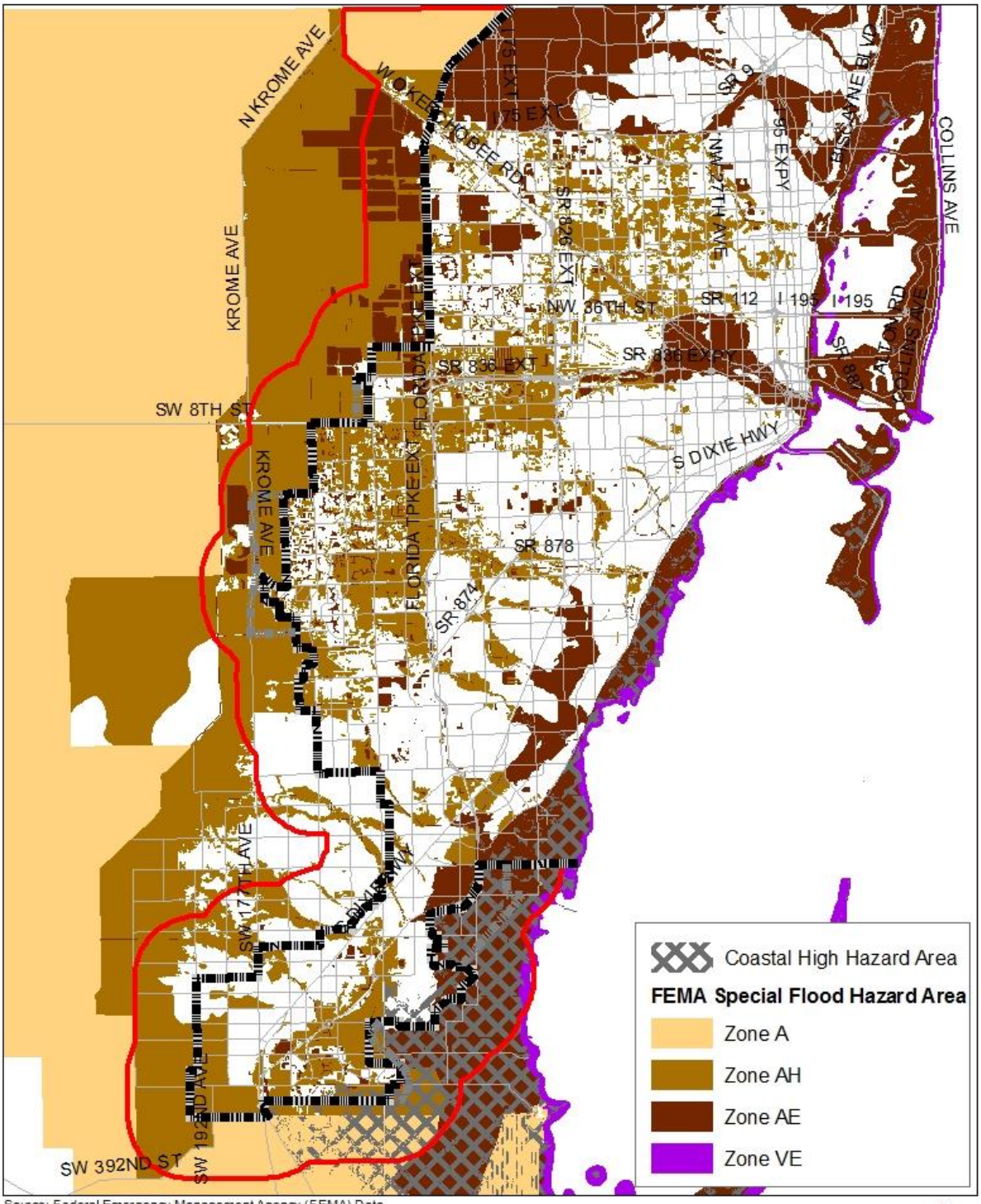
When planning for new areas of growth, important considerations include public safety risks, impacts to emergency management resources, property losses, public infrastructure capacity, and maintaining the County's compliance with the federal NFIP and CRS programs. Floodplain management regulations and storm surge vulnerabilities can also increase development costs and reduce potential density thereby making an area less suitable for development. Sea level rise is expected to increase the frequency and depth of flooding in vulnerable areas and this additional vulnerability is not reflected in the FEMA Special Flood Hazard Areas or the Coastal High Hazard Areas.

It is also important to consider projected flooding and sea level rise over the lifetime of the development and supporting infrastructure to ensure the safety and viability of communities and assets in a given area. CDMP Policy LU-13E states that the design, location, and development of infrastructure and buildings operated by or on behalf of Miami-Dade County shall include evaluation of sea level rise utilizing the Unified Sea Level Rise Projection presented in Table 7 of this report. This policy has implications for siting future public facilities intended to serve newly developed communities in areas vulnerable to future flooding made worse by projected sea level rise.

Areas within the FEMA A Zone are subject to inundation by the base flood. Projects within these areas must incorporate floodproofing techniques and demonstrate that development within the floodway will not increase flooding or that any increases do no impact structures on other properties. Areas within the FEMA VE Zone are subject to additional hazards due to storm-induced velocity wave action of 3 feet or more which leads to a heightened exposure to property losses and life safety risks. For these reasons, CDMP Policy LU-8G identifies the FEMA VE Zone as an area that should be avoided for expansion of the Urban Development Boundary.

Storm surge can result in large loss of life and cause massive destruction. The area most vulnerable to storm surge includes the Coastal High Hazard Area (CHHA) which state law defines

as the area below the Category 1 storm surge line as established by the NOAA SLOSH model. Placing additional population within the Coastal High Hazard Area increases life safety risks and may further strain emergency management resources. For these reasons, CDMP Policy LU-8G identifies the Coastal High Hazard Area as an area that shall not be considered for expansion of the UDB for residential uses.



Source: Federal Emergency Management Agency (FEMA) Data

Figure 18
Flooding and Storm Surge Vulnerability

VIII. Roadway Capacity

The capacity of the local roadway network to support growth in new areas of the County is an important consideration. Many of the major thoroughfares in the County are already over capacity and projected growth will further strain these roadways. This is particularly true in areas that lack high-volume transit service.

Figure 19 shows major intra-County commute patterns for areas located along the Urban Development Boundary ("areas of trip origination"). It could be anticipated that additional residential development within the adjacent area located outside of the UDB would have similar commute patterns. Alternatively, new commercial or industrial development that provides jobs suitable for nearby residents can keep more residents within the area for work.

For the area of trip origination south of SW 184th Street, the majority of intra-County commuters remain within the area. The second largest proportion of commuters travel to the area that includes Downtown Miami (Area 5). For the areas of trip origination north of SW 184th Street, the majority of intra-County commuters travel to the area that includes Downtown Miami (Area 5). Commute patterns for the trip origination area north of Kendall Drive also show a significant number of commuters traveling to the area that includes Downtown Doral (Area 6).

The Miami-Dade Long Range Transportation Plan (LRTP) is the County's comprehensive transportation plan that identifies needed highway, transit, freight, and non-motorized transportation improvements and serves as a mechanism for implementation and prioritization of identified improvements. Figure 20 shows the Directional Peak Period Volume/Capacity Ratio for the LRTP baseline year of 2015. Roadways with a directional peak period volume-over-capacity ratio that exceeds 1.0 are considered "failing" and those that are between 0.8 and 1.0 are considered "near failing".[29] Many of the roadways with failing segments, including US-1, SR 836, and US 27 are the major throughfares used to connect areas along the UDB with major employment hubs such as Downtown Miami, Miami International Airport and Port Miami.

Figure 21 shows the Directional Peak Period Volume/Capacity Ratio with projected growth through 2045 and "cost-feasible" transit and roadway improvements, as identified in the LRTP. The programmed increase in road capacity resulting from cost feasible improvements would not be sufficient to handle the future traffic needs arising from the projected population growth, hence the SMART Plan corridors are expected to complement the roadway network in moving the traffic from the urban fringes to the interior employment destinations. These corridors are discussed in Section IX (Mass Transit Availability) of this report. In addition, the map includes capacity improvements associated with the Kendall Parkway extension of State Road 836 as adopted by BCC Ordinance No. 18-109. The Kendall Parkway approval is the subject of an administrative challenge and will not become effective unless the approval is upheld.

[29] 2045 Miami-Dade Long Range Transportation Plan. Technical Report #6: Travel Demand Model

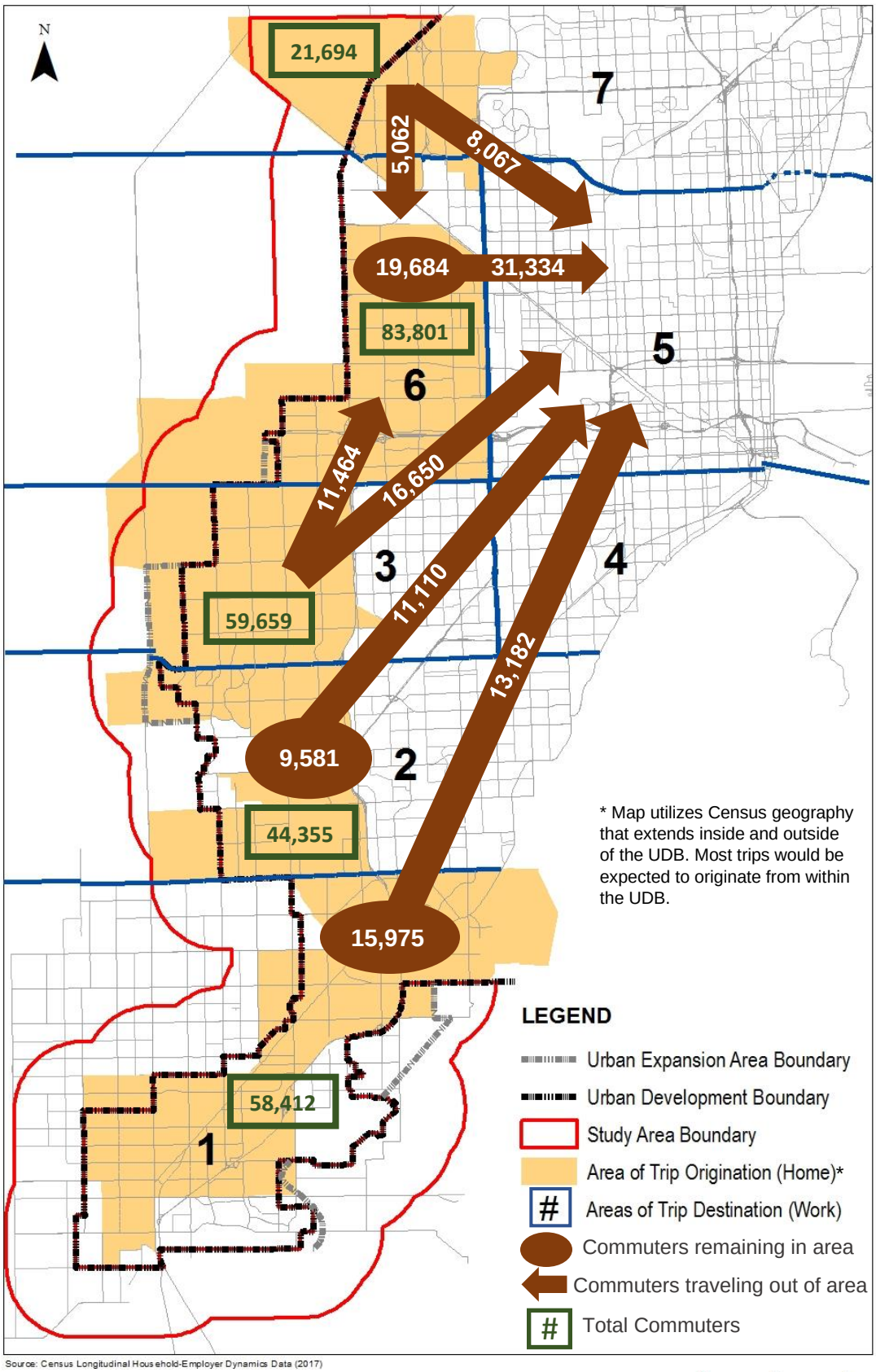


Figure 19

Generalized Commute Patterns

Figure 20

Directional Peak Period Volume/Capacity Ratio
2015 Base Year Network

LONG RANGE TRANSPORTATION PLAN 2045

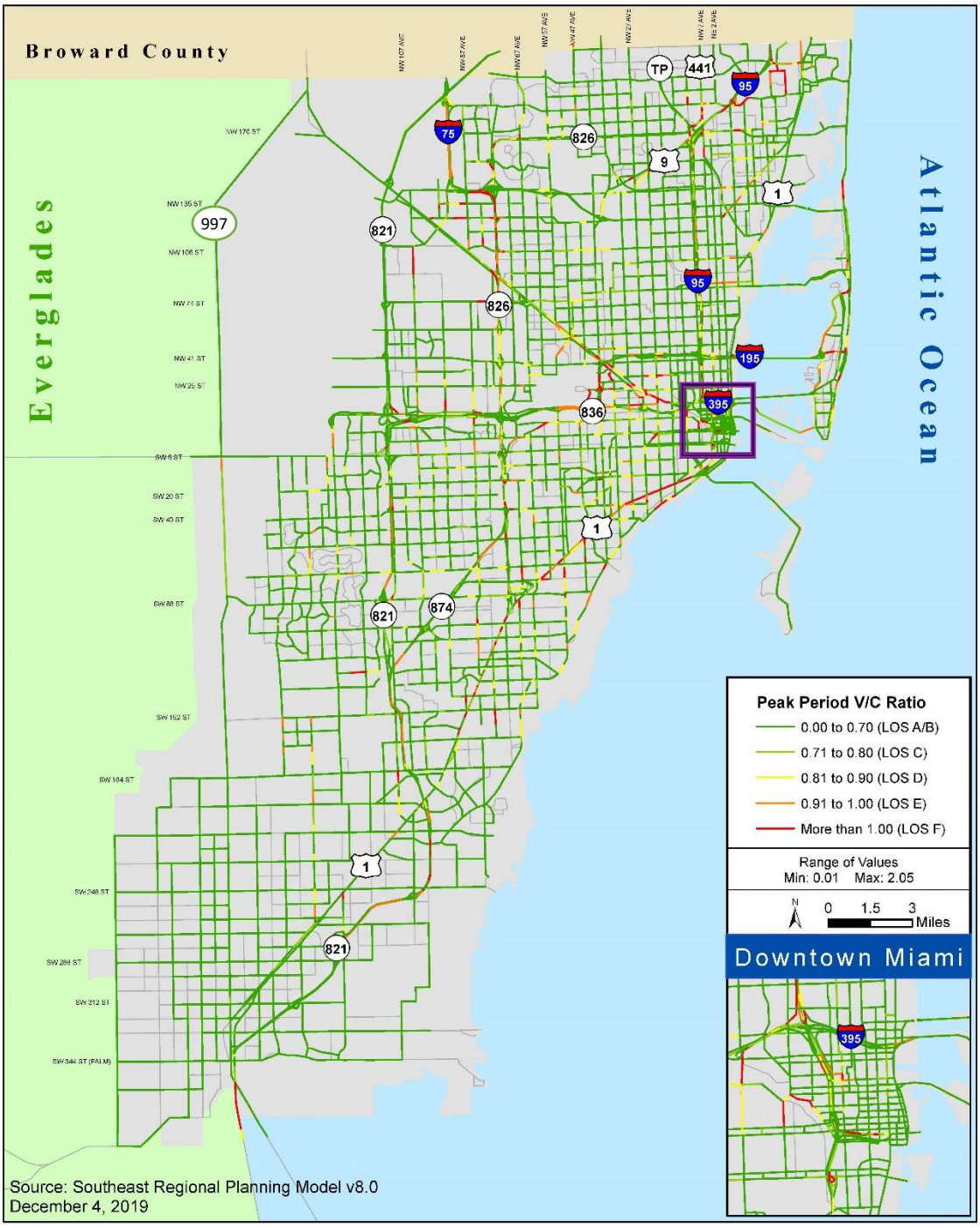
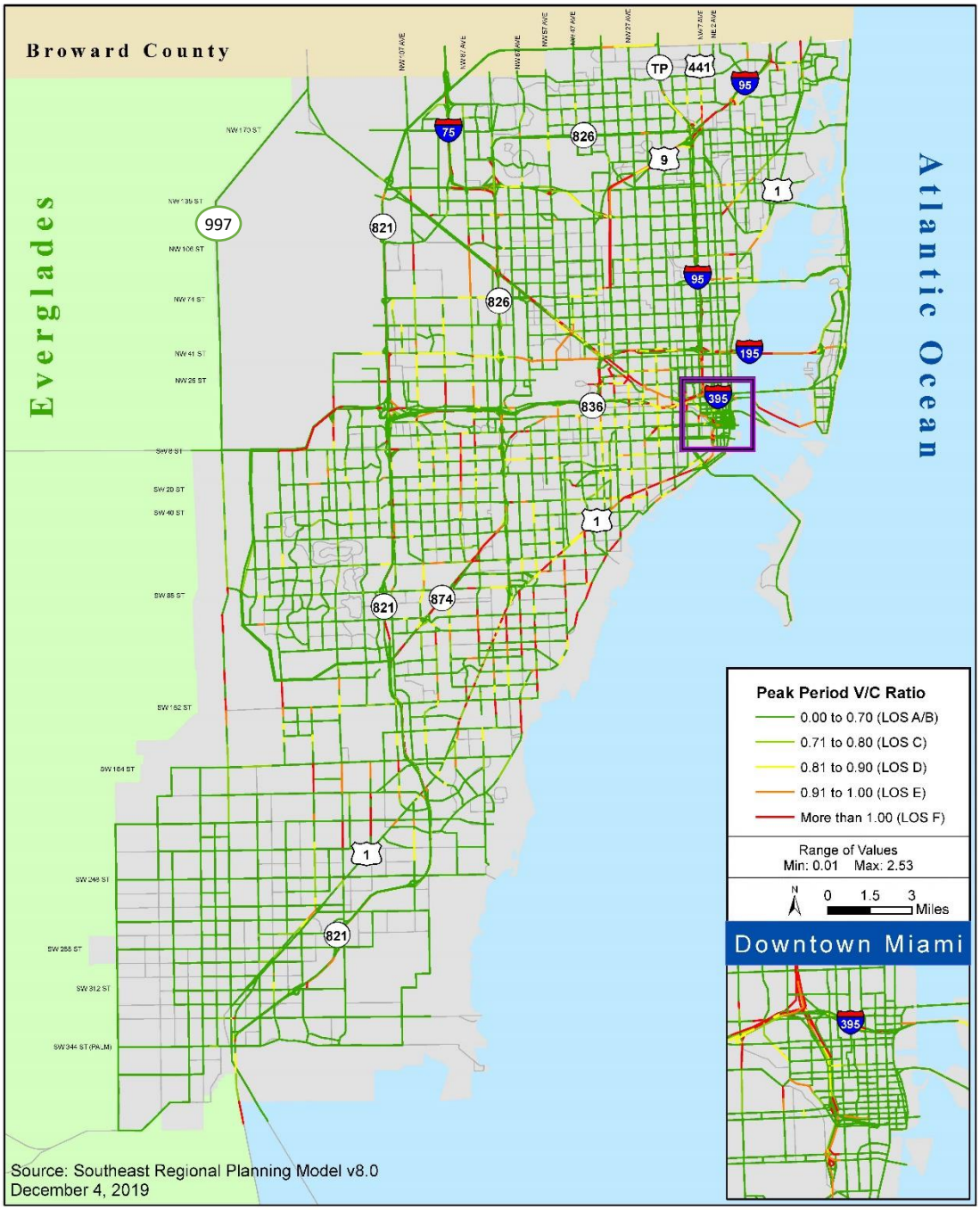


Figure 21

Directional Peak Period Volume/Capacity Ratio
2045 Cost Feasible Plan Network

LONG RANGE TRANSPORTATION PLAN 2045



Note: Consistency of the Kendall Parkway project (as depicted on map) with the CDMP is dependent on amendment adopted by BCC Ordinance 18-109 becoming effective.

IX. Mass Transit Availability

The availability of mass transit is an important consideration when identifying areas for new growth since it can alleviate congestion on the roadway network and support increased development density and intensity. CDMP Policy LU-8H requires applications proposing expansion of the Urban Development Boundary to include commitments to ensure that the proposed development will be served by mass transit with at least 20-minute peak hour headways or include a plan to provide such service. Areas located within one mile of premium transit routes are identified on Figure 22.

On April 21, 2016, the Miami-Dade Transportation Planning Organization (TPO) Governing Board endorsed the Strategic Miami Area Rapid Transit (SMART) Plan which identified six planned rapid transit corridors. The SMART Plan corridors are envisioned to be rapid transit corridors that operate on an exclusive transitway. The specific technology for each corridor will be determined as project development advances. The Miami-Dade County Board of County Commissioners further endorsed the SMART Plan by Resolution No. R-523-16, adopted on June 7, 2016. The SMART Plan Corridors will connect with the existing 25-mile Metrorail system. A network of Bus Express Rapid Transit (BERT) routes operating on limited access facilities will connect with the SMART Plan rapid transit corridors. The existing rapid transit system and SMART Plan network are depicted on Figure 22. Also depicted are existing bus routes operating at peak hour headways of 20 minutes or less. However, it should be noted that future operational changes on these routes could lead to increases in the headways.

Models run as part of the Miami-Dade Long Range Transportation Plan demonstrate that concentrating population growth along the SMART Plan corridors creates the most significant reductions in overall vehicle trips, vehicle miles traveled and vehicle hours traveled.[30] The CDMP contains strong policies that support increased densities and intensities along rapid transit corridors in the County. These policies serve to support transit ridership and funding, as well as, accommodating population growth in a manner that prevents discontinuous sprawl-type development. Specifically, CDMP Objective LU-7 states that “Miami-Dade County shall require all new development and redevelopment in existing and planned transit corridors and urban centers to be planned and designed to promote transit-oriented development (TOD), and transit use, which mixes residential, retail, office, open space and public uses in a safe, pedestrian and bicycle friendly environment that promotes mobility for people of all ages and abilities through the use of rapid transit services.”

To promote transit-oriented development along the rapid transit corridors, the CDMP contains policies that provide for the development of moderate to high density, design-unified urban centers within one-half mile of rapid transit stations. The CDMP permits densities up to 125 dwelling units per acre within Community Urban Centers. In addition, the areas along planned rapid transit corridors located between designated urban centers are permitted densities up to 60 dwelling units per acre within one-quarter mile of the corridor and 36 dwelling units per acre between one-quarter mile and one-half mile of the corridor for mixed-use projects. If such areas were to be brought into the Urban Development Boundary, they would be eligible for densities in accordance with the aforementioned mixed-use development text of the CDMP.

[30] 2045 Miami-Dade Long Range Transportation Plan. Technical Report #6: Travel Demand Model

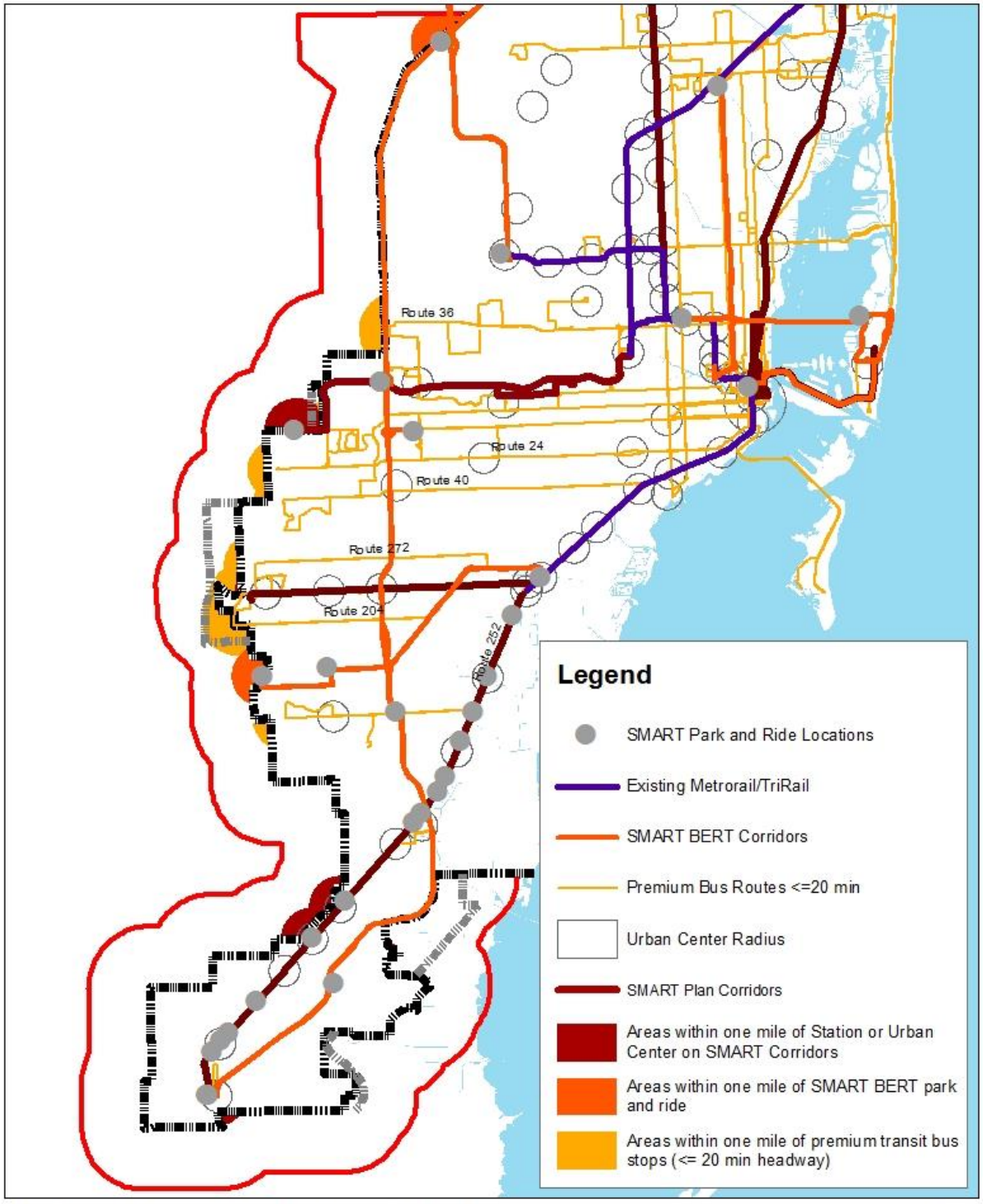


Figure 22
Availability of Mass Transit

X. Water and Sewer Availability

CDMP Policy LU-8H requires applications proposing expansion of the Urban Development Boundary (UDB) to be served by utility water and sewer service. The availability of these services, therefore, is an important consideration when identifying areas suitable for future growth.

The Miami-Dade Water and Sewer Department (WASD) water service area contains interconnected systems and thus, for the most part, function as a regional system. The service area includes the Hialeah-Preston area serving the northern part of Miami-Dade County, the Alexander Orr, Jr. area serving the central and portions of the southern part of the County and the South Dade area (formerly known as the Rex Utility District) serving the remaining southern part of Miami-Dade County. The Biscayne Aquifer is the major source of drinking water for the County. Groundwater from the brackish Floridan Aquifer is the drinking water source for the Hialeah Reverse Osmosis Water Treatment Plant. Figure 23 shows areas along the UDB with a water connection point located within one-quarter mile of the UDB. Areas that are not served by utility water service, utilize private wells for potable water needs.

Currently, all of the WASD potable water treatment facilities have capacity to treat and supply water in accordance with the level of service standards outlined in the CDMP. The County's current Water Use Permit, issued by the South Florida Water Management District, contains restrictions on the amount of water that can be withdrawn from the Biscayne Aquifer. Additional water needs must be met through alternative water supply projects, which include withdrawals from the upper Floridan Aquifer. During the planning and building permit phase, each project is analyzed to determine the overall proposed water demand. The future water demand is reserved through the water allocation process.

WASD operates three regional wastewater treatment facilities that serve over 2.7 million customers: the North District, South District and Central District Plants. The North and Central District Wastewater Treatment Plants currently utilize ocean outfall to dispose of the treated effluent. The South District Wastewater Treatment Plan utilizes injection wells as its primary disposal method. Figure 24 shows areas along the UDB with a sewer force main located within one-quarter mile. Areas that are not served by utility sewer service utilize septic tanks for wastewater disposal.

Properties that are connected to a centralized sewer system dispose of wastewater via a collection and transmission system that includes a network of sanitary sewer gravity mains, sanitary sewer force mains and sanitary sewers pump stations that ultimately discharge to a wastewater treatment plant. Currently, all of the Miami-Dade Water and Sewer Department (MDWASD) wastewater treatment plants have capacity to treat and dispose of current wastewater flow demands in accordance with the level of service standards outlined in the CDMP.

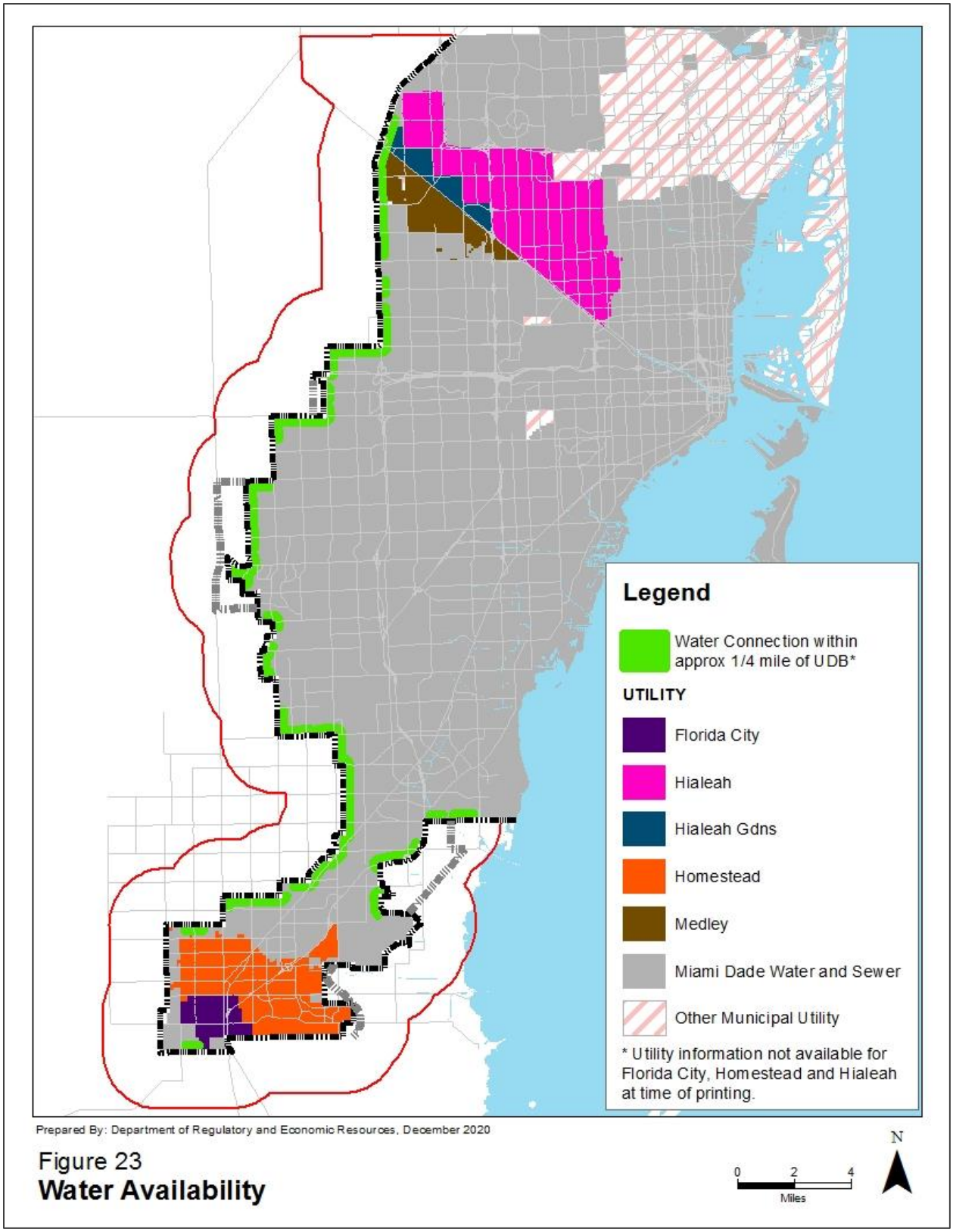


Figure 23
Water Availability

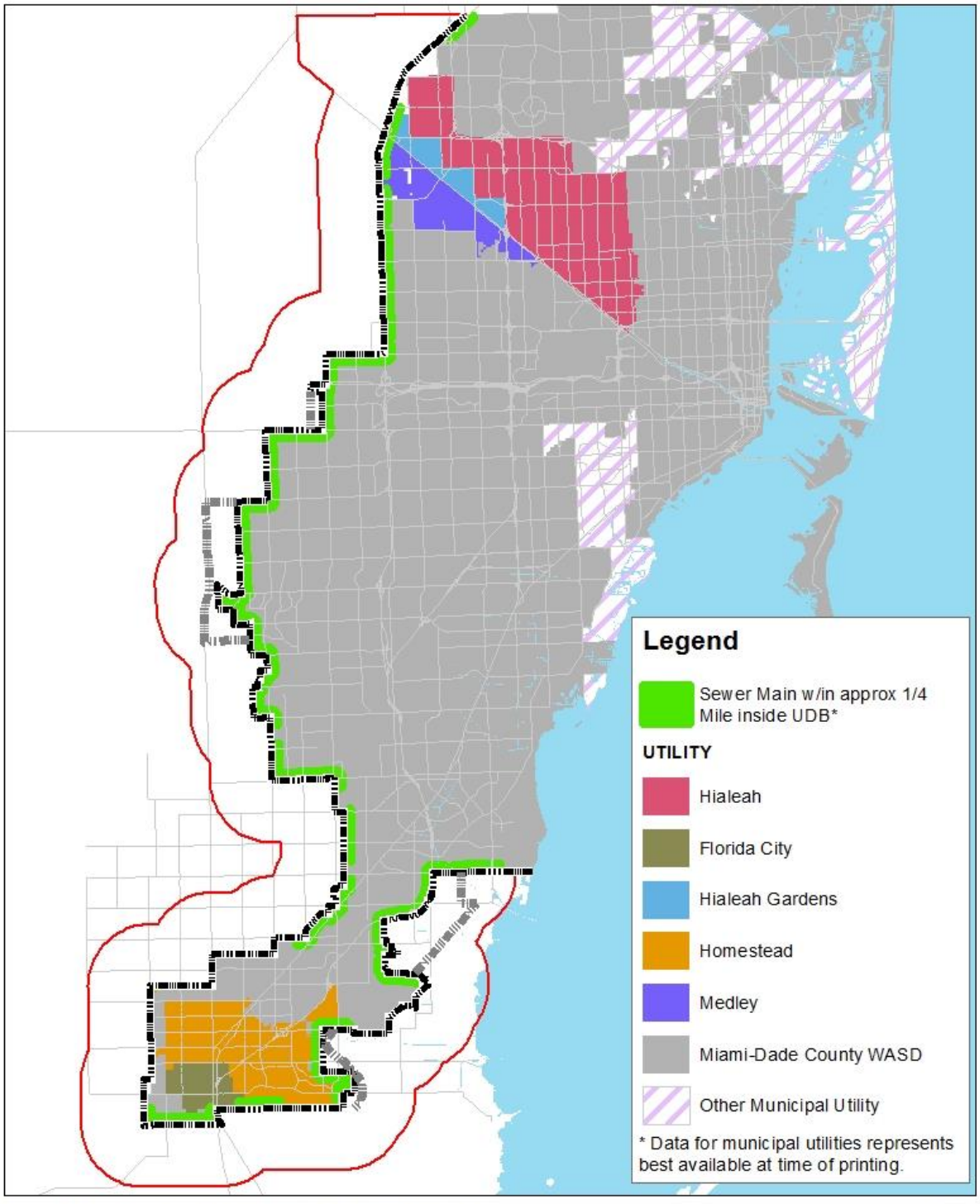


Figure 24
Sewer Availability

Chapter 3

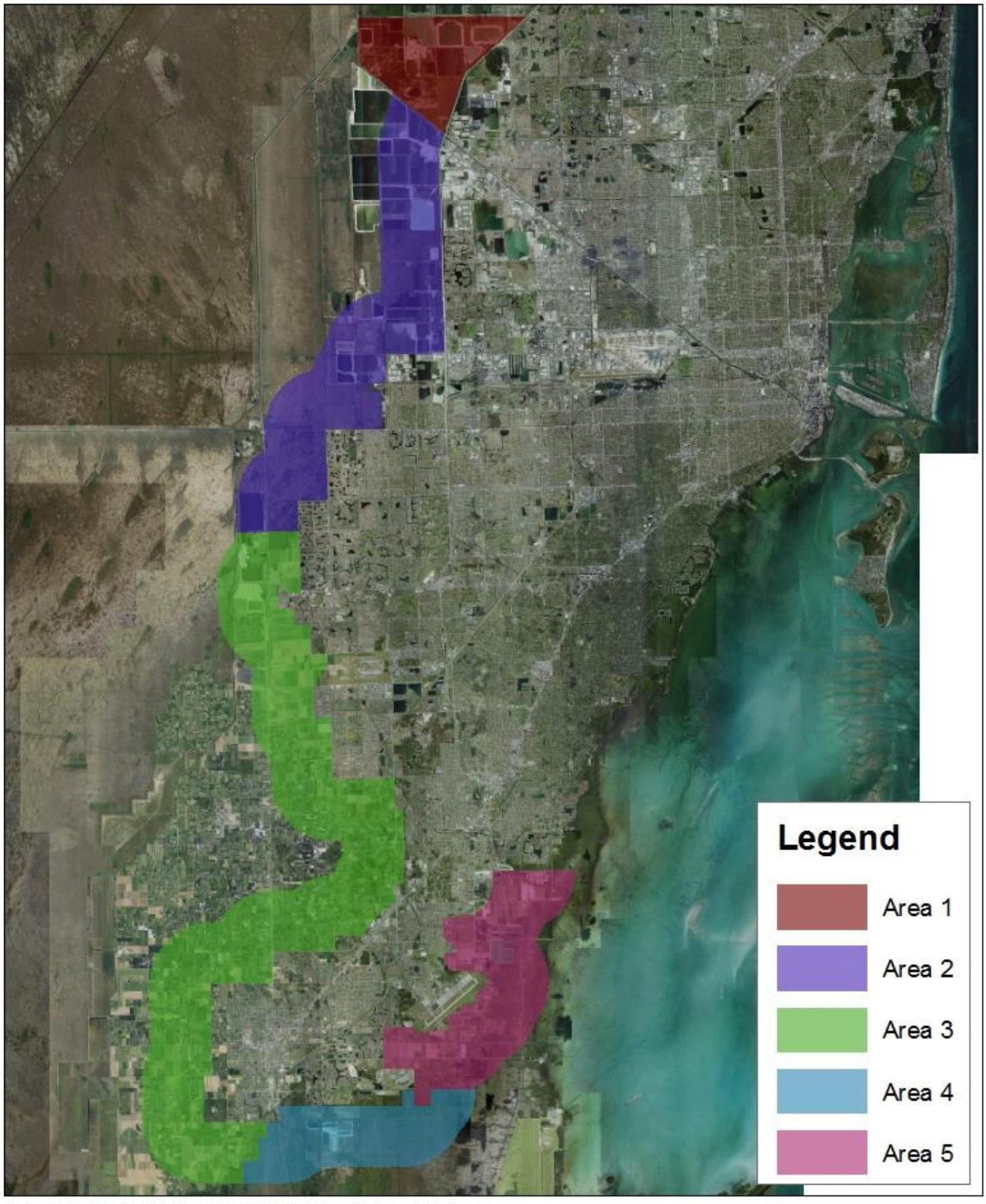
Detailed Area Analysis

Introduction

Land outside of the Urban Development Boundary serves important human health, environmental and economic functions for the County. Decisions regarding where future growth should be accommodated outside of the current UDB requires a balancing of the anticipated benefits of growth against the loss of those functions. Identifying new UEAs should focus on decreasing impacts to identified resources, particularly those related to the human and ecological health of the County, while ensuring that the selected area can be well served by transportation infrastructure and utilities and is resilient to the impacts of coastal storms and climate change.

Section 163.3177(6)(a)(9), Florida Statutes, requires the CDMP future land use element and any amendment to the future land use element to discourage the proliferation of urban sprawl. The section provides primary indicators used to determine whether a proposed amendment does or does not adequately discourage urban sprawl. The identification of new areas for future growth should also consider the ability of the area to support development that would not be seen as furthering urban sprawl. The urban sprawl indicators contained in state law are included as Appendix 4.

CDMP Policy LU-8G identifies areas that ‘shall not be considered’ and areas that ‘should be avoided’ for expansion of the UDB. Areas that shall not be considered include areas that have clearly defined boundaries and where urban-type development is considered to be undesirable due to environmental or other constraints. Areas that should be avoided include areas that warrant a case-by-case review to determine whether a particular application would have a deleterious impact on the area identified for avoidance. This Chapter analyzes the various constraints and infrastructure availability, as identified in the Policy Considerations (Chapter 2). For purposes of the analysis, the Study Area is divided into five “Analysis Areas” as depicted on Figure 25 below. In addition, a detailed analysis is provided for areas with fewer constraints and good infrastructure availability.



Prepared By: Department of Regulatory and Economic Resources, January 2021

Figure 25
Area Analysis Map

I. Area 1 – Open Land Subarea 1 (see Figure 25 for boundaries)

Area 1 (Snake-Biscayne Canal Basin) is located in northwestern Miami-Dade County and is generally bounded by Broward County and the Snake Creek Canal (C-9) on the north, the Homestead Extension of the Florida Turnpike (HEFT) to the east/southeast, West Okeechobee Road (US 27 & SR 25) and the Miami Canal (C-6) to the south/southwest and theoretical NW 147 Avenue/ East Coast Protective Levee to the northwest. Approximately 78% of Area 1 is identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. The areas include CERP project footprints and Wetlands of Regional Significance. These constraints are depicted on Figure 26.

Land Uses.
The area is currently designated Open Land (Subarea 1) on the CDMP Land Use Plan Map which allows residential uses at a maximum density of one dwelling unit per five acres, limestone quarrying and related uses, necessary institutions and public facilities, utility facilities, communication facilities, recreational uses, and agricultural uses (some agricultural uses are limited based on limited flood protection provided in the area). The area also includes the decommissioned Opa-Locka West Airport site. The CDMP provides for outdoor vehicle recreational areas and recreational motorsport facilities at the site with Board of County Commissioners approval. The CDMP was amended in 2020 to allow for commercial truck parking facilities to occur throughout this area on parcels 10 acres or greater, with the exception of the former Opa Locka West Airport property.

Rockmining activities cover more than half of the total acreage in the area. Approximately 27 percent of the area is vacant land with most of it being owned by governmental agencies. Agriculture is next largest land user with 16.6 percent of the total area. The institutional uses in this area consist of two cemeteries. There are only approximately 90 dwelling units within the area, 57 mobile homes in the Jones Trailer Park on North Krome Avenue and 25 single-family dwellings and 8 duplex units along West Okeechobee Road.

Rockmining is the primary use to the immediate south and west of Area 1 with environmentally sensitive areas such as the State Water Conservation Area being located further west of Area 1. Uses north of Area 1 (in Broward County) include low density residential and conservation land. Land uses east of Area 1 (across the Turnpike) include industrial uses and the location of the approved American Dream Mall and Graham developments. The American Dream Mall project included approval for up to 3.5 million square feet of retail use, 1.5 million square feet of entertainment use, 2,000 rooms of lodging, and 1.2 million square feet of back of house uses on the property. The Graham Property was approved for up to 3 million square feet of business park use, 1 million square feet of commercial/retail, 2,000 multi-family units, and hotel uses.

Constraints.
Area 1 includes the North Lake Belt Comprehensive Everglades Restoration Plan (CERP) project which is identified as an area that should be avoided for expansion of the UDB in CDMP Policy LU-8G. The project is envisioned to be an in-ground storage reservoir with a total capacity of

approximately 90,000 acre feet that would store water during the wet season. This long-term project would not be built until after the mining is completed around 2037. A 2018 report by the National Academies of Science, an independent committee charged with assessing CERP progress, lists the project status as "feasibility unproven" and states that the feasibility of the project "has also been questioned, and very little, if any, progress has been made to resolve uncertainty about the Lake Belt reservoirs."[31] In 2020, the US Army Corps of Engineers (COE) began the Project Implementation Report process for the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) project of CERP. The primary focus of the project is on Phase II of the Biscayne Bay Coastal Wetlands project, however, the study will also encompass other CERP components including the North Lake Belt project. The BBSEER effort, which is expected to conclude in a couple of years, could provide additional insight into the feasibility of the North Lake Belt project.

Area 1 also includes Wetlands of Regional Significance which are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. The area is part of the western regional system of wetlands, however, wetlands in this area are considered to be highly disturbed.[32] Formal wetland delineation will be needed to determine the exact extent and quality of jurisdictional wetlands within the area. CDMP Policy CON-7A indicates that the degradation or destruction of Wetlands of Regional Significance is limited to activities that 1) are necessary to prevent or eliminate a threat to public health, safety or welfare; or 2) are water dependent and no other reasonable alternative exists; or 3) clearly in the public interest and no other reasonable alternative exists; or 4) are carried out in accordance with an approved basin management plan; or 5) are in areas that have been highly disturbed or degraded and where restoration of a wetland with an equal or greater value in accordance with federal, State and local regulations is feasible. Policy CON-7A further states that habitats critical to endangered or threatened species shall not be degraded or destroyed. Area 1 does not include designated habitat, however, the area may still be utilized by federal and state designated species.

The area is located in the northern portion of the Miami-Dade Lake Belt and includes several active mines. State law requires that amendments to local comprehensive plans located within one mile of the Lake Belt be compatible with limestone mining activities and that Miami-Dade County strongly consider limestone mining activities and ancillary operations (i.e., lake excavation, use of explosives, rock processing, cement, concrete and asphalt products manufacturing) when amending local comprehensive plans. Uses that would generally be compatible with active rockmining uses include industrial uses that do not have groundwater impacts. Residential uses and uses that include large congregations of people would generally be incompatible in close proximity to active rockmining.

Open Land Subarea 1 contains cultural and archaeological resources but no historic structures. There are several recorded sites on the Florida Master Site List that is maintained by the Florida State Division of Historical Resources. Subarea 1 is considered to have a high probability for containing additional archaeological resources, likely prehistoric tree island sites that have yet to be identified. Tree island archaeological sites are likely to contain unmarked human remains

[31] National Academies of Sciences, Engineering and Medicine. Progress Toward Restoring the Everglades: The Seventh Biennial Review. 2018.

[32] South Florida Water Management District. Land Assessment: East Coast Buffer. 2013.

protected under State Statute Section 872.05, Florida's Unmarked Human Burial Act. Prior to any ground disturbing activities, a Cultural Resource Assessment Survey (CRAS) will be required by the Florida State Division of Historical Resources and the Miami-Dade County Office of Historic Preservation.

Most of Open Land Subarea 1 has a rating of AH on Flood Insurance Rate Maps produced by Federal Emergency Management Agency (FEMA). This rating indicates shallow flooding with average depths of one to three feet can occur during a 100-year storm, which is defined as an event that has a one percent chance to occur in any one year. The County does not currently provide flood protection in this area.

Infrastructure.
Roadway access to the area is provided by two four-lane arterial state roadways, West Okeechobee Road (US 27) and Krome Avenue (SR 997), in addition to the Homestead Extension of the Florida Turnpike which connects to I-75 just north of the area. The area does not currently have nearby premium transit service, however, the northeastern portion of Area 1 falls within one mile of the proposed SMART Plan Northwest Bus Express Rapid Transit (BERT) Corridor.

Recommendation for Further Analysis.
The area south of NW 170th Street, as shown on Figure 26, is recommended for further analysis. The area north of NW 170th Street was excluded from the area for further analysis since it is largely mined or held in public ownership. It is also the primary location for the North Lake Belt CERP project components. The detailed analysis for the area south of NW 170th Street is provided in the following paragraphs.

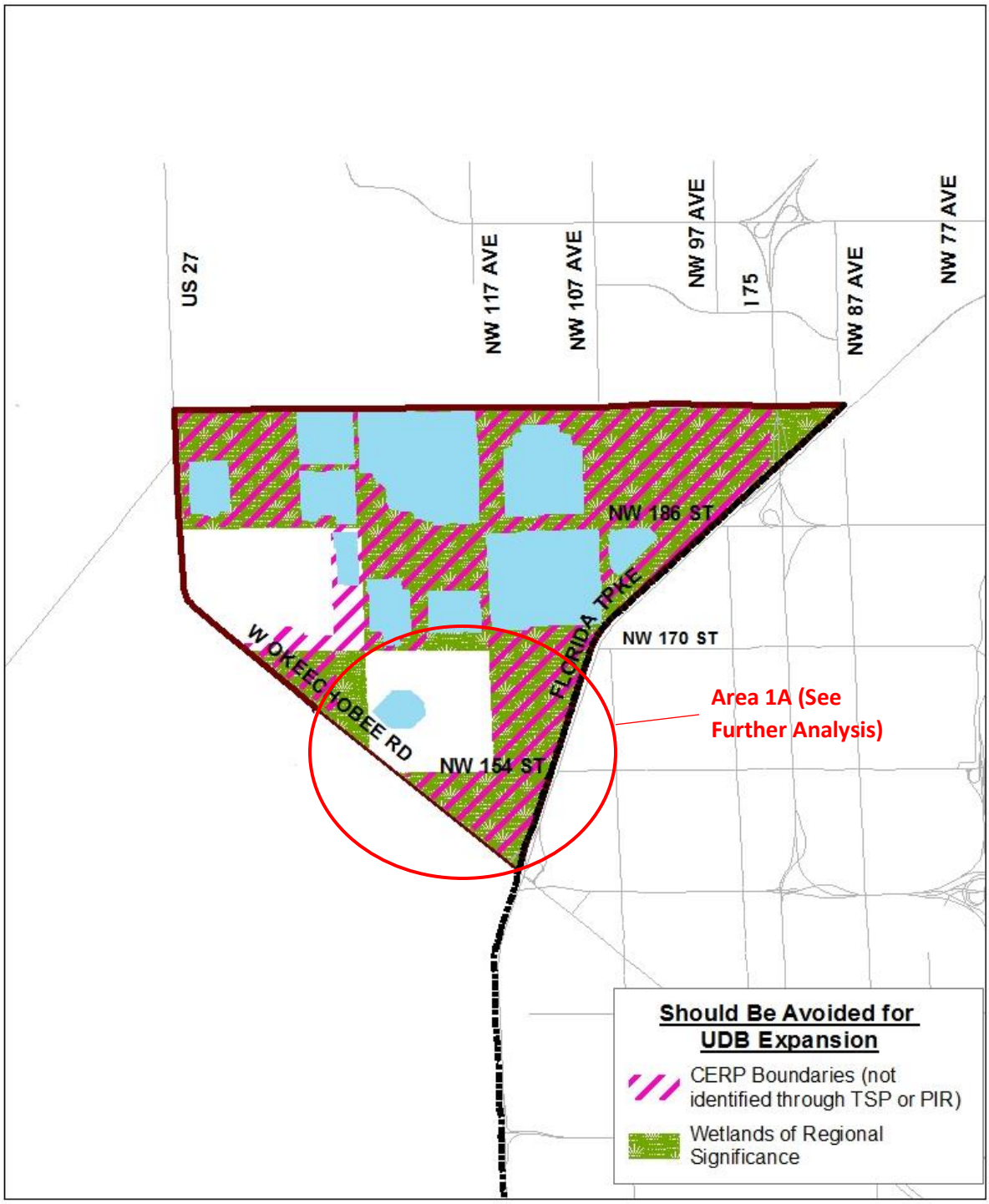


Figure 26
Area 1 - Constraints Map

Detailed Analysis Area 1A.

Within Area 1, a ±1,398.8-acre area located south of NW 170th Street, as depicted on Figure 27, was reviewed in more detail. Major policy considerations in this analysis area include consistency with the CERP, compatibility with nearby rockmining uses, and protection of wetland functions. These issues are discussed in more detail in the following paragraphs.

Approximately 634 acres of the area is within the North Lake Belt Comprehensive Everglades Restoration Plan (CERP) project which is identified as an area that should be avoided for expansion of the UDB in CDMP Policy LU-8G. As discussed previously, the purpose of the North Lake Belt project is to capture and store a portion of the stormwater runoff from the C-6, western C-11 and C-9 Basins to maintain water levels stages and to provide water deliveries to Biscayne Bay that would help meet salinity targets. The project is expected to be implemented when mining concludes. Figure 29 identifies the project components, as identified in the initial CERP authorization. As shown, components planned for the analysis area include an in-ground reservoir in the area where future mining is anticipated and adjacent stormwater treatment areas. A major consideration within this area is protection of land needed for full implementation of CERP and to prevent constraints for the proposed CERP restoration of Biscayne Bay. In 2020, the US Army Corps of Engineers began the Project Implementation Report process for the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) project of CERP. The potential for the delivery of water from this area to Biscayne Bay is currently being reviewed as part of the CERP BBSEER effort.

Detailed Analysis Area 1A includes Wetlands of Regional Significance which generally follow the CERP boundaries. Wetlands of Regional Significance are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. The area is part of the western regional system of wetlands, however, wetlands in this area are considered to be highly disturbed and are located outside of the wellfield protection area. CDMP Policy CON-7A limits allowable activities in Wetlands of Regional Significance. Formal wetland delineation would be needed to determine the exact extent and quality of jurisdictional wetlands within the area. There is no designated habitat within the area, however, it may still be utilized by federal and state designated species.

The area has access to US 27 and the Homestead Extension of the Florida Turnpike which provides a direct connection to I-75. The proposed SMART Plan Bus Express Rapid Transit (BERT) station that is planned north of NW 170th Street will provide transit connections to the area. The planned BERT corridor is expected to connect to the existing Metrorail and south Dade. In addition, the area has utility water and sewer connections located within one-quarter mile (inside the UDB).

As shown on Figure 28, the primary existing uses in the area include vacant land, agricultural land and surface parking lots. A substantial portion of the area is owned by rockmining interests but has not been mined to date. The area is located in the northern portion of the Miami-Dade Lake Belt and includes several active mines. State law requires that amendments to local comprehensive plans located within one mile of the Lake Belt be compatible with limestone mining activities and that Miami-Dade County strongly consider limestone mining activities and ancillary operations (i.e., lake excavation, use of explosives, rock processing, cement, concrete and asphalt products manufacturing) when amending local comprehensive plans.

The broader area that includes the detailed analysis area is considered to have a high probability for containing archaeological resources, likely prehistoric tree island sites that have yet to be identified. Tree island archaeological sites are likely to contain unmarked human remains protected under State Statute Section 872.05, Florida's Unmarked Human Burial Act. Prior to any ground disturbing activities, a Cultural Resource Assessment Survey (CRAS) would be required by the Florida State Division of Historical Resources and the Miami-Dade County Office of Historic Preservation.

It should be noted that the analysis area is the subject of a pending annexation application by the City of Hialeah Gardens. The numerous constraints that exist in areas located outside of the UDB, as documented in the Policy Considerations (Chapter 2) of this report, should be considered when reviewing applications for annexation or incorporation outside of the UDB.

Figure 27

Detailed Analysis Area 1A Boundary

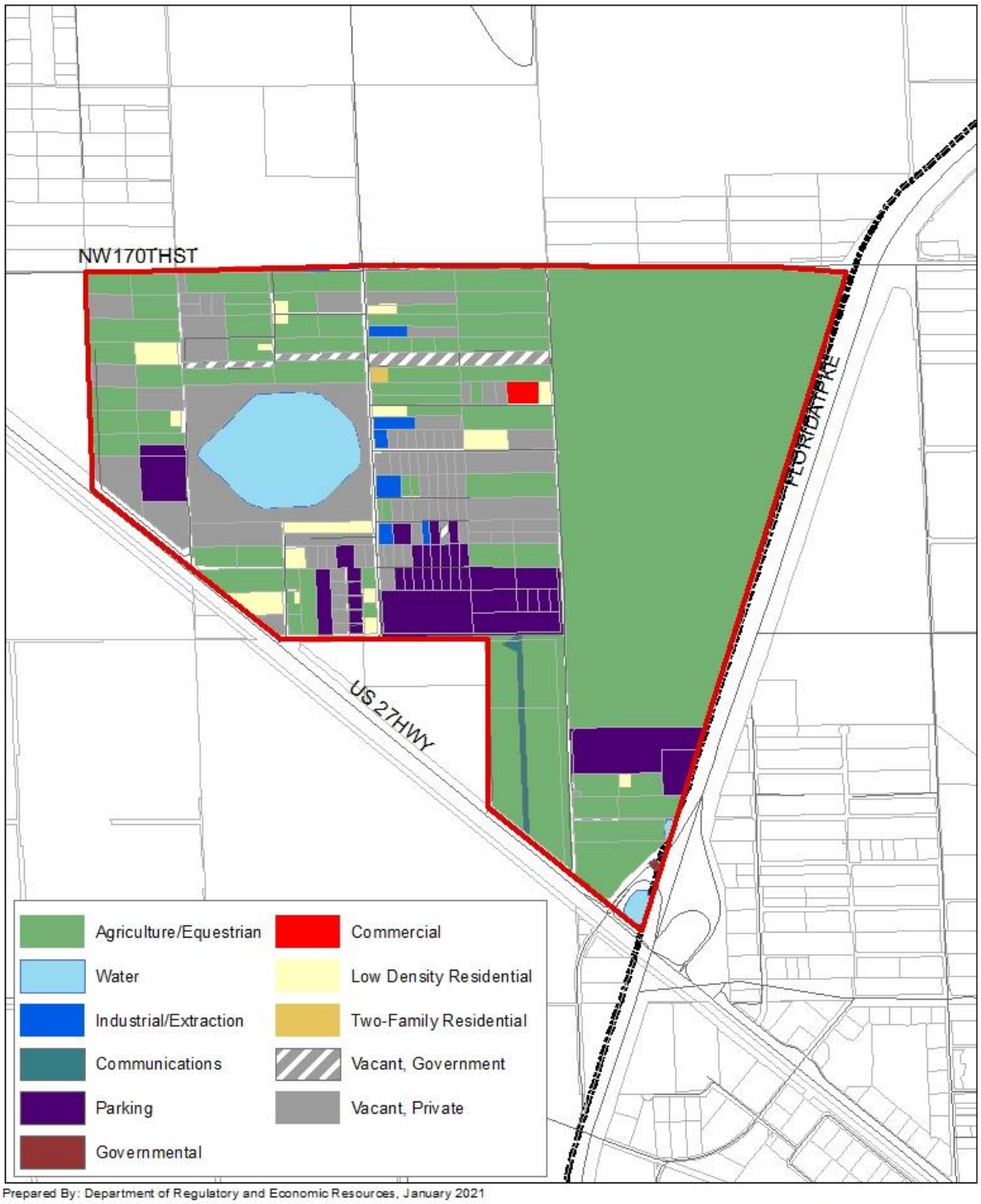


Figure 28
Area 1A - Existing Land Use

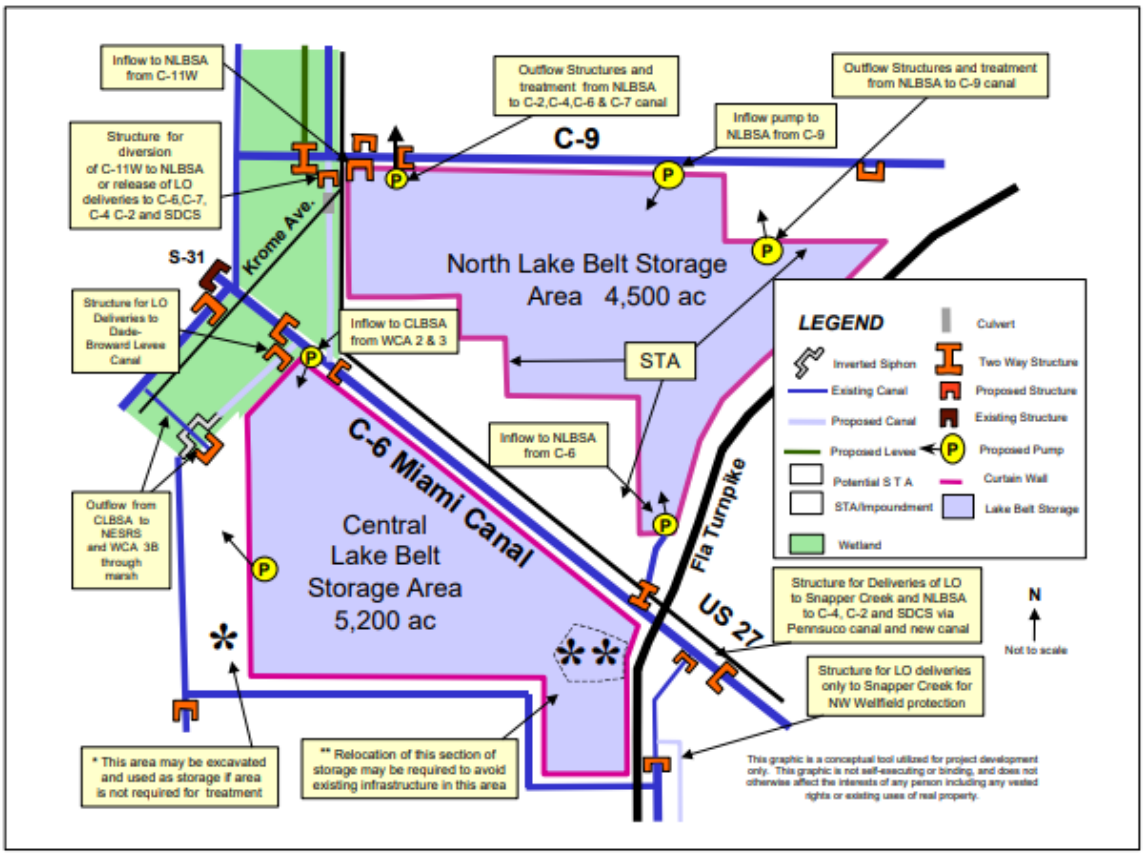


Figure 29 – North Lake Belt CERP Project Components

Source: Central and Southern Florida Project Comprehensive Review Study, US Army Corps of Engineers, 1998

II. Area 2 - Northwest Wellfield/Bird Drive Wetlands (See Figure 25 for boundaries)

Approximately 86% of Area 2 is identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. These areas include the Pennsuco Wetlands, Bird Drive Wetlands, the Northwest Wellfield Protection Area (west of the Turnpike Extension between Okeechobee Road and NW 25 Street) and the West Wellfield (west of SW 157 Avenue between SW 8 Street and SW 42 Street). These constraints are identified on Figure 30. In addition, CDMP Policy CON-3E states that "The area west of the Turnpike, east of the Dade-Broward Levee, north of NW 12th Street and south of Okeechobee Road shall be reserved for limestone mining and approved ancillary uses as provided for in Chapters 24 and 33 of the Miami-Dade County Code and the entire area west of the Turnpike, north of NW 25th Street and south of Okeechobee Road shall remain unurbanized."

Land Uses.
Area 2 is designated Open Land on the CDMP Land Use Plan Map and includes Subarea 2 (Northwest Wellfield) and Subarea 3 (Tamiami-Bird Canal Basins). These areas generally allow limestone quarrying, utility facilities, seasonal agriculture, and residential uses at 1 dwelling unit per 5 acres. The area is primarily used for rockmining and includes a significant amount of publicly owned land that is anticipated for use as part of ecosystem restoration efforts. The area immediately west of Urban Expansion Area No. 1 was acquired by Miami-Dade County for future construction of a West District Wastewater Treatment Plant. The property located west of the treatment plant site is utilized by the South Florida Water Management District for an emergency detention basin that provides flood protection for low-lying areas in and around Sweetwater and West Miami.

Constraints.
The Northwest Wellfield is a major source of drinking water for Miami-Dade County. It consists of fifteen wells, with the installed design capacity for up to 225 million gallons per day. Land uses and activities within the cone of influence from the wellheads have the potential to directly impact the quality of water ultimately withdrawn from the wells. The CDMP affords a high level of protection for the Northwest Wellfield recognizing that this wellfield provides the opportunity to maintain pristine water quality since the area within the full extent of the cone of influence is largely undeveloped (CDMP, Page I-78). To protect water quality at the County's wellfields, Chapter 24 also includes limitations on sewage loading within the cones of influence. These restrictions may limit the amount of development that can be achieved on a given site. For example, land uses within the 10 day travel-time of a wellfield protection area that are served by public sanitary sewers are subject to a sewage loading restriction of 850 gallons per day (gpd) per acre. Based on Chapter 24-43.1 of the Code of Miami-Dade County, sewage flows for a single family residence are estimated to be 210 gpd/unit. This would allow for a maximum of 4 units per acre within the 10-day travel-time contour.

The area of the Bird Drive Wetlands is also the northernmost area of the West Wellfield Interim Protection Area. This portion of the West Wellfield (west of SW 157 Avenue between SW 8 Street and SW 42 Street) is identified as an area that shall not be considered for expansion of the UDB.

The Bird Drive Wetlands are also separately identified as an area that shall not be considered for expansion of the UDB in Policy LU-8G due to the aquifer recharge value of the area. The Bird Drive Wetlands currently extend into UEA No. 2 but have been proposed for exclusion in staff application May 2019 CDMP Cycle, Application No. 5. Consideration of the proposed contractions is on-hold, pending release of this Study.

Area 2 contains inland freshwater wetlands which are identified as Wetlands of Regional Significance on Figure 14 of the CDMP Land Use Element. Formal wetland delineation will be needed to determine the exact extent and quality of jurisdictional wetlands within the area. CDMP Policy CON-7A indicates that the degradation or destruction of Wetlands of Regional Significance is limited to activities that 1) are necessary to prevent or eliminate a threat to public health, safety or welfare; or 2) are water dependent and no other reasonable alternative exists; or 3) clearly in the public interest and no other reasonable alternative exists; or 4) are carried out in accordance with an approved basin management plan; or 5) are in areas that have been highly disturbed or degraded and where restoration of a wetland with an equal or greater value in accordance with federal, State and local regulations is feasible. Policy CON-7A further states that habitats critical to endangered or threatened species shall not be degraded or destroyed.

The area contains a range of habitats that includes a mixture of seasonally flooded wetlands with forested and open areas that may support federal or state protected wildlife species. Portions of Area 2 are included within areas that are proposed to be designated as critical habitat for the Florida Bonneted Bat by US Fish and Wildlife Services (FWS). The designation focuses on large connected natural areas which are relatively free of human disturbances. The FWS is expected to detail additional guidance in a forthcoming recovery plan for the Florida Bonneted Bat. Based on analysis from FWS, the perpetuation of the Florida Bonneted Bat could be negatively impacted by land use changes that introduce human activity into the natural areas that have been identified as critical habitat to the survival of the species, as depicted on Figure 7 of this report. The wetlands in this area are also located in close proximity to established rookeries for the federally-endangered Wood Stork and provide ideal foraging conditions.

There are several active rockmining operations in the area. Policy CON-6A of the CDMP states that “areas of highest suitability for mineral extraction in Miami-Dade County shall be reserved for that use and shall be protected from encroachment by incompatible uses.” To that end, CDMP Policy CON-3E states that “The area west of the Turnpike, east of the Dade-Broward Levee, north of NW 12th Street and south of Okeechobee Road shall be reserved for limestone mining and approved ancillary uses as provided for in Chapters 24 and 33 of the Miami-Dade County Code and the entire area west of the Turnpike, north of NW 25th Street and south of Okeechobee Road shall remain unurbanized.” In addition, state law requires that amendments to local comprehensive plans located within one mile of the Lake Belt be compatible with limestone mining activities and that Miami-Dade County strongly consider limestone mining activities and ancillary operations (i.e., lake excavation, use of explosives, rock processing, cement, concrete and asphalt products manufacturing) when amending local comprehensive plans.

The area includes the footprint for the Central Lake Belt CERP project. A 2018 report by the National Academies of Science, an independent committee charged with assessing CERP progress, lists the project status as “feasibility unproven” and states that the feasibility of the project “has also been questioned, and very little, if any, progress has been made to resolve

uncertainty about the Lake Belt reservoirs."[33] The BBSEER effort did not specifically incorporate the Central Lake Belt CERP project due to a specific focus of the effort on Biscayne Bay. The project is expected to be reviewed in more detail in a future CERP Project Implementation Report effort. CERP projects identified in the 1998 Central and Southern Florida Project Comprehensive Review Study ("Yellow Book") that have not received more detailed analysis through a project implementation report are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. The Bird Drive Wetlands are also depicted as being within a CERP project footprint, however, this CERP project was not found to be feasible for the purposes envisioned in the 2000 CERP authorization and has not been authorized for construction. There is general consensus that the project as conceptually designed would need to be modified or redesigned based on aquifer characteristics in the area. Alternatives are being considered to recapture some of the anticipated benefits from the Bird Drive Wetlands CERP project.

Areas within the FEMA A Zone are subject to inundation by the base flood. Projects within these areas must incorporate floodproofing techniques and demonstrate that development within the floodway will not increase flooding or that any increases do no impact structures on other properties.

Infrastructure.
The area near and including Urban Expansion Area No. 1 is located within one mile of a planned East-West SMART Plan Corridor station. The majority of areas within the one-mile radius that are not already within an Urban Expansion Area are publicly owned. The areas north of NW 25 Street and the Bird Drive Wetlands fall within one mile of bus routes that currently operate with headways of 20-minute or less, however, CDMP policies noted above identify these areas as being unsuitable for urban growth.

Recommendation for Further Analysis.
Area 2 is the location of existing Urban Expansion Area No. 1 which comprises approximately 309 acres. The remaining portions of Area 2 would generally be considered least suitable for future growth as it contains important resources related to the human and ecological health of the County. The areas within Area 2 with the fewest constraints include limestone excavation mines or are in public ownership. Therefore, no areas were identified for further analysis in Area 2.

[33] National Academies of Sciences, Engineering and Medicine. Progress Toward Restoring the Everglades: The Seventh Biennial Review. 2018.

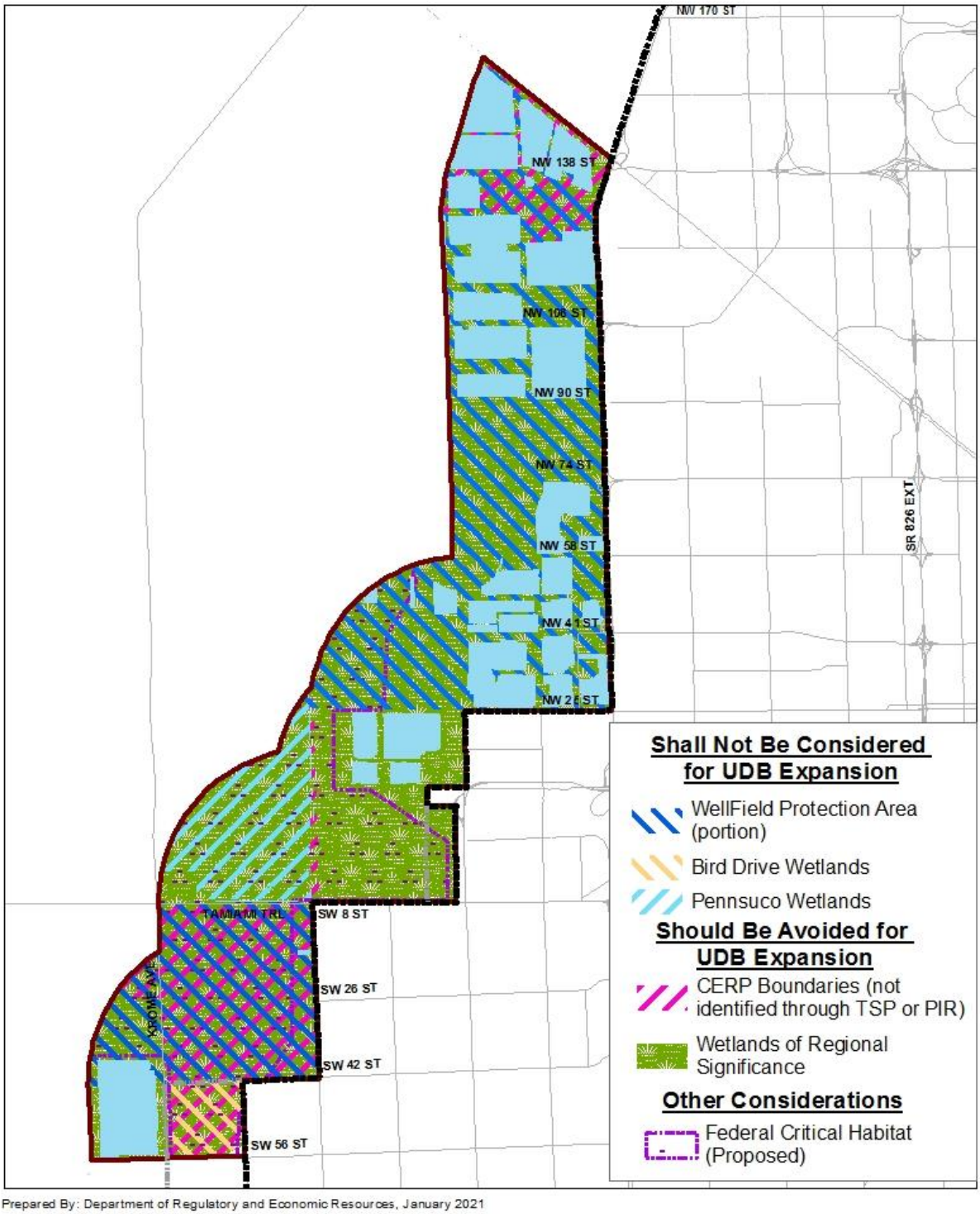


Figure 30
Area 2 - Constraints Map

III. Area 3 – Western Agricultural Area (See Figure 25 for boundaries)

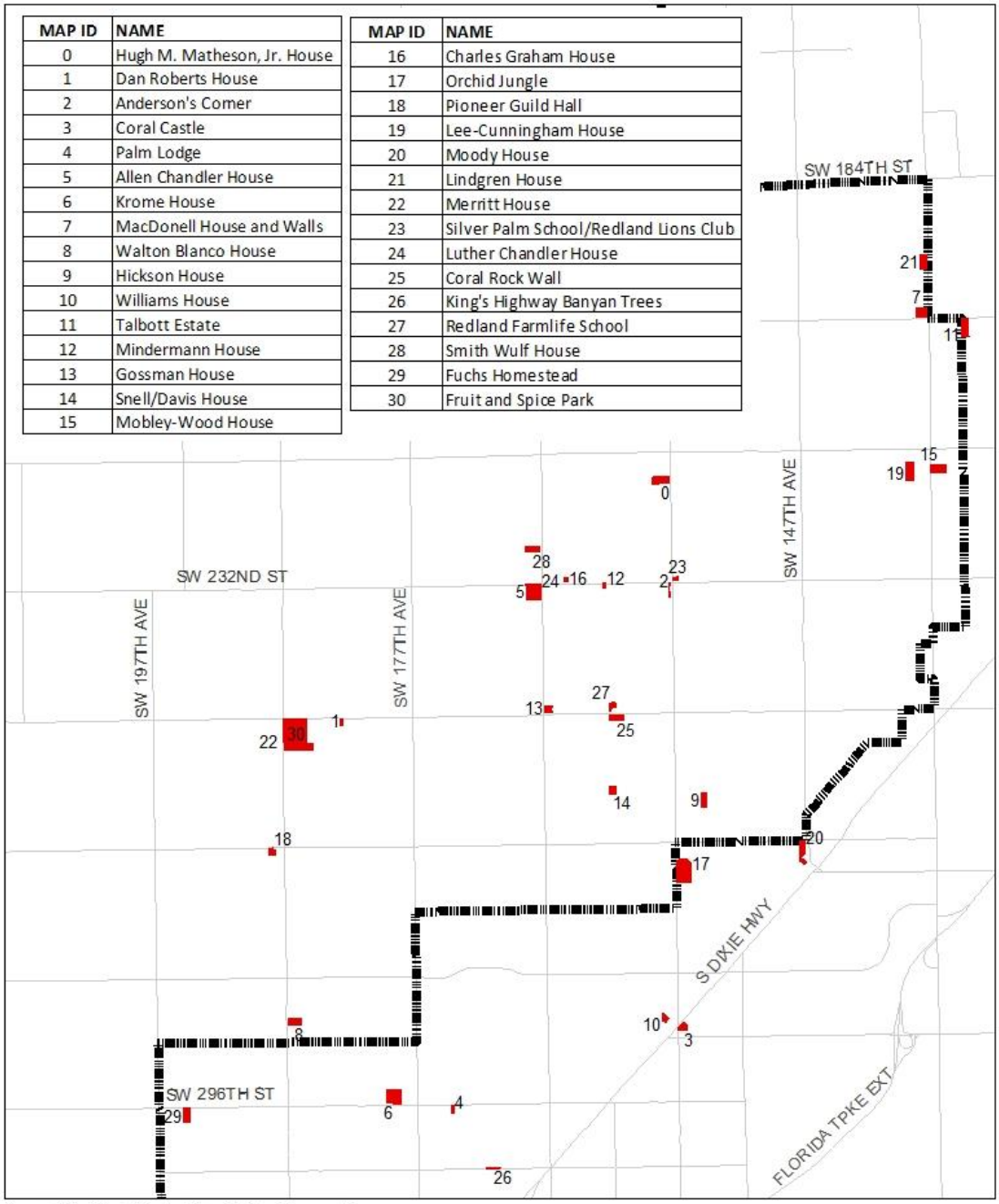
Area 3 includes the western agricultural area which extends from south of the Bird Drive Wetlands to south of Ingraham Highway. The current Urban Expansion Area No. 2 is located within this area. The Redland agricultural area located south of Eureka Drive (SW 184th Street) is identified as an area that shall not be considered for expansion of the UDB. The southern boundary of the Redland area is not defined in the CDMP so it could conceivably be interpreted to include all areas designated Agriculture on the CDMP Land Use Plan Map located south of Eureka Drive which would constitute 68% of Area 3. The remaining agricultural areas located outside of a designated Urban Expansion Area (±23% of Area 3) are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. These constraints are depicted on Figure 32.

Land Use.
Area 3 is primarily designated Agriculture on the CDMP Land Use Plan Map (see Appendix 1). Allowable uses in the area include agriculture (including ancillary and supportive uses), residences at a maximum density of one dwelling unit per five acres and uses to support the rural residential community including houses of worship. Primary uses in the area include agriculture and rural residences.

Constraints.
Area 3 includes the County's primary agricultural area. The majority of the area is identified as Farmland of Unique Importance by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). Lot sizes within the agricultural area vary greatly. The average lot size of parcels with an agricultural classification north of SW 184th Street is 23.3 acres. For the area between SW 184th Street and SW 296th Street, the average lot size is 6.6 acres. South of SW 296th Street, the average lot size is 9.6 acres. The area north of SW 152 Street includes some of the County's larger agricultural operations and is currently one of the primary areas for cropland.
Homesteading and agricultural production in Redland and Silver Palm (which collectively became known as "Redland") began in the late 1800s. Both of these historic areas are located west of the current South Dixie Highway. The Homestead Act of 1862 allowed US citizens to homestead on 160-acre parcels of public land. Homesteaders acquired the parcels if they lived on the land and produced a crop within a five-year period. Farmers were attracted to south Florida which allowed them to grow a wide variety of exotic fruits that could not be grown in other areas. Prior to the construction of the Miami-Homestead line of the Florida East Coast (FEC) Railway in 1905, the Silver Palm area was reached by a trail that led from the village of Cutler on Biscayne Bay. The historic core of the Silver Palm community is located northwest of the Study Area at the intersection of Silver Palm Drive and Newton Road where Will Anderson's 1911 general merchandise store, Lowry Anderson's blacksmith shop and the 1904 Silver Palm schoolhouse were situated. Most designated historic structures associated with the Redland community are located between SW 184th Street and SW 312th Street as depicted on Figure 31.

MAP ID	NAME
0	Hugh M. Matheson, Jr. House
1	Dan Roberts House
2	Anderson's Corner
3	Coral Castle
4	Palm Lodge
5	Allen Chandler House
6	Krome House
7	MacDonell House and Walls
8	Walton Blanco House
9	Hickson House
10	Williams House
11	Talbott Estate
12	Mindermann House
13	Gossman House
14	Snell/Davis House
15	Mobley-Wood House

MAP ID	NAME
16	Charles Graham House
17	Orchid Jungle
18	Pioneer Guild Hall
19	Lee-Cunningham House
20	Moody House
21	Lindgren House
22	Merritt House
23	Silver Palm School/Redland Lions Club
24	Luther Chandler House
25	Coral Rock Wall
26	King's Highway Banyan Trees
27	Redland Farmlife School
28	Smith Wulf House
29	Fuchs Homestead
30	Fruit and Spice Park



Source: Miami-Dade County Office of Historic Preservation

Figure 31: Historic Properties in the Redland Agricultural Area

The West Wellfield, which is located in UEA No. 2, was originally proposed as a 140 MGD wellfield. However, due to concerns regarding the impact of wellfield drawdown on hydrologic resources of Everglades National Park, a Memorandum of Understanding between the County, SFWMD, FDEP and the US Department of the Interior was executed to limit withdrawals at the West Wellfield to a peak pumpage of 40 MGD. The County is permitted under the current 20-year Water Use Permit (#13-00017-W) to withdrawal 15 MGD from the Biscayne Aquifer at the West

Wellfield. To protect water quality at the County's wellfields, Chapter 24 also includes limitations on sewage loading within the cones of influence. These restrictions may limit the amount of development that can be achieved on a given site.

Approximately 300 acres in the area south of UEA No. 2 and north of SW 152nd Street includes areas within the Outer Safety Zone and Runway Protection Zone for Miami Executive Airport. New residential construction, educational facilities, hospitals, religious facilities, and other buildings for public assemblage, are prohibited within these zones. Additionally, the area located just north of Bauer Drive south to SW 320th Street, west of SW 202nd Avenue, lies within the outer noise contour for Miami Homestead General Aviation Airport. New residential construction and educational facilities, excluding aviation-related schools, are prohibited within the full extent of the noise contour depicted on Figure 15 of this report.

The area north of SW 152 Street is located within a FEMA Special Flood Hazard Area. Areas within the FEMA A Zone are subject to inundation by the base flood. Projects within these areas must incorporate floodproofing techniques and demonstrate that development within the floodway will not increase flooding or that any increases do no impact structures on other properties.

Infrastructure.
The areas located within one mile of premium transit corridors are depicted on Figure 22 of this report and summarized below:

- Current Urban Expansion Area No. 2 is located within one mile of bus routes that provide service with headways of 20-minutes or less. Future operational changes on these routes could lead to increases in the headways. The Kendall SMART Plan Corridor also terminates just east of UEA No. 2.
- The area just south of UEA No. 2 is located within one mile of a Bus Express Rapid Transit (BERT) Park and Ride facility planned as part of the SMART Plan that will be located at Miami Executive Airport.
- The area near SW 152nd Street is located within one mile of the Coral Reef Max (Route 252) that currently provides service with headways of 20-minutes or less. Future operational changes on these routes could lead to increases in the headways.
- A portion of Area 3 is located near the South Dade Transitway, a 20-mile exclusive busway that operates local and limited stop Metrobus service between the Dadeland South Metrorail Station and Florida City. The South Dade Transitway Corridor has been identified as one of the six rapid transit corridors in the SMART (Strategic Miami Area Rapid Transit) Plan. The Miami-Dade County Transportation Planning Organization adopted Resolution No. 31-18 which established the locally preferred alternative for the corridor. It provides for an enhanced bus rapid transit system with further direction to take all necessary steps to convert from bus rapid transit to at-grade Metrorail upon reaching an average weekday ridership of 35,000 daily trips. A small area located south of the UDB also falls within one mile of the southern terminus of the South Dade Transitway SMART Plan Corridor.

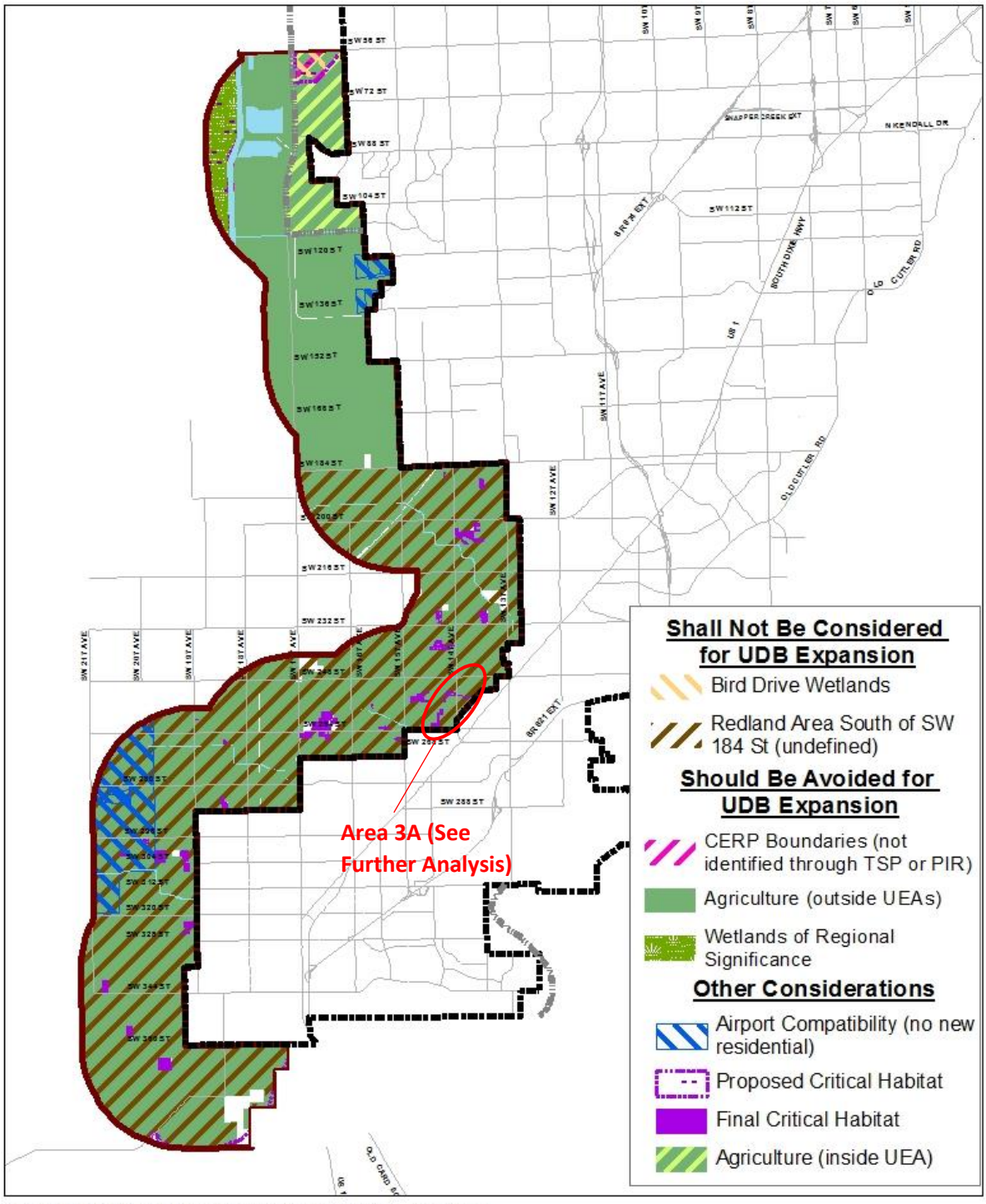
Recommendation for Further Analysis. The area generally located within one-half mile of the South Dade Transitway SMART Plan Corridor (Area 3A) was identified for further analysis due to its ability to support a significant amount of residential capacity with minimal loss of agricultural land. It is estimated that the ±596.5-acre area has the capacity to support over 17,000 units which

represents over 1.7 years of residential capacity. The analysis for this area is provided on Page 82 of this report.

The area south of UEA No. 2 is located within one mile of a SMART Plan Bus Express Rapid Transit (BERT) Park and Ride facility that will be located at Miami Executive Airport. However, almost the entire area within one-half mile of the station is located within the Outer Safety and Runway Protection Zones making it ineligible for Urban Center densities. Given these limitations, the area between UEA No. 2 and SW 184th Street would only be expected to support densities that are close to the minimum allowable for UDB expansion applications (10 du/acre). Therefore, development in the area could result in significant depletion of agricultural land. In order to achieve the residential capacity that could be accommodated within the analysis area along the South Dade Transitway (Area 3A), approximately 1,700 acres of agriculturally designated land would be impacted. This is significantly greater than the 597 acres that would potentially be impacted along the South Dade Transitway (Area 3A) to achieve the same capacity.

The area north of SW 152nd Street and a large portion of the area between SW 152nd Street and SW 184th Street currently contains agricultural uses. The area, particularly north of SW 152 Street, includes the County's larger agricultural operations and is currently one of the primary areas for cropland. The average lot size of parcels with an agricultural classification in this area is 23.3 acres, while the average lot size south of SW 184th Street is only 6.6 acres. Loss of agricultural land in this area may have detrimental impacts to the diversity of the County's agricultural industry.

Minimizing the loss of agricultural land is a key consideration within Area 3. CDMP Policy LU-1R states, in part, that Miami-Dade County shall take steps to reserve the amount of land necessary to maintain an economically viable agricultural industry. A 2002 study by County planning staff found that 52,000 acres are needed to maintain an economically viable industry. There are approximately 64,287 acres identified as Farmland of Unique Importance by the U.S. Department of Agriculture in the area designated "Agriculture" on the CDMP Land Use Plan Map. Within this area, parcels with an agricultural classification from the Miami-Dade County Property Appraiser comprise approximately 53,000 acres. This acreage is important because it represents the properties that contain agricultural uses within the area best suited for agricultural production due to the soil capacity and land use. The remaining acreage within the area identified as Farmland of Unique Importance may be used for purposes other than agriculture or in public ownership.



Prepared By: Department of Regulatory and Economic Resources, January 2021

Figure 32

Area 3 - Constraints Map

Detailed Analysis Area 3A.

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A ±596.5-acre area along the South Dade Busway was identified for further analysis (See Figure 33). This area was selected due to its proximity to the South Dade Transitway SMART Plan corridor. The presence of this high-volume transit service would allow the area to accommodate a significant amount of residential capacity with minimal loss of agricultural land. Important considerations in the area include protection of Natural Forest Communities that provide habitat to federal and state designated species as well as impacts to agricultural lands located in the Redland agricultural area.

The area is located along the South Dade Transitway which has been identified as one of six rapid transit corridors in the SMART (Strategic Miami Area Rapid Transit) Plan. The Miami-Dade County Transportation Planning Organization adopted Resolution No. 31-18 which established the locally preferred alternative for the South Dade Transitway. It provides for an enhanced bus rapid transit system with further direction to take all necessary steps to convert from bus rapid transit to at-grade Metrorail upon reaching an average weekday ridership of 35,000 daily trips.

A distance of one-half mile is typically considered ideal for multi-modal access to transit service. To promote transit-oriented development along the rapid transit corridors, the CDMP contains policies that provide for the development of moderate to high density, design-unified urban centers within one-half mile of rapid transit stations. The CDMP permits densities up to 125 dwelling units per acre within Community Urban Centers with densities tapering down in areas located farther from the transit hub. In addition, the areas along planned rapid transit corridors located between designated urban centers are permitted densities up to 60 dwelling units per acre within one-quarter mile of the corridor and 36 dwelling units per acre between one-quarter mile and one-half mile of the corridor for mixed-use projects. Figure 34 depicts the areas that are located within the radius of a Community Urban Center and along the SMART Plan corridor. If these areas were to be brought into the Urban Development Boundary, they would be eligible for densities in accordance with the aforementioned mixed-use development text of the CDMP. Based on these densities. It is estimated that the area has the capacity to support over 17,000 units which represents over 1.7 years of residential capacity.[34]

The area is within Redland agricultural area which includes a larger area south of SW 184th Street (Eureka Drive). CDMP Policy LU-8G currently identifies the Redland area as an area that shall not be considered for expansion of the UDB. Historically-designated structures in the Redland area are depicted on Figure 31. There are no designated structures located within Detailed Analysis Area 3A. If this area is considered for future designation as an Urban Expansion Area, an exception should be included in Policy LU-8G for portions of the Redland located within a designated UEA.

The area includes pockets of designated habitat for the federally-endangered Bartram's Scrub-Hairstreak Butterfly, as depicted on Figure 35. The Bartram's scrub-hairstreak butterflies occur only within pine rocklands, specifically those with pineland croton, the only known hostplant for the butterflies. The Florida Natural Areas Inventory identifies pine rockland as "critically imperiled

[34] Estimated maximum capacity is based on average density of 45 du/ac for areas within the Urban Center radius and maximum density within ½ mile of the SMART Plan corridor.

globally" due to its rarity and high risk of extinction. Historically, these habitats covered approximately 180,000 acres in South Florida and today have been reduced to about 3,000 acres due to development and agriculture.[35] CDMP Policy LU-3B states, in part, that all significant natural resources and systems shall be protected from incompatible land use including forested portions of Environmentally Sensitive Natural Forest Communities as identified in the Natural Forest Inventory.

In response to a prior policy in the CDMP, the Miami-Dade County Planning Division previously reviewed a 920-acre area for designation as an Urban Expansion Area that included a portion of Detailed Analysis Area 3A. A report summarizing the County's analysis was transmitted to the Board on August 26, 2019. The analysis included two public meetings that identified community concerns including; impacts to the rural character of the area, loss of agricultural land, inadequate infrastructure and services to support new growth, as well as additional traffic congestion. Many of the concerns expressed by the community could be resolved through implementation of the SMART Plan, as well as policies requiring infrastructure improvements and buffering to agricultural and rural land.

After considering the input from the community and the recommendation from the Urban Expansion Area Task Force that no new UEAs be designated, the report concluded that the area should not be designated as an Urban Expansion Area at that time. However, the report also concluded that designation of the area as an Urban Expansion Area may need to be reassessed in the future if it is found that the County's efforts to increase densities inside the current UDB prove insufficient to accommodate projected demand (as required by state law and CDMP Policy LU-8F) and if unconstrained land inside the current UEAs is not adequate to accommodate the need for additional urban land. Once the Board identifies the need for additional Urban Expansion Areas to be designated, reconsideration of this area would be warranted.

As depicted in Figure 34, there are currently agriculturally designated areas outside of the UDB that abut Urban Centers where densities up to 125 dwelling units are permitted. Conflicts can occur where agricultural activities occur near developed areas. Conflicts primarily arise from pesticide spray drift, odor, noise, and farm traffic. These conflicts are more pronounced with large-scale vegetable production operations that rely on aerial application of pesticides. Tapering down of densities and additional buffering between the urban and agricultural land uses would reduce the potential for conflicts.

Within Detailed Analysis Area 3A, there are five parcels that are located partially inside and partially outside of the UDB. These split parcels are depicted on Figure 33 and described below.

Parcel 1 – Parcel 1, as identified on Figure 33, is a ±24.8-acre parcel that is bifurcated by the UDB, thus placing the northern ±10.5-acre portion of the parcel outside of the UDB and the southern ±14.3 acres of the parcel inside of the UDB. The Land Use Plan (LUP) map of the CDMP designates the ±10.5-acres located outside of the UDB as "Agriculture" and the remaining ±14.3 acres inside the UDB as "Industrial and Office". On July 12, 1956 the Board of County Commissioners (BCC) adopted Resolution No. 10011, which rezoned the property from AU to IU-1 (Light Manufacturing). In 2005, the southernmost approximately 4.7-acres of the property were included within the boundaries of the

[35] Miami-Dade County Division of Environmental Resources Management.

Princeton Community Urban Center (PCUC) and designated "ID" (Industrial District) on the Land Use Plan on the PCUC district regulations.

Following application by the owner of the subject property, the Board of County Commissioners adopted a change to the interpretive text of the CDMP in 2018 that allowed for the full range of IU-1 uses on the property with limitations. The CDMP text, as included below, applies solely to the subject property:

> "*It is provided, however, that existing parcels that: a) have existing lawful zoning of IU-1 (Industry-Light) since November 29, 1988; and b) are bifurcated by the UDB; and c) have any portion of the parcel located within a designated urban center, may be developed with any of the industrial uses permitted in the IU-1 zoning district, as long as adequate buffering and drainage is provided to limit impacts to adjacent agriculturally-designated properties."*

To offset the loss of agricultural land associated with the aforementioned application, the property owner proffered a Declaration of Restrictions for a 10.5-acres portion of a property located at the northeast corner of SW 207 Avenue and SW 272 Street that limits the allowable uses to agriculture, agricultural production, ranching, forest management, timber harvesting, and farming. Residential uses are prohibited.

Parcel 2 – Parcel 2, as identified on Figure 33, is bifurcated by the Urban Development Boundary with ±16.3 acres being located inside of the UDB and ±49.4 acres being located outside of the UDB. The property owner has submitted an application for a 518-unit multi-family residential development on the portion of the property located inside of the UDB. No changes are proposed to the portion of the property located outside of the UDB. The application is currently under review.

Parcel 3 – Parcel 3, as identified on Figure 33, is bifurcated by the Urban Development Boundary with ±2.8 acres being located inside of the UDB and ±16.9 acres being located outside of the UDB. The property has an active agricultural use and no development plans have been submitted to date.

Parcels 4 and 5 – Parcel 4, as identified on Figure 33, is bifurcated by the Urban Development Boundary with ±5 acres being located inside of the UDB and ±0.1 acres being located outside of the UDB. Parcel 5, as identified on Figure 33, is bifurcated by the Urban Development Boundary with ±4.3 acres being located inside of the UDB and ±8.9 acres being located outside of the UDB. The properties received administrative site plan approval for a 175-unit residential development on the portion of the properties located inside of the UDB. The approval included a condition that requires the portion of the property zoned IU-C located outside of the UDB to be maintained as open space in accordance with the submitted site plan.

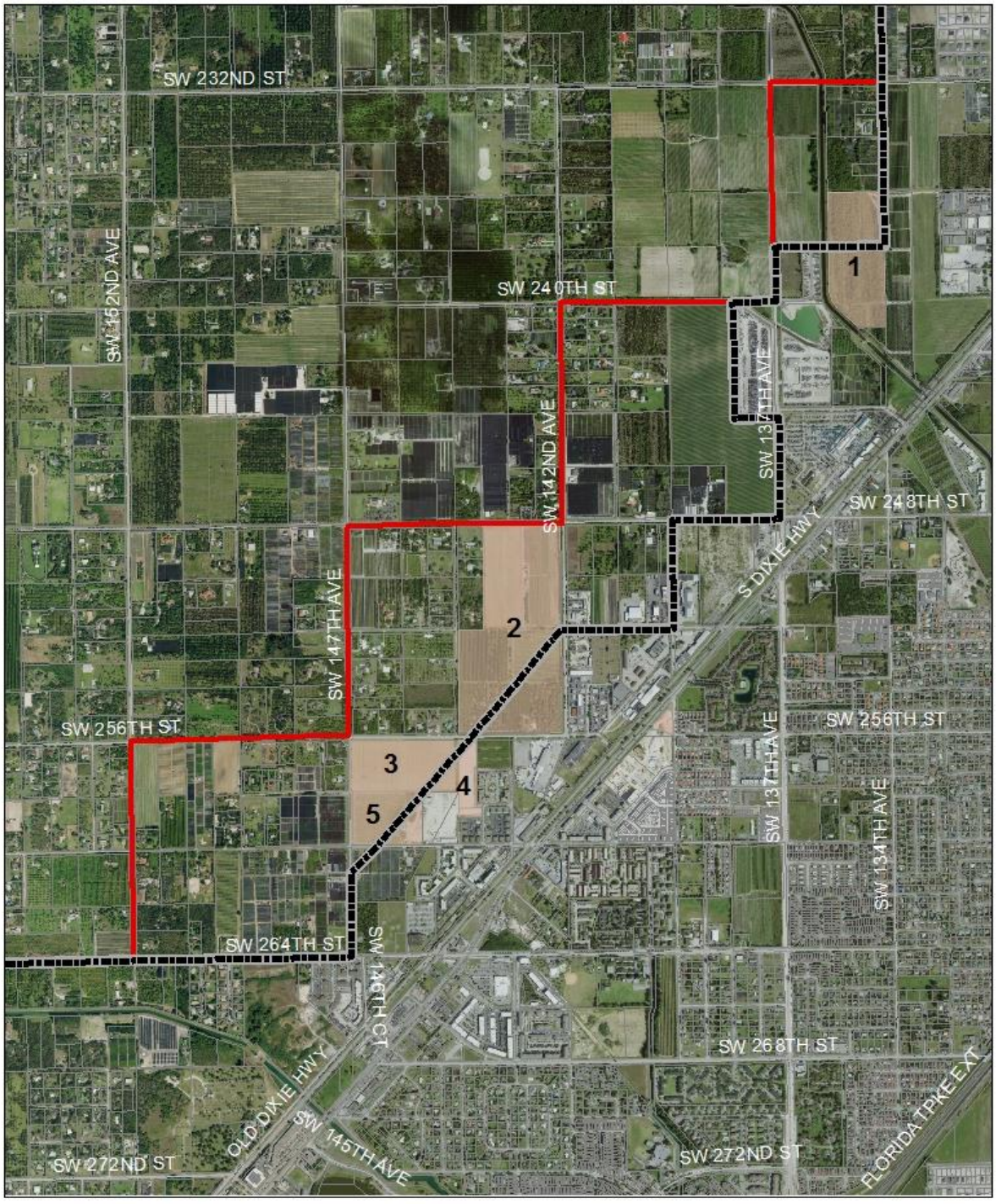


Figure 33

Detailed Analysis Area 3A Boundary

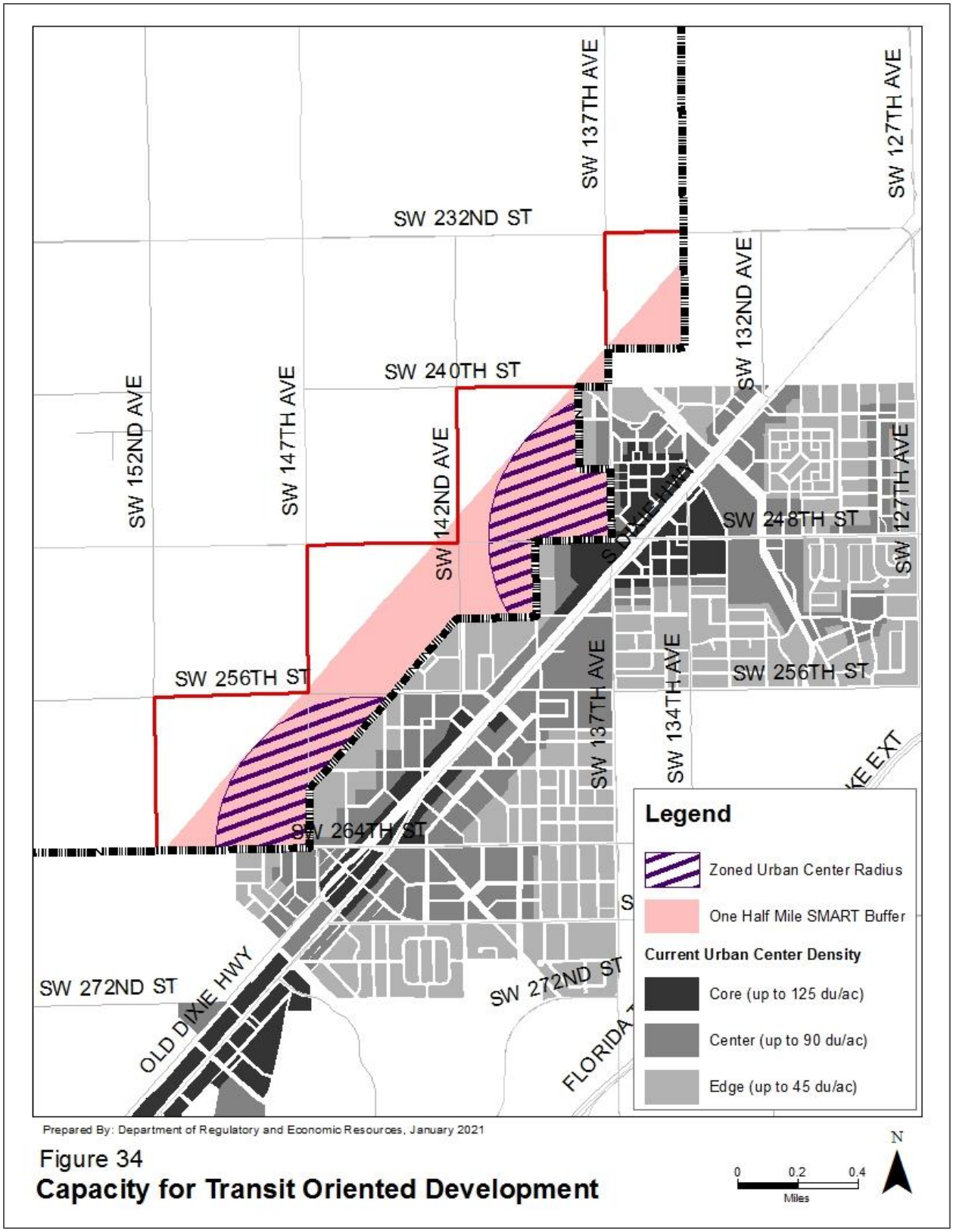


Figure 34
Capacity for Transit Oriented Development

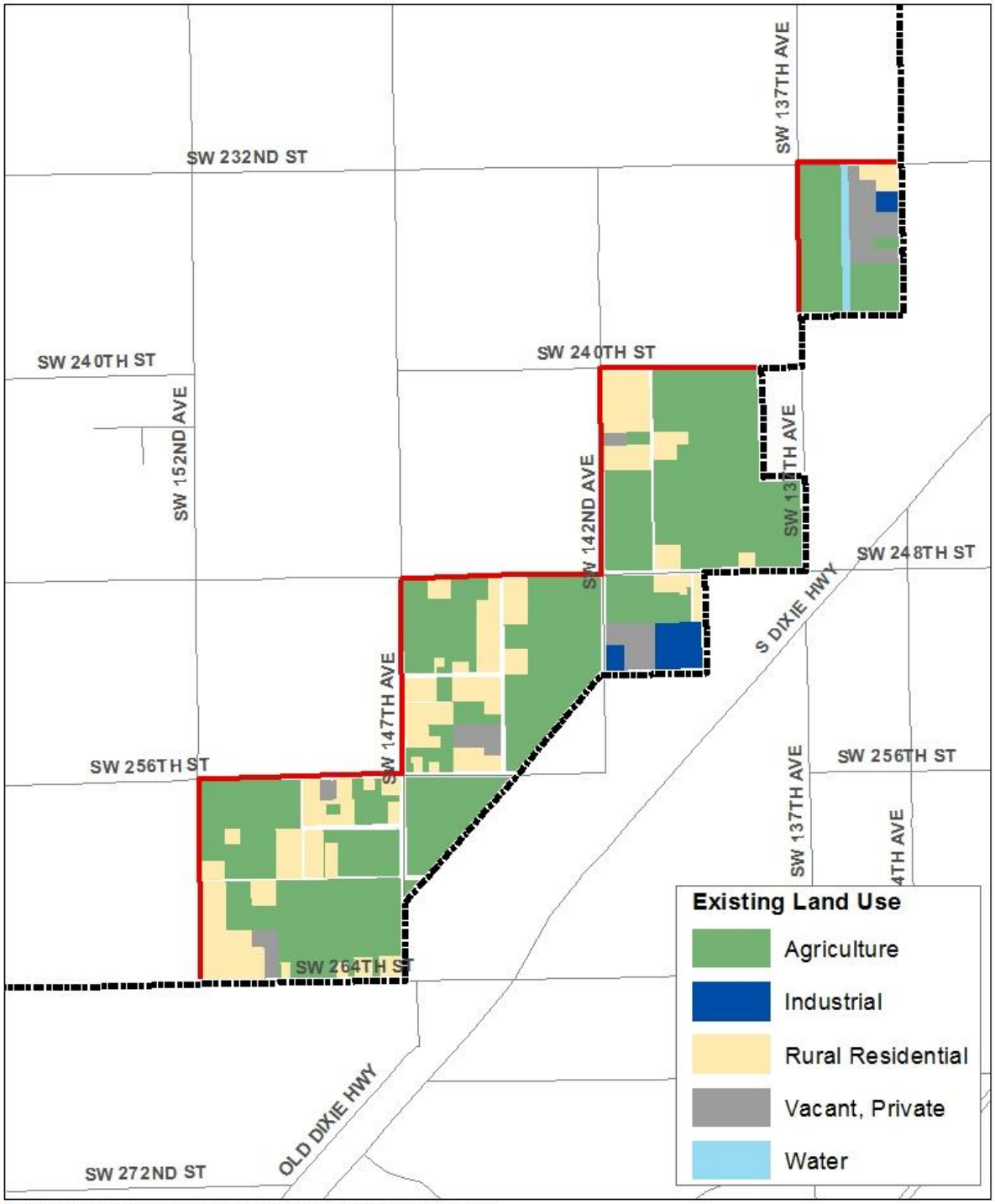
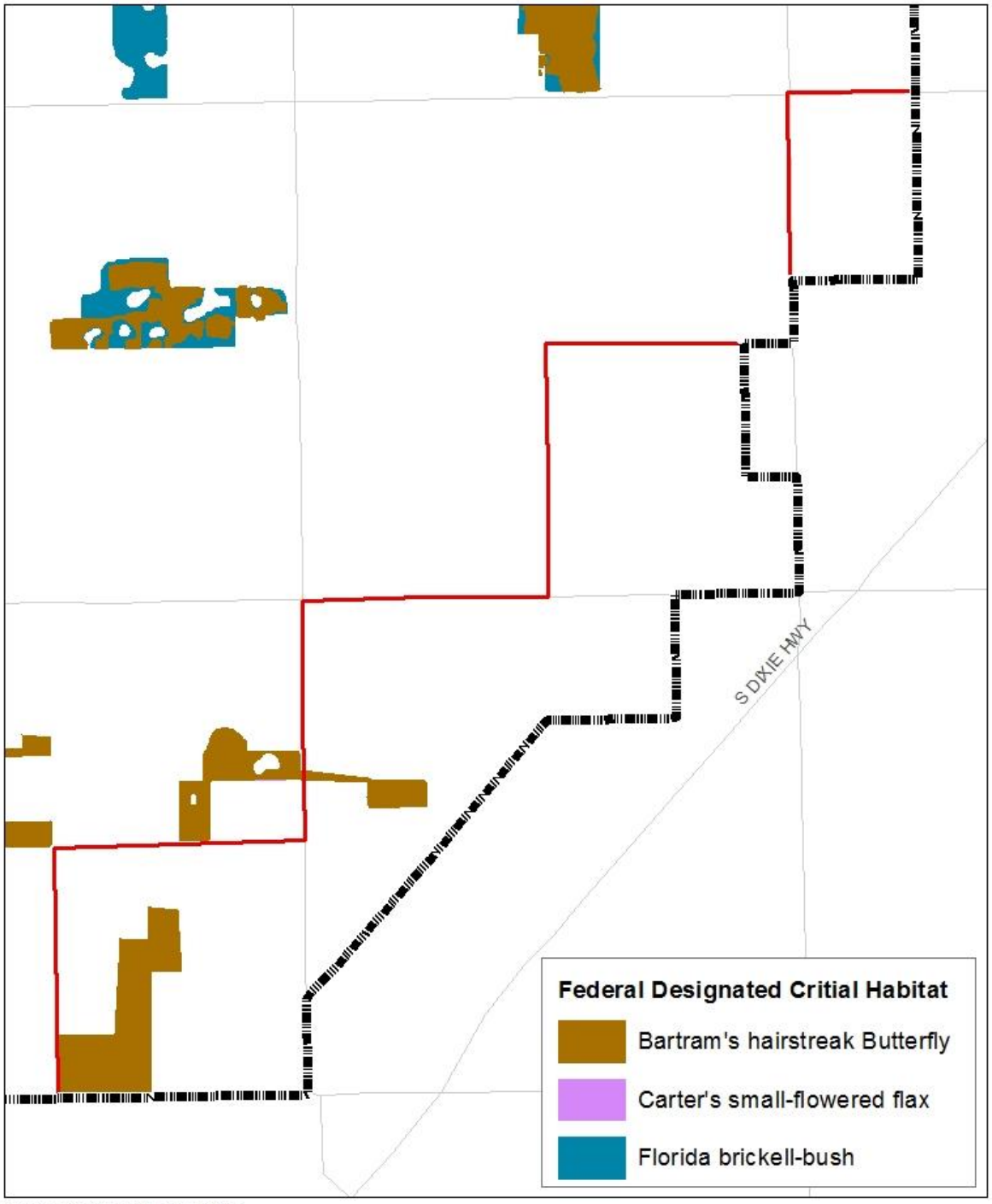


Figure 35

Existing Land Use



* Source: US Fish and Wildlife Service

Figure 36

Federal Designated Critical Habitat

IV. Area 4 - South Dade Wetlands (See Figure 25 for boundaries)

Area 4 is primarily comprised of high-quality Wetlands of Regional Significance, most of which are also within the footprint of the Biscayne Bay Coastal Wetlands (BBCW) Phase II Comprehensive Everglades Restoration Plan (CERP) project. Areas within the BBCW Phase II CERP project, which comprise ±90% of Area 4, are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. These constraints are depicted on Figure 37.

Land Use.
The majority of Area 4 is designated "Environmental Protection" on the CDMP Land Use Plan Map and includes land within Subareas C (Canal-111 Wetlands) and D (Southeast Wetlands). Uses in these areas are subject to case-by-case evaluation due to the environmental sensitivity of the areas. Other designations in the area include a small area along the UDB designated Agriculture and a small area of active rockmining that is designated Open Land (Subarea 5) on the CDMP Land Use Plan Map.

Constraints.
Approximately 90% of Area 4 is located within the BBCW Phase II CERP project footprint. The BBCW project aims to improve the ecology of Biscayne National Park and Biscayne Bay by rehydrating coastal wetlands, reducing freshwater point source discharges, and redistributing surface water through a spreader canal system. This is considered to be a critical project to South Florida ecosystem restoration due to its potential to substantially improve the biological integrity and stability of the coastal ecosystem.[36] Areas within the BBCW Phase II CERP project are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G The boundaries of the Wetlands of Regional Significance mostly correspond with the CERP project footprint in Area 4. Wetlands of Regional Significance are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. Wetlands in this area serve the important functions of preventing saltwater intrusion into the wellfields and attenuating storm surge. The wetland areas also serve as habitat for federal and state designated species, including the Florida Panther and Bonneted Bat. With the exception of a small area just south of the UDB, the entire area has been placed on the County's Environmentally Endangered Lands (EEL) Acquisition List. The South Dade Wetlands were placed on the EEL acquisition list in 1993 and the County has actively worked since that time, along with state and federal partner agencies, to acquire land within this area.

A portion of the area is within the Primary Zone for the endangered Florida Panther. While U.S. Fish and Wildlife Service (FWS) has not designated critical habitat for the Florida Panther, it has identified a series of zones that are considered important to supporting the protection and expansion of panther populations. The Florida Panther Recovery Plan (March 1995) establishes the goal of maintaining the quantity and quality of habitat in the Primary Zone. Portions of the area are also proposed to be designated as critical habitat for the Florida Bonneted Bat by FWS. The designation focuses on large connected natural areas which are relatively free of human disturbances. Based on analysis from FWS, the perpetuation of the Florida Bonneted Bat could be negatively impacted by land use changes that introduce human activity into the natural areas that have been identified as critical habitat to the survival of the species.

[36] Central and Southern Florida Project Comprehensive Review Study. US Army Corps of Engineers. 1998

Portions of the area are located within a FEMA Special Flood Hazard Area and the Coastal High Hazard Area (CHHA) which state law defines as the area vulnerable to storm surge from a Category 1 storm event. CDMP Policy LU-8G identifies the Coastal High Hazard Area (CHHA) as an area that shall not be considered for expansion of the Urban Development Boundary for residential land uses due to the public safety risks of placing additional population in the area vulnerable to destructive storm surge. CDMP Policy CM-9A states that development and redevelopment activities in the CHHA shall be limited to those land uses that have acceptable risks to life and property and includes a series of guidelines that encourage development density and intensity to be maintained at current levels within the CHHA.

Other Considerations.
Portions of Area 4 are also within the municipal boundaries of Homestead and Florida City. As noted in the Background section (Chapter 1) of this report, the County retains jurisdiction over the UDB line and land uses outside of the UDB even when located within a municipality. A small portion also falls within one mile of the southern terminus of the South Dade SMART Plan Corridor.

Recommendation for Further Analysis.
Areas 4 would generally be considered least suitable for future growth as it contains important resources related to the human and ecological health of the County. No areas were identified for further analysis in Area 4.

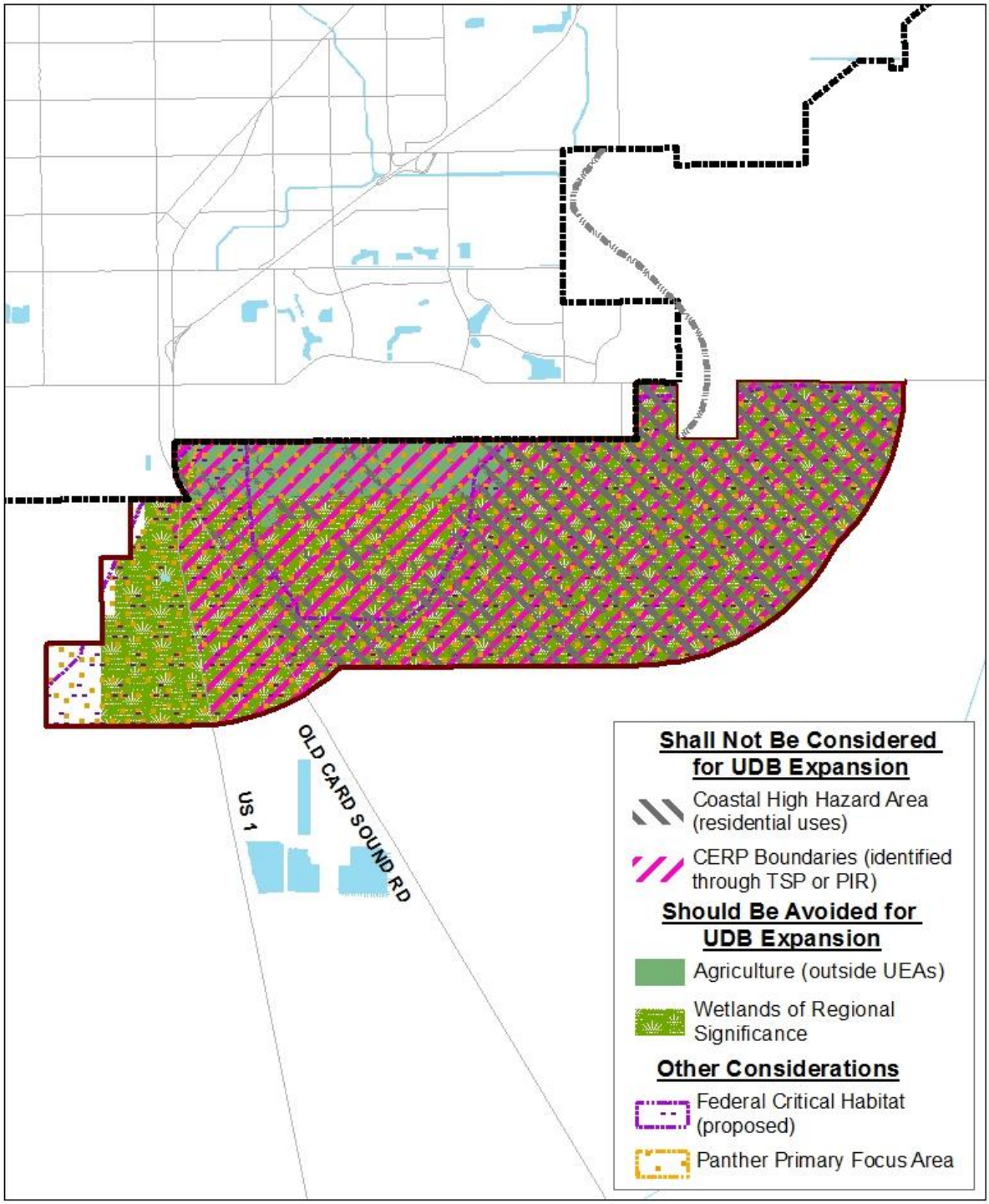


Figure 37
Area 4 - Constraints Map

Area 5 - East Glade and Coastal Wetlands (See Figure 25 for boundaries)

The eastern portion of this area is within the Biscayne Bay Coastal Wetlands (BBCW) CERP project. In addition, Area 5 includes areas within the Accident Potential Zones of the Homestead Air Reserve Base. These areas, which comprise ±66% of Area 5, are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. The majority of Area 5 is located within the Coastal High Hazard Area which state law defines as the area vulnerable to storm surge from a Category 1 storm event. CDMP Policy LU-8G identifies the Coastal High Hazard Area (CHHA) as an area that shall not be considered for expansion of the Urban Development Boundary for residential land uses. Area 5 also includes Wetlands of Regional Significance and land designated Agriculture (located outside of a designated UEA) which are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. These constraints are identified on Figure 38.

Land Use.
The western portion of Area 5 is designated "Agriculture" which generally allows agriculture (including ancillary and supportive uses), residences at a maximum density of one dwelling unit per five acres and uses to support the rural residential community including houses of worship. CDMP Amendment No. 4 in the May 2019 Cycle allowed for commercial truck parking facilities in ±240-acres located west of the South Dade Landfill. A portion is also designated Open Land (Subarea 5). Future uses that may be considered for approval in this area generally include seasonal agriculture, limestone quarrying and utility facilities, and residences at a maximum density of 1 dwelling unit per 5 acres. The area of the South Dade Landfill is designated 'Institutions, Utilities and Communications'. The eastern portion of Area 5 is designated "Environmental Protection (Subarea 5)" and "Environmentally Protected Parks" on the CDMP Land Use Plan Map.

Constraints.
The goal of the Biscayne Bay Coastal Wetland (BBCW) CERP project is to improve the ecology of Biscayne National Park and Biscayne Bay by rehydrating coastal wetlands, reducing freshwater point source discharges, and redistributing surface water through a spreader canal system. Areas within the CERP footprint are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. BBCW is considered to be a critical project to South Florida ecosystem restoration. UEA Nos. 3 and 4 currently include portions of the BBCW CERP project. These areas have been proposed for exclusion in staff application May 2019 CDMP Cycle, Application No. 5. Consideration of the proposed contractions is on-hold, pending release of this Study.

The area also includes mangrove wetlands which help to protect inland areas from coastal storm surge by providing surge attenuation. The eastern portion of this area is identified as Wetlands of Regional Significance on Figure 14 of the CDMP Land Use Element which are identified as areas that should be avoided for expansion of the UDB in CDMP Policy LU-8G. Wetlands in this area serve the important functions of preventing saltwater intrusion into the wellfields and attenuating storm surge. The wetland areas also serve as habitat for federal and state designated species, including the Florida Panther and Bonneted Bat. With the exception of a small area just south of the UDB, the entire area has been placed on the County's Environmentally Endangered Lands (EEL) Acquisition List. The South Dade Wetlands were placed on the EEL acquisition list in 1993

and the County has actively worked since that time, along with state and federal partner agencies, to acquire land within this area.

This area contains Accident Potential Zones associated with the Homestead Air Reserve Base (HARB) which are identified as areas that shall not be considered for expansion of the UDB in CDMP Policy LU-8G. The accident potential zones represent the areas with potential for aircraft accidents and are comprised of three zones; Clear Zone, Accident Potential Zone I (APZ I), and Accident Potential Zone II (APZ II). The HARB accident potential zones currently extend into UEA Nos. 3 and 4 but have been proposed for exclusion in staff application May 2019 CDMP Cycle, Application No. 5. Consideration of the proposed contractions is on-hold, pending release of this Study.

State law defines the Coastal High Hazard Area (CHHA) as the area vulnerable to storm surge from a Category 1 storm event. CDMP Policy LU-8G identifies the CHHA as an area that shall not be considered for expansion of the Urban Development Boundary for residential land uses due to the public safety risks associated with placing additional population in the area vulnerable to destructive storm surge. CDMP Policy CM-9A states that development and redevelopment activities in the CHHA and Hurricane Vulnerability Zone (areas vulnerable to storm surge from a Category 3 storm event) shall be limited to those land uses that have acceptable risks to life and property and includes a series of guidelines that encourage development density and intensity to be maintained at current levels within the CHHA.

Area 5 includes land identified as Farmland of Unique Importance by NRCS. The area is made farmable by seasonal drawdowns of the water table administered by the South Florida Water Management District. Future operational changes to the seasonal drawdown may negatively impact agriculture in this area. This area includes some of the larger agricultural parcels in the County, with an average lot size of 24 acres for parcels with an agricultural classification by the Miami-Dade County Property Appraiser. Currently, major agricultural products produced in the area include nurseries and cropland. Land designated “Agriculture” on the CDMP Land Use Plan Map, located outside of a designated Urban Expansion Area, is identified as an area that should be avoided for expansion of the UDB in CDMP Policy LU-8G.

A portion of the area is within the Primary Zone for the endangered Florida Panther. While USFWS has not designated critical habitat for the Florida Panther, it has identified a series of “zones” that are considered important to supporting the protection and expansion of panther populations. The Florida Panther Recovery Plan (March 1995) establishes the goal of maintaining the quantity and quality of habitat in the Primary Zone.

Infrastructure.
There are no current or planned transit corridors that provide premium transit to this area. A planned Bus Express Rapid Transit (BERT) corridor passes near UEA No. 3, but no stops are currently planned for the area.

Recommendation for Further Analysis.
Current Urban Expansion Area Nos. 3 and 4 are located within Area 5. The eastern portion of Area 5 would generally be considered least suitable for future growth as it contains important

resources related to the human and ecological health of the County. No additional Urban Expansion Areas are recommended for this area.

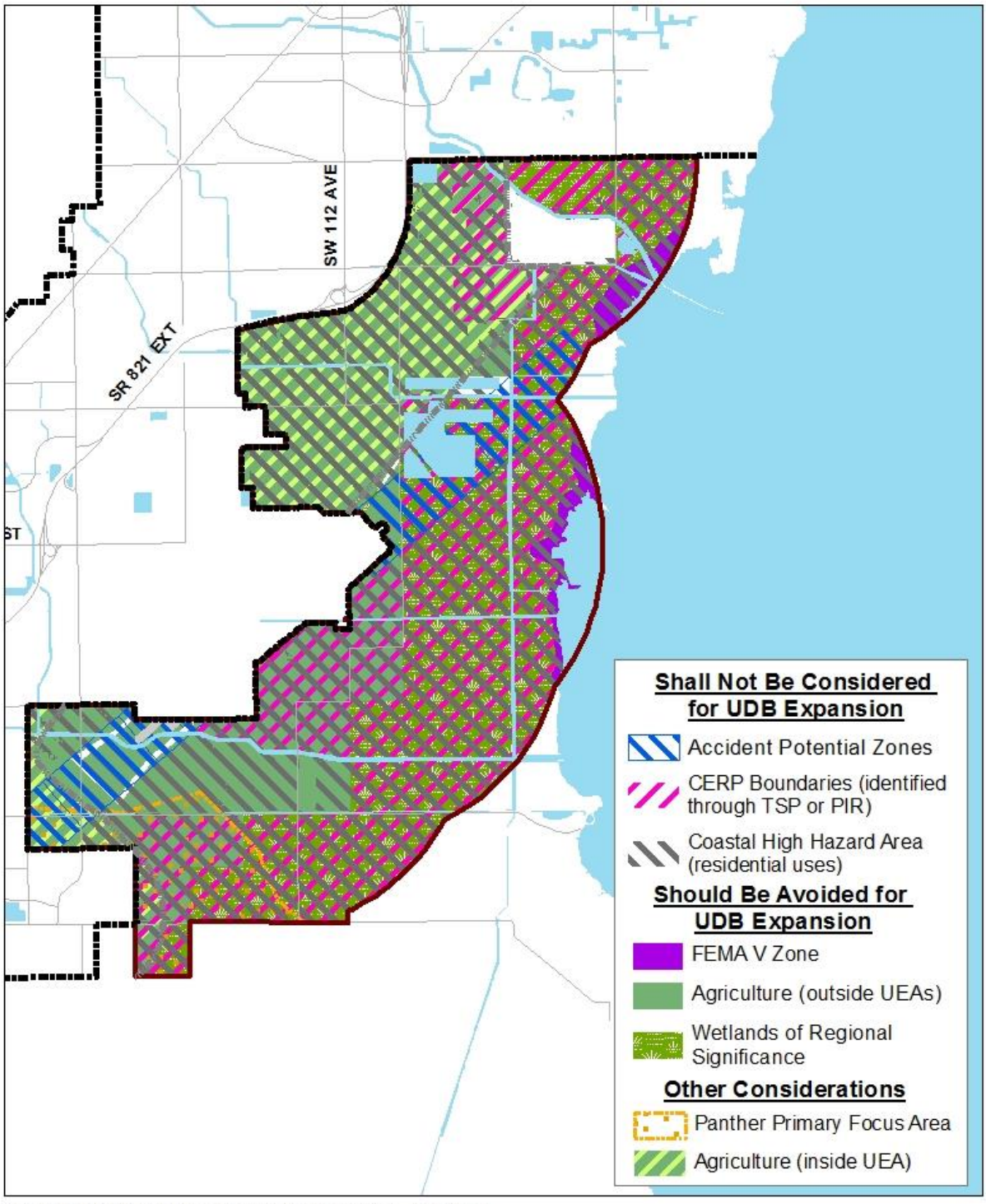


Figure 38
Area 5 - Constraints Map

Chapter 4

Recommendations

Recommendations

CDMP Policy LU-8J, to which this report responds, directs the study to address additional areas that may be identified as Urban Expansion Areas (UEA), with a goal of replacing the 1,993 acres that were proposed for removal in Application No. 5 of the Evaluation and Appraisal Report Amendments in the May 2019 CDMP Amendment Cycle. As was detailed in Chapter 1 (Background) of this report, there is sufficient residential capacity within the UDB beyond 2040, which is beyond the County's short-term and long-term planning horizons. In addition, there are approximately 2,000 acres in the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) that are generally suitable for residential development which represents approximately two years of additional capacity. Within the UDB, there is sufficient capacity of industrial land countywide and within each analysis tier beyond 2040, except for the South-Central Tier which has a projected depletion year of 2030. In addition, there are approximately 2,700 acres in the current UEAs (including contractions proposed in Application No. 5 of the May 2019 Cycle) that are generally suitable for non-residential uses.

For these reasons, no additional Urban Expansion Areas are recommended at this time. Once the need exists to identify additional Urban Expansion Areas, the County should look to areas with fewer constraints and good access to infrastructure such as Detailed Analysis Areas 1A (±1,398.8 acres) and 3A (±596.5) as assessed in Chapter 3 of this report. Recommendation No. 1 below provides recommended measures to address potential impacts associated with growth into new Urban Expansion Areas that may be identified in the future. CDMP Policy LU-8J also directs the study to address potential additional uses that would be appropriate for the Urban Expansion Areas, particularly near the Homestead Air Reserve Base. Recommendations Nos. 2 and 3 address the second portion of the policy by recommending the incorporation of criteria into the CDMP to address uses that must locate outside of the UDB and providing for a reassessment of commercial truck parking needs by 2030.

The analysis provided in this report elucidated three additional issues. First, a review of existing residential uses in the County identified a dearth of attached single family housing that could provide a housing option for moderate income families. Second, an analysis of the various constraints that exist outside of the UDB brought to light the need for continued County governance over these areas. Third, CDMP Policy LU-8G(i)(d) currently defines the Redland area located south of Eureka Drive as an area that shall not be considered for expansion of the UDB but does not define the remaining boundaries. During the July 22, 2020 Board of County Commissioners hearing that adopted the policy directing this study, Commissioners stressed the importance of further defining the boundaries of the Redland area in Policy LU-8G. Recommendation Nos. 4, 5 and 6 address these issues.

Recommendation No. 1 – Once the need exists to identify additional Urban Expansion Areas, the County should look to areas with fewer constraints and good access to infrastructure and incorporate policies into the CDMP to address potential impacts.

Once the need exists to identify additional Urban Expansion Areas, the County should look to areas with fewer constraints and good access to infrastructure such as Detailed Analysis Areas 1A (±1,398.8 acres) and 3A (±596.5) as assessed in Chapter 3 of this report. Together, these

areas are roughly equivalent to the acreage proposed for contraction in Application No. 5 of the May 2019 CDMP Amendment Cycle. As is apparent from the Policy Considerations (Chapter 2) of this report, all areas outside of the Urban Development Boundary (UDB) contain constraints and new growth beyond the current UDB will require policy trade-offs. However, policies specifically addressing these issues can ameliorate associated impacts.

CDMP Policy LU-8H contains criteria that is broadly applicable to all UDB amendment applications. The identification of new Urban Expansion Areas presents an opportunity to address known constraints more directly. It is recommended that any areas identified as Urban Expansion Areas in the future include specific policies to address known constraints such as the following:

- Require the tapering down of densities within the Urban Expansion Area where located adjacent to land designated Agriculture on the CDMP Land Use Plan Map that is outside of a designated UEA.
- Where Natural Forest Communities are located within a proposed Urban Expansion Area, policies should be written into the CDMP that specifically provide for the delineation and protection, to the maximum extent feasible, of the Natural Forest Communities.
- Include a plan that demonstrates how CERP project goals and objectives will be maintained either within the subject property or another area within the basin. Such plan shall be separate and in addition to any required compensatory wetlands mitigation.
- Require completion of a threatened and endangered species survey and strongly encourage mitigation of impacted wetlands that are utilized by threatened or endangered species to be achieved within areas that can continue to support those species.
- Where a proposed Urban Expansion Area is located within close proximity to active rockmining operations, residential uses should be prohibited.

Recommendation No. 2 - Establish criteria for urban-type uses that have a unique need to locate outside of the Urban Development Boundary

The need for large expanses of land, to be isolated from residential areas or for access to certain infrastructure may lead to a unique need for a use to locate outside of the Urban Development Boundary (UDB). Currently, the policies of the CDMP do not provide guidance for how these applications should be reviewed or criteria that should be applied. Examples of such uses may include correctional facilities, large-scale solar arrays, wastewater treatment plants, and liquified natural gas facilities.

It is recommended that the policies of the CDMP be amended to provide criteria for determining when a use must locate outside of the UDB and to ensure that the use is developed in a manner that is sensitive to the unique conditions that exist outside of the UDB. At a minimum, the policies should address the following:

1) require a demonstration that the use cannot be accommodated within the UDB;
2) provide guidance on where uses should and should not locate,
3) provide for extraordinary vote requirements by the Board of County Commissioners or Community Zoning Appeals Board, where appropriate;
4) provide a process to determine the appropriateness of extending water and sewer infrastructure to serve the use,
5) establish criteria to ensure that the use accomplishes the following:
    a. minimizes coastal storm risks,

b. avoids impacts to environmentally sensitive areas,
c. is adequately buffered to rural residential areas,
d. is compatible with rockmining activities when located within one mile of the Lake Belt,
e. minimizes impacts to agricultural land and incorporates agricultural uses where appropriate,
f. is compatible with airport and military operations,
g. mitigates potential nuisances including, but not limited to, traffic, noise, fumes and light.

Recommendation No. 3 – Add a policy to the CDMP to reevaluate truck parking demand by 2030 to determine whether the current land supply is sufficient.

A 2010 report conducted by the Miami-Dade Transportation Planning Organization (TPO) documented a severe truck parking shortage in Miami-Dade County, identifying a need for approximately 1,177 useable acres to accommodate commercial truck parking.[37] In October 2020, the Board adopted amendments to the CDMP that provided for commercial truck parking as an allowable use on ±6,800 acres located outside of the UDB. These areas included ±6,560 acres in Open Land Subarea 1 and ±242 in current Urban Expansion Area No. 3.

It is estimated that there are ±2,091 useable acres within the area where commercial truck parking was permitted.[38] The ability of this land to meet the countywide need for truck parking depends on whether the land is developed for this use. It is recommended that a policy be added to the CDMP directing a reassessment of the land supply needs for commercial truck parking by 2030 including recommendations to address any identified deficiencies.

Recommendation No. 4 – Add a policy to the CDMP to identify opportunities to increase the diversity of housing options inside the Urban Development Boundary with particular focus on increasing the supply of attached single family housing while maintaining the character of established neighborhoods.

As noted in the Background Chapter of this report, the supply of single family residential uses in the County is projected to be depleted by 2024. A review of current residential land uses in the County shows that single family residential (including detached single family and townhomes) comprises approximately 87% of the residential land area. However, due to the land intensive nature of single family housing, it does not contribute significantly to residential capacity.

The gap in depletion years between single family and multi-family housing warrants consideration of how the County can ensure a sufficient mix of housing options, particularly for families. A closer look at the current residential land uses in the County shows that townhome development is underrepresented within the single-family category, comprising only six percent. With its lower

[37] Miami-Dade Transportation Planning Organization. Comprehensive Parking Study for Freight Transport in Miami-Dade County. 2010.
[38] Estimate of useable acreage excludes public land, water and parcels smaller than 10 acres. It assumes that 30% of the land area will be needed for cut and fill requirements.

land costs, townhome-type development provides an important housing option for moderate income families. The County should aim to strategically increase the diversity of housing options, focusing on the area within the UDB, while maintaining the character of established neighborhoods.

Recommendation No. 5 – Designate land that is located outside of the Urban Development Boundary as a Regional Asset and provide for continued County governance over such areas.

Chapter 20 of the County Code currently outlines a process for identification of Facilities of Countywide Significance which include areas deemed necessary by the Board of County Commissioners for the coordinated use of lands, development and service delivery within the County to promote the health, safety, order, convenience, prosperity, and welfare of the current and future residents and tourists of this County. Facilities of Countywide Significance can be annexed or incorporated, however, the Code provides that the County shall not transfer operation, maintenance, or regulatory jurisdiction of such Area or Facility to a municipality, unless expressly permitted in the Code. It is recommended that the Board create an additional category for Regional Assets that are deemed necessary to maintain or advance essential public services, to protect agricultural or environmentally sensitive land, to support the countywide economy, or to maintain or advance other countywide interests and identify these as areas that shall not be annexed.

Land located outside of the UDB serves important functions including filtering and purifying surface and groundwater, providing habitat for wildlife, providing direct recharge of water to the Biscayne Aquifer (the County's primary source of drinking water), and providing natural flood protection. Agricultural areas provide a local economic benefit and contribute to national agricultural production. In addition, limestone mining operations in the County contribute over half of the construction mining material for the State of Florida. These resources are best managed under the broader focus of countywide governance. It is recommended that areas located outside of the UDB be identified as Regional Assets that cannot be annexed.

This recommendation is consistent with a recommendation from a report commissioned by the Board, pursuant to Resolution No. R-1006-1, to review pending annexation and incorporation proposals and develop a plan to address the remaining unincorporated areas. The 2015 report entitled "Analysis of Incorporation and Annexation within the Unincorporated Areas" prepared by PMG Associates, Inc. recommended that Section 20-3.2 of the Code be amended to prohibit annexations and incorporations outside of the Urban Development Boundary, based on the premise that much of the area outside of the UDB is not reasonably suited for annexation or incorporation.

Recommendation No. 6 – Define the boundaries of the Redland area for purposes of CDMP Policy LU-8G following consideration of community input.

CDMP Policy LU-8G identifies the Redland area south of Eureka Drive (SW 184th Street) as an area that shall not be considered for expansion of the UDB. The remaining boundaries, most important of which is the southern boundary, are not defined in the policy. Given the lack of a defined southern boundary, the policy could be interpreted to include agricultural land extending

to south of Ingraham Highway. It is recommended that these boundaries be clarified within Policy LU-8G following input from the community.

Homesteading and agricultural production in Redland and Silver Palm began in the late 1800s. These areas have collectively come to be known as Redland. As identified on Figure 31 of this report, there is a concentration of historic sites between SW 184th Street and SW 312th Street that reflect this history. In addition, there are several destinations that build on the historical and cultural aspects of the Redland and attract visitors to the area. These destinations are located between SW 184th Street and SW 360th Street and include 'Robert is Here', Schnebly Redland's Winery and Brewery, Knaus Berry Farm, and Fruit and Spice Park. While some of these properties are located inside of the UDB, they serve as a gateway into the Redland area.

A community workshop was held on this issue on October 28, 2020. It is clear from public input that the Redland area is generally viewed to extend across a broad portion of the western agricultural area. As the boundaries in Policy LU-8G are clarified, the policy should also be amended to indicate that the boundaries refer to a portion of the Redland area to avoid the inference that the boundaries have broader applicability. It is also important to note that the agricultural areas located outside of the Redland area are equally important to the agricultural industry of South Dade and include some of the County's larger agricultural properties. CDMP Policy LU-8G identifies land designated Agriculture on the CDMP Land Use Plan Map located outside of a designated Urban Expansion Area as an area that should be avoided for expansion of the UDB.

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Appendix 1

Relevant CDMP Policies and CDMP Land Use Plan Map Designations

Policy LU-8F. The Urban Development Boundary (UDB) should contain developable land having capacity to sustain projected countywide residential demand for a period of 10 years. The estimation of this capacity shall include the capacity to develop and redevelop around transit stations at the densities recommended in policy LU-7F. The adequacy of non-residential land supplies shall be determined on the basis of land supplies in subareas of the County appropriate to the type of use, as well as the Countywide supply within the UDB. The adequacy of land supplies for neighborhood- and community-oriented business and office uses shall be determined on the basis of localized subarea geography such as Census Tracts, Minor Statistical Areas (MSAs) and combinations thereof. Tiers, Half-Tiers and combinations thereof shall be considered along with the Countywide supply when evaluating the adequacy of land supplies for regional commercial and industrial activities.

Policy LU-8G. When considering land areas to add to the UDB, after demonstrating that a need exists, in accordance with the foregoing Policy LU-8F:

i) The following areas shall not be considered:

a) The Northwest Wellfield Protection Area located west of the Turnpike Extension between Okeechobee Road and NW 25 Street and the West Wellfield Protection Area west of SW 157 Avenue between SW 8 Street and SW 42 Street;

b) Water Conservation Areas, Everglades National Park, Biscayne National Park, Pennsuco Wetlands, and Bird Drive Wetlands, as depicted on Figure 14;

c) Comprehensive Everglades Restoration Plan project footprints delineated in Tentatively Selected Plans and/or Project Implementation Reports;

d) The Redland area south of Eureka Drive (SW 184 Street);

e) Areas within the accident potential zones of the Homestead Air Reserve Base; and

f) applications for residential land uses within the Coastal High Hazard Areas

ii) The following areas should be avoided:

a) Wetlands of Regional Significance as depicted on Figure 14 of the Land Use Element not otherwise listed in subsection (i)(b) of this policy; and

b) land designated Agriculture on the Land Use Plan map, except where located in designated Urban Expansion Areas (UEAs) and;

c) Comprehensive Everglades Restoration Plan projects identified in the 1999 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement, as may be modified formally or informally by the United States Army Corps of Engineers or the South Florida Water Management District; and

d) land located within the FEMA V Zone.

iii) The following areas shall be given priority for inclusion, subject to conformance with Policy LU-8F and the foregoing provision of this policy:

a) Land within Planning Analysis SubTiers having the earliest projected supply depletion year; and

b) Land within the UEAs and contiguous to the UDB; and

c) Locations within one mile of a planned urban center or transit service station or bus stop providing peak hour headways of 20 minutes or less; and

d) Locations having projected surplus service capacity or where necessary facilities and services can be readily extended.

iv) Notwithstanding Policy LU-8G (iii), other land may be included to expand an existing unique regional facility, defined as an existing public facility or attraction of regional prominence that has been constructed on publicly owned land with significant public funding and intergovernmental coordination, if it satisfies all of the following criteria:

a) The land is within the UEA, is contiguous to the UDB, and is contiguous to a unique regional facility;

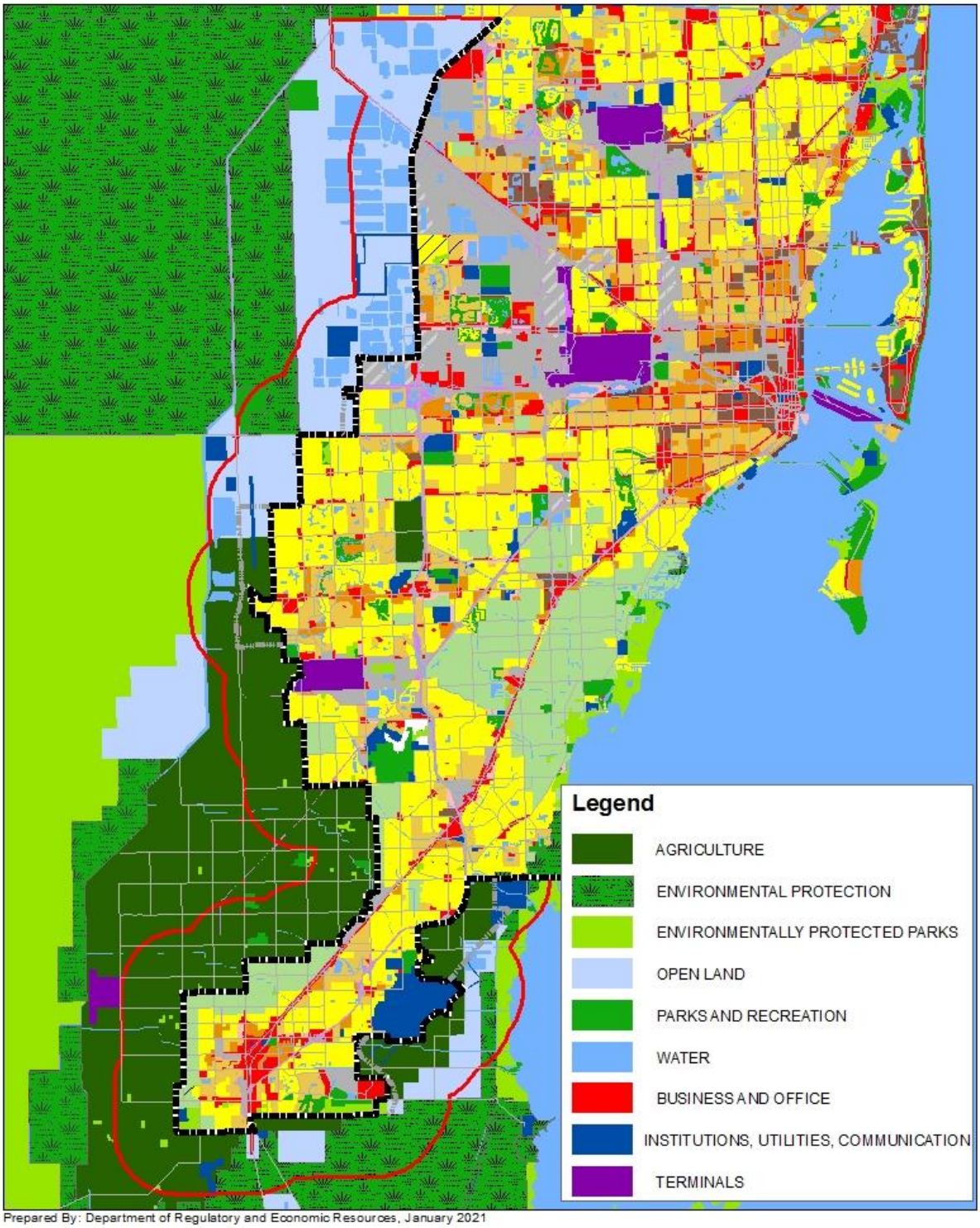
b) The use of the land will be limited to the expansion of the unique regional facility, together with ancillary uses; and

c) The expansion will have a positive economic impact, including increased economic development and tourism.

Policy LU-8H. In addition to conformance with Policies LU-8F and LU-8G, applications requesting expansion of the UDB must request designation as a "Special District" on the CDMP Land Use Plan map and include a text amendment under the "Special District" CDMP text to outline the allowable uses, maximum density, maximum floor area ratio, and how the proposed development will satisfy the criteria set forth in this policy. A zoning application must be filed concurrently with the CDMP Land Use Plan map amendment and should meet the following criteria to be approved:

a) contain a minimum of 10 acres unless the Board of County Commissioners determines a lesser acreage is appropriate; and
b) provide a mix of housing types at a minimum density of 10 du/acre for applications that include residential development; and
c) provide a minimum FAR of 0.25 for applications that include non-residential development, excluding public uses, public utilities, public institutions, and public facilities, except when such non-residential uses are provided to support residential uses located on the same site; and
d) where multiple project phases are proposed, include a phasing schedule that demonstrates that the minimum density and FAR outlined in subsections (b) and (c) will be accomplished in the first phase of development in a recordable instrument in favor of the County; and
e) demonstrate that the project will be served by utility water and sewer service and that adequate public facilities and infrastructure (including water, sewer, roadways, mass transit, solid waste, flood protection, parks and schools) are available or, where not available, ensure the provision of such improvements through a recordable instrument in favor of the County; and
f) provide for the non-residential needs of the future residents including but not limited to shopping, schools, parks, and necessary public uses or demonstrate that such uses are available within an acceptable distance of the subject property; and
g) demonstrate that a jobs to housing ratio of at least 1.5:1 is available within five miles of the subject property or will be provided on-site for future residents; and
h) demonstrate that the proposed development will utilize sound urban design principles contained in the County's Urban Design Manual or other document approved by action of the Board of County Commissioners and will provide for compatibility and connectivity with adjacent urban land uses; and
i) incorporate bicycle and pedestrian accessibility throughout the development with connections to adjacent areas, where appropriate; and
j) provide adequate buffering to adjacent agricultural land; and
k) provide a minimum of 15% of the gross area as open space; and

l) protect environmentally-sensitive areas to the maximum extent feasible including consideration of impacts to threatened and endangered species; and
m) demonstrate that the proposed development will have a positive net fiscal impact to Miami-Dade County; and
n) at least 12.5% of the proposed residential units must be priced affordably for individuals earning up to 140% of the Area Median Income; and
o) include commitments to ensure that the proposed development will be served by mass transit with at least 20 minute peak hour headways or include a plan to provide such service; and
p) include commitments to ensure that the proposed development will not cause a roadway to exceed its adopted level of service standard or further erode the level of service on a failing roadway.
q) provide for the preservation of agricultural land commensurate with the impacts of the application on agriculturally-designated land which may include participation in a Transfer of Development Rights program, Purchase of Development Rights program or other similar effort; however, notwithstanding anything in this paragraph to the contrary, in no event shall properties within the Urban Expansion Area be obligated to preserve agricultural land at a 1-to-1 ratio.



Prepared By: Department of Regulatory and Economic Resources, January 2021

Figure C-2
CDMP Land Use

0 10,000 20,000
SCALE IN FEET

Appendix 2

Land Capacity Methodology Report

DRAFT

Residential Land Supply/Demand Report & Methodology

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES

PLANNING RESEARCH AND ECONOMIC ANALYSIS SECTION

NOVEMBER 2019

Residential Land Use and Capacity Designation Methodology

The purpose of the following development capacity analysis is to describe the methodology and ascertain the amount of land available for future residential growth inside the Urban Development Boundary (UDB). This growth includes both new development on green fields and redevelopment. As main references, the approach uses the current zoning and future land use from the Comprehensive Development Master Plan (CDMP) in Miami-Dade County. The analysis seeks to determine the capacity for developing both additional single-family and multi-family type residential dwelling units. This analysis of capacity addresses land in both the municipal and unincorporated areas within the County's current UDB line. Sites are analyzed utilizing a consistent set of criteria that reflects a group of assumptions based on existing and future land development policies including ongoing county and municipal amendments, zoning regulations, approved development orders, covenants and restrictions, development, environmental considerations, ownership patterns and infrastructure requirements.

Two very closely related concepts are addressed in the following discussion and warrant clarification. In the following, when the term "supply" of housing units is used it is a reference to the entire currently existing supply of units in the geographic area. On the other hand, the term "capacity" will be used in the following to refer to the potential for future or additional units. The key issue to be resolved in this analysis is the capacity for additional development in order to accommodate future population growth.

Residential Capacity

Residential capacity is estimated in numbers of units that could be accommodated in aggregate an all parcels or sites according to the various factors enumerated above.

Residential capacity estimates are based on an analysis of the capacity in all areas available for development for additional units including on vacant properties, agricultural parcels within the UDB, potential redevelopment sites and in major approved or proposed projects. This analysis is based on *real time information* (such as real property records and water and sewer agreements), and *administrative regulations* (including zoning covenants and agreements, approved redevelopment projects, administrative site plan approvals, county and municipal development resolutions and ordinances, etc.) available for determining capacity objectively and accurately.

Residential capacity derives from two sources. First is the ability of land without an existing use (except agriculture) to accommodate the development of additional housing units. It is, simply, developable vacant land without severe constraints such as: physical (size, shape, accessibility), legal restrictions (dedicated platted areas like landscape parcels, entrances, lakes, or right of ways and easements, etc.), or environmental constraints (conservation areas, environmentally sensitive parcels, preserves, etc.), and ownership limitations (government owned properties, private institutionally owned properties, community associations), etc. Second is the ability and probability that land with an existing use which, under certain circumstances, will be redeveloped and add to existing capacity.

The county maintains data sets on existing land use and zoning on every parcel inside the urban development boundary (UDB) and mapped with Geographic Information Systems (GIS)

technologies. The estimation of development capacity is ai process that involves the compilation of existing and future uses on a parcel-by-parcel basis across the County. This process involves the updating of current digitized uses on all parcels from high resolution aerial photography that the County acquires almost every year; the continual monitoring of municipal and county legislation amending land use or zoning law; tracking of permitted projects at the municipal and county levels; and an extensive monitoring process that is performed through field work in order identify land use changes.

This monitoring process is, of necessity, highly complex and involves scores of development regulations from municipalities and unincorporated Miami-Dade County. Multiple sources of information are continually consulted during this process, including water and sewer agreements available in GIS data format through the Water and Sewer Department; zoning changes, and administrative development approvals that are collected when published online, for either unincorporated Miami-Dade County or municipalities. In addition, proposed and approved plats available online through Miami-Dade County Public Works Department and plat committee agendas; development plans and proposed projects that are approved through the Board of County Commissioners or from municipal governments usually collected from the municipal web sites and Board of County Commissioners agendas, and Clerk of Court online records, are continually consulted.

The Planning Research Section has implemented a comprehensive local land monitoring process to assess and assign future development capacity. There are eight steps involved in conducting such an assessment:

1. Identify vacant or agricultural land which is available for development according to the development rights that are granted by governing zoning and master plan designations.
2. Identify and subtract vacant or agricultural land proposed and approved for urban public or private institutional services.
3. Identify and subtract vacant or agricultural land with physical or environmental constraints.
4. Identify and limit the development capacity according to approved projects considering restrictive covenants, and administrative development approvals and agreements.
5. Identify land meeting the requirements to be considered for redevelopment.
6. Identify and limit the redevelopment capacity according to the criteria elaborated on below.
7. Identify and further limit the development capacity according to approved projects considering restrictive covenants, and administrative development approvals and agreements.
8. Estimate the residential capacity.

The technical procedures to estimate the capacity are:

1. Vacant or Agricultural Land

- Development capacity assignment is calculated only inside the UDB.

- All land inside the UDB is assigned to a site. Typically, sites are the same as parcels. However, there are instances when properties might be aggregated or split for assignment

to a site. These instances include but are not limited to: common ownership, platted subdivisions, approved development boundaries and site plans, covenants and agreements, and split zoning districts and/or future land use designations.

- The zoning district regulations are the first criteria for determining the capacity on a site. Sometimes future land use map amendments are introduced in order to modify the zoning criteria; if that is the scenario, the new future land use designation prevails over the current zoning district regulations at the time of capacity assignment. For example, future land uses in urban centers and special districts have been revised specifically in order to increase development density in those areas.

- The development information recorded on the real-time-data source (real property file, water and sewer agreements and redevelopment approvals), and other official administrative records like zoning covenants and agreements, administrative site plan approvals, development resolutions, etc.) will prevail over the zoning district regulations and future land use designations for assigning capacity on a site.

- Three exclusions to the capacity of vacant and agricultural sites inside the UDB are addressed. The first is institutional ownership, second are environmental restrictions, and the third is the size, shape and accessibility of the property that doesn't allow for development.

- Sites under a conservation category or officially designated as environmentally sensitive land by any governmental agency; as well as sites that are government-owned or controlled are removed from capacity assignment unless there is an officially approved development plan for the mentioned areas.

- The above analysis is used to determine a total site capacity - how many housing units can be built on vacant and agricultural sites across the county. This total capacity of vacant or agricultural sites is reduced by 20 percent to account for build-out limitations such as roads or utility easements. In addition, there is a 3 percent reduction in capacity to account for the existence of very small vacant parcels that prevail even in a mature built-out area.

2. Redevelopment Capacity

The last step in estimating supply is the estimate of residential units resulting from the redevelopment of existing units. The procedure to estimate redevelopment capacity was restricted to developed sites with any land use designation that allows residential as a permitted use or those zoned a category that allows residential uses, whether or not residential currently exists on the site. In addition, single-family-type parcels and condominiums were excluded as were sites with a designation as historic or in a district with a historic designation. To qualify as a candidate for redevelopment a site had to satisfy the following requirements: (i) located inside the UDB (Previously the redevelopment analysis was limited to parcels inside the Urban Infill Area); (ii) the structure had to be built before 1980 (versus 1970 in the previous analysis); (iii) the building-to-land-value ratio had to be 0.75 or lower. The qualified sites were reviewed by staff and each was

assigned a probability factor. The factor was based on the potential number of net additional units for all qualifying sites (i. ii and iii) by deducting the number of existing units from the total potential units that could be developed. Sites with a net unit gain of less than seven units was assigned a redevelopment probability factor of 0.33 to be redeveloped. The sites with a net gain of seven to 14 units was assigned a redevelopment probability factor of 0.66, and those with a net gain of 15 or more units, a factor of 0.99. The factors were then applied to each respective site's net potential additional units to derive the final countywide estimate of capacity from redevelopment which is 83,142 units.

One final category of redevelopment capacity does not go through the above analysis - major projects on the redevelopment list. Major projects included on the redevelopment list are existing large-scale proposed projects, projects approved by county or municipal commissions, and projects already under construction. Unlike residential redevelopment capacity that is adjusted with a probability factor, these major projects are counted at 100 percent of their proposed, approved or under-construction capacity. Previously, such projects were only counted at 50 percent until commencement of construction.

Update and Analysis of Baseline Data Population. Miami-Dade is Florida's most populous county, a position it has held for several decades. In 2018, Miami-Dade County ranked 7th in population among all metropolitan areas in the United States, up from 8th in 2010 and 12th in 2000. Miami-Dade grew by an average of more than 30,000 people annually every decade between 1950 and 2000. Adding 439,000 residents in the 1950's, 332,000 in the 1960's, 357,000 in the 1970's, 311,000 in the 1980's, and 316,000 in the 1990's. In the decade from 2000 to 2010 the 30,000 annual average growth floor was breached for the first time since the 1940's, with an addition of 243,000 residents.

Until the 2020 Census release more than one year from now, a definite outlook of the 2010's is not possible, but by looking at proxies of population growth, it is widely expected that the growth in the second decade of the current century will surpass the growth of the first.

Population Projections. The Department of Regulatory and Economic Resources periodically revises its population estimates and projections countywide and by subarea. The population projections are a fundamental growth management component of the CDMP used both for land use planning and to coordinate the planning of public facilities and services with the LUP map. The basis for revisions in the projected subarea population typically includes: modification of the countywide population projections; updated housing counts; changes in development capacity of the CDMP LUP that result from cumulative changes to zoning and/or LUP map of the CDMP; and, identified redevelopment trends.

In 2013 a major revision of the countywide population projections was completed, mainly due to the release of the 2010 census. It found a lower population growth between 2000 and 2010 than had been expected, 243,000 new residents as opposed to 310,000. After several years of new inter-census data releases, in 2018 a follow-up revision was completed with an estimated population for 2016 and projected figures out to 2040.

These countywide projections were developed in the same manner as previous series, by using the component method for population projections. The component method uses data on births, deaths, and migration flows, domestic and international. The components of population change

are estimated separately and then combined for total population change. For all components, a linear regression was run using data from 1990 to 2016 to project out to 2040. Historical data was analyzed to spot possible outliers, which could skew the results, for consideration of removal from the projection calculations. Finally, each component's raw projected values were assessed in terms of the need of adjustments in order to make initial projected values consistent with the final historical data points.

Looking forward, the total resident population of the county is expected to rise to 3,086,543 in 2030 and 3,367,040 by 2040. Births are expected to decline from 33,537 in 2018 to 31,120 in 2030 and 27,781 in 2040. Deaths are projected to remain in the 19,000 range up to 2032 and, following its historical downward trend, slide to 18,010 in 2040. Domestic out-migration flows are projected to increase steadily but at a lower rate than in the past. Increasing steadily to 104,009 a year in 2040 from 83,164 in 2016, while in-migration increases at a somewhat faster rate from 60,534 in 2016 to 83,690 in 2040. In net, domestic migration moves from an average of -19,986 in the 2010 – 2016 period to -20,345 in the 2035 – 2040 period. This continued steady drain on the county's population is projected to be offset by immigration, which is projected to remain positive, averaging just over 37,700 in the 2035-2040 period slightly up from an average of 35,568 in the 2011-2016 period. Population projections for Miami-Dade County are shown in Table 1.1-2 below.

Table 1.1-2
Population Projections
Components of Change
Miami-Dade County, Florida: 2000 to 2040

Year Ending March 31	Resident Population	Population Change	Net Migration	Natural Increase (Birth-Death)	Resident Births	Resident Deaths	Net Immigration	Domestic Migration
2010	2,496,436	36,087	21,862	14,225	32,090	17,865	30,364	-8,502
2011	2,549,780	53,344	40,017	13,327	31,339	18,012	35,791	4,226
2012	2,563,954	14,174	1,181	12,993	31,132	18,139	34,358	-33,177
2013	2,568,281	4,327	-7,787	12,114	30,642	18,528	34,605	-42,392
2014	2,594,280	25,999	13,183	12,816	31,358	18,542	36,751	-23,568
2015	2,629,878	35,598	22,480	13,118	32,101	18,983	36,336	-13,856
2016	2,674,279	44,401	31,488	12,913	32,493	19,580	54,118	-22,630
2017	2,702,695	28,416	16,411	12,005	32,331	20,326	36,969	-20,558
2018	2,732,727	30,032	16,458	13,574	33,537	19,963	37,006	-20,548
2019	2,762,698	29,971	16,506	13,465	33,402	19,937	37,043	-20,537
2020	2,792,599	29,901	16,553	13,348	33,254	19,906	37,080	-20,527
2021	2,822,427	29,828	16,601	13,227	33,095	19,868	37,117	-20,516
2022	2,852,175	29,748	16,648	13,100	32,924	19,824	37,154	-20,506
2023	2,881,836	29,661	16,696	12,965	32,740	19,775	37,192	-20,496
2024	2,911,406	29,570	16,744	12,826	32,545	19,719	37,229	-20,485
2025	2,940,877	29,471	16,791	12,680	32,338	19,658	37,266	-20,475
2026	2,970,244	29,367	16,839	12,528	32,118	19,590	37,303	-20,464
2027	2,999,500	29,256	16,886	12,370	31,887	19,517	37,340	-20,454
2028	3,028,639	29,139	16,933	12,206	31,643	19,437	37,377	-20,444
2029	3,057,655	29,016	16,981	12,035	31,387	19,352	37,414	-20,433
2030	3,086,543	28,888	17,028	11,860	31,120	19,260	37,451	-20,423
2031	3,115,297	28,754	17,076	11,678	30,840	19,162	37,488	-20,412
2032	3,143,911	28,614	17,124	11,490	30,548	19,058	37,526	-20,402
2033	3,172,378	28,467	17,171	11,296	30,244	18,948	37,563	-20,392
2034	3,200,692	28,314	17,219	11,095	29,928	18,833	37,600	-20,381
2035	3,228,847	28,155	17,266	10,889	29,600	18,711	37,637	-20,371
2036	3,256,838	27,991	17,314	10,677	29,260	18,583	37,674	-20,360
2037	3,284,658	27,820	17,361	10,459	28,908	18,449	37,711	-20,350
2038	3,312,302	27,644	17,408	10,236	28,544	18,308	37,748	-20,340
2039	3,339,765	27,463	17,456	10,007	28,169	18,162	37,785	-20,329
2040	3,367,040	27,275	17,504	9,771	27,781	18,010	37,823	-20,319
Decade				Ten-Year Annual Change, 1991 to 2040				
1991-2000		31,639	17,732	13,907	32,458	18,551	38,986	-21,253
2001-2010		24,295	9,685	14,610	32,818	18,208	33,569	-23,884
2011-2020		29,616	16,649	12,967	32,159	19,192	38,006	-21,357
2021-2030		29,394	16,815	12,580	32,180	19,600	37,284	-20,470
2031-2040		28,050	17,290	10,760	29,382	18,622	37,656	-20,366

Source: U.S. Bureau of the Census, Decennial Census 2010. Post-2010 figures, Miami-Dade County, Department of Regulatory and Economic Resources, Research Section, 2018.

Population Distribution. For most planning purposes, the geographic distribution and change in population are analyzed using 32 areas of the County called Minor Statistical Areas (MSAs). Minor Statistical Areas are based on census tracts, which are a component of the United States Census geography and may contain one large census tract or an aggregation of census tracts. The

Department of Planning and Zoning established MSAs as planning areas to standardize areas within the County for the development of statistical data and projections.

The relative population distribution projected for 2040 shows that the western part of the County, particularly MSAs 3.1, 3.2, 6.1, and 6.2, that has been the main area of relative growth for the county since the 1970s, peaked as a share of the county's population in 2015 at 28.5 percent, and will have a growth in population more in line with the countywide growth going forward. Receding to 27 percent in 2030 and 26.4 percent in 2040 (see Population Estimates and Projections map below).

The central core comprised of Downtown Miami (MSA 4.7) and the Brickell area (MSA 5.2) that had accounted for 7 percent of the county's population in 1970 and subsequently declined to 4 percent by 2000 is projected to increase to 7 percent again by 2030 and reach 7.4 percent in 2040.

In South Miami-Dade, the current population projections show approximately 10.7 percent of the total County population living south of Eureka Drive (SW 184 Street) in 2020; up from 10.2 percent in 2010 and 8.0 percent in 2000. Going forward the area is projected to account for 12.0 percent of the county's population in 2030 and 12.5 percent in 2040The distribution of projected population growth out to the year 2040 is presented in Tables 1.1-3 and 1.1-4 and Figure 1.1-7 below.

Table 1.1-3
Proposed Population Projections, 2000 to 2040
Miami-Dade County by Minor Statistical Area

Area	2000	2010	2015	2020	2025	2030	2035	2040	Capacity
1.1	16,278	21,751	22,997	29,470	30,527	32,325	33,470	33,470	30,427
1.2	10,513	12,389	12,608	12,698	12,737	13,064	13,430	13,786	12,683
1.3	108,526	108,960	113,948	127,485	131,536	137,042	142,651	148,051	130,264
2.1	160,589	172,876	179,219	193,994	199,993	208,675	217,740	226,631	202,042
2.2	48,988	54,587	57,140	59,546	60,476	62,595	64,893	67,151	62,277
2.3	82,976	83,312	85,115	85,715	89,613	92,767	95,704	98,520	87,635
2.4	78,931	80,165	81,747	82,785	87,779	91,829	95,577	99,134	87,489
3.1	201,811	225,910	234,666	244,014	246,784	254,612	263,159	271,501	250,662
3.2	122,540	147,957	163,852	180,709	183,772	191,458	200,380	209,798	199,736
4.1	87,834	85,289	90,551	93,212	99,590	104,815	109,649	114,215	100,336
4.2	80,689	78,441	81,563	83,904	93,096	99,915	106,024	111,714	97,259
4.3	115,905	116,176	119,583	120,813	124,454	127,821	131,090	134,285	119,897
4.4	16,060	16,182	16,512	16,648	17,265	17,792	18,292	18,776	16,741
4.5	122	7	7	440	899	1,096	1,226	1,330	1,505
4.6	47,631	48,378	51,624	53,857	58,810	62,867	66,663	70,298	62,810
4.7	35,945	49,654	56,328	91,027	111,843	123,629	133,329	142,473	150,863
5.1	122,903	132,529	138,805	141,931	148,620	155,938	163,158	170,075	149,640
5.2	55,896	70,629	77,402	87,947	89,482	93,272	97,704	102,432	99,218
5.3	120,126	127,979	134,314	141,619	147,634	154,740	161,899	168,842	149,742
5.4	102,262	102,113	103,494	103,853	107,517	110,363	113,003	115,559	103,561
5.5	80,111	79,926	82,877	87,585	91,144	94,752	98,269	101,641	89,576
5.6	32,431	32,014	32,795	33,695	35,728	37,331	38,806	40,204	35,541
5.7	25,346	25,078	25,828	26,432	27,769	28,868	29,893	30,872	27,362
5.8	35,040	35,697	36,310	37,310	40,178	42,501	44,640	46,653	40,856
6.1	156,640	186,579	193,240	195,077	197,591	204,567	212,343	220,114	197,188
6.2	125,812	146,136	158,245	162,626	165,646	172,301	179,725	187,274	170,812
7.1	41,575	62,081	67,563	69,888	73,036	76,909	81,065	85,413	84,387
7.2	39,327	47,187	49,985	51,821	64,468	71,815	77,906	83,582	81,019
7.3	32,367	37,836	39,756	40,230	45,098	48,703	52,017	55,228	51,507
7.4	48,364	73,780	86,086	99,251	110,513	118,798	126,544	134,303	138,186
7.5	14,635	28,259	28,496	29,647	39,349	44,434	48,404	52,018	56,534
7.6	5,189	6,578	7,222	7,370	7,930	8,949	10,194	11,697	28,700
Total	2,253,362	2,496,435	2,629,878	2,792,599	2,940,877	3,086,543	3,228,847	3,367,040	3,116,455

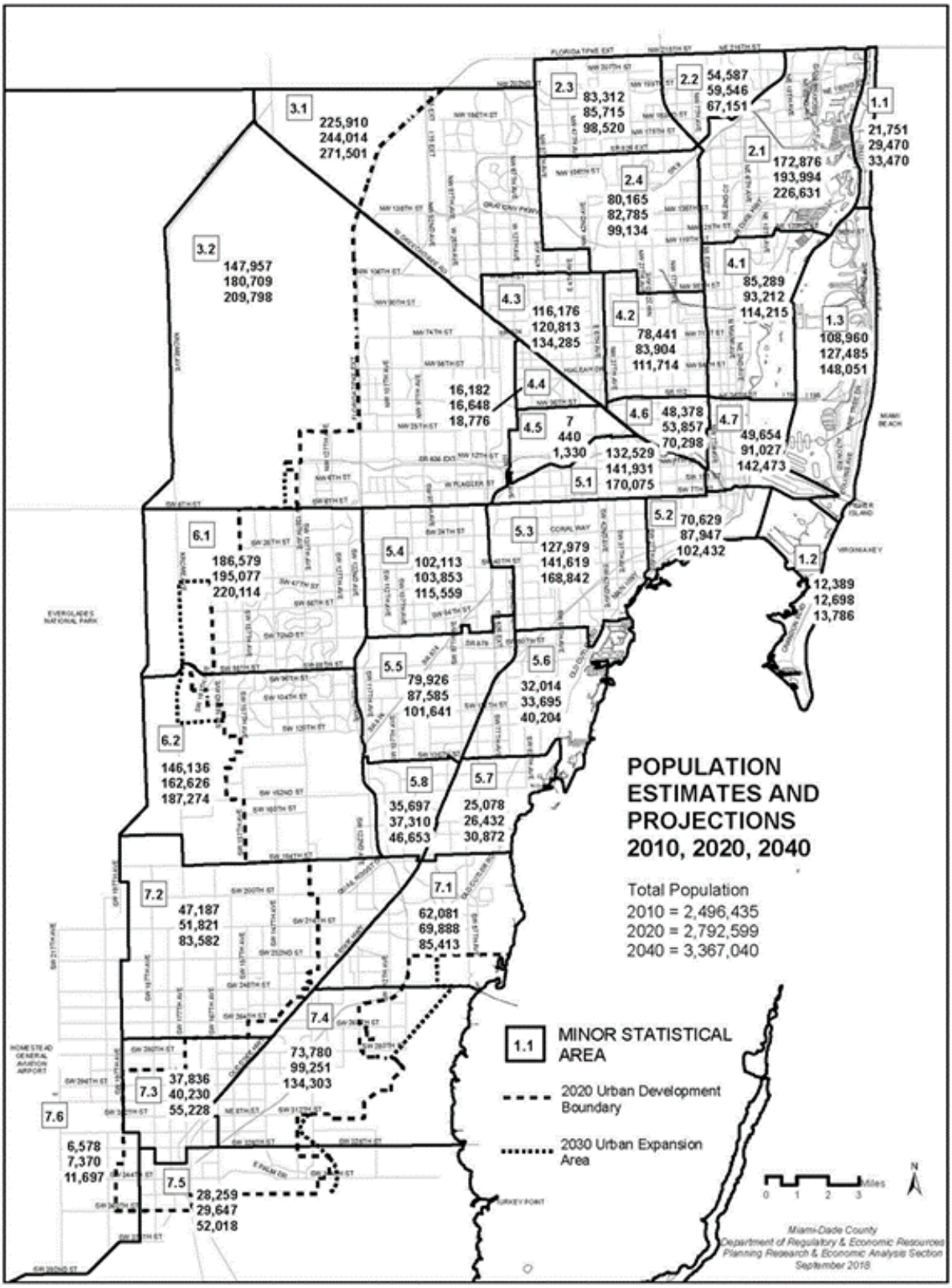
Note: Capacity includes capacity outside the Urban Development Boundary.
The decrease in population from 2000 to 2010 in MSA 4.5 was due to the realignment of the boundary of Census Tract 98.05.
Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research Section 2019.

Table 1.1-4
Annual Average Change
Population Projections 1970-2040
Miami-Dade County by Minor Statistical Area

Area	2000-2010	2010-2020	2020-2030	2030-2040
1.1	547	772	286	115
1.2	188	31	37	72
1.3	43	1,853	956	1,101
2.1	1,229	2,112	1,468	1,796
2.2	560	496	305	456
2.3	34	240	705	575
2.4	123	262	904	731
3.1	2,410	1,810	1,060	1,689
3.2	2,542	3,275	1,075	1,834
4.1	-255	792	1,160	940
4.2	-225	546	1,601	1,180
4.3	27	464	701	646
4.4	12	47	114	98
4.5	-12	43	66	23
4.6	75	548	901	743
4.7	1,371	4,137	3,260	1,884
5.1	963	940	1,401	1,414
5.2	1,473	1,732	533	916
5.3	785	1,364	1,312	1,410
5.4	-15	174	651	520
5.5	-19	766	717	689
5.6	-42	168	364	287
5.7	-27	135	244	200
5.8	66	161	519	415
6.1	2,994	850	949	1,555
6.2	2,032	1,649	968	1,497
7.1	2,051	781	702	850
7.2	786	463	1,999	1,177
7.3	547	239	847	653
7.4	2,542	2,547	1,955	1,551
7.5	1,362	139	1,479	758
7.6	139	79	158	275
Total	24,307	29,616	29,394	27,639

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research Section 2019.

Figure 1.1-7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52,018
POPULATION ESTIMATES AND PROJECTIONS 2010, 2020, 2040
Total Population
2010 = 2,496,435
2020 = 2,792,599
2040 = 3,367,040
1.1 MINOR STATISTICAL AREA
2020 Urban Development Boundary
2030 Urban Expansion Area
Miles
0 1 2 3
N
Miami-Dade County
Department of Regulatory & Economic Resources
Planning Research & Economic Analysis Section
September 2018

Seasonal/Transient Population. Miami-Dade County has been a major destination for tourists and winter visitors since the 1920s. Although, as a share of the resident population, seasonal and overnight visitors has decreased, its size is still substantial and must be accounted for in all types of planning. This group, just as permanent residents, places demands on urban services and facilities. They constitute a "peak load" factor for water and sewer facilities, solid waste collection and disposal, health care, recreational facilities and many other services and facilities. This population includes all nonresidents of Miami-Dade who spend at least one night in the County. Non-residents are distinguished from residents based on their usual home, i.e. the place where they live most of the time (more than six months is the Census criterion).

The measure used in analyzing transient population in Miami-Dade County was the average daily population in the peak month. The basic approach was to estimate the peak seasonal population based on the fluctuations in sales tax data. The annual change was added to a low season tourism base established via hotel/motel occupancy rates. Table 1.1-5 shows the average daily overnight visitors by month for Miami-Dade County, Florida, for 2017 and 2018. As can be seen in the table below the peak month for 2017 was March, while the peak month for 2018 was December when, on average, 218,345 overnight visitors were staying in Miami-Dade County. These visitors were then classified by type. The geographic distribution of this population within Miami-Dade County was also estimated.

Table 1.1-5
Average Daily Overnight Visitors
Monthly
Miami-Dade County 2017 - 2018

Month	2017	2018
January	191,088	174,228
February	204,285	192,875
March	**217,288**	209,924
April	189,941	182,474
May	161,660	163,119
June	154,423	157,506
July	170,556	159,183
August	140,922	160,908
September	110,151	155,235
October	152,108	162,687
November	169,997	172,638
December	217,280	**218,345**
Average	173,308	175,760

Source: Miami-Dade County, Department of Regulatory and Economic Resources. Research and Economic Analysis Section 2019.

Table 1.1-6 presents the distribution of visitors by category in Miami-Dade County by MSA. Just over 40 percent of all visitors stayed in MSAs 1.1, 1.3, and 2.1, the coastal locations. The second largest concentration (about 13 percent) stayed in the downtown Miami - Brickell – Coconut Grove area, that are within MSAs 4.7 and 5.2. The areas adjacent to the airport, MSAs 3.2 and 5.1 accounted for almost 11 percent of visitors with the rest distributed in all other areas of the County.

Table 1.1-6

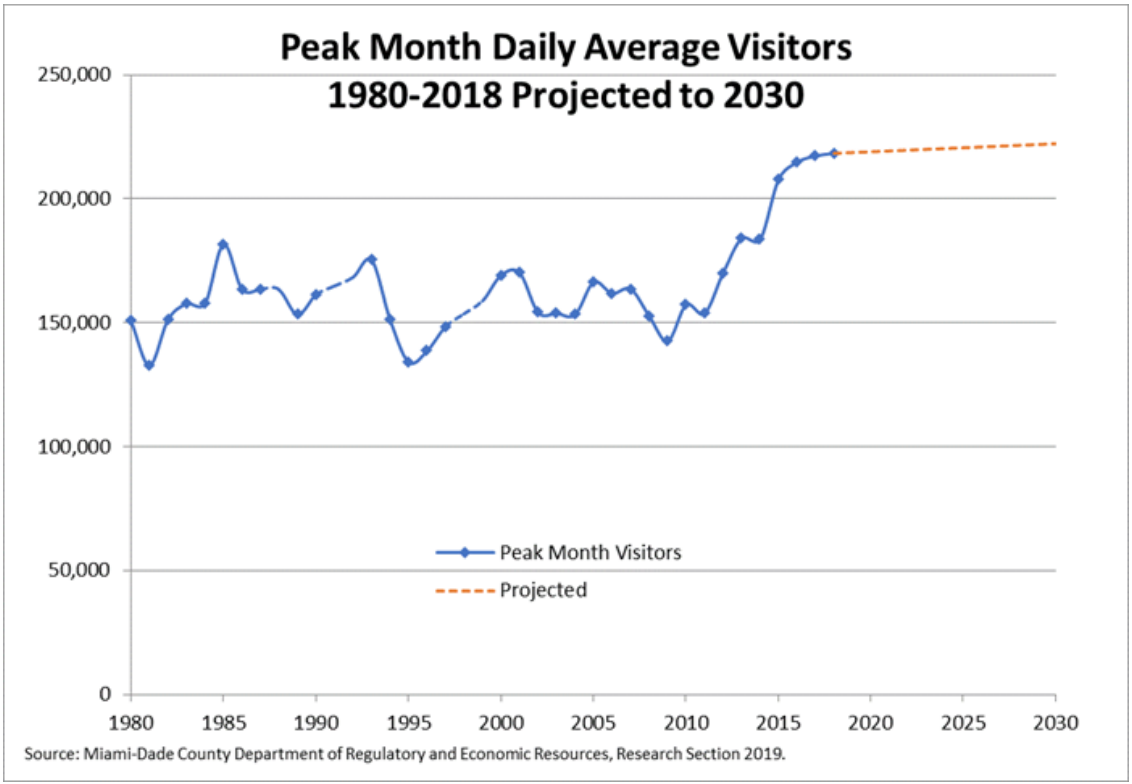
Peak Month Distribution of Transient Population
by Type of Accommodation
Miami-Dade County 2018 by Minor Statistical Area

Area	Total Visitors	Hotels, Motels, & Rooming Houses	Short Term Peer to Peer Rental	With Family & Friends	Trailer Park, Marinas & Campgrounds	Nonresident Households
1.1	12472	2614	1019	578	23	8238
1.2	3289	646	59	251	521	1812
1.3	59352	35339	3972	2959	250	16832
2.1	18234	2136	1046	3388	828	10836
2.2	1499	0	120	995	0	384
2.3	1821	347	80	1227	0	167
2.4	1636	49	127	1345	0	115
3.1	6047	1703	209	3826	81	228
3.2	15695	10384	361	2632	56	2262
4.1	5221	1074	1530	1726	181	710
4.2	1947	112	162	1370	28	275
4.3	3628	1313	25	2042	33	215
4.4	3431	2913	115	313	0	90
4.5	6101	6101	0	0	0	0
4.6	1772	314	174	946	97	241
4.7	14201	8177	1550	1308	114	3052
5.1	8030	3976	852	2825	0	377
5.2	14859	5759	1763	1718	117	5502
5.3	8721	3805	1125	2596	8	1187
5.4	2326	208	206	1629	0	283
5.5	3922	1625	308	1619	0	370
5.6	1009	0	78	616	176	139
5.7	756	158	54	428	14	102
5.8	646	0	54	585	0	7
6.1	3966	189	316	3088	0	373
6.2	3861	678	342	2425	0	416
7.1	1846	443	107	1099	183	14
7.2	2423	8	76	787	1504	48
7.3	1817	478	54	561	649	75
7.4	3225	1310	154	1286	428	47
7.5	3579	1586	17	449	1330	197
7.6	1013	0	0	101	879	33
Totals	**218,345**	**93,445**	**16,055**	**46,718**	**7,500**	**54,627**
	100.0%	42.8%	7.4%	21.4%	3.4%	25.0%

Source: Research Section, Miami-Dade, Regulatory and Economic Resources Department, Research Section 2019

For at least thirty years, between 1980 and 2010, the peak month daily average visitors remained within a defined range, around a 155 thousand average, and showed no clear trend either upward or downward. Over this period, the difference between the peak month and the rest of the months compressed, and in doing so, total yearly visitors to the area has generally increased. With the vantagepoint of several years gone by, it is now clear that after a low in 2009 during the great recession, the peak month daily average visitors started on an upward trend, breaking the thirty-

year average and by 2015 surpassing the 200,000 mark. Over the last9 years, the increase has been sharp and then moderated towards the very last three years, giving an indication that the value will settle at around 220,000 for the foreseeable future.



Projected Residential Land Supply and Demand

Supply and demand analysis is done to determine the adequacy of the existing capacity to accommodate projected growth.

Residential supply is based on the amount of developable vacant and agricultural land inside the UDB, and redevelopment capacity. Residential demand is assessed in terms of housing units that will be needed to accommodate projected population growth of the county over the planning horizon. Future population figures for the county are developed by using the component method as described in a sperate document. The projected population is allocated to the county's 32 Minor Statistical Areas (MSAs) by extrapolating from historic trends and capacity. The population figures are converted into housing units by applying the persons per household ratio to determine residential demand. In order to adjust for the demand for second homes, a procedure to estimate the number of units used by non-residents for seasonal purposes was added. (The percent of units used for this purpose, by MSA, was derived from the 2010 Census.

Before reviewing the new figures, it is worth noting a caution that has invariably accompanied population and housing projections for Miami-Dade County. The numbers that are projections, not predictions, of future conditions. They are an indication of what will happen if the current assumptions hold true. These assumptions are based on a thorough review of current trends and conditions in Miami-Dade County. However, experience has shown that the Miami-Dade County

housing market, like its population growth, is quite variable. The future will be different from the projections. This was especially relevant during the recent period of high foreclosures and exceedingly high vacancy rates.

Table 1.1 shows that the projected demand for single-family and multi-family housing countywide and compares this with the existing residential land supply within the year 2019 UDB. Currently, enough capacity exists within the UDB to accommodate projected demand beyond the year 2040. The single-family supply is projected to be exhausted by 2024; the multi-family beyond 2040.

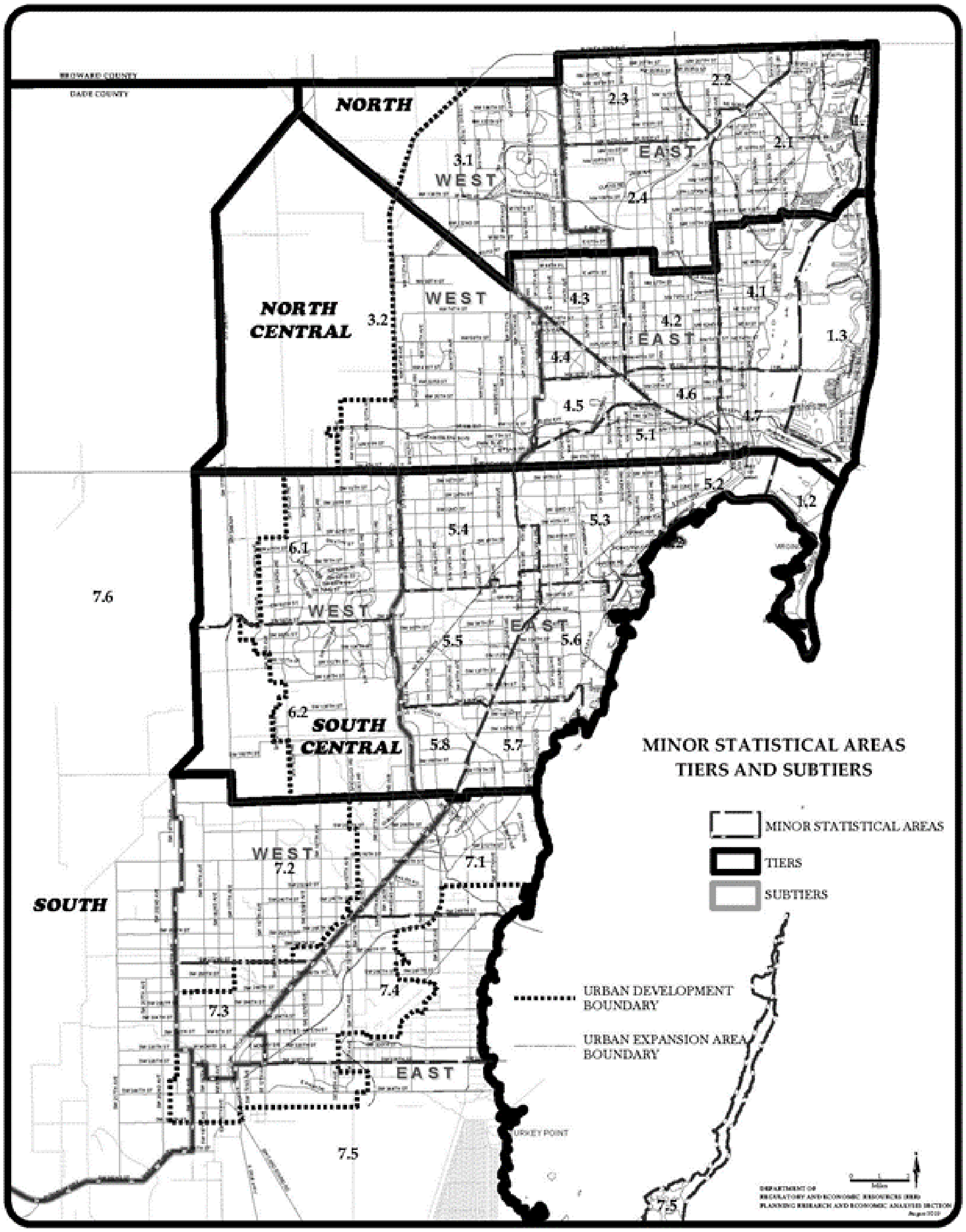
Table 1.1
Residential Land Supply/Demand Analysis
Miami-Dade County, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Structure Type		
	Single Family	Multi-Family	Both Types
Capacity in 2019	28,581	233,655	262,236
Annual Demand in 2015-2020	4,728	8,391	13,119
Capacity in 2020	23,853	225,264	249,117
Annual Demand in 2020-2025	5,478	5,263	10,741
Capacity in 2025	0	198,949	195,412
Annual Demand in 2025-2030	5,482	5,007	10,489
Capacity in 2030	0	173,914	142,967
Annual Demand in 2030-2035	5,405	4,806	10,211
Capacity in 2035	0	149,884	91,912
Annual Demand in 2035-2040	5,292	4,587	9,879
Capacity in 2040	0	126,949	42,517
Depletion Year	2024	2040+	2040+

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, November 2019.

Tables 1.1-8 through 1.1-11 show similar data for the four tiers used for the residential supply/demand analysis. These tiers are further broken down by sub tier into eastern and western halves.

Figure 1.1-8



The North Tier has enough capacity to accommodate projected demand through the year 2034. The single-family supply is projected to be exhausted by 2025, whereas the multi-family supply is depleted after 2040. The projected demand for housing is lower in the western half. The capacity there is projected to be depleted by 2031. In the eastern half the projected depletion year is 2036.

Table 1.1-8
Residential Land Supply/Demand Analysis
North Miami-Dade Tier, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Subtier								
	Eastern Part			Western Part - MSA 3.1			North Miami-Dade Total		
	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types
Capacity in 2019	2,945	20,173	23,118	2,205	2,603	4,808	5,150	22,776	27,926
Annual Demand in 2015-2020	641	1,358	1,999	328	267	595	969	1,625	2,594
Capacity in 2020	2,304	18,815	21,119	1,877	2,336	4,213	4,181	21,151	25,332
Annual Demand in 2020-2025	609	541	1,150	97	79	176	706	620	1,326
Capacity in 2025	0	16,110	15,369	1,392	1,941	3,333	651	18,051	18,702
Annual Demand in 2025-2030	657	748	1,405	274	224	498	931	972	1,903
Capacity in 2030	0	12,370	8,344	22	821	843	0	13,191	9,187
Annual Demand in 2030-2035	645	707	1,352	300	244	544	945	951	1,896
Capacity in 2035	0	8,835	1,584	0	0	0	0	8,436	0
Annual Demand in 2035-2040	613	595	1,208	293	238	531	906	833	1,739
Capacity in 2040	0	5,860	0	0	0	0	0	4,271	0
Depletion Year	2023	2040+	2036	2030	2033	2031	2025	2040+	2034

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, 2019.

The more established and heavily developed North Central Tier has enough capacity to accommodate project demand beyond the year 2040. The single-family supply is projected to be exhausted by 2021, whereas the multi-family supply will be depleted after 2040. The projected demand for housing is higher in the eastern half and land is projected to be exhausted beyond the year 2040. In the western half the projected depletion year is 2036.

Table 1.1-9
Residential Land Supply/Demand Analysis
North Central Tier, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Subtier								
	Eastern Part			Western Part - MSA 3.2			North Central Total		
	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types
Capacity in 2019	2,890	140,054	142,944	1,198	7,712	8,910	4,088	147,766	151,854
Annual Demand in 2015-2020	952	4,776	5,728	560	579	1,139	1,522	5,355	6,867
Capacity in 2020	1,938	135,298	137,216	638	7,133	7,771	2,576	142,411	144,987
Annual Demand in 2020-2025	1,400	3,308	4,708	102	105	207	1,502	3,413	4,915
Capacity in 2025	0	118,738	113,676	128	6,608	6,736	0	125,346	120,412
Annual Demand in 2025-2030	1,176	2,501	3,677	255	264	519	1,431	2,765	4,196
Capacity in 2030	0	106,233	95,291	0	5,288	4,141	0	111,521	99,432
Annual Demand in 2030-2035	1,098	2,272	3,370	296	306	602	1,394	2,578	3,972
Capacity in 2035	0	94,873	78,441	0	3,758	1,131	0	98,631	79,572
Annual Demand in 2035-2040	1,045	2,162	3,207	313	323	636	1,358	2,485	3,843
Capacity in 2040	0	84,063	62,406	0	2,143	0	0	86,206	60,357
Depletion Year	2021	2040+	2040+	2025	2040+	2036	2021	2040+	2040+

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, 2019.

The South-Central Tier has enough capacity to accommodate projected demand through the year 2036. The single-family supply is projected to be exhausted by 2021, whereas the multi-family supply is depleted after 2040. The projected demand for housing is higher in the eastern part and the capacity there is higher. This capacity is projected to be depleted after 2040. In the western

half, the projected depletion year is by the year 2025. Here the single-family depletion year is 2021.

Table 1.1-10
Residential Land Supply/Demand Analysis
South Central Tier, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Subtier								
	East of Turnpike			West of Turnpike			South Central Total		
	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types
Capacity in 2019	2,091	37,834	39,925	810	1,955	2,765	2,901	39,789	42,690
Annual Demand in 2015-2020	1,088	1,039	2,127	317	72	389	1,405	1,111	2,516
Capacity in 2020	1,003	36,795	37,798	493	1,883	2,376	1,496	38,678	40,174
Annual Demand in 2020-2025	1,078	483	1,561	278	67	345	1,356	550	1,906
Capacity in 2025	0	34,380	29,993	0	1,548	651	0	35,928	30,644
Annual Demand in 2025-2030	1,103	643	1,746	682	168	850	1,785	811	2,596
Capacity in 2030	0	31,165	21,263	0	708	0	0	31,873	17,664
Annual Demand in 2030-2035	1,089	678	1,767	761	187	948	1,850	865	2,715
Capacity in 2035	0	27,775	12,428	0	0	0	0	27,548	4,089
Annual Demand in 2035-2040	1,061	681	1,742	767	188	955	1,828	869	2,697
Capacity in 2040	0	24,370	3,718	0	0	0	0	23,203	0
Depletion Year	2020	2040+	2040+	2021	2033	2025	2021	2040+	2036

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, 2019.

The South Tier has enough capacity to accommodate projected demand up to the year 2040. The single-family supply is projected to be depleted by 2029, whereas the multi-family supply is exhausted after 2040. The projected demand for housing is greater in the eastern half, and there is more capacity in there. This capacity is projected to be depleted after 2040. In the western half, the projected depletion year is 2038.

Table 1.1-11
Residential Land Supply/Demand Analysis
South Dade Tier, 2019 to 2040

Analysis Done Separately for Each Type, i.e. No Shifting of Demand between Single & Multifamily Type	Subtier								
	East of US-1			West of US-1			South Total		
	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types	Single Family	Multi-Family	Both Types
Capacity in 2019	10,150	14,927	25,077	6,282	8,612	14,894	16,432	23,539	39,971
Annual Demand in 2015-2020	723	268	991	119	32	151	842	300	1,142
Capacity in 2020	9,427	14,659	24,086	6,163	8,580	14,743	15,590	23,239	38,829
Annual Demand in 2020-2025	1,059	425	1,484	855	255	1,110	1,914	680	2,594
Capacity in 2025	4,132	12,534	16,666	1,888	7,305	9,193	6,020	19,839	25,859
Annual Demand in 2025-2030	768	293	1,061	567	166	733	1,335	459	1,794
Capacity in 2030	292	11,069	11,361	0	6,475	5,528	0	17,544	16,889
Annual Demand in 2030-2035	709	267	976	507	145	652	1,216	412	1,628
Capacity in 2035	0	9,734	6,481	0	5,750	2,268	0	15,484	8,749
Annual Demand in 2035-2040	705	261	966	495	139	634	1,200	400	1,600
Capacity in 2040	0	8,429	1,651	0	5,055	0	0	13,484	749
Depletion Year	2030	2040+	2040+	2028	2040+	2038	2029	2040+	2040

Source: Miami-Dade County, Department of Regulatory and Economic Resources, Research and Economic Analysis Section, 2019.

Appendix 3

Description of Soils Classified as Farmland of Unique Importance

- ***Krome very gravelly loam (Soil Survey ID No. 7)*** *– This soil is suitable for a wide variety of fruit and vegetable crops, but special management is needed. This management includes yearly rock-plowing, bedding, regularly adding fertilizer, and irrigating during the winter growing season. Because of a favorable climate, the water available for irrigation, and the demand by northern markets, this high level of management is practical. This soil is suitable for the production of fruit and citrus, but this production requires trenching, drilling, or blasting into the limestone. Regular applications of fertilizer and irrigation water also are needed. This soil is suited to pasture. This soil generally is not used as rangeland or forest land. (Source: 1996 Soil Survey)*
- ***Chekika very gravelly loam (Soil Survey ID No. 23)*** *– This soil is suitable for a wide variety of fruit and vegetable crops, but special management is needed. This management include yearly rock-plowing, bedding, regularly adding fertilizer, and irrigating during the winter growing season. Because of a favorable climate, the water available for irrigation, and the demand by northern markets, this high level of management is practical. This soil is suitable for the production of fruit and citrus, but this production requires trenching, drilling, or blasting into the limestone. Regular application of fertilizer and irrigation water also are needed. This soil is suited to pasture. Common bermudagrass and improved bahiagrass grow well if the pasture is properly maintained. This soil is not used as rangeland or forest land. (Source: 1996 Soil Survey)*
- ***Biscayne Marl, drained (Soil Survey ID No. 16)*** *– All areas have been drained and cultivated at some time in the past. A water control system has been installed in most areas. If the water control system is properly maintained, this soil is well suited to a variety of shallow-rooted cultivated crops. Much of the cultivated acreage is used for corn, potatoes, snap beans, sorghum malanga, or ornamental trees and shrubs. Land grading and smoothing fill in the small depressions that are common in areas of this soil and thus improve surface drainage and permit more efficient use of farm equipment and more uniform application of irrigation water. Bedding is necessary if ornamental plants or root crops are grown. This soil is suited to pasture. Deferred grazing during the wet periods helps prevent compaction of the soil. This soil is poorly suited to the production of citrus and mangos because of the wetness. It is unsuited to the production of avocados. This soil is generally not used as rangeland or forest land. (Source: 1996 Soil Survey)*
- ***Biscayne gravelly marl, drained (Soil Survey ID No. 2)*** *– This very shallow, nearly level, poorly drained soil is on broad, low flats, in sloughs, and in traverse glades that extend from the Pineland Ridge. The water table in the Biscayne soil remains within 10 inches of the surface for 2 to 4 months during most years, receding to as deep as 36 inches during dry periods. All areas have been drained, rock-plowed or mechanically scarified, and cultivated at some time in the past. In most areas, a water-control system has been installed. If the water-control system is properly maintained, this soil is well suited to a variety of shallow-rooted cultivated crops. Much of the cultivated acreage is used for corn, snap beans, potatoes, malanga, or bananas. Yearly rock-plowing may be necessary to incorporate some of the finer textured soil material in solution holes. Bedding is necessary if root crops are gown. Important management practices include preparing a good seedbed and applying fertilizer according to the results of soil test and the needs of the crop. This soil is poorly suited to the production of ornamental trees and shrubs for nursery*

stock because of the depth to bedrock. It is poorly suited to the production of citrus and mangos because of the wetness. It is unsuited to the production of avocados. This soil is suited to pasture, common bermudagrass and improved bahiagrass grow well if the pasture is properly managed. This soil is not used as rangeland or forest land. (Source: 1996 Soil Survey)

- ***Perrine marl, drained (Soil Survey ID No. 6)*** *– This moderately deep, nearly level, poorly drained soil is on broad, low coastal flats and in transverse glades. A water-control system has been installed in most areas. If the water-control system is properly maintained, this soil is well suited to a variety of cultivated vegetable and grain crops. Much of the cultivated acreage is used for corn, potatoes, snap beans, sorghum, malanga, or ornamental trees and shrubs. Bedding generally is necessary if ornamental plants or root crops are gown. Important management practices include preparing a good seedbed, applying fertilizer according to the results of soil tests and the needs of the crop, and controlling weeds and bush. Because of a high pH, some micronutrients may not be available to certain crops. Boron toxicity may affect some crops. This soil is suited to pasture, Common bermudagrass and improved bahiagrass grow well if the pasture is properly managed. This soil is poorly suited to the production of citrus and mangos because of the wetness. It is unsuited to the production of avocados. This soil generally is not used as rangeland or forest land. (Source: 1996 Soil Survey)*

Appendix 4

Sprawl Indicators in State Law

Section 163.3177(6)(a)(9), Florida Statutes

a. The primary indicators that a plan or plan amendment does not discourage the proliferation of urban sprawl are listed below. The evaluation of the presence of these indicators shall consist of an analysis of the plan or plan amendment within the context of features and characteristics unique to each locality in order to determine whether the plan or plan amendment:

(I) Promotes, allows, or designates for development substantial areas of the jurisdiction to develop as low-intensity, low-density, or single-use development or uses.

(II) Promotes, allows, or designates significant amounts of urban development to occur in rural areas at substantial distances from existing urban areas while not using undeveloped lands that are available and suitable for development.

(III) Promotes, allows, or designates urban development in radial, strip, isolated, or ribbon patterns generally emanating from existing urban developments.

(IV) Fails to adequately protect and conserve natural resources, such as wetlands, floodplains, native vegetation, environmentally sensitive areas, natural groundwater aquifer recharge areas, lakes, rivers, shorelines, beaches, bays, estuarine systems, and other significant natural systems.

(V) Fails to adequately protect adjacent agricultural areas and activities, including silviculture, active agricultural and silvicultural activities, passive agricultural activities, and dormant, unique, and prime farmlands and soils.

(VI) Fails to maximize use of existing public facilities and services.

(VII) Fails to maximize use of future public facilities and services.

(VIII) Allows for land use patterns or timing which disproportionately increase the cost in time, money, and energy of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government.

(IX) Fails to provide a clear separation between rural and urban uses.

(X) Discourages or inhibits infill development or the redevelopment of existing neighborhoods and communities.

(XI) Fails to encourage a functional mix of uses.

(XII) Results in poor accessibility among linked or related land uses.

(XIII) Results in the loss of significant amounts of functional open space.

b. The future land use element or plan amendment shall be determined to discourage the proliferation of urban sprawl if it incorporates a development pattern or urban form that achieves four or more of the following:

(I) Directs or locates economic growth and associated land development to geographic areas of the community in a manner that does not have an adverse impact on and protects natural resources and ecosystems.

(II) Promotes the efficient and cost-effective provision or extension of public infrastructure and services.

(III) Promotes walkable and connected communities and provides for compact development and a mix of uses at densities and intensities that will support a range of housing choices and a multimodal transportation system, including pedestrian, bicycle, and transit, if available.

(IV) Promotes conservation of water and energy.

(V) Preserves agricultural areas and activities, including silviculture, and dormant, unique, and prime farmlands and soils.

(VI) Preserves open space and natural lands and provides for public open space and recreation needs.

(VII) Creates a balance of land uses based upon demands of the residential population for the nonresidential needs of an area.

(VIII) Provides uses, densities, and intensities of use and urban form that would remediate an existing or planned development pattern in the vicinity that constitutes sprawl or if it provides for an innovative development pattern such as transit-oriented developments or new towns as defined in s. 163.3164.