

Application No. 8

Commission Districts 11 and 12

Community Councils 5, 10 and 11

APPLICATION SUMMARY

Applicant/Representative: Jack Osterholt, Deputy Mayor/Director; Miami-Dade County Regulatory and Economic Resources Department

Location: Generally between NW/SW 137 Avenue and Krome Avenue and between NW 12 Street and SW 136 Street

Requested Land Use Plan Map designation and other Changes: Amend the LUP map to Include the SR-836/Dolphin Expressway southwest extension as an Expressway
Amend the Transportation Element map series in the Traffic Circulation Subelement and Mass Transit Subelement to include the SR-836/Dolphin Expressway southwest extension

Amendment Type: Standard

RECOMMENDATIONS

Staff Final **ADOPT AS TRANSMITTED WITH CHANGE** and approve the related Interlocal Agreement (September 2018)

Staff Initial: **TRANSMIT WITH FURTHER CHANGE AND ADOPT** (April 2018)

Country Club of Miami Community Council (5): **TRANSMIT WITH CHANGE AND ADOPT WITH THE CONDITION THAT A TOLL ROAD NOT BE ALLOWED** (March 21, 2018)

Westchester Community Council (10): **TRANSMIT WITH CHANGE AND ADOPT WITH THE CONDITION THAT THE SR 836 EXTENSION BE STUDIED IN CONJUNCTION WITH FUTURE PLANNING AND EXPANSIONS OF THE URBAN EXPANSION AREAS (UEA), TAKING INTO CONSIDERATION THE CAPACITIES THAT WILL RESULT FROM UEA EXPANSIONS** (March 22, 2018)

West Kendall Community Council (11): **TRANSMIT WITH CHANGE AND ADOPT WITH THE ADDITIONAL CHANGE THAT THE CORRIDOR BE ALIGNED IMMEDIATELY EAST OF KROME AVENUE** (April 3, 2018)

Planning Advisory Board (PAB) acting as the Local Planning Agency: **TRANSMIT AND ADOPT WITH CHANGE AND WITH THE CONDITION THAT THE SR 836 EXTENSION BE STUDIED IN CONJUNCTION WITH FUTURE PLANNING AND EXPANSIONS OF THE URBAN EXPANSION AREAS (UEA), TAKING INTO CONSIDERATION THE CAPACITIES THAT WILL RESULT FROM UEA EXPANSIONS** (April 9, 2018)

Board of County Commissioners (BCC) Transmittal Action: **TRANSMIT WITH FURTHER CHANGE AND ADOPT** [Further changes include a policy requiring the alignment of the SR 836 south extension remain outside and to the east of the boundary of the 10 day travel time contour of the west wellfield area; and all drainage shall be subject to DERM approval for conformance to Chapter 24 of the Code; prior to the construction of the roadway, or any phase thereof, MDX shall prepare a surface water sheet flow analysis to demonstrate that the wetlands hydrology in this area shall be adequately retained; and (2) Figure 1 entitled "Planned Year 2030 Roadway Network – Arterials, Collectors and other Significant Paved Roads" be corrected to reflect that the roadway portion between 8 Street and 88 Street was 6 lanes and not 4 lanes. (April 25, 2018)

BCC Final Action: **TO BE DETERMINED** (September 27, 2018)

Staff recommends to **ADOPT AS TRANSMITTED WITH CHANGE** the application to amend the Comprehensive Development Master Plan (CDMP) Land Use Element text and approve the related Interlocal Agreement based on the following reason:

- A. The change to the application is a revision to the alignment of the proposed SR-836/Dolphin Expressway southwest extension corridor to address comments made on the application at the Board of County Commissioners' June 20, 2018 transmittal public hearing. The comments raised concerns with the shift in the alignment of the southern segment of the proposed SR-836 southwest extension corridor between SW 104 Street and SW 136 Street to be along SW 177 Avenue/Krome Avenue, rather than being aligned as originally proposed along the west side of SW 162 Avenue and west of, but close to, the Urban Development Boundary (UDB). The recommended change to the application presents an alignment for the corridor having the segment south of SW 104 Street aligned along the west side of SW 162 Avenue, while the corridor segment north of SW 104 Street follows the alignment of the previously recommended "Alternative to the Preferred Alignment" further discussed below. This recommended alignment, the 'Final Recommended Alignment', is depicted on the Proposed CDMP Land Use map and map series of the CDMP Transportation Element, pages 8-11 through 8-20.

In the staff report titled "Initial Recommendations, October 2017 Cycle Applications to Amend the Comprehensive Development Master Plan", dated April 2018 staff presented the alignment of the proposed SR-836 extension corridor as originally filed (the Original Alignment) and an alternative to the Original Alignment identified as the Preferred Alignment was added to the application. The Preferred Alignment followed the alignment of the Original Alignment north of SW 104 Street, but, was aligned along Krome Avenue south of SW 104 Street to SW 136 Street. Staff subsequently published a document titled "Further Recommended Changes, October 2017 CDMP Amendment Cycle: Application No. 8", dated June 8, 2018 wherein an additional alignment was recommended for the proposed expressway extension corridor to address residents' concerns with the alignment including those concerns expressed at an April 18, 2018 public meeting. Those concerns were regarding the alignment of the corridor along SW 167 Avenue between SW 40 Street and SW 80 Street and the recommended change moved that segment of the corridor alignment west to approximately SW 170 Avenue and this alternative alignment was identified as the "Alternative to the Preferred Alignment". Staff now recommends the Final Recommended Alignment which is aligned as the "Alternative to the Preferred Alignment" north of SW 104 Street and aligned as the Original Alignment south of SW 104 Street.

- B. As required in the Policy ICE-2F proposed herein, on page 8-10, staff has worked with representatives of the Miami-Dade Expressway Authority (MDX) to develop an Interlocal Agreement for the approval upon adoption of the CDMP amendment application. The Interlocal Agreement provides for implementation of the CDMP policies recommended for adoption with and as part of the application. See Appendix A herein.
- C. The Miami-Dade Board of County Commissioners on June 20, 2018 heard and transmitted the application for state and regional agency review. The Florida Department of Economic Opportunity (DEO) and other state and regional agencies (reviewing agencies) reviewed and issued correspondence addressing the transmitted application in August 2018. The Florida Department of Environmental Protection offered technical comments on the application while the Florida Department of Transportation (FDOT), the South Florida Water Management

District, and the South Florida Regional Planning Council requested additional information in order to determine the full impacts the application would have on facilities and resources within their respective jurisdictions. The other reviewing agencies including the DEO issued no comments on the application. The comments from the above mentioned reviewing agencies are addressed herein beginning on page 8-21.

The Principal Reasons presented in the [April 2018 Initial Recommendations](#) report are presented below and are maintained as basis for the staff's recommendation on the application.

1. The application seeks to allow the future construction of the southwest extension of SR-836/Dolphin Expressway from its current terminus at approximately NW 12 Street and NW 137 Avenue to SW 136 Street, consistent with Objective TC-1 and Policies TC-4A and TC-4B of the CDMP Traffic Circulation Subelement. Objective TC-1 provides that the County should strive to operate its roadway network at levels of service (LOS) better than the adopted LOS standards contained within the CDMP. The purpose of the SR-836/Dolphin Expressway southwest extension is to relieve existing traffic congestion within the west Kendall area. As discussed in the Existing Traffic Conditions section on page 8-26 [of the Initial Recommendations report], multiple roadways in southwest Miami-Dade County are congested and operating at levels of service below their adopted LOS standards. The congested roadway conditions are also documented in the Traffic Impact Study, Corridor Evaluation Traffic Technical Memorandum dated February 2017 of the Miami-Dade Expressway Authority ("MDX") SR 836/Dolphin Expressway Southwest Extension PD&E Study prepared by Jacobs Engineering Group, Inc., and Alternative Corridor Evaluation (ACE) Report dated February 2017 prepared by Stantec Consulting Services, Inc. (see Appendix B & Appendix C: Traffic Impact Study and Alternative Corridor Evaluation (ACE) Report). The Technical Memorandum evaluated the area between NW 12 Street and SW 152 Street and between Krome Avenue and SW/NW 97 Avenue (the Area of Impact), and identified that the SR-836 southwest extension would significantly improve traffic conditions within the study area.

Traffic Circulation Subelement Policies TC-4A and TC-4B require consistency of the Traffic Circulation Subelement with the Land Use Element and that the Adopted 2020 and 2030 Land Use Plan (LUP) map of the CDMP Land Use Element shall be used to guide the planning of future transportation corridors and facilities. Therefore, for the SR-836 southwest extension to be implemented, the LUP map and Traffic Circulation Subelement must first be amended to include the expressway extension, as requested in the application and consistent with these provisions of the CDMP.

2. The SR-836 southwest extension is proposed in response to the existing transportation capacity needs within southwestern Miami-Dade County, consistent with Traffic Circulation Element Policy TC-3, which requires the County's transportation system to emphasize safe and efficient management of traffic flow, protect the safety of pedestrians and bicyclists, and enhance and encourage the use of mass transit. The extension is not intended to serve as an impetus for urban development or for expansion of the Urban Development Boundary (UDB).

Public health, safety, and welfare are paramount concerns of governments, and the efficiency of the roadway network may affect a community's wellbeing in varying ways. The SR-836 southwest extension proposes to add capacity to the roadway network and significantly improve travel times between the southwest portion of the County and centers

of employment, such as the Miami International Airport and the Doral areas, which provides a benefit to the public health, safety, and welfare.

While roadways facilitate long-distance and local travel and provide access to real property, they also significantly affect the use and development of land in their immediate and general vicinity. In high growth areas such as Miami-Dade County, any reduction in travel time between centers of population and commerce directly increases competition in the land market between urban uses, including residential and commercial uses. This could generate increased demand for development of land adjacent to the proposed expressway corridor. Because the proposed alignment is generally adjacent to but outside the UDB, the SR-836 southwest extension could have the unintended consequence of increasing development pressure on land outside the UDB, including current agricultural lands, if the proposed amendment only addressed the future construction of the roadway. Therefore, to counterbalance the possibility of increased development pressure and to discourage urban sprawl, additional policies to protect the current rural character of land outside the UDB are recommended as part of this proposed amendment.

3. To further ensure that the southwest extension does not contribute to an increase in development pressure on land outside the UDB, the Department recommends the adoption of the application with changes. The recommended changes are to the CDMP Land Use Element and Transportation Element to require that the capacity of the proposed expressway extension and the capacity it generates on the roadway network in the area of impact (outlined in Principal Reason No. 1 above) are not made available for concurrency roadway analysis purposes. The proposed policies are presented as 'Recommended Changes to the Application' on page 8-5 [of the Initial Recommendations Report] and further discussed below.
4. To further ensure that the project will not increase development pressure outside the UDB, the Department recommends that a new policy be added to the Land Use Element to require MDX to acquire development rights on land in the Bird Drive and North Trail Basins for preservation and for the wetlands mitigation of the project to be focused within these basins to the maximum extent feasible. The purchase and preservation of these lands will create a buffer between a significant portion of the planned roadway and the UDB, reducing the prospect of future development in that area and facilitating the preservation of important wetland resources in perpetuity.
5. CDMP Land Use Element Policy LU-8G(iii)(d) is proposed to be modified to recognize that public services and facilities that are limited by the CDMP, such as the SR-836 southwest extension as proposed herein, cannot form the basis for expansion of the UDB. In its current form, the policy identifies areas within which urban expansion could occur, if warranted, and specifies that areas having projected surplus capacity for public facilities and services may be considered for such expansion. The proposed amendment would ensure that the surplus capacity derived through implementation of the SR-836 southwest extension could not be used to support urban expansion.
6. CDMP Land Use Element Policy LU-8C requires the County to protect and promote agriculture as a viable economic use of land in the County. Therefore, the Department recommends that the MDX be required to preserve agricultural lands that are currently being used for agricultural production, commensurate with the amount of such lands that would be impacted by the roadway extension. The mitigation of impacts could be accomplished through participation in the County's Purchase Development Rights

program or other mechanism acceptable to the County, whereby the MDX would fund and cause agricultural lands to be preserved.

7. As proposed, the SR-836 southwest extension seeks to incorporate mass transit service and a multi-use recreational trail within the proposed corridor. These transit and recreational trail features are consistent with and furthers Traffic Circulation Subelement Objective TC-3, which requires the County's transportation system to enhance and encourage the use of transit. These features are also consistent with and furthers Traffic Circulation Subelement Policy TC-4F, which requires the County to improve strategies to facilitate a countywide shift in travel modes from personal automobile use to pedestrian, bicycle and transit modes. The application proposes to incorporate lanes having technologies that facilitate the safe travel of automated vehicles, including mass transit vehicles, at high rates of speed for a seamless connection with the transit service being implemented as part of the current SR 836 reconstruction generally east of the Turnpike. The application also includes park and ride locations and a multiuse recreational trail within the corridor of the proposed expressway extension and recognizes that the coordination of these features within the corridor would build on the transit opportunities in the SMART Plan for Miami-Dade County. These provisions for mass transit and recreational trail are consistent with Objective TC-3 and Policy TC-4F outlined above.

Moreover, the Department recommends a new policy requiring the coordination of the transit service with the County's Department of Transportation and Public Works, and a new policy to ensure that the multi-use trail is developed to an acceptable standard.

8. It is recommended that Miami-Dade County enter into an Interlocal Agreement with the Miami-Dade Expressway Authority for implementation of the policies proposed herein. Accordingly, it is recommended that the CDMP Intergovernmental Coordination Element be amended to require such an Interlocal Agreement. It is further recommended that the required agreement should be approved concurrently with the adoption of this application.

REQUESTED AMENDMENTS

Amend the Comprehensive Development Master Plan (CDMP) Adopted 2020 and 2030 Land Use Plan (LUP) map and Transportation Element to include the SR-836/Dolphin Expressway southwest extension, from the SR-836 interchange at NW 137th Avenue to SW 136 Street, as follows:

1. Amend the LUP map to Include the SR-836/Dolphin Expressway southwest extension as an Expressway, as illustrated on the Proposed CDMP Land Use map on pages 8-12 and 8-13 below; and
2. Amend the Transportation Element map series in the Traffic Circulation Subelement and Mass Transit Subelement listed below to include the SR-836/Dolphin Expressway southwest extension, as illustrated on pages 8-15 to 8-22:
 - a. Traffic Circulation Subelement
 - i. Figure 1 – Planned Year 2030 Roadway Network
 - ii. Figure 3 – Roadway Functional Classification 2030
 - iii. Figure 4 – Limited Access Roadway Facilities 2030
 - iv. Figure 5 – Planned Roadway Network Level Of Service (LOS) 2030
 - v. Figure 6 – Planned Non-Motorized Network 2030
 - vi. Figure 7 – Designated Hurricane Evacuation Route
 - b. Mass Transit Subelement
 - i. Figure 1 – Future Mass Transit System 2030 Metrobus Service Area and Rapid Transit Corridors
 - ii. Figure 2 – Future Mass Transit System 2030 Rapid Transit Corridors
 - iii. Figure 3 – Premium Transit Corridors 2030

RECOMMENDED CHANGES TO THE APPLICATION ¹

Add the following new proposed Policies and modify the existing policies of the Land Use Element, Transportation Element and Intergovernmental Coordination Element of the CDMP as outlined below:

LU-1U. Notwithstanding the designation of the SR-836/Dolphin Expressway southwest extension as an Expressway on the CDMP Land Use Plan map and as depicted in the Traffic Circulation Subelement map series, no construction associated with the SR-836 southwest extension shall occur that would restrict farm vehicle and equipment access to agricultural properties adjacent to the SR-836 southwest extension corridor. Moreover, to minimize the impacts of the expressway's southwest extension, the design and construction shall be conducted in a manner that does not cause drainage or the spillage of lighting from the expressway onto adjacent agricultural lands.

LU-1V. To mitigate the impacts of the SR-836 southwest extension on the agricultural area, the Miami-Dade Expressway Authority (or successor agency) shall preserve agricultural lands outside the UDB commensurate to impacts to agricultural lands that would be taken out of production by the project. Said preservation may be through participation in the County's

¹ Words single underlined are proposed additions and words single ~~stricken through~~ are proposed deletions. All other words are adopted text of the CDMP and remain unchanged.

Purchase Development Rights program or other mechanism acceptable to the Miami-Dade County Department of Regulatory and Economic Resources (or successor Department).

LU-1W. The alignment of the SR-836 southwest extension shall remain outside and to the east of the boundary of the 10 day travel time contour of the west wellfield area, and all drainage shall be subject to DERM approval for conformance to Chapter 24 of the Code. In addition, prior to the construction of the roadway, or any phase thereof, MDX shall prepare a surface water sheet flow analysis to demonstrate that the wetlands hydrology in this area shall be adequately retained.

LU-3Q. Any zoning action or amendment to the CDMP that would approve any use other than direct agricultural production, the sale of agricultural produce, and permitted residential and Bed and Breakfast uses of property, in an area designated as Agriculture, whether as a primary use or as an accessory or subordinated use to an agricultural use, or action that would liberalize standards or allowances governing such other uses on land that is a) outside the Urban Development Boundary (UDB) and b) within one mile of the right-of-way line of any portions of SR-836 southwest extension designated in this Plan, shall require an affirmative vote of not less than five members of the affected Community Zoning Appeals Board and two-thirds of the total membership of the Board of County Commissioners then in office, where the applicable board issues a decision.

LU-3R. Any modification or amendment to this and other policies within this Plan adopted or modified as part of the October 2017 cycle amendment Application No. 8 (SR-836/Dolphin Expressway southwest extension), enumerated below, shall require an affirmative vote of not less than two-thirds of the total membership of the Board of County Commissioners then in office. Policies subject to this supermajority requirement include Land Use Element Policies LU-1U, LU-1V, LU-3Q, LU-3T, and LU-8G, Transportation Element Policy TE-3C, Traffic Circulation Subelement Policies TC-1B, TC-1L, TC-1M, and TC-1N, Mass Transit Subelement Policies MT-4D and MT-4E, Parks, Recreation and Open Space Element Policy ROS-3F, and Intergovernmental Coordination Element Policy ICE-3I.

LU-3T. The SR-836/Dolphin Expressway southwest extension corridor from NW 12 Street to SW 136 Street is planned to traverse and impact wetlands within the Bird Drive and North Trail Wetland Basins and elsewhere along its alignment and will require environmental approval and wetland mitigation. To the maximum extent feasible, mitigation for the SR-836 southwest extension shall be accomplished through the acquisition, preservation, and restoration of wetlands within the Bird Drive and North Trail Basins outside the Urban Development Boundary. At a minimum, preservation of wetlands within the Bird Drive Basin shall be included as a component of the wetlands mitigation for this project. The mitigation shall also include a plan to preserve the hydrological connection and surface water flow of the wetlands remaining in these basins through the use of culverts or bridges.

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:

* * *

ii) The following areas shall be avoided:

- a) Future Wetlands delineated in the Conservation and Land Use Element and land designated Agriculture on the Land Use Plan map, except where located in designated Urban Expansion Areas (UEAs);

- b) Coastal High Hazard Areas east of the Atlantic Coastal Ridge;
 - c) Comprehensive Everglades Restoration Plan project footprints delineated in Tentatively Selected Plans and/or Project Implementation Reports; and
- 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 Tiers 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 extraordinary transit service; and
 - d) Locations having projected surplus service capacity that is unrestricted by this Plan or where necessary facilities and services can be readily extended.

* * *

- v) Furthermore, lands within the Area of Impact of the SR-836 southwest extension, as defined in Policy TC-1M, shall not be considered for addition to the UDB if the roadway capacity created by the SR-836 southwest extension is included as a basis for the addition of such lands to the UDB.

TE-3C. It is the policy of Miami-Dade County to develop all the transportation facilities identified in the MPO's Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) and the CDMP Transportation Element as soon as feasible, in accordance with the LRTP phasing program. It is the policy of the County that the non-cost-feasible projects listed in the MPO's LRTP and the CDMP Transportation Element shall be retained in these plans solely as identified future priorities of the County for which the County shall pursue additional funding, and which shall be advanced into the cost-feasible components of the respective plans at the earliest feasible opportunities. It is, further, the policy of the Board of County Commissioners that, a) non-cost-feasible transportation projects may be advanced into the cost-feasible component of the referenced plans only after demonstration that the project appropriately supports, and is supported by, related services such as transit feeders and/or the type and intensity of planned surrounding land development, and b) the Governing Board of the MPO is urged to support this policy.

With the exception of the SR-836 southwest extension, Only only the transportation projects contained in the cost-feasible components of the LRTP, the TIP and the CDMP shall be considered in the administration of the County's concurrency management program and, after the next update of the CDMP Transportation Element to reflect the next update of the MPO's LRTP, the presentations of future levels of service in the CDMP shall reflect only these facility improvements. It is the policy of Miami-Dade County that the SR-836 southwest extension is to only address existing roadway capacity deficiencies in the southwest portion of the County, as of the date of opening of the extension, and is not intended to provide capacity to support or encourage future development.

TC-1B. The minimum acceptable peak period operating level of service for all State and County roads in Miami-Dade County outside of the Urban Development Boundary (UDB) identified in the Land Use Element shall be LOS C. The minimum acceptable peak-period LOS for all State and County roads inside the UDB shall be the following:

* * *

4. Notwithstanding any provision to the contrary, the minimum acceptable peak period operating level of service for the SR-836/Dolphin Expressway southwest extension from NW 137 Avenue to SW 136 Street shall be and remain LOS C.

TC-1L. Miami-Dade County shall coordinate with Miami-Dade Expressway Authority and the Transportation Planning Organization (or successor agencies) in the planning and construction of SR-836/Dolphin Expressway southwest extension from NW 12th Street to SW 136th Street and determination of associated park and ride facilities and interchange locations. The general alignment of the SR-836 southwest extension is depicted in the CDMP LUP map and the map series of the Traffic Circulation Subelement and the Mass Transit Subelement, and the associated park and ride facilities and interchanges will be determined as part of the project's future project development and environment (PD&E) study.

TC-1M. Miami-Dade County approves the new SR-836/Dolphin Expressway southwest extension only to the extent necessary to relieve existing traffic congestion in the southwestern parts of the County and to provide a reliable, robust, and faster connection to Downtown Miami and other major trip attractors across the County. To discourage urban sprawl within the Area of Impact of the SR-836 southwest extension, defined as the area bounded by NW 12th Street to the north, SW 152nd Street to the south, SR-997/Krome Avenue to the west, and NW/SW 97 Avenue to the east, the County's Concurrency Management System shall be amended to remove the additional LOS/capacity generated by the SR-836 southwest extension in the Area of Impact. Accordingly, any increase in LOS/capacity that the roadways in the Area of Impact would experience due to the diversion of trips resulting from the construction of this new expressway facility could not be used to demonstrate concurrency. The purpose of this policy is to assure that the additional capacity attributable to the SR-836 southwest extension cannot be used to support further development in the Area of Impact.

TC-1N. Within one year prior to the opening of the SR-836/Dolphin Expressway southwest extension, or any phase thereof, the Miami-Dade Expressway Authority (or successor agency) shall provide the County with an analysis of increase in the peak hour trip capacity on all roadway links and intersections within the Area of Impact (as defined in Policy TC-1M) as required by the County.

MT-4D. Pursuant to Traffic Circulation Subelement Policy TC-4F, the Miami-Dade Expressway Authority (or successor agency) ("MDX") shall provide for mass transit service in the SR-836/Dolphin Expressway southwest extension corridor, to be funded by MDX. The mass transit service shall incorporate lanes having technologies that facilitate the safe travel of automated vehicles, including mass transit vehicles, at high rates of speed for a connection with the transit service being implemented as part of the current SR 836 reconstruction generally east of the Turnpike. MDX shall coordinate the mass transit service with Miami-Dade County through the Department of Transportation and Public

Works (or successor department). Said coordination shall occur prior to the earlier of the issuance of the first permit for construction of the expressway extension or prior to the commencement of any construction of the expressway extension.

MT-4E. In coordination with the Miami-Dade County Parks, Recreation and Open Space Department and the Miami-Dade Transportation Planning Organization (or successor agencies), the Miami-Dade Expressway Authority (or successor agency) shall design a multi-use recreational trail within the corridor of the SR-836/Dolphin Expressway southwest extension. The recreational trail shall be designed to promote a safe and comfortable environment for walking, cycling, horseback riding, and passive recreational uses, such as observing nature, in a manner complementary and sensitive to the areas it traverses. Additionally, to the maximum extent feasible, the multi-use recreational trail shall be designed to provide for seamless connections to the County's existing and planned trails and greenways network proximate to the corridor. Said coordination shall occur prior to the earlier of the issuance of the first permit for construction of the expressway extension or prior to the commencement of any construction of the expressway extension, and the trail shall be built and open to the public concurrent with the opening of the expressway extension, or phases thereof.

ROS-3F. In conjunction with the opening of the SR-836/Dolphin Expressway southwest extension, or any phase thereof, the Miami-Dade Expressway Authority (or successor agency) shall provide a parallel, multi-use recreational trail facility designed for walking, cycling, horseback riding, and passive recreational uses, such as observing nature, in a manner complementary and sensitive to the areas it traverses. Additionally, to the maximum extent feasible, the multi-use recreational trail shall be designed to provide for seamless connections to the County's existing and planned trails and greenways network proximate to the corridor.

ICE-2F. Miami-Dade County shall enter into an Interlocal Agreement with the Miami-Dade Expressway Authority to further implement the policies set forth in this Plan related to the SR-836/Dolphin Expressway southwest extension.

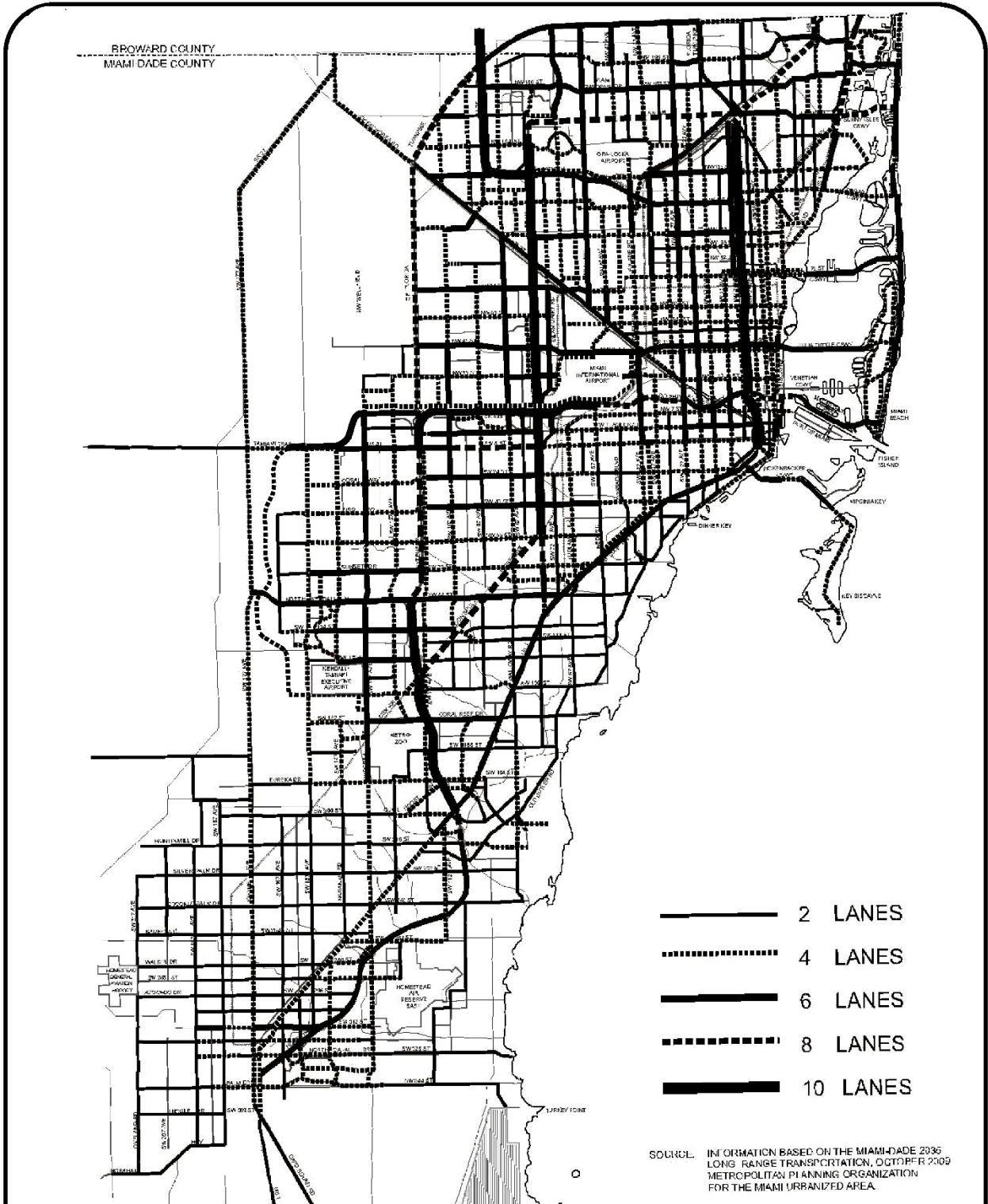


FIGURE 1
PLANNED YEAR 2030 ROADWAY NETWORK
ARTERIALS, COLLECTORS, AND
OTHER SIGNIFICANT PAVED ROADS

0 1 2 4 6 Miles

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES, 2013

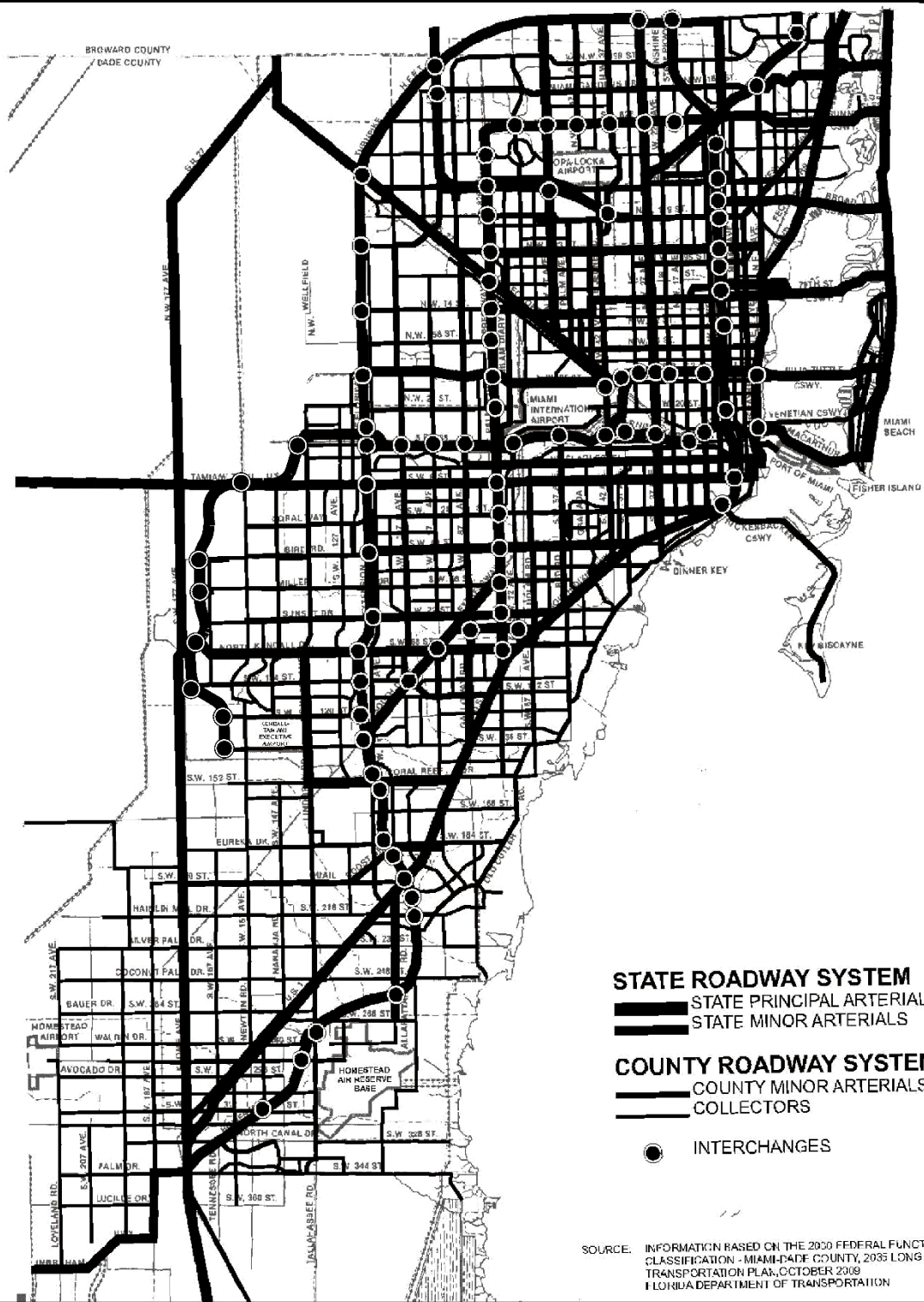
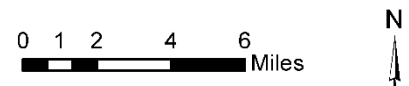


FIGURE 3
ROADWAY FUNCTIONAL CLASSIFICATION 2030



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES, 2013

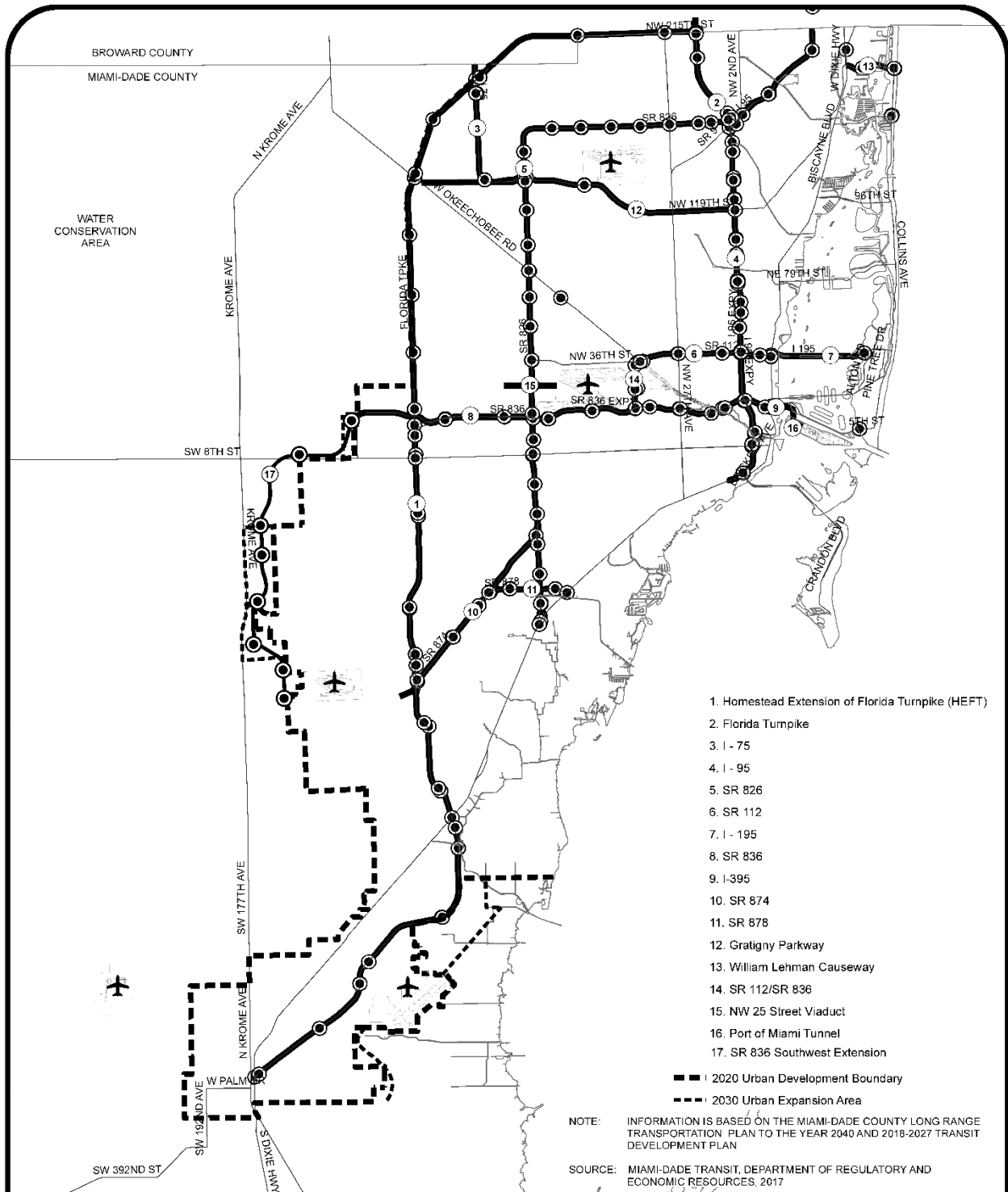
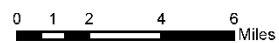
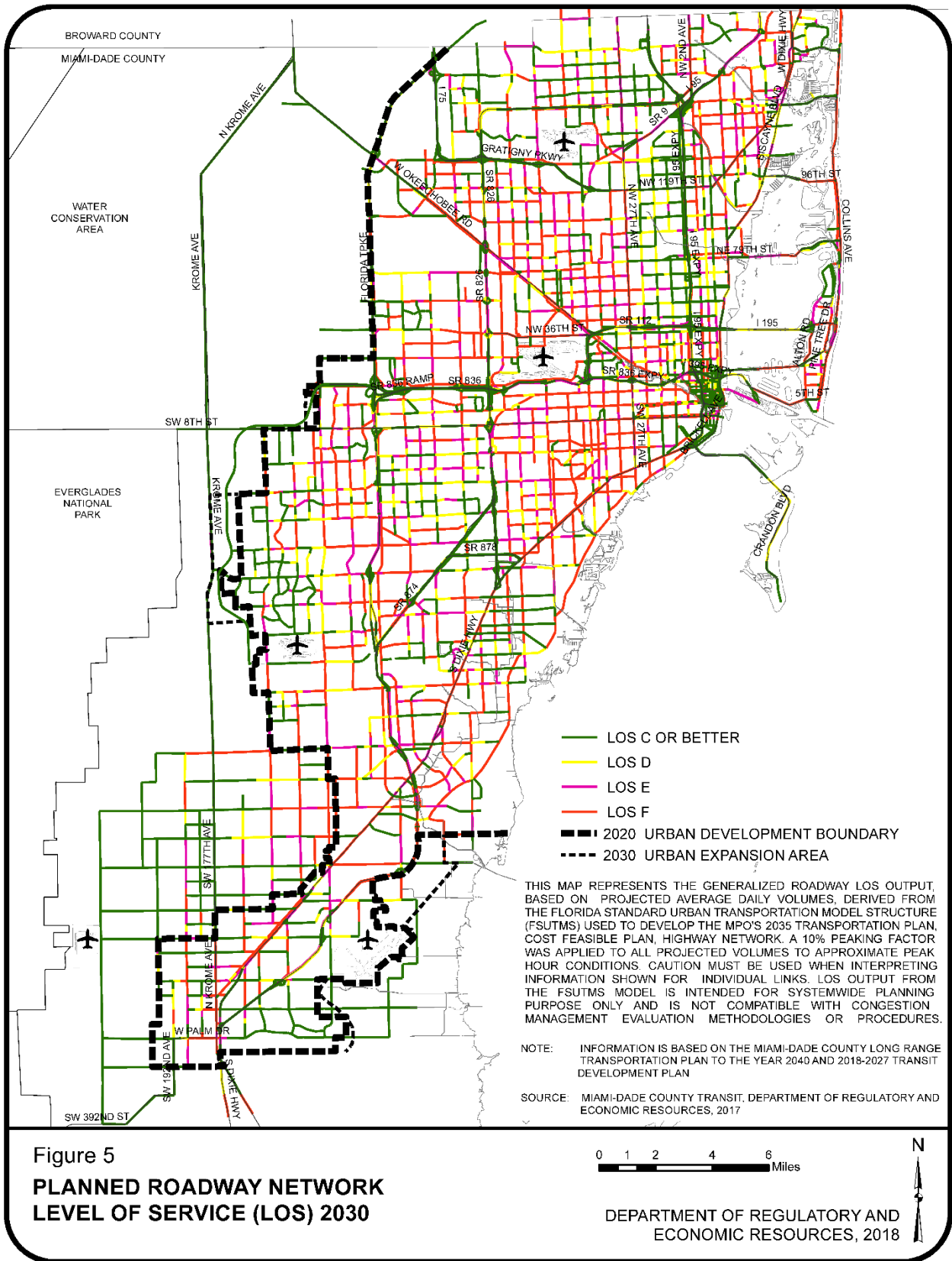


Figure 4
LIMITED ACCESS ROADWAY FACILITIES 2030



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES, 2018



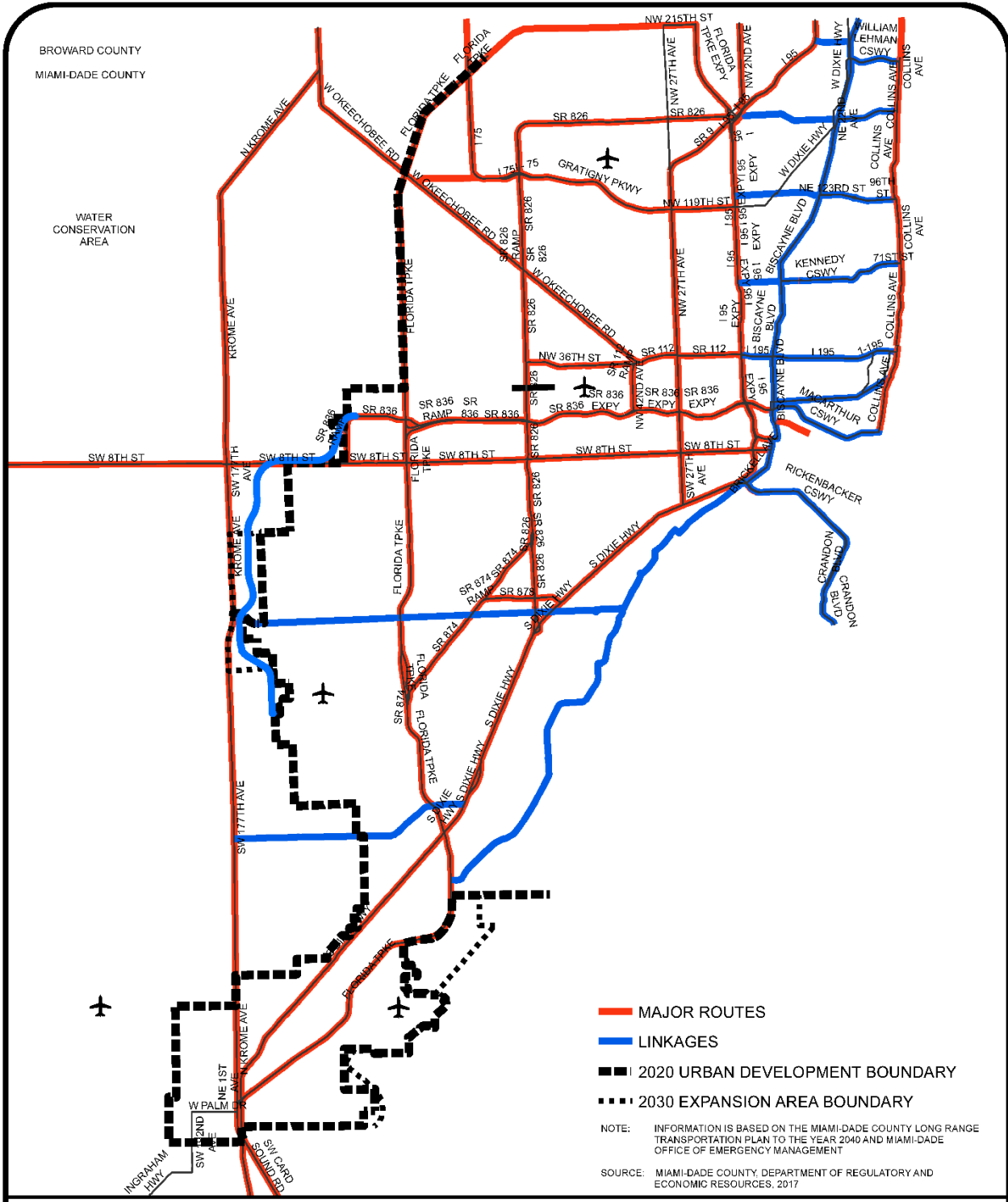
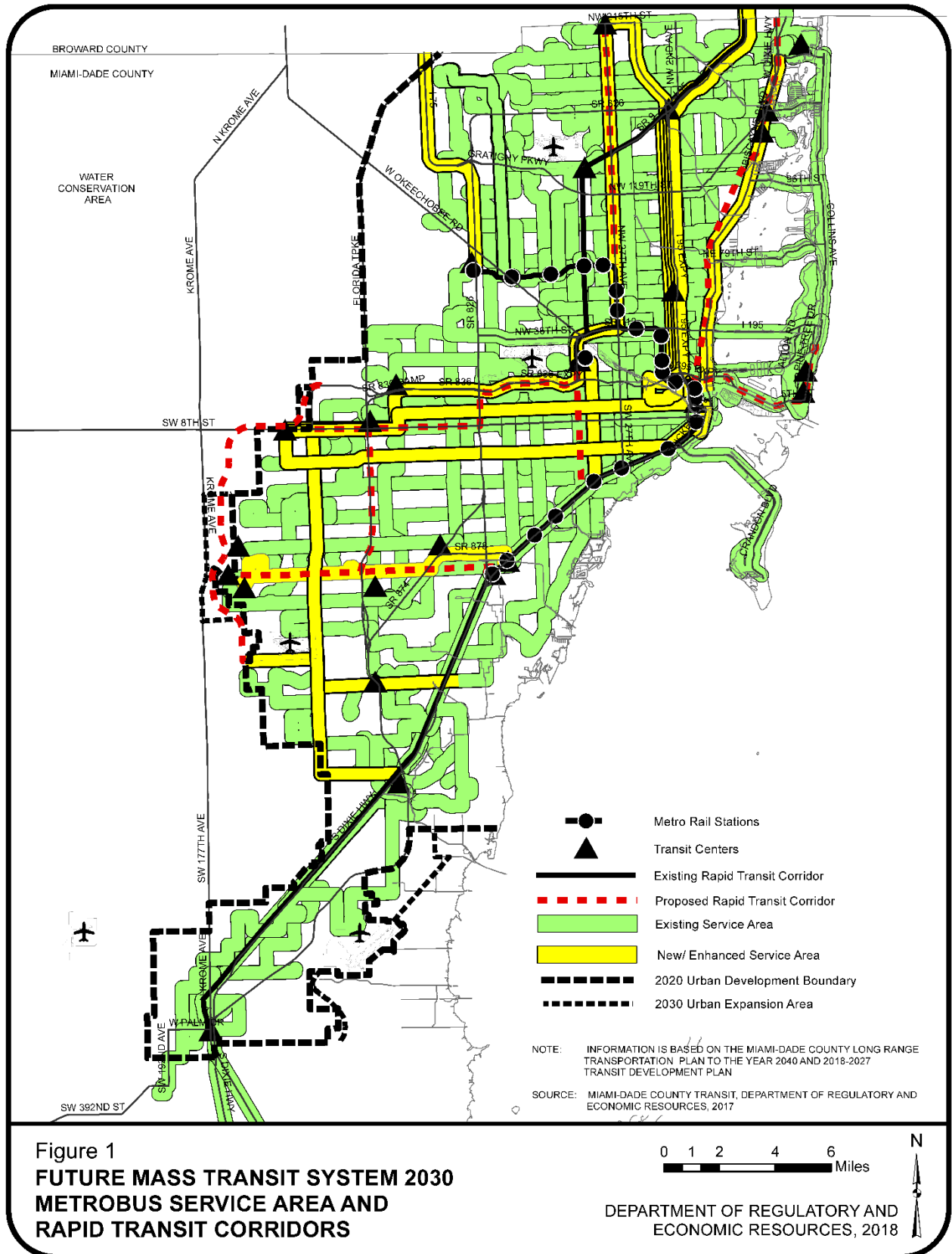
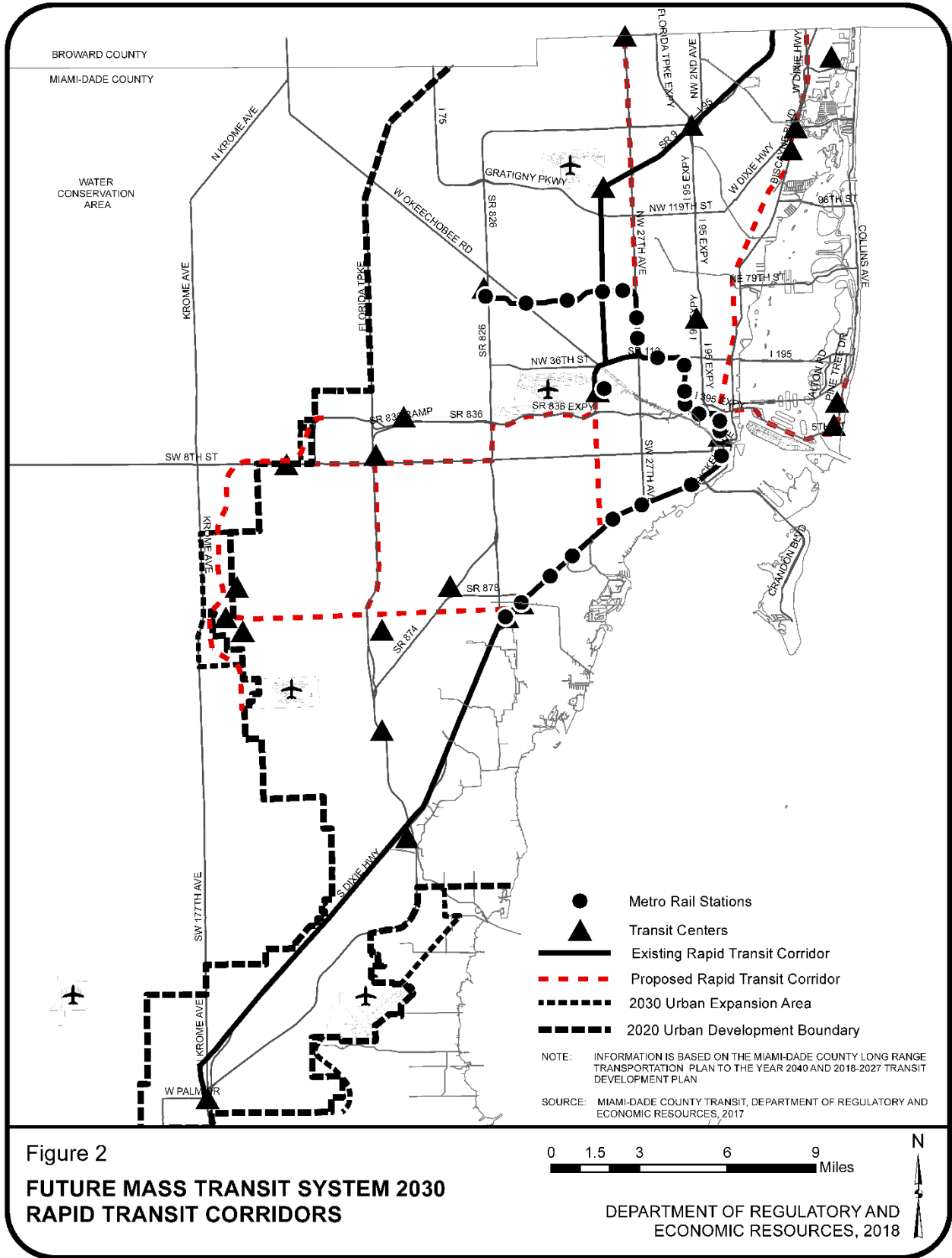


Figure 7
DESIGNATED EVACUATION ROUTES 2030



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES, 2018





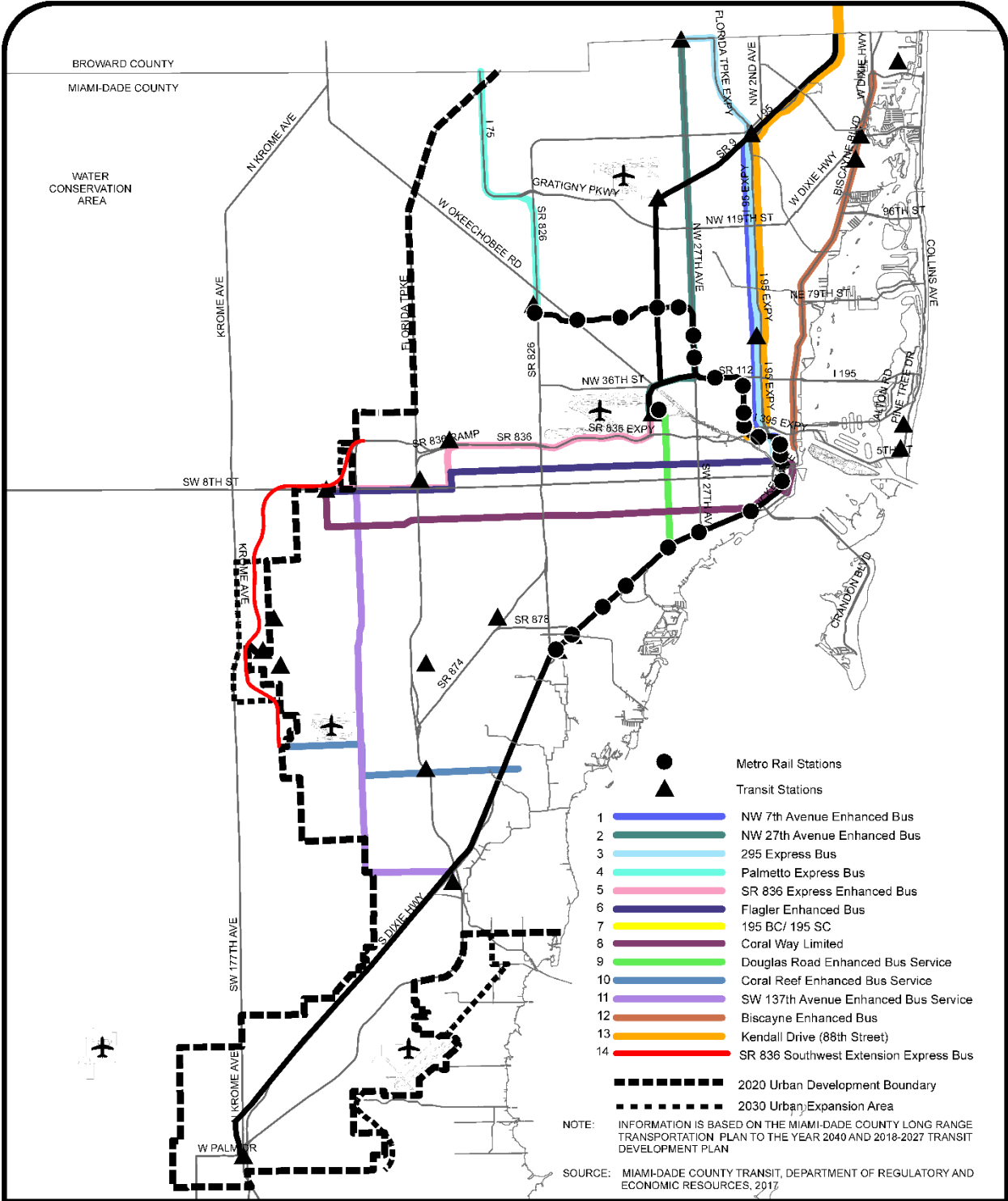


Figure 3
PREMIUM TRANSIT CORRIDORS 2030
RECOMMENDED SERVICE PLAN - NEW METROBUS ROUTES

0 1.5 3 6 9 Miles

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES, 2018

REVIEWING AGENCY COMMENTS AND DEPARTMENT RESPONSES

The Florida Department of Economic Opportunity (DEO) and other state and regional agencies (reviewing agencies) reviewed the application pursuant to Section 163.3184(3) of the Florida Statutes. Of the reviewing agencies, the Florida Department of Environmental Protection offered technical comments on the application while the Florida Department of Transportation (FDOT), the South Florida Water Management District, and the South Florida Regional Planning Council requested additional information in order to determine the full impacts the application would have on facilities and resources within their respective jurisdictions. The other reviewing agencies including the DEO issued no comments on the application. The comments from the above mentioned reviewing agencies are presented and addressed below.

Florida Department of Transportation (FDOT) Comments

FDOT Comment 1:

“An analysis of traffic at potential interchanges at State Road (SR) 41/SW 8 Street, SR 94/SW 88 Street and at SR 997 /Krome Avenue at SW 136 Street is necessary to make an informed determination of impacts.”

Response:

A PD&E Study (Corridor Evaluation Traffic Technical Memorandum) dated February 2017 has analyzed the existing traffic conditions (Counts, Speed, Directional Distribution, V/C ratios, & LOS) for AM and PM peak for the three roadways mentioned above, see Figures 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, & 14 and Tables 4, 5, 6, 7, & 8 (see Appendix B). Also, the applicant's traffic study dated April 2018 submitted along with the CDMP application analyzed the future 2050 projected traffic conditions for SW 88 Street and SW 8 Street for the build and no-build scenarios, see Tables 10 & 11 of the traffic study. The future 2050 projected traffic condition for Krome Avenue has not been analyzed yet. The initial two traffic reports mentioned above have only analyzed traffic impacts on the roadways within the study area considering the SR 836 Extension as a six lane facility from the existing terminus at NW 137 Avenue to SW 8 Street and as a four lane facility from SW 8 Street to SW 136 Street.

FDOT Comment 2:

“If new interchanges are proposed at these locations, an Interchange Access Request, in accordance with FOOT procedures, will be required.”

Response:

It is understood that an Interchange Access Request is necessary at locations where interchanges are proposed across State maintained roadways per State procedures. The appropriate Interchange Access Request will be submitted by the MDX after the CDMP amendment is adopted.

FDOT Comment 3:

“It should be noted that this review was based on the conceptual alternatives provided with this submittal. No preferred alternative has been selected to the FDOT's knowledge. In addition, if new, or modified alternatives are selected subsequent to this submittal, the FDOT requests that the application be re-submitted for review to determine if these will impact transportation resources of State importance.”

Response:

The Alternative Corridor Evaluation Report (ACER) dated February 2017 recommended two alternatives after conducting a thorough review of nine alternative alignments evaluating each on parameters such as social impacts, environmental impacts, cultural impacts, physical impacts, constructions costs, right of way costs, and user benefits. The traffic analysis was done for preferred alternative 6. The MDX understands that there have been discussions about potential changes in the final alignment; if there is a material change in alignment then the MDX will submit updated data and analysis for the new alignment identifying impacts on State roadways including potential interchanges. The ACER was included as Appendix C in the “Initial

Recommendations, October 2017 Cycle Applications to Amend the Comprehensive Development Master Plan”, dated April 2018.

Florida Department of Environmental Protection’s (FDEP) Comments

FDEP Comment 1:

“The proposed amendment will need to demonstrate how impacts to the wetlands will be minimized and mitigated, and ensure that the alignment of the extension does not adversely impact CERP project areas and state lands. Should SR-836 be extended, the Department encourages project elements to be constructed and maintained so as to not adversely affect adjacent lands with regards to water quantity, water quality, and/or flooding.”

Response:

Response: As part of the PD&E process, detailed analysis of the environmental impacts, including wetlands, associated with each alternative are being evaluated and documented. If the application is approved then the proposed expressway extension would be moved forward into the design phase, continued efforts to incorporate avoidance and minimization strategies for impacts to natural resources will be implemented and documented as part of the process. Furthermore, as part of the local, State and federal environmental regulatory permitting processes, specific project details, such as site specific placement of the final alignment, stormwater management features, design elements required for maintaining wetlands hydrology, and a detailed wetlands mitigation plan will all be required to ensure that there are no adverse effects to CERP project areas or state lands with regard to water quality and/or flooding.

In Addition, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

FDEP Comment 2:

“The state-owned parcels within the proposed corridors may have been acquired for the purpose of conservation with funds provided by the Secretary of the Department of the Interior (DOI) pursuant to Federal Agriculture Improvement and Reform Act of 1996 (Section 390, Pub.L.104-127, 110 Stat. 1022). These parcels were intended to be managed for the restoration of the Everglades, and should they become encumbered by the proposed corridor, coordination with DOI will be required.”

Response:

Coordination with the DOI is on-going and is being documented as part of the PD&E process. Interagency coordination will determine the feasibility of the project to include features that provide benefits that are both compatible and consistent with the restoration of the Everglades and the intent of the CERP. In addition, the Miami-Dade Expressway Authority (MDX), in coordination with SFWMD and the DOI, will seek to purchase lands currently in private hands within the ½ mile area of Krome Avenue and provide those to SFWMD and the DOI in exchange for release of lands previously purchased by them within the proposed MDX corridor. This would help support the development of the planned Bird Drive Recharge Area Conveyance Concept consists of a new canal along the east side of Krome Avenue, among other features within the ½ mile area east of Krome Avenue while releasing properties that have been identified by the CERP program as not feasible for their initial intended use. The DOI has entered into similar land exchanges in the past to promote the CERP program.

FDEP Comment 3:

“It is the Department's understanding that the Miami-Dade Expressway Authority is in the process of conducting a Project Development and Environment Study, to be followed by the completion of a Project Environmental Impact Report. The Department recommends that a thorough environmental suitability analysis and environmental impact assessment be conducted as a part of this process, including a rigorous analysis of other planned roadway improvements and the implementation of coordinated growth management and transportation demand management strategies.”

Response:

As part of the PD&E process, detailed analyses of the environmental impacts associated with each alternative are being evaluated and documented. The purpose and need of the project are also defined as part of the PD&E Study. Consistency with the County's Comprehensive Development Master Plan is required for a project, such as the proposed SR-836 southwest extension, to be implemented. This process will include information of the coordinated growth management and transportation demand strategies implemented as part of the proposed project and will be documented in the PD&E Study reports.

FDEP Comment 4:

"In addition to the comments provided above, the Department has enclosed comments provided in June 2009 and January 2011 on this project. The Department suggests that careful consideration be given to these comments as well to ensure the proposed amendment will not adversely impact Florida's land, water and natural resources. Additionally, close coordination with the South Florida Water Management District is encouraged to ensure that the full environmental benefits of Everglades restoration projects will not be constrained by the proposed alignments."

Response:

MDX is coordinating with several state, federal and local agencies, including FDEP and SFWMD, during the PD&E process. All agency comments are being carefully considered to ensure that the project does not adversely affect Florida's land, water and natural resources. The proposed SR-836 southwest extension project is anticipated to be both compatible and consistent with the restoration of the Everglades and the intent of the CERP. This is being accomplished through extensive interagency coordination throughout the PD&E, design and permitting phases of the proposed project.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved

South Florida Regional Planning Council's (SFRPC) Comments

SFRPC Comment 1:

"The SR 836/Dolphin Expressway Southwest Extension's PD&E Study references the SMART Plan but lacks adequate data and analysis regarding how coordination and consistency with the County's holistic transportation needs and planning programs will be achieved. The success of the SMART Plan's Kendall Corridor is predicated on transit-oriented development occurring in the designated activity centers along the designated corridors so that hubs with convenient and safe access to premium transit are built over time. Studies of the proposed SR 836/Dolphin Expressway Southwest Extension should include data and analysis demonstrating that, if ultimately approved, its approval will not impede future transit-oriented development along the Kendall Corridor, or the County's long term, sustainable vision for long lasting traffic congestion relief."

Response:

It is unclear how completion of the proposed southwest extension of the SR 836/Dolphin Expressway would impede future transit-oriented development along the SMART Plan's Kendall corridor. As stated in the Application, the SR-836 southwest extension is proposed in response to the existing transportation capacity needs within southwestern Miami-Dade County, consistent with Traffic Circulation Element Policy TC-3, while the purpose of the SMART Plan is to provide transit oriented development within the SMART Plan corridors to support existing and future transit development. The proposed CDMP policies are intended to prevent new development that might otherwise result from the proposed expressway extension to occur inside or outside of the UDB, and will therefore not draw any potential development or redevelopment away from the SMART Plan's Kendall Corridor.

The extension is proposed as an integral part of a complete system of mobility and transportation infrastructure, and will incorporate mass transit service and a multi-use recreational trail within the proposed corridor. These transit and recreational trail features are consistent with and further Traffic Circulation Subelement Objective TC-3, which requires the County's transportation system to enhance and encourage the use of transit. These features are also consistent with and further Traffic Circulation Subelement Policy TC-4F, which requires the County to improve strategies to facilitate a countywide shift in travel modes from personal automobile use to pedestrian, bicycle and transit modes. The application proposes to incorporate lanes having technologies that facilitate the safe travel of automated vehicles, including mass transit vehicles, at high rates of speed for a seamless connection with the transit service being implemented as part of the current SR 836 reconstruction generally east of the Turnpike. The application also includes park and ride locations and a multiuse recreational trail within the corridor of the proposed expressway extension and recognizes that the coordination of these features within the corridor would build on the transit opportunities in the SMART Plan for Miami-Dade County. These provisions for mass transit and recreational trail are consistent with Objective TC-3 and Policy TC-4F outlined above.

SFRPC Comment 2:

"How the proposed extension supports, furthers, and integrates with the SMART Plan and other studies and plans, including whether the proposed dedicated transit lane for regional express buses and perhaps rail in the future will be committed to in perpetuity."

Response:

The Parkway is identified as a future transit corridor and will connect and integrate with the transit service along the East West and Kendall SMART Plan corridors. The proposed Interlocal Agreement commits the Miami-Dade Expressway Authority (MDX) to provide the funding to fully implement express bus service along the proposed SR-836 Extension which would include the planning, design, acquisition, construction of necessary park-and-ride facilities, rolling stock, and operation and maintenance costs of the transit services and facilities. Bus stations built to support transit service within the Facility corridor shall provide protection from the elements, be climate controlled, and be designed in a manner that encourages and promotes the use of the transit service. These funding requests comply with Florida State Statute 348.0004.

SFRPC Comment 3:

"Comparative impacts between MDX Red Corridor versus MDX Red/Blue Corridor on wetlands, wellfields, agricultural lands..."

Response:

As part of the PD&E process, detailed analysis of the environmental impacts, including wetlands, associated with each alternative are being evaluated and documented. Once an alternative is determined to be able move forward into the design phase, continued efforts to incorporate avoidance and minimization strategies for impacts to natural resources will be implemented and documented as part of the process. Furthermore, as part of the local, State and federal environmental regulatory permitting processes, specific project details, such as site specific placement of the final alignment, stormwater management features, design elements required for maintaining wetlands hydrology, and a detailed wetlands mitigation plan, will all be designed to ensure that there are no adverse effects to CERP project areas or state lands with regard to water quality and/or flooding. Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

The proposed Interlocal Agreement also commits MDX to preserve agricultural lands located outside the UDB at a ratio of one acre preserved for every acre of land within the Facility corridor that is designated "Agriculture" on the Adopted 2020 and 2030 Land Use Plan (LUP) map and was in active agricultural use, or use ancillary to and directly supportive of agriculture, for any period within the last 5 years. Further, the

Interlocal Agreement includes provisions that will avoid or mitigate obstruction of access to farmlands, overspill of lighting onto farmlands, and/or the bifurcation of farmland.

SFRPC Comment 4:

“While the proposed SR 836/Dolphin Expressway Southwest Extension does not directly intersect SRPP Natural Resources of Regional Significance, the northern parts of the extension do intersect or encroach upon Everglades National Park Seepage Management East Coast Buffer, the C-4 Detention Reservoir, East Bird Drive Basin, West Bird Drive Basin, and the Pennsuco Wetlands. The proposed Extension, up until it passes south of SW 67th Terrace, poses impacts to wetland habitats and Comprehensive Everglades Restoration.”

Response:

Detailed analysis of the anticipated impacts to wetlands and other surface waters associated with the proposed expressway extension will be evaluated and documented as part of the PD&E and permitting processes, and impacts to wetlands will be avoided, minimized and mitigated to ensure that there are not adverse impacts to CERP project areas including the Bird Drive Recharge Area. If feasible, the project may be able to include features, including the consideration of elevated portions of the roadway and/or conveyance features, which provide benefits that are both compatible and consistent with the intent of the CERP. The feasibility will continue to be determined through interagency coordination with the project stakeholders, such as SFWMD, and other environmental regulatory agencies. The project is currently being designed to avoid the proposed pump station and encroachment into the ½ mile buffer area east of Krome Avenue identified by the District for CERP north of SW 88th Street. In areas where the corridor may traverse the ½ mile buffer area identified by the District south of 88th Street, the improvements will be coordinated with the District and the DOI to minimize the project’s footprint and potential impacts. In addition, MDX, in full coordination with SFWMD and the DOI, will seek to purchase lands currently in private hands within the ½ mile buffer area and provide those to SFWMD and the DOI in exchange for release of lands previously purchased by them within the proposed MDX corridor. This approach intends to support the development of the planned CERP conveyance concept within the ½ mile buffer area east of Krome Avenue while releasing properties that have been identified by the CERP program as not feasible for their initial intended use. The DOI has entered into similar land exchanges in the past to promote the CERP program.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFRPC Comment 5:

“Roadways are impervious surfaces which not only impede groundwater seepage but place polynudeic aromatic hydrocarbons and other contaminants into the ecosystem, both of which undermine the goals of Comprehensive Everglades Restoration Plan. The proposed project has the potential to reduce aquifer recharge and diminish the quality of the water which does seep into the aquifer.”

Response:

It is important to note that there are presently several thousand miles of roadways running throughout all areas of Miami-Dade County. Similar to other impervious surfaces such as sidewalks, walkways, concrete pads, driveways, or parking lots, roadways also include areas of impervious surface that prevent direct seepage to groundwater. However, roadway systems also include pervious areas as well. When properly designed, roadways typically include drainage systems that capture and treat stormwater prior to onsite discharge into these pervious areas. In many cases this includes use of catch basins with exfiltration trenches, adjoining grassy swale areas, and/or stormwater retention ponds. Design and construction of the proposed MDX roadway system will be required to comply with regulations governing wellfield protection and stormwater management system design.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as

other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFRPC Comment 6:

"All wetland impacts must be mitigated. Impacts to the Pennsuco Wetlands must be approached with the appropriate complexity. The Pennsuco Wetlands was acquired for wetland loss elsewhere, and as such, any loss of this wetland is doubly impactful as it is the replacement for the historic loss of wetlands elsewhere."

Response:

Detailed analysis of the anticipated impacts to wetlands and other surface waters associated with each alternative will be evaluated and documented. Efforts to incorporate avoidance and minimization strategies for impacts to wetlands and other surface waters will be implemented and documented as part of the process. For unavoidable impacts, a mitigation plan will be prepared. If feasible, the project may be able to include features that provide benefits that are both compatible and consistent with the intent of the CERP. The feasibility will continue to be determined through interagency coordination with the project stakeholders, such as SFWMD, and other environmental regulatory agencies.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

South Florida Water Management District's (SFWMD) Comments

SFWMD Comment 1. Natural Resources:

"Sufficient data and analysis to determine the final alignment of the expressway extension, potential impacts to natural resources, and potential impacts to restoration projects will be necessary. Exhibits-6 and 7 primarily contain transportation data and analysis and are missing environmental data and analysis. Appendix C of Exhibit 7, Alternative Corridor Evaluation (ACE) Report Project Development and Environment (PD&E) Study, includes evaluations of numerous potential expressway extension alternatives and options for the alignment of the extension. The Appendix contains summaries of transportation data and analysis, and in two charts references an environmental analysis, but supporting environmental data and analysis was not provided. The District cannot make recommendations to address these items until the County:

- Provides relevant environmental information and studies.
- Determines the final alignment of the expressway extension.
- Revises the remainder of the plan amendment package, as applicable, to reflect all completed studies and the final extension alignment."

Response:

As part of the PD&E process, detailed analysis of the environmental impacts, especially to sensitive areas, associated with each alternative are currently being evaluated and documented in a set of technical project documents that will be available for public review and comment. This includes an EA/EIS assessment of impacts to both natural and sensitive environmental resources. Acreages of existing wetlands and classifications are being prepared in a Wetland Evaluation Report, along with protected species habitat assessments in an Endangered Species Biological Assessment Report. Upon approval of the CDMP amendment application, the proposed SR-836 southwest extension will move forward to the design phase, continued efforts focused on additional avoidance and minimization strategies for impacts to these sensitive natural resources are being coordinated, implemented and fully documented. In coordination with the SFWMD and other regulatory agencies, a mitigation plan will be developed adequately address unavoidable impacts, such as wildlife crossings underneath the roadway to support movement and habitat access for native and protected species. Other project features are being considered that include elevated

sections of the road and water conveyance structures. This information will be provided in detail as part of the Environmental Resource Permit (ERP) application and/or as supporting documentation to the permit application(s) for the proposed project and will meet all necessary permitting requirements and to the satisfaction of the SFWMD.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 2. Wetlands and Other Surface Waters:

“An analysis of the existing wetlands and other surface waters located in the area of the proposed southwest extension of the SR-836/Dolphin Expressway, or information on measures to avoid, minimize and mitigate wetland impacts will be necessary. The County will need to address the following:

- The proposed general distribution, location and extent of the wetlands and other surface waters to be impacted, including the approximate acreage.
- Applicable surveys, studies, and data, including the character of undeveloped land.
- An analysis to demonstrate the suitability for the proposed use considering the character of the undeveloped land, soils, topography, and natural resources.
- How the natural functions of wetlands will be protected, conserved and mitigated.”

Response:

As part of the PD&E process, detailed analysis of the anticipated impacts to wetlands and other surface waters associated with each alternative are being evaluated and documented. In the design phase, continued efforts to incorporate avoidance and minimization strategies for impacts to wetlands and other surface waters are being implemented and documented as part of the process. This information is currently being developed and will be provided in the ERP application and/or as supporting documentation to the permit application for the proposed project. The on-going analysis includes detailed technical information on acreages, land use, soils, topography and information on undeveloped lands and sensitive resources. For unavoidable impacts, a compensatory mitigation plan is being prepared in full coordination with the regulatory agencies and to the satisfaction of the requirements of the SFWMD. Key factors considered by MDX in its impact avoidance and minimization strategy are the avoidance of impacts to tree islands; maintaining hydrological connectivity along the corridor and prevent altering the hydrology/hydroperiod functionality on-site. Wildlife crossings underneath the roadway are being proposed to support movement and habitat access for wetland dependent native and protected species. Hydrological conveyance features are also being considered, where feasible. The mitigation plan is being prepared to address unavoidable impacts and is proposing on-site mitigation to the maximum extent feasible. The plan also takes into consideration the restoration and preservation of existing wetlands adjacent to the proposed corridor. Conservation easements are intended to be placed on these areas to preserve them in perpetuity. Proposed wetland restoration also includes removal of dense exotic infestation which promotes the re-establishment of desirable native wetland vegetation and provides improvement to the ecological quality of the habitat for wetland dependent species.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 3. Water Supply:

“An analysis of impacts to the regional water supply will be necessary. The County will need to address the following:

- Water supply will be needed for the transportation hubs. Because both proposed hubs are outside the Urban Development Boundary and public water supply utility services, it appears a new water supply and new water use permits may be required. Data and analysis indicating the water supply sources and potential water demands for each transportation hub are needed.
- Water use permits for agricultural permittees within the footprint of the roadway may need to be modified. The shift in withdrawal locations may not have a significant effect on withdrawal impacts but should be reviewed to identify any potential localized or regional effects.”

Response:

Should the transportation hubs be designed with restroom facilities, MDX will be required to obtain all necessary permits and will, as necessary, apply to the SFWMD for a water use permit concurrently with the application to SFWMD for an ERP. Current water use permits, including agricultural permits, over the project area are being researched, the demands will be calculated and the water supply demand/need and potential source(s) will be determined for the permit application submittal.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 4. Stormwater Management:

“An analysis of storm water management needs and flooding issues for the proposed expressway will be necessary. The County will need to address the following:

- An analysis of storm water management needs, including a demonstration that there will be no adverse offsite impacts.
- An identification of the appropriate stormwater management infrastructure needed for the proposed expressway extension.”

Response:

Stormwater Management is currently being evaluated to be included with the ERP application for the proposed project. Details of the proposed stormwater management system infrastructure and the potential for offsite impacts are under evaluation. Adverse offsite impact conditions will not be proposed as part of the stormwater management plan. The project will be designed to retain the required storm event and to maintain storage within the basin to meet the North Lake and Bird Drive flood compensation requirements. The design shall, at a minimum, meet water quality treatment requirements and comply with all applicable requirements for the wellfield protection area.

The proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement will be adopted alongside the proposed Amendment, and transmitted to the State and review agencies as part of the adopted amendment package.

SFWMD Comment 5. Coordination with the District – Rights of Way:

“It appears that a portion of the C-4 Impoundment Area and the C-1W Canal right of way fall within the proposed construction area for the proposed expressway extension. Any planned use of District rights of way or lands must be coordinated with the District to ensure that operation and maintenance of the flood control system is not adversely impacted and to ensure compliance with District rules and policies for use of such rights of way and lands.”

Response:

MDX's application for a Right of Way Occupancy Permit is concurrent with the ERP application for any work that affects SFWMD right of way, access or easements. It is anticipated that right of way access may be needed at the C-4 (Tamiami Canal), the C-4 impoundment Area and the C-1W Canal. Interagency coordination meetings for determining the proposed project's need for SFWMD right of way access is being implemented into the PD&E, design and permitting processes. The project improvements will continue to

be coordinated with the SFWMD to provide adequate clearances to accommodate the SFWMD's operations. Should the improvements result in a requirement to provide additional storage, options to provide this, including additional adjacent storage, will be proposed.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 6. Coordination with the District – Environmental Resource Permits:

“The proposed expressway extension project will require an Environmental Resource Permit from the District in accordance with Rule 62-330.054, Florida Administrative Code (F.A.C.). This is a separate process from the Comprehensive Plan Amendment as outlined under the Community Planning Act, Chapter 163, F.S. Miami-Dade County and their designated representatives are currently coordinating with the District's Environmental Resource Bureau staff on Environmental Resource Permitting rules associated with the proposed project.”

Response:

MDX acknowledges that an ERP is required from the SFWMD for the proposed expressway extension project in accordance with 62-330.054, F.A.C. Extensive coordination and communication with SFWMD Environmental Resource Bureau staff is on-going regarding the applicable rules and regulations associated with the proposed project. This coordination is being documented as part of the PD&E process and agency comments are being addressed.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 7. Coordination with the District – Bird Drive Recharge Area:

“The Bird Drive Recharge Area (BDRA) features identified in the original CERP Restudy were deemed not feasible by the CERP Project Delivery Team due to the highly transmissive project site and possible flooding impacts to urban areas. As a result, the District, Army Corps of Engineers and Department of Interior developed a BDRA Conveyance Concept that includes seepage collection, groundwater recharge and conveyance to provide benefits consistent with the intent of the CERP Restudy features. The BDRA Conveyance Concept consists of a new canal along the east side of Krome Ave from the C-4 Canal south to the C-1W Canal, a new gated structure at the intersection of the new canal and the C-4 Canal, a new pump station at the intersection of the new canal and C-1W Canal, and a half mile buffer area to facilitate water conveyance. The District owns lands in this area associated with this future CERP project.

Both corridor alignments identified in the proposed amendment are located in or adjacent to the CERP Conveyance Concept. A portion of the proposed alignment of the MDX Kendall Parkway runs through the BRDA project lands. Some portions of the proposed alignment appear to run adjacent to the buffer area and some portions of the alignment are located within the buffer area. A portion of proposed corridor #2 is located near the location of the proposed pump station. The proposed interchanges would also be adjacent to and within the buffer area.

At this time, the District does not yet have detailed enough information, such as the potential for elevated roadways and conveyance features that would help the District evaluate the proposed project's compatibility with the CERP BDRA Conveyance Concept.”

Response:

As part of the PD&E and permitting processes, impacts to wetlands will be avoided, minimized and mitigated to ensure that there are not adverse impacts to CERP project areas including the Bird Drive Recharge Area. If feasible, the project may be able to include features, including the consideration of elevated portions of the roadway and/or conveyance features that provide benefits that are both compatible and consistent with the intent of the CERP. The feasibility will continue to be determined through interagency coordination with the project stakeholders, such as SFWMD, and other environmental regulatory agencies. The project is currently being designed to avoid the proposed pump station and encroachment into the ½ mile buffer area east of Krome Avenue identified by the District for CERP north of SW 66th Street. In areas south of the ½ mile buffer, the improvements will be coordinated with the SFWMD and the DOI to minimize the project's footprint and potential impacts to the noted canal and pump station near the C-1W. In addition, MDX, in full coordination with SFWMD and the DOI, will seek to purchase lands currently in private hands within the ½ mile buffer area and provide those to the SFWMD and the DOI in exchange for release of lands previously purchased by them within the proposed MDX corridor. This approach intends to support the development of the planned CERP conveyance concept within the ½ mile buffer area east of Krome Avenue while releasing properties that have been identified by the CERP program as not feasible for their initial intended use. The DOI has entered into similar land exchanges in the past to promote the CERP program.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

SFWMD Comment 8. Coordination with the District – Dade Broward Levee/Pennsuco Wetlands:

“The Dade Broward Levee/Pennsuco Wetlands is a CERP project that includes water control structures and modifications to the Dade-Broward Levee and associated conveyance system located in Miami-Dade County. The purpose of this feature is to reduce seepage losses to the east from the Pennsuco Wetlands, enhance wetland hydroperiods and provide groundwater recharge to Miami-Dade's Northwest Wellfield.

Based on the information provided, it appears that a proposed alignment runs through the southeast corner of the Pennsuco Wetlands. The District does not yet have sufficient information to determine the proposed project's compatibility with the CERP Dade Broward Levee/Pennsuco Wetlands Component.”

Response:

Detailed analysis of the anticipated impacts to wetlands and other surface waters associated with each alternative will be evaluated and documented. Efforts to incorporate avoidance and minimization strategies for impacts to wetlands and other surface waters will be implemented and documented as part of the process. This includes elevating the segment of the project that runs through the Pennsuco wetlands where feasible. For unavoidable impacts, a mitigation plan will be prepared. If feasible, the project may be able to include features that provide benefits that are both compatible and consistent with the intent of the CERP. The feasibility will continue to be determined through interagency coordination with the project stakeholders, such as SFWMD, and other environmental regulatory agencies.

Furthermore, the proposed Interlocal Agreement between Miami-Dade County and the Miami-Dade Expressway Authority (MDX) memorializes the required evaluation and mitigation requirements, as well as other actions to be taken by MDX to comply with the associated CDMP policies. This Interlocal Agreement is recommended for approval alongside the proposed Amendment, and will be transmitted to the State and review agencies as part of the adopted amendment package, if approved.

Consistency Review with CDMP Goals, Objectives, Policies, Concepts and Guidelines

Approval of the proposed Application would further the implementation of the following CDMP objectives and policies:

- LU-8C. Through its planning, capital improvements, cooperative extension, economic development, regulatory and intergovernmental coordination activities, Miami-Dade County shall continue to protect and promote agriculture as a viable economic use of land in Miami-Dade County.
- LU-10. Energy efficient development shall be accomplished through metropolitan land use patterns, site planning, landscaping, building design, and development of multimodal transportation systems.
- TE-2A. The County shall continue to promote and assist in the creation of a Countywide system of interconnected designated bicycle ways, and promote the implementation of the Miami-Dade Bicycle Facilities Plan.
- TE-2B. The County shall continue to develop a comprehensive countywide greenways network providing continuous corridors for travel by pedestrians and non-motorized vehicles incorporating elements of the adopted South Dade Greenway Network Master Plan and the North Dade Greenways Plan.
- TE-2G. The County shall encourage inclusion in, and review, all plans and development proposals for provisions to accommodate safe movement of bicycle and pedestrian traffic, and facilities for securing non-motorized vehicles in all new development and redevelopment and shall address this as a consideration in development and site plan review.
- TC-1. It is desirable that all roadways in Miami-Dade County operate at the adopted level of service (LOS) standards or better. Miami-Dade County should strive to operate its roadway network at a level of service better than the base level of service standards contained herein.
- TC-1K. The County shall utilize the Miami-Dade County MPO transportation planning and project review processes to evaluate and implement roadway and transit II-14 improvements that will improve access to, and connections between, the County's major aviation, rail and port facilities.
- TC-3. The County's transportation system will emphasize safe and efficient management of traffic flow, the safety of pedestrians and bicyclists, and enhance and encourage the use of transit.
- TC-3D. The County shall design new roadways in a way that supports transit usage and incorporates planned rapid transit corridors, dedicated bus lanes and other transit improvements to further incentivize and facilitate the use of transit, wherever feasible.
- TC-4B. The adopted Land Use Plan map shall be used to guide the planning of future transportation corridors and facilities to ensure the proper coordination between transportation planning and future development patterns.

TC-4C. Miami-Dade County's priority in construction, maintenance, and reconstruction of roadways, and the allocation of financial resources, shall be given first to serve the area within the Urban Infill Area and Transportation Concurrency Exception Areas. Second priority shall be given to serve the area within the Urban Development Boundary and the Urban Infill Area. And third priority in transportation allocations shall support the staged development of the urbanizing portions of the County within the Urban Expansion Area. Transportation improvements which encourage development in Agriculture and Open Land areas shall be avoided, except for those improvements which are necessary for public safety and which serve the localized needs of these non-urban areas. Areas designated Environmental Protection shall be particularly avoided.

TC-4F. The County shall consistently improve strategies to facilitate a Countywide shift in travel modes from personal automobile use to pedestrian, bicycle and transit modes. The priority for transportation infrastructure expenditures shall be to insure that pedestrian, bicycle and transit features are incorporated into roadway design.

Approval of the proposed Application could impede the implementation of the following CDMP objectives and policies:

TE-1A. As provided in this section and the Mass Transit Subelement, the County shall promote mass transit alternatives to the personal automobile, such as rapid transit (i.e. heavy rail, light rail, and bus rapid transit, premium transit (enhanced and/or express bus)), local route bus and paratransit services

LU-2B. Priority in the provision of services and facilities and the allocation of financial resources for services and facilities in Miami-Dade County shall be given first to serve the area within the Urban Infill Area and Transportation Concurrency Exception Areas. Second priority shall be given to serve the area between the Urban Infill Area and the Urban Development Boundary. And third priority shall support the staged development of the Urban Expansion Area (UEA). Urban services and facilities which support or encourage urban development in Agriculture and Open Land areas shall be avoided, except for those improvements necessary to protect public health and safety and which service the localized needs of these non-urban areas. Areas designated Environmental Protection shall be particularly avoided.

APPENDICES

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APPENDIX A

Interlocal Agreement Between

Miami-Dade County and Miami-Dade Expressway Authority

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**INTERLOCAL AGREEMENT
BETWEEN MIAMI-DADE COUNTY
AND MIAMI-DADE EXPRESSWAY AUTHORITY
FOR
IMPLEMENTATION OF MITIGATION MEASURES AND OTHER POLICY
REQUIREMENTS FOR THE MDX SR-836 SOUTHWEST EXTENSION
FACILITY**

This Interlocal Agreement (the "Agreement") is made and entered into on this _____ day of _____, 2018 ("Effective Date"), between Miami-Dade County (the "County"), a political subdivision of the State of Florida, and Miami-Dade County Expressway Authority d/b/a/ the Miami-Dade Expressway Authority ("MDX"), a body politic and corporate, a public instrumentality, and an agency of the State of Florida. The parties are hereafter collectively referred to as "the Parties."

RECITALS

WHEREAS, the MDX owns, operates, and maintains SR-836/Dolphin Expressway, a tolled, limited-access roadway between Interstate 95 (I-95) and NW 137 Avenue, as part of the MDX expressway system, which provides east west mobility with connections to existing expressways such as the Homestead Extension of the Florida Turnpike (SR-821), the Palmetto Expressway (SR-836), and I-95; and

WHEREAS, the MDX proposes to extend SR-836 southwestward, from its western limits at NW 137 Avenue to SW 136 Street, in response to the existing deficiencies in the transportation network within the western and southwest portions of Miami-Dade County that have resulted from the growth and development in said portions of the County; and

WHEREAS, the proposed extension of SR-836 would be built and operated as a tolled facility by the MDX, and all MDX project development and environment ("PD&E") studies, as well as all design and construction works, are funded solely by the MDX; and

WHEREAS, the proposed extension of SR-836 is a 6-lane expressway from the existing SR-836 interchange at NW 137 Avenue, extending southwestward to SW 8 Street, then southward to SW 88 Street/Kendall Drive, and thereafter extending southward as a 4-lane expressway to connect to SW 136 Street (the “SR-836 Extension”); and

WHEREAS, the SR-836 Extension project shall also include the following components: a multimodal corridor with provisions for mass transit; a greenway/trail for non-motorized travel; and interchanges and park and ride facilities at locations to be determined as part of the future PD&E study, with potential interchanges limited to the following approximate locations: SW 8th Street/Tamiami Trail, SW 40th Street /Bird Road, SW 56th Street/Miller Drive, SW 88th Street/Kendall Drive, SW 104th Street/Killian Parkway, SW 120th Street, and SW 136th Street (the SR-836 Extension and all of the above components are collectively referred to as the “Facility”); and

WHEREAS, the SR-836 Extension is included in the adopted Miami-Dade 2040 Long Range Transportation Plan (LRTP) as a Partially Funded project, and, to advance the project ahead, inclusion within Miami-Dade County’s Comprehensive Development Master Plan (CDMP) is required; and

WHEREAS, the SR-836 Extension is proposed to occur in an alignment that would traverse environmentally sensitive lands and agricultural lands; and

WHEREAS, the Miami-Dade County Department of Regulatory and Economic Resources (RER) filed Application No. 8 in the October 2017 cycle of amendments to the CDMP (“October 2017 Application No. 8”) to amend the CDMP Adopted 2020 and 2030 Land Use Plan map to include the SR-836 Extension; and

WHEREAS, the alignment of the SR-836 Extension is located outside the 2020 Urban Development Boundary (UDB), as depicted on the CDMP Adopted 2020 and 2030 Land Use Plan map; and

WHEREAS, the Facility would add capacity to the roadway network and significantly improve travel times between the southwest portion of the County and centers of employment, such as the Miami International Airport and the Doral areas; and

WHEREAS, to counterbalance the possibility of increased development pressure and to discourage urban sprawl, new CDMP policies and modifications to existing CDMP policies (attached as Exhibit 1) are proposed in the October 2017 Application No. 8 to protect the current rural character of land outside the UDB and to establish the requirements to implement the proposed SR-836 Extension in a manner that is consistent with the CDMP's goals, objectives, and policies to protect the area outside the UDB,

NOW, THEREFORE, the County and the MDX, in consideration of the promises and covenants contained herein, and for other good and valuable consideration, receipt of which is acknowledged, agree as follows:

1. Incorporation of Recitals.

The above recitals are incorporated as though fully set forth herein.

2. Permitting and Mitigation

- a. The MDX agrees that the Facility shall be subject to Chapter 24 of the Code of Miami-Dade County and that MDX shall apply for, obtain, and comply with all permits and approvals pursuant to Chapter 24 of the Code from RER Division of Environmental Resources Management or successor agency ("DERM") prior to work within each phase of the Facility.
- b. The MDX agrees that the Facility, or any portion thereof, shall not be located within the 10-day travel-time contour of the existing West Wellfield Interim protection area, as shown on the wellfield protection area maps adopted by Miami Dade County Ordinance 93-54 (the "Wellfield Protection Area Contour").
- c. For Environmental Protection Subarea B, as defined in the Land Use Element of the CDMP, no portion of the Facility may be permitted within this Subarea unless it complies with the following, as approved by DERM:
 - i. The SR-836 Extension shall be an elevated roadway, to not prohibit surface water flow or prohibit aquifer recharge. "Elevated roadway" shall mean that the roadway is developed as a raised bridge or spans above grade for the entire length within Environmental Protection Subarea B. Piles or other support structures that are necessary for the roadway may be allowed within Environmental Protection Subarea B to the extent approved by DERM.

- d. Prior to construction of any phase of the Facility, MDX shall prepare and submit to RER Planning Division or successor agency (“RER Planning”) a Master Project Plan for the Facility, as specified below. No construction work shall commence until the Master Project Plan has been approved by RER Planning and DERM for conformance with the requirements of Chapter 24 of the Miami-Dade County Code and the CDMP. RER Planning shall have 90 days from receipt of said submittal to provide pertinent comments. The County expressly represents that such review shall not be unreasonably delayed.

The Master Project Plan shall at a minimum:

- i. Show the proposed alignment and width of the proposed Facility, including components such as the proposed multi-use recreational trail.
- ii. Show the proposed interchanges and their connections to the existing roadway network.
- iii. Provide locations of park and ride facilities with a description of proposed amenities.
- iv. Describe the phases of construction of the components of the Project.
- v. Identify the location of proposed preservation and mitigation areas within the Bird Drive and North Trail Wetland Basins.
- vi. Provide a conceptual stormwater master plan for the Facility, demonstrate that no drainage will be discharged within the Wellfield Protection Area 10-day Travel Time Contour, and provide details of the proposed stormwater retention areas to demonstrate compliance with County fill encroachment and water management criteria.
- vii. Provide conceptual details demonstrating how wetlands hydrology, habitat, and wildlife connectivity will be maintained between both sides of the roadway project in all of the surrounding wetlands, including the location of where the facility is proposed to be elevated, locations of bridges and locations and types of culverts.
- viii. Demonstrate that neither the Facility nor any portion thereof will be located within the Wellfield Protection Area 10 Day Travel Time Contour.
- ix. Provide Facility conceptual details demonstrating compliance with the Environmental Protection Subarea B restrictions set forth in 2.c. above, such as identifying the elevated portions of the Facility.
- x. Demonstrate the Facility’s consistency with the Comprehensive Everglades

Restoration Program objectives, projects and features.

- x. Provide information regarding the impact of the Facility on existing access to adjacent farmlands. The information shall at a minimum describe the measures to be taken in the Facility design, construction, and operation phases to avoid or mitigate the following:
 - 1. Obstruction of access to existing farm operations; and
 - 2. Bifurcation of farmlands.

Measures for avoidance and minimization may include requiring the SR-836 Extension to be elevated at appropriate locations, to ensure access and appropriate flow of farm vehicles.

- xii. Provide lighting concepts, addressing lighting both during construction and while the Facility is in use. At a minimum, said concepts shall contain the following:
 - 1. Location, height, type of lights, shields, deflectors, and beam directions.
 - 2. Demonstration that the proposed lighting will be located, oriented, adjusted, shielded, and focused away from adjacent agricultural properties, will not be or become a nuisance to said properties, and will not create a traffic hazard on nearby roads by reason of glare or the like.
 - 3. Demonstration that any overspill of lighting onto adjacent agricultural properties shall not exceed one-half (½) footcandle (vertical) and one-half (½) footcandle (horizontal). An outdoor lighting installation shall not commence operation until a letter of compliance from a registered engineer or architect or the duly authorized representative of such engineer or architect stating that the installation has been field checked and meets the requirements as set forth above has been reviewed and approved by RER.

- e. Prior to construction of any phase of the Facility, MDX shall submit a complete Class IV wetland permit application, covering that phase, for DERM review and approval, and shall obtain a Class IV wetland permit for all work in wetlands in that phase prior to the commencement of said work.
- f. Prior to construction of any phase of the Facility, MDX shall submit a complete Class III permit application, covering that phase, for DERM review and approval, and shall obtain a Class III permit for all work in that phase within any County canal reservation, canal right-of-way, or canal maintenance easement prior to the commencement of said work.
- g. Prior to construction of any phase of the Facility, MDX shall submit engineering plans and engineering calculations, signed and sealed by an engineer licensed in the State of Florida, demonstrating that the Facility complies with all Miami-Dade County stormwater basin fill criteria and stormwater retention requirements. These engineering plans and

engineering calculations shall be submitted for DERM review and approval, and MDX or other responsible party shall obtain DERM approval prior to commencing construction of any phase of the Facility.

- h. Prior to operating the proposed SR-836 Extension, MDX shall have acquired, preserved, and restored wetlands in fulfillment of all mitigation requirements of the Class IV wetland permit for the Facility.
 - i. MDX has represented to the County that it will preserve no less than 1,000 acres of wetlands in connection with this proposed Facility. Consistent with these representations by MDX, MDX shall acquire, restore, and preserve no less than 1,000 acres of land within the North Trail or Bird Drive Wetland Basins as a component of the wetland mitigation for the Facility.
 - ii. The wetlands mitigation for this Project shall be located adjacent to the UDB and within the North Trail and Bird Drive Wetland Basins, unless otherwise approved by DERM.
 - iii. Miami-Dade County agrees to work cooperatively with MDX to facilitate the transfer of the wetland mitigation lands to Miami-Dade County at no cost to the County, for purposes of long term management and perpetual preservation of these wetland properties, provided however; that MDX shall first satisfy the wetland mitigation and monitoring requirements of County, State, and Federal wetland permits, including completion of all mitigation and monitoring timeframes; and, that MDX shall at the time of property transfer, provide Miami-Dade County with land management funds in a dollar amount equal to one thousand dollars (\$1000.00) per acre of land being transferred to the County.
- i. MDX shall be responsible for meeting all mitigation requirements of the Class IV permits and this Agreement to offset the wetland impacts of the Facility, including the acquisition of real property for restoration and preservation of wetlands.
- j. MDX shall preserve agricultural lands located outside the UDB at a ratio of one acre preserved for every acre of Agricultural Land within the Facility corridor. For purposes of this provision, "Agricultural Land" means land that: (1) is designated "Agriculture" on the Adopted 2020 and 2030 Land Use Plan map; and (2) for any period within the last 5 years, either was in active agricultural use or had a use that was ancillary to and directly supportive of agriculture. Priority shall be given to preserving Agricultural Lands to the area east of Krome Avenue/SW 177 Avenue and outside the Urban Expansion Areas, as depicted on the LUP map. Said preservation may be accomplished through the County's Purchase Development Rights program or other mechanism acceptable to the County, as approved by RER Planning. Other mechanisms may include any program or instrument, in a form acceptable to the County, that establishes an agriculture preservation easement in perpetuity over the agricultural lands being preserved, subject to the condition that an

affirmative vote of not less than two-thirds of the total membership of the Miami-Dade Board of County Commissioners then in office shall be required to extinguish, modify, or transfer said easement.

- k. The MDX shall conduct the planning, design, and construction activities of the Facility in a manner that protects, preserves, and ensures the proper management of any historic and/or archaeologically significant sites and/or districts within and adjacent to the Facility corridor. Accordingly, the MDX shall conduct a Phase I Archaeological Survey of the Facility corridor, or each phase thereof, and present the results to RER Planning's Office of Historic Preservation or successor agency ("Historic Preservation Office") for review and comments. The MDX agrees to undertake measures to protect and preserve any historic or archaeologically significant resources within the Facility corridor to the extent required by the Historic Preservation Office.

3. Required Traffic Analysis for Concurrency Management System Adjustment.

The MDX shall not open the SR-836 Extension, or any portion thereof, to the public until such time as the MDX has submitted, and the County has approved, the required traffic analysis that is to provide the basis for the adjustments to the County's Concurrency Management System detailed in adopted CDMP Traffic Circulation Subelement Policy TC- 1M. Within one year prior to opening any portion of the SR-836 Extension, MDX shall submit three copies of the required traffic analysis to RER Planning, for review and approval by RER Planning in coordination with the Miami-Dade Department of Transportation and Public Works or successor agency ("DTPW").

The required traffic analysis shall be prepared for the entirety of the SR-836 Extension and for each phase thereof, and shall be updated every 12 months from the date of original submittal until the Facility, or phases thereof, is completed and open to the public. The required traffic analysis shall contain, at a minimum, the information outlined below for each roadway segment listed in Exhibit 2 of this Agreement:

- a. Number of lanes for the roadways. This should be the same for build and no-build scenarios included.
- b. Peak Hour Period (PHP) Volume (Bidirectional) for build and no-build scenarios.
- c. Percent (%) change in the PHP for no-build and build scenarios.

At the earliest opportunity after the effective date of this Agreement, the Parties shall cooperatively ensure that the Long Range Transportation Plan and the Transportation Improvement Program, as prepared and updated by the Miami-Dade Transportation Planning Organization or successor agency ("TPO"), are amended to clearly inform the general public that the capacity generated by the SR-836 Extension to the roadway network shall not be considered in the administration of the County's concurrency management program.

4. Multi-use Recreational Trail

The MDX shall fund the design and construction of the minimum 30-foot-wide multi-use recreational trail component of the Facility. MDX shall coordinate the design of this component with the Miami-Dade County Parks, Recreation and Open Space Department or successor agency (“PROS”), DTPW, and the TPO, and the design also requires approval by RER Planning. The trail shall be designed to meet or exceed the applicable trail design guidelines of the *Miami-Dade County Trail Design Guidelines and Standards: Ludlam Trail Case Study*, dated June 2011, the *Miami-Dade County Park and Recreation Department Black Creek Trail Segment B Planning and Feasibility Study*, dated 2007, and the *Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds by the U.S. Forest Service*, dated 2007, and comply with applicable development regulations. Coordination and approval of the trail design shall occur at every stage of design/plan review of the Facility, or any phase thereof, and the trail shall be built and open to the public concurrently with the opening of the SR-836 Extension, or phase thereof.

The trail shall be designed to promote a safe and comfortable environment for walking, cycling, horseback riding, and non-motorized passive recreational uses, including observing nature, in a manner complementary and sensitive to the areas it traverses. Additionally, to the maximum extent feasible, the multi-use recreational trail shall be designed to provide seamless connections to the County’s existing and planned trails, such as the Black Creek Trail, and greenways network proximate to the SR-836 Extension corridor and adequate vertical and/or horizontal clearance shall be provided where the SR-836 Extension intersects with an existing or planned trail or greenway to not impede implementation or connectivity of the planned trails and greenways network

5. MDX Kendall Parkway Express Bus Service.

Pursuant to and consistent with the authority granted by Florida Statutes section 348.0004, MDX shall fund and fully implement MDX’s Kendall Parkway Express Bus Service along the proposed SR-836 Extension, including the planning, design, acquisition, construction of necessary park-and-ride facilities, rolling stock, and operation and maintenance costs of the transit services and facilities. MDX’s Kendall Parkway bus stations built to support MDX’s Kendall Parkway Express Bus Service within the Facility corridor shall provide protection from the elements, be climate-controlled, and be designed in a manner that encourages and promotes the use of the bus service. Under this agreement, MDX shall only be responsible for costs directly related to the development, operations, and maintenance of MDX’s Kendall Parkway Express Bus Service.

Additionally, MDX shall coordinate operating plans with DTPW. MDX will further coordinate operating plans with DTPW to optimize service with current and future park and ride facilities in the project vicinity.

The future MDX Kendall Parkway Express Bus service shall be implemented concurrently

with the opening of the SR-836 Extension. The cost, if any, to patrons to ride MDX's Kendall Parkway Express Bus service shall be less than the cost in tolls for the same trip made by personal automobile.

6. Project Construction Activity.

- a. During the construction phase of the Facility, and at all times construction and other Facility activities must adhere to the provisions and requirements of the approved Master Project Plan, and any approved modifications thereto.
- b. MDX shall obtain all necessary permits and approvals required in accordance with applicable state, federal, and local laws and agrees that no cost or expense claim shall be borne by the County for any design, construction, work, or procedure necessary to fulfill the obligations contained in this Agreement.

7. Quarterly Progress Reports

MDX shall submit quarterly progress reports detailing planning, permitting, construction, and other Facility activities conducted and/or completed during the previous quarter, and documenting conformance with the terms of this Agreement (the "Progress Reports"). Progress Reports shall be submitted to RER Planning four times per year, on January 15, April 15, July 15, and October 15, commencing at the end of the first quarter following the Effective Date of this Agreement.

8. Project Costs.

MDX shall be solely responsible for all Project costs and expenses, including the cost of implementing all mitigation requirements, including, without limitation, the requirements set forth in Section 2 of this Agreement.

9. Modification or Amendment of Agreement.

This Agreement may be modified or amended upon mutual agreement of the Parties, and any such modification or amendment requires the approval of the Board of County Commissioners.

10. Indemnification.

To the extent and within the statutory limits provided in Florida law, MDX agrees to indemnify, defend, save, and hold harmless the County within the limits of Section 768.28, Florida Statutes, from all claims, demands, liabilities, and suits as a result of MDX's negligence, or breach of this Agreement by MDX, its agents, employees, or contractors.

To the extent and within the statutory limits provided in Florida law, the County agrees to indemnify, defend, save, and hold harmless MDX within the limits of Section 768.28, Florida Statutes, from all claims, demands, liabilities, and suits as a result of the County's negligence, or breach of this Agreement by the County, its agents, employees, or contractors.

This paragraph survives the termination or expiration of this Agreement.

11. Dispute Resolution.

The Parties shall resolve any disputes, controversies, or claims between them arising out of this Agreement in accordance with the "Florida Governmental Conflict Resolution Act," Chapter 164, Florida Statutes, as amended.

12. Penalties and Remedies.

Miami-Dade County shall have the authority to seek injunctive relief against MDX, including but not limited to injunctive relief to prevent the opening or operation of the SR-836 Extension, to enforce compliance with or prohibit the violation of any of the provisions of this Agreement. Miami-Dade County shall be entitled to collect its enforcement expenses, including reasonable attorney fees and costs incurred at trial and on appeal.

13. Effective Date.

This Agreement shall become effective on the Effective Date.

14. Counterparts.

This Agreement may be simultaneously executed in counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

15. Severability.

The provisions of this Agreement are independent of and separable from each other and no provision shall be affected or rendered invalid or unenforceable by virtue of the fact that for any reason any other or others of them may be invalid or unenforceable in whole or in part, except to the extent that such invalidity or unenforceability causes the Agreement to fail of its essential purpose.

16. Format.

All words used herein in the singular form shall extend to and include the plural. All words used in the plural form shall extend to and include the singular. All words used in any gender shall extend to and include all genders.

17. Notices.

Communications related to this Agreement shall be in writing and shall be deemed to have been duly given and received when delivered personally or by courier service or upon actual receipt of registered or certified mail, addressed as set forth below:

- a To MDX: Javier Rodriguez, P.E., Executive Director
Miami-Dade Expressway Authority
3790 NW 21st Street
Miami, FL 33142

- b To County: Jack Osterholt, Deputy Mayor and Director
Miami-Dade Regulatory and Economic Resources Department
111 NW 1st Street, 29th Floor
Miami Florida 33128

Either party may alter the address to which communications or copies are to be sent by giving notice of such change of address in conformity with the provisions of this paragraph.

18. No Third Party Beneficiaries to this Agreement.

Nothing in this Agreement, express or implied, is intended to (a) confer upon any entity or person other than the parties and their successors or assigns any rights or remedies under or by reason of the Agreement as a third party beneficiary or otherwise, except as specifically provided in this Agreement; or (b) authorize anyone not a party to this Agreement to maintain an action pursuant to or based upon this Agreement, or (c) be

construed as a waiver of the sovereign immunity of the parties hereto under Florida Statute Section 768.28.

19. Entire Agreement.

This Agreement, including the exhibits to this Agreement, contain the sole and entire agreement between the Parties with respect to their subject matter and supersede any and all other prior written or oral agreements between them with respect to such subject matter.

20. Binding Effect.

This Agreement shall be binding upon the Parties and their respective representatives, successors and assigns.

21. Waiver.

Waiver by either party of any breach of any provision of this Agreement shall not be considered as or constitute a continuing waiver or a waiver of any other breach of the same or any other provision of this Agreement.

22. Captions.

The captions contained in this Agreement are inserted only as a matter of convenience or reference and in no way define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

23. Other Documents.

MDX will take all such actions and execute all such documents that may be reasonably necessary to carry out the purposes of this Agreement, whether or not specifically provided for herein; certain actions by MDX may require approval by its respective Board, and, to the extent such approval is required by applicable law, obtaining such approval shall be a condition to their obligations hereunder.

24. Governing Law.

This Agreement and the interpretation of its terms shall be governed by the laws of the State of Florida, without application of conflicts of law principles. Venue for any judicial, administrative or other action to enforce or construe any term of this Agreement or arising from or related to this Agreement shall lie exclusively in Miami-Dade County, Florida.

25. Joint Preparation.

The language agreed to herein express the mutual intent and agreement of the County and MDX and shall not, as a matter of judicial construction, be construed more severely against one of the parties from the other.

26. Time of the Essence.

Time is of the essence with respect to the performance of each of the covenants and obligations contained in this Agreement.

IN WITNESS WHEREOF, the Parties hereto have made and executed this Agreement, the MIAMI-DADE EXPRESSWAY AUTHORITY, signing by and through its Executive Director, and MIAMI-DADE COUNTY, FLORIDA, signing by and through the Mayor or his Designee, each duly authorized to execute same.

MIAMI-DADE EXPRESSWAY AUTHORITY

Approved

Javier Rodriguez, P.E., Executive Director

Approved as to form and legal sufficiency

Carlos Zaldivar, General Counsel

Approved by MDX Operations Committee
Approved by MDX Board

ATTEST:

MIAMI-DADE COUNTY, FLORIDA

BY ITS BOARD OF COUNTY

COMMISSIONERS

**HARVEY RUVIN,
CLERK OF SAID BOARD**

Deputy Clerk

Mayor

The foregoing was authorized and approved by Resolution No. _____ of the Board of County Commissioners of Miami-Dade County, Florida, on the _____ day of _____, 2018.

REQUESTED AMENDMENTS TO LAND USE PLAN MAP AND TO TRANSPORTATION ELEMENT FIGURES

Amend the Comprehensive Development Master Plan (CDMP) Adopted 2020 and 2030 Land Use Plan (LUP) map and Transportation Element to include the SR-836/Dolphin Expressway southwest extension, from the SR-836 interchange at NW 137th Avenue to SW 136 Street, as follows:

1. Amend the LUP map to Include the SR-836/Dolphin Expressway southwest extension as an Expressway; and
2. Amend the Transportation Element map series in the Traffic Circulation Subelement and Mass Transit Subelement listed below to include the SR-836/Dolphin Expressway southwest extension:
 - a. Traffic Circulation Subelement
 - i. Figure 1 – Planned Year 2030 Roadway Network
 - ii. Figure 3 – Roadway Functional Classification 2030
 - iii. Figure 4 – Limited Access Roadway Facilities 2030
 - iv. Figure 5 – Planned Roadway Network Level Of Service (LOS) 2030
 - v. Figure 6 – Planned Non-Motorized Network 2030
 - vi. Figure 7 – Designated Hurricane Evacuation Route
 - b. Mass Transit Subelement
 - i. Figure 1 – Future Mass Transit System 2030 Metrobus Service Area and Rapid Transit Corridors
 - ii. Figure 2 – Future Mass Transit System 2030 Rapid Transit Corridors
 - iii. Figure 3 – Premium Transit Corridors 2030

RECOMMENDED POLICIES ¹

Add the following new proposed Policies and modify the existing policies of the Land Use Element, Transportation Element and Intergovernmental Coordination Element of the CDMP as outlined below:

LU-1U. Notwithstanding the designation of the SR-836/Dolphin Expressway southwest extension as an Expressway on the CDMP Land Use Plan map and as depicted in the Traffic Circulation Subelement map series, no construction associated with the SR-836 southwest extension shall occur that would restrict farm vehicle and equipment access to agricultural properties adjacent to the SR-836 southwest extension corridor. Moreover, to minimize the impacts of the expressway's southwest extension, the design and construction shall be conducted in a manner that does not cause drainage or the spillage of lighting from the expressway onto adjacent agricultural lands.

LU-1V. To mitigate the impacts of the SR-836 southwest extension on the agricultural area, the Miami-Dade Expressway Authority (or successor agency) shall preserve

¹ Words single underlined are proposed additions and words single ~~stricken through~~ are proposed deletions. All other words are adopted text of the CDMP and remain unchanged.

agricultural lands outside the UDB commensurate to impacts to agricultural lands that would be taken out of production by the project. Said preservation may be through participation in the County's Purchase Development Rights program or other mechanism acceptable to the Miami-Dade County Department of Regulatory and Economic Resources (or successor Department).

LU-1W. The alignment of the SR-836 southwest extension shall remain outside and to the east of the boundary of the 10 day travel time contour of the west wellfield area, and all drainage shall be subject to DERM approval for conformance to Chapter 24 of the Code. In addition, prior to the construction of the roadway, or any phase thereof, MDX shall prepare a surface water sheet flow analysis to demonstrate that the wetlands hydrology in this area shall be adequately retained.

LU-3Q. Any zoning action or amendment to the CDMP that would approve any use other than direct agricultural production, the sale of agricultural produce, and permitted residential and Bed and Breakfast uses of property, in an area designated as Agriculture, whether as a primary use or as an accessory or subordinated use to an agricultural use, or action that would liberalize standards or allowances governing such other uses on land that is a) outside the Urban Development Boundary (UDB) and b) within one mile of the right-of-way line of any portions of SR-836 southwest extension designated in this Plan, shall require an affirmative vote of not less than five members of the affected Community Zoning Appeals Board and two-thirds of the total membership of the Board of County Commissioners then in office, where the applicable board issues a decision.

LU-3R. Any modification or amendment to this and other policies within this Plan adopted or modified as part of the October 2017 cycle amendment Application No. 8 (SR-836/Dolphin Expressway southwest extension), enumerated below, shall require an affirmative vote of not less than two-thirds of the total membership of the Board of County Commissioners then in office. Policies subject to this supermajority requirement include Land Use Element Policies LU-1U, LU-1V, LU-3Q, LU-3T, and LU-8G, Transportation Element Policy TE-3C, Traffic Circulation Subelement Policies TC-1B, TC-1L, TC-1M, and TC-1N, Mass Transit Subelement Policies MT-4D and MT-4E, Parks, Recreation and Open Space Element Policy ROS-3F, and Intergovernmental Coordination Element Policy ICE-3I.

LU-3T. The SR-836/Dolphin Expressway southwest extension corridor from NW 12 Street to SW 136 Street is planned to traverse and impact wetlands within the Bird Drive and North Trail Wetland Basins and elsewhere along its alignment and will require environmental approval and wetland mitigation. To the maximum extent feasible, mitigation for the SR-836 southwest extension shall be accomplished through the acquisition, preservation, and restoration of wetlands within the Bird Drive and North Trail Basins outside the Urban Development Boundary. At a minimum, preservation of wetlands within the Bird Drive Basin shall be included as a component of the wetlands mitigation for this project. The mitigation shall also include a plan to preserve the hydrological connection and surface water flow of the wetlands remaining in these basins through the use of culverts or bridges.

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:

* * *

- ii) The following areas shall be avoided:
 - a) Future Wetlands delineated in the Conservation and Land Use Element and land designated Agriculture on the Land Use Plan map, except where located in designated Urban Expansion Areas (UEAs);
 - b) Coastal High Hazard Areas east of the Atlantic Coastal Ridge;
 - c) Comprehensive Everglades Restoration Plan project footprints delineated in Tentatively Selected Plans and/or Project Implementation Reports; and

- 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 Tiers 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 extraordinary transit service; and
 - d) Locations having projected surplus service capacity that is unrestricted by this Plan or where necessary facilities and services can be readily extended.

* * *

v) Furthermore, lands within the Area of Impact of the SR-836 southwest extension, as defined in Policy TC-1M, shall not be considered for addition to the UDB if the roadway capacity created by the SR-836 southwest extension is included as a basis for the addition of such lands to the UDB.

TE-3C. It is the policy of Miami-Dade County to develop all the transportation facilities identified in the MPO's Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) and the CDMP Transportation Element as soon as feasible, in accordance with the LRTP phasing program. It is the policy of the County that the non-cost-feasible projects listed in the MPO's LRTP and the CDMP Transportation Element shall be retained in these plans solely as identified future priorities of the County for which the County shall pursue additional funding, and which shall be advanced into the cost-feasible components of the respective plans at the earliest feasible opportunities. It is, further, the policy of the Board of County Commissioners that, a) non-cost-feasible transportation projects may be advanced into the cost-feasible component of the referenced plans only after demonstration that the project appropriately supports, and is supported by, related services such as transit feeders and/or the type and intensity of planned surrounding land development, and b) the Governing Board of the MPO is urged to support this policy.

With the exception of the SR-836 southwest extension, Only only the

transportation projects contained in the cost-feasible components of the LRTP, the TIP and the CDMP shall be considered in the administration of the County's concurrency management program and, after the next update of the CDMP Transportation Element to reflect the next update of the MPO's LRTP, the presentations of future levels of service in the CDMP shall reflect only these facility improvements. It is the policy of Miami-Dade County that the SR-836 southwest extension is to only address existing roadway capacity deficiencies in the southwest portion of the County, as of the date of opening of the extension, and is not intended to provide capacity to support or encourage future development.

TC-1B. The minimum acceptable peak period operating level of service for all State and County roads in Miami-Dade County outside of the Urban Development Boundary (UDB) identified in the Land Use Element shall be LOS C. The minimum acceptable peak-period LOS for all State and County roads inside the UDB shall be the following:

* * *

4. Notwithstanding any provision to the contrary, the minimum acceptable peak period operating level of service for the SR-836/Dolphin Expressway southwest extension from NW 137 Avenue to SW 136 Street shall be and remain LOS C.

TC-1L. Miami-Dade County shall coordinate with Miami-Dade Expressway Authority and the Transportation Planning Organization (or successor agencies) in the planning and construction of SR-836/Dolphin Expressway southwest extension from NW 12th Street to SW 136th Street and determination of associated park and ride facilities and interchange locations. The general alignment of the SR-836 southwest extension is depicted in the CDMP LUP map and the map series of the Traffic Circulation Subelement and the Mass Transit Subelement, and the associated park and ride facilities and interchanges will be determined as part of the project's future project development and environment (PD&E) study.

TC-1M. Miami-Dade County approves the new SR-836/Dolphin Expressway southwest extension only to the extent necessary to relieve existing traffic congestion in the southwestern parts of the County and to provide a reliable, robust, and faster connection to Downtown Miami and other major trip attractors across the County. To discourage urban sprawl within the Area of Impact of the SR-836 southwest extension, defined as the area bounded by NW 12th Street to the north, SW 152nd Street to the south, SR-997/Krome Avenue to the west, and NW/SW 97 Avenue to the east, the County's Concurrency Management System shall be amended to remove the additional LOS/capacity generated by the SR-836 southwest extension in the Area of Impact. Accordingly, any increase in LOS/capacity that the roadways in the Area of Impact would experience due to the diversion of trips resulting from the construction of this new expressway facility could not be used to demonstrate concurrency. The purpose of this policy is to assure that the additional capacity attributable to the SR-836 southwest extension cannot be used to support further development in the Area of Impact.

TC-1N. Within one year prior to the opening of the SR-836/Dolphin Expressway southwest

extension, or any phase thereof, the Miami-Dade Expressway Authority (or successor agency) shall provide the County with an analysis of increase in the peak hour trip capacity on all roadway links and intersections within the Area of Impact (as defined in Policy TC-1M) as required by the County.

MT-4D. Pursuant to Traffic Circulation Subelement Policy TC-4F, the Miami-Dade Expressway Authority (or successor agency) ("MDX") shall provide for mass transit service in the SR-836/Dolphin Expressway southwest extension corridor, to be funded by MDX. The mass transit service shall incorporate lanes having technologies that facilitate the safe travel of automated vehicles, including mass transit vehicles, at high rates of speed for a connection with the transit service being implemented as part of the current SR 836 reconstruction generally east of the Turnpike. MDX shall coordinate the mass transit service with Miami-Dade County through the Department of Transportation and Public Works (or successor department). Said coordination shall occur prior to the earlier of the issuance of the first permit for construction of the expressway extension or prior to the commencement of any construction of the expressway extension.

MT-4E. In coordination with the Miami-Dade County Parks, Recreation and Open Space Department and the Miami-Dade Transportation Planning Organization (or successor agencies), the Miami-Dade Expressway Authority (or successor agency) shall design a multi-use recreational trail within the corridor of the SR-836/Dolphin Expressway southwest extension. The recreational trail shall be designed to promote a safe and comfortable environment for walking, cycling, horseback riding, and passive recreational uses, such as observing nature, in a manner complementary and sensitive to the areas it traverses. Additionally, to the maximum extent feasible, the multi-use recreational trail shall be designed to provide for seamless connections to the County's existing and planned trails and greenways network proximate to the corridor. Said coordination shall occur prior to the earlier of the issuance of the first permit for construction of the expressway extension or prior to the commencement of any construction of the expressway extension, and the trail shall be built and open to the public concurrent with the opening of the expressway extension, or phases thereof.

ROS-3F. In conjunction with the opening of the SR-836/Dolphin Expressway southwest extension, or any phase thereof, the Miami-Dade Expressway Authority (or successor agency) shall provide a parallel, multi-use recreational trail facility designed for walking, cycling, horseback riding, and passive recreational uses, such as observing nature, in a manner complementary and sensitive to the areas it traverses. Additionally, to the maximum extent feasible, the multi-use recreational trail shall be designed to provide for seamless connections to the County's existing and planned trails and greenways network proximate to the corridor.

ICE-2F. Miami-Dade County shall enter into an Interlocal Agreement with the Miami-Dade Expressway Authority to further implement the policies set forth in this Plan related to the SR-836/Dolphin Expressway southwest extension.

EXHIBIT 2

ROADWAY SEGMENTS SUBJECT TO CONCURRENCY MANAGEMENT SYSTEM CAPACITY ADJUSTMENTS

Roadway	From	To	No of Lanes	No-Build Peak Hr. Period (PHP)	Build Peak Hr. Period (PHP)	% change (+/-)
NW 12 STREET	HEFT/SR 821	NW 137 AVENUE				
SW 8 STREET	HEFT/SR 821	KROME AVENUE				
SW 24 STREET/CORAL WAY	HEFT/SR 821	SW 157 AVENUE				
SW 42 STREET/ BIRD ROAD	HEFT/SR 821	SW 162 AVENUE				
SW 56 STREET/MILLER	HEFT/SR 821	SW 167 AVENUE				
SW 72 STREET/ SUNSET DRIVE	HEFT/SR 821	SW 167 AVENUE				
SW 88 STREET/ KENDALL DRIVE	SW 97 AVENUE	KROME AVENUE				
SW 104 STREET/KILLIAN DRIVE	HEFT/SR 821	SW 167 AVENUE				
SW 120 STREET	HEFT/SR 821	SW 147 AVENUE				
SW 136 STREET	HEFT/SR 821	SW 162 AVENUE				
SW 152 STREET	HEFT/SR 821	SW 157 AVENUE				
SW 117 AVENUE	SW 8 STREET	SW 152 STREET				
NW/SW 127 AVENUE	NW 12 STREET	SW 120 STREET				
SW 132 AVENUE	SW 26 STREET	SW 56 STREET				
NW/SW 137 AVENUE	NW 12 STREET	SW 152 STREET				
SW 147 AVENUE	SW 8 STREET	SW 120 STREET				
SW 157 AVENUE	SW 8 STREET	SW 152 STREET				
SW 167 AVENUE	SW 42 STREET	SW 104 STREET				
KROME AVENUE	OKEECHOBEE ROAD/US 27	SW 152 STREET				

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APPENDIX B

**Dolphin Expressway (SR836) Southwest Extension
Project Development and Environment Study**

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MDX
SR 836/DOLPHIN
EXPRESSWAY
SOUTHWEST EXTENSION
Project Development and Environment
(PD&E) STUDY
Miami-Dade County, Florida

ETDM Number: 11482
MDX WORK PROGRAM NO.: 83618

Corridor Evaluation Traffic
Technical Memorandum

Prepared by: Jacobs Engineering Group, Inc.
for Stantec Consulting Services, Inc.

February 2017

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1 Introduction

The Dolphin Expressway (SR 836) is one of five State Road expressways that are managed, operated, and maintained by the Miami-Dade Expressway Authority (MDX). SR 836 is critical to east-west mobility across Miami-Dade County, providing connections to several north-south freeways/expressways, such as, the Homestead Extension of Florida's Turnpike (HEFT/SR 821), Palmetto Expressway (SR 826), and Interstate 95 (I-95).

MDX is currently studying the feasibility of extending SR 836 from its western terminus at NW 137th Avenue (SR 825¹/Lindgren Road) to SW 136th Street. The southwest extension of SR 836 would provide additional north-south connectivity and improve mobility within the region.

This document presents the traffic methodology and analysis portion of the Corridor Evaluation Phase of the SR 836 Southwest Extension Project Development and Environment (PD&E) Study in Miami-Dade County, Florida. The general location of the study area within Miami-Dade County is shown in Figure 1 and a detailed map of the Study Area is provided in Chapter 2.

1.1 Study Objective

The SR 836 Southwest Extension PD&E Study is evaluating the southwest extension of SR 836 from its current terminus at NW 137th Avenue to SW 136th Street. The new facility is envisioned as a limited access, multi-modal, tolled expressway. Several Alternative Corridors are being considered in the first stages of the study, including but not limited to those presented in the *MDX 83618 SR 836 Southwest Extension Draft Project Concept August 2009 (Rev.)* ("MDX Concept Report") and developed as a result of coordination with the public and permitting agencies. Although the proposed corridor will primarily serve automobiles and trucks, the project study team continues to coordinate closely with Miami Dade Transit (MDT) throughout the study process to ensure that future transit routes can utilize the proposed SR 836 Southwest Extension.

1.2 Study Approach

The study has been divided in two phases, each consistent with the level of detail expected during each stage of the environmental process; namely, Corridor Evaluation and Alternatives Analysis.

From a traffic perspective, the first phase (i.e., Corridor Evaluation) serves four purposes: validation of the travel demand model, creation of a Validation Base Year model and Design Year No-Build model, screening of potential corridors from a macroscopic level, and substantiation of the purpose and need statement of the project.

¹ SW 137th Avenue is SR 825 between SW 128th Street and Kendall Drive and between SW 8th Street and NW 12th Street.

2 Study Methodology

The traffic analysis in this phase assisted with the substantiation of the purpose and need of the project; validation of the traffic study sub-area of the travel demand model (SERPM) to Base Year (2010) to be used throughout the project; and provided transportation operational input at a macroscopic level for the preliminary screening of the Alternative Corridors.

The methodology for the travel demand modeling and traffic operations analysis performed as part of the Corridor Evaluation Phase is discussed in the following sections.

2.1 Traffic Study Area

In order to quantify the need for mobility in the area, the Corridor Evaluation, from a traffic standpoint, was conducted over a sub-area of about 75 square miles, which extends north to NW 12th Street, east to SW 97th Avenue, south to SW 152nd Street (SR 992/Coral Reef Drive)² and west of Krome Avenue (SR 94/SW 177th Avenue), as shown in Figure 2. In this manner, the actual project traffic study area was extended to include the only existing north-south uninterrupted flow facility (namely, the HEFT/SR 821) in the vicinity of the project, as well as the adjacent north-south arterial to the east, NW 107th Avenue (SR 985). Furthermore, the eastern limit of the model study area was defined as SW 97th Avenue to minimize the impact of the sub-area model's external connections (i.e., external stations).

Within the previously defined study area the following major arterials and collectors, which are highlighted in Figure 2, were analyzed for the purpose of refining the purpose and need:

- SW 152nd Street from SW 157th Avenue to SW 97th Avenue
- SW 136th Street from SW 157th Avenue to SW 137th Avenue
- Killian Parkway³ (SW 104th Street) from SW 157th Avenue to SW 107th Avenue
- SR 94/Kendall Drive (SW 88th Street) from Krome Avenue to SW 97th Avenue
- SR 986⁴/Sunset Drive (SW 72nd Street) from SW 157th Avenue to SW 97th Avenue
- Miller Drive (SW 56th Street) from SW 157th Avenue to SW 97th Avenue
- SR 976⁵/SW 42nd Street (Bird Road/SW 40th Street) from SW 157th Avenue to SW 97th Avenue
- Coral Way (SW 26th Street/SW 24th Street) from SW 157th Avenue to SW 97th Avenue
- Tamiami Trail (SR 90/US 41/SW 8th Street) from Krome Avenue to SW 97th Avenue
- NW 12th Street from NW 137th Avenue to NW 97th Avenue
- Krome Avenue from SW 154th Street to Tamiami Trail
- SW 167th Avenue from Killian Parkway (SW 104th Street) to Sunset Drive (SW 72nd Street)
- SW 157th Avenue from Coral Reef Drive (SW 152nd Street) to Coral Way (SW 26th Street)

² Coral Reef Drive is SR 992 east of Florida's Turnpike.

³ Killian Parkway becomes SR 990 east of SR 874

⁴ Sunset Drive is SR 986 east of SW 127th Avenue.

⁵ Bird Road is SR 976 east of Florida's Turnpike.

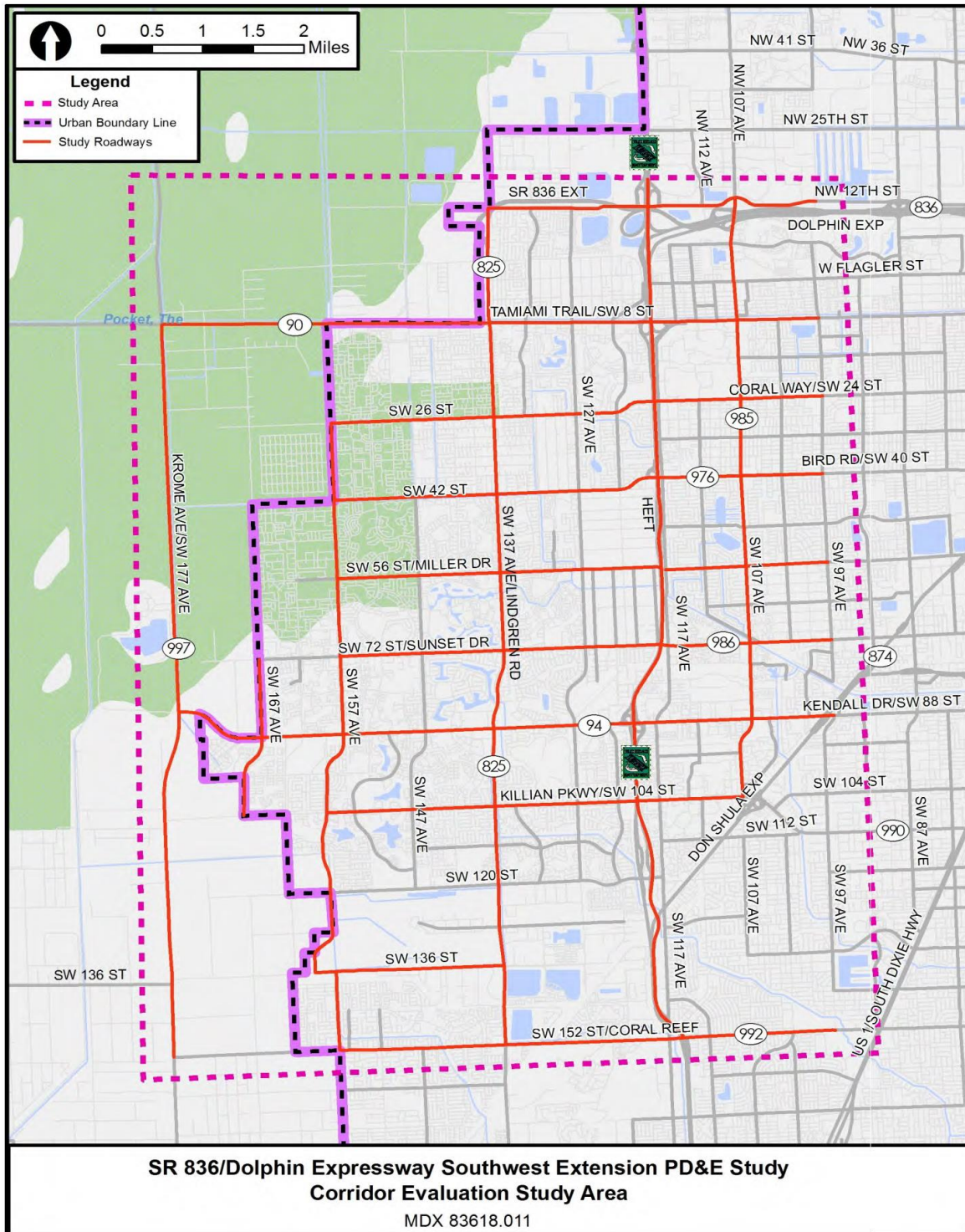


Figure 2: Corridor Evaluation Traffic Study Area

2.2 Analysis Years

The horizon years for the Corridor Evaluation Phase of this study are summarized in the table below (Table 1).

Table 1: Corridor Evaluation Analysis Years

Base Years	2010 HEFT Express Lanes Model Base Year and Project Model Validation Base Year	The Base Year 2010 Southeast Florida Regional Planning Model (SERPM) 6.5.2 developed for the HEFT Express Lanes Study was developed and validated by Florida's Turnpike Enterprise (FTE) using 2010 data. This model was used only as a basis for additional model developments (Project Validation Base Year Model). A Year 2010 Project Model focusing on the traffic study sub-area was developed and validated during the Corridor Evaluation Phase.
	2014 Project Base Year	Existing Conditions Year for the Corridor Evaluation.
Forecast Years	2040 HEFT Express Lanes Model Horizon Year	The Horizon Year 2040 SERPM 6.5 developed for the HEFT Express Lanes Study. This model was used as a base to develop the Design Year 2050 No-Build Model.
	2050 Project Design Year	Future forecast year for the Corridor Analysis. A Design Year No-Build Model was developed for this horizon under the Corridor Evaluation Phase.

2.3 Existing Area-wide Operation Analysis

An area-wide operational analysis was conducted to identify existing operational deficiencies along critical roadway facilities within the traffic study area.

The assessment focused on the following performance measures:

- Annual Average Daily Traffic (AADT): The AADT volumes on major roadways within the study area were calculated using 72-hour tube counts and synopsis reports available from Florida Department of Transportation's (FDOT) 2012 and 2013 Florida Traffic Online (FTO). Seasonal factors and axle correction factors were applied to the field collected Average Daily Traffic (ADT) volumes to develop Existing Year (2014) AADTs. The existing year AADTs have been rounded according to the AASHTO rounding standards published in FDOT's *2014 Project Traffic Forecasting Handbook*.
- Average Travel Speed and Level of Service (LOS): Average travel speed along the major north-south and east-west arterials and collectors within the traffic study area were derived from travel times collected during the AM and PM peak periods.

The AM and PM peak period LOS was then determined by using the posted speed class (e.g., Class I: posted speed 40 mph and higher, Class II: posted speed of 35 mph and lower) and comparing the roadway's peak period/peak direction average travel speed (ATS) (mph) against the ATS thresholds documented in FDOT's *A Revised Version of the HCM 2010 Urban Streets Automobile LOS Methodology (2012)* shown in Table 2.

Table 2: FDOT Recommended Arterial LOS

Level of Service (LOS)	Average Travel Speed (ATS) (mph)	
	FDOT Class I	FDOT Class II
A	≥40	≥28
B	39 - 31	27 - 22
C	30 - 23	21 - 17
D	22 - 18	16 - 13
E	17 - 15	12 - 10

*Assumed LOS F if speed is less than LOS E lower threshold.

Source: *A Revised Version of the HCM 2010 Urban Streets Automobile LOS Methodology (2012)*

The *Revised Version of the HCM 2010 Urban Streets Automobile LOS Methodology (2012)* is a modified approach developed by FDOT to determine the arterials' LOS in Florida. The revised approach was found to produce LOS values that were more consistent with the operation of urban streets throughout the state compared to the LOS values obtained by directly applying the HCM 2010 methodology; therefore, the ATS thresholds documented in FDOT's *A Revised Version of the HCM 2010 Urban Streets Automobile LOS Methodology (2012)* were applied for this planning level analysis.

The above methodology is only applicable to urban streets. Since SR 997/Krome Avenue is as rural roadway that operates similar to a *highway* per the HCM facility type classifications and SR 821/HEFT is classified as a freeway, an alternate methodology was employed to determine the planning level LOS for SR 997/Krome Avenue and SR 821/HEFT. For the generalized level of service analysis SR 997/Krome Avenue was considered rural area type, with the exception the segment between Bird Road/ SW 42nd Street and SR 94/Kendall Drive that was classified as transitioning area type. The 2030 Urban Expansion Area boundary extends to SR 997/Krome Avenue between Bird Road/SW 42nd Street and SR 94/Kendall Drive. The peak hour

directional volumes of these two facilities were compared with the generalized service volumes in the *2012 FDOT Quality/Level of Service Handbook Tables* (December 2012) to determine the LOS.

The LOS results were compared to the LOS Standards stipulated in the *FDOT Policy 000-525-006-a* for state roadways and those documented in the *Miami-Dade County Comprehensive Development Master Plan – Transportation Element* for local and county roadways shown in Table 3.

Table 3: Level of Service Standards

Facility	Location	Level of Service (LOS) Standard		
		Transit Availability		
		No Transit Service	20 Minute Headway Transit Service within 1/2 mile	Extraordinary Transit Service (Commuter Rail or Express Bus)
Local and County Roadways	Between Urban Infill Area (UIA) and Urban Development Boundary (UDB)	LOS D (90% of Capacity)	LOS E (100% of Capacity)	120% of Capacity
	Outside UDB	LOS C		
State Roadways	Inside UDB	LOS D		
	Outside UDB	LOS C		

- Volume over Capacity Ratio (V/C): With the exception of SR 821/HEFT, the entire traffic study area included only interrupted flow facilities (in other words, surface streets). In addition to average travel speeds (speed that includes the delay at the intersections) achievable throughout the segment, the operation of interrupted flow facilities is generally described by their volume over capacity ratio (V/C) at a planning level. Therefore, peak hour, peak direction V/C ratios were also computed using the generalized service volumes published in *2012 FDOT Quality/Level of Service Handbook Tables (12/18/12)*.

2.4 Alternative Corridor Evaluation

In addition to the No-Build (i.e., No Action) scenario, four Alternative Corridors were evaluated using the Project Design Year (2050) Model. Although the *SR 836 Southwest Extension PD&E Alternative Corridor Evaluation Report (ACER)* considers numerous Alternative Corridors, for the purpose of the travel demand modeling analysis the potential corridors to be studied were

narrowed down to four representative corridors based on similar alignment and traffic characteristics. A detailed description of the four Alternative Corridors, along with a map illustrating the corridors, can be found in Chapter 6 and Figure 15, respectively.

The Year 2050 No-Build Model was used as a baseline to develop the Year 2050 Build (Alternative Corridor) Models. The No-Build highway network was modified to incorporate the Alternative Corridors. A separate model was created for each of the potential corridors being evaluated.

To maintain an unbiased comparison, the same laneage, posted speed, toll scheme, and interchange configuration were assumed for all of the Alternative Corridor scenarios. Consistent with the two-phase approach described in Chapter 1, these assumptions will be evaluated further during the development of the recommended Alternative Corridor in the Alternatives Analysis Phase.

Summary performance statistics were obtained from SERPM to compare each Build scenario with the 2050 No-Build condition. Specific measures include:

- Demand (AADT)
- Vehicle Miles Traveled (VMT)
- Vehicle Hours Traveled (VHT)
- Original System User Speed
- Congested System User Speed

3 Data Collection

Data used in the corridor evaluation was obtained from several sources, including but not limited to: FDOT, Miami-Dade Metropolitan Planning Organization (MPO), previous studies, and field collected data. Traffic count data was collected to supplement data available from FDOT's FTO application. The field collected traffic counts underwent a thorough screening process to identify any equipment malfunctions, errors, or irregular travel patterns. Identified anomalies were reviewed and rectified.

3.1 72-Hour Machine Counts

72-hour bi-directional ADT counts were collected during typical weekdays (Tuesday through Thursday, excluding holidays) throughout September 2014 to supplement the count stations with Synopsis Reports available from FDOT's 2012 and 2013 FTO application. The counts were collected after Miami-Dade County public schools were in session and traffic patterns had stabilized. The 22 locations where the 72-hour ADT counts were performed are listed below and have been graphically displayed in Figure 3; the ADT reports are provided in Appendix A.

1. SW 167th Avenue south of SR 94/ Kendall Drive (SW 88th Street)
2. SW 167th Avenue north of SR 94/Kendall Drive (SW 88th Street)
3. SW 157th Ave south of Howard Drive (SW 136th Street)
4. SW 157th Avenue south of SR 94/Kendall Drive (SW 88th Street)
5. SW 157th Avenue south of Sunset Drive (SW 72nd Street)
6. SW 157th Avenue south of Miller Drive (SW 56th Street)
7. SW 157th Avenue south of Bird Road (SW 42nd Street)
8. SW 157th Avenue south of Coral Way (SW 26th Street)
9. SW 137th Avenue south of Sunset Drive (SW 72nd Street)
10. SW 137th Avenue south of Bird Road (SW 42nd Street)
11. SW 137th Avenue south of SR 90/Tamiami Trail (SW 8th Street)
12. Howard Drive (SW 136th Street) west of SW 137th Avenue
13. Killian Parkway (SW 104th Street) west of SR 825/SW 137th Avenue
14. Killian Parkway (SW 104th Street) west of SR 985/SW 107th Avenue
15. Sunset Drive (SW 72nd Street) west of SW 137th Avenue
16. SR 986/Sunset Drive (SW 72nd Street) west of SW 117th Avenue
17. SR 986/Sunset Drive (SW 72nd Street) east of SW 117th Avenue
18. Miller Drive (SW 56th Street) west of SW 137th Avenue
19. Miller Drive (SW 56th Street) west of SW 117th Avenue
20. Bird Road (SW 42nd Street) west of SR 821/HEFT interchange
21. Coral Way (SW 26th Street) west of SW 137th Avenue
22. Coral Way (SW 26th Street) west of SW 117th Avenue

CORRIDOR EVALUATION TRAFFIC TECHNICAL MEMORANDUM | 11

3.2 Travel Time Survey

Travel time surveys were performed along a total of nine (9) major north-south and east-west roadways within the study area, as graphically depicted in Figure 3:

1. Coral Reef Drive (SW 152nd Street) from SW 157th Avenue to SW 97th Avenue
2. SR 94/Kendall Drive (SW 88th Street) from SR 997/Krome Avenue (SW 177th Avenue) to SW 97th Avenue
3. Bird Road (SW 42nd Street/SW 40th Street) from SW 157th Avenue to SW 97th Avenue
4. SR 90/Tamiami Trail (SW 8th Street) from SR 997/Krome Avenue (SW 177th Avenue) to SW 97th Avenue
5. SR 997/Krome Avenue (SW 177th Avenue) from SW 154th Street to SR 90/Tamiami Trail (SW 8th Street)
6. SW 157th Avenue from Coral Reef Drive (SW 152nd Street) to Coral Way (SW 26th Street)
7. SW 137th Avenue from Coral Reef Drive (SW 152nd Street) to NW 12th Street
8. SR 821/HEFT from SR 992/Coral Reef Drive (SW 152nd Street) to Doral Boulevard (NW 41st Street)
9. SR 985/SW/NW 107th Avenue from Killian Parkway (SW 104th Street) to NW 12th Street

The travel times were collected during the AM and PM peak periods in September and October 2014. For consistency purposes, and to the extent possible, the travel time runs were performed during the periods when the 72-hour counts were collected. The Travel Time Delay Study is included in Appendix A.

3.3 Additional Data Sources

In addition to the traffic count data presented above, supplemental data was also obtained from the following sources:

- Seasonal and axle adjustment factors, as applicable, from 2012 and 2013 FDOT FTO
- Historic traffic count data from the 2012 and 2013 FDOT FTO
- Validation Year 2010 and Horizon Year 2040 HEFT Express Lanes SERPM 6.5 Models
- 2040 Miami-Dade Long Range Transportation Plan (LRTP)
- Miami-Dade MPO 2015 Transportation Improvement Program (TIP)
- FDOT 5 Year Work Program (2014-2018)
- MDX 83618 SR 836 Southwest Extension Draft Project Concept August 2009 (Rev.) ("MDX Concept Report")
- Miami-Dade Transit (MDT) service information, existing and planned

4 Travel Demand Modeling

A summary of the travel demand modeling analysis undertaken for the Corridor Evaluation Phase is provided in this chapter, while details regarding the development of the 2050 Build Models are presented in Chapter 6 of this technical memorandum.

A detailed account of the travel demand modeling process has been documented in the *Travel Demand Model Development and Validation Memorandum (February 2017)* which has been included as Appendix B for further reference. This memorandum provides a more comprehensive discussion on the selection of the baseline Southeast Florida Regional Planning Model (SERPM), development and sub-area validation of the SR 836 Project Validation Base Year 2010 Model (herein 2010 Project Model), and development of the Year 2050 No-Build Model.

4.1 Selection of the Study Baseline SERPM

The Southeast Florida Regional Planning Model (SERPM) is the adopted travel demand model for the project study area. Since the SR 836/Dolphin Expressway Southwest Extension PD&E Study modeling effort was initiated prior to the adoption of the Miami-Dade 2040 LRTP and official release of the SERPM 7 Activity Based Model (ABM), it was concluded that the currently adopted four-step travel demand model, SERPM 6.5, would be utilized for this Study.

The Validation Base Year 2010 and Horizon Year 2040 SERPM (6.5) prepared by Florida's Turnpike Enterprise (FTE) for the HEFT Express Lanes Study were selected as the appropriate baseline travel demand models for this study. Utilizing the HEFT travel demand models as a starting point provided several benefits, such as maintaining consistency in methodology with other nearby transportation projects, incorporating the latest model enhancements from successive model development (i.e., highway network and toll algorithm refinements, input data and parameter modifications to improve the validation, etc.), and providing a robust validation on both a time period and daily basis.

4.2 Travel Demand Model Development and Sub-area Validation

The HEFT Base Year 2010 Model was thoroughly reviewed and updated as necessary to ensure the model reasonably reflected traffic conditions within the traffic study sub-area to create the 2010 Project Model. The model validation for this study focused on the sub-area defined in Chapter 2.

Although the HEFT models were used as the baseline for the SR 836 Study models, 2010 and 2040 socio-economic (SE) data was utilized rather than the SE data sets developed by FTE and used during the HEFT Express Lanes Study, which were calculated via extrapolation from the previous 2005-2035 LRTP SE data. It is also worth mentioning that the 2010 and 2040 SE data used in this

study (i.e., population, housing and employment data) was created by the local Metropolitan Planning Organization (MPO) and FDOT during the development of the *2040 Miami-Dade Long Range Transportation Plan (LRTP)* for use with SERPM 6.5, and was released prior the final adoption of the current SERPM 7.

SERPM 6.5 was executed using the full (Time-of-Day, Multi-modal) running option. This running option explicitly models the fluctuations in travel behavior, traffic congestion, and traffic and transit operations for the following three time periods: AM Peak Period (6:30 am – 9:30 am); PM Peak Period (3:30 pm – 6:30 pm); and Off-Peak Period (9:30 am – 3:30 pm, 6:30 pm – 6:30 am).

Once the sub-area validation of the 2010 Project Model was complete, the 2050 No-Build Project Model was developed by updating the socio-economic data, highway network, and transit network within the 2040 HEFT Model to reflect Year 2050 conditions. In addition, modifications made during the validation process were also carried over to the future year models. Using the 2050 No-Build Model as a baseline, a 2050 Build Model was created for each of the preselected Alternative Corridors. Consistently with FDOT procedure, the No-Build trip table was maintained fixed for all Build scenarios to avoid unrealistically altering the distribution of trips. Results for the Year 2050 travel demand modeling analysis are presented in Chapter 6.

5 Existing Area-wide Traffic Operations

A planning level assessment of the traffic operations within the traffic study area was performed following the methodology discussed in Section 2.3. Annual Average Daily Traffic (AADT) volumes, as well as the average travel speed, level of service, and directional volume to capacity ratios during the AM and PM peak hours were used to evaluate existing traffic conditions.

5.1 Traffic Volumes

Existing traffic volumes within the study area were reviewed to identify the average daily traffic and travel characteristics along the study roadways. Due to the extents of the corridor evaluation study area, it was not possible to collect 2014 ADTs along all of the major roadways; therefore, data was also gathered from FDOT's 2012 and 2013 Florida Traffic Information (FTI) DVD and Florida Traffic Online (FTO) application to supplement the field data.

5.1.1 AVERAGE ANNUAL DAILY TRAFFIC (AADT)

The AADTs on the major roadways within the study area are shown in Figure 4. The AADTs were computed by applying the appropriate seasonal factors and axle correction factors to the field collected ADT counts and obtained directly from FDOT's 2013 FTI DVD and FTO. A spreadsheet summarizing the AADTs within the study area has been included in Appendix C.

5.1.2 PEAK HOUR DIRECTIONAL DISTRIBUTION

The peak hour directional distributions for the study corridors—based on field collected data and FDOT FTO data—are included in Appendix D. Table 4 summarizes the peak direction and the correspondent average peak hour directional distribution of the study corridors. The east/west and north/south corridors have been divided into segments between the major crossing roadways, and the results were averaged among the portions of the corridors with similar peak hour directionality.

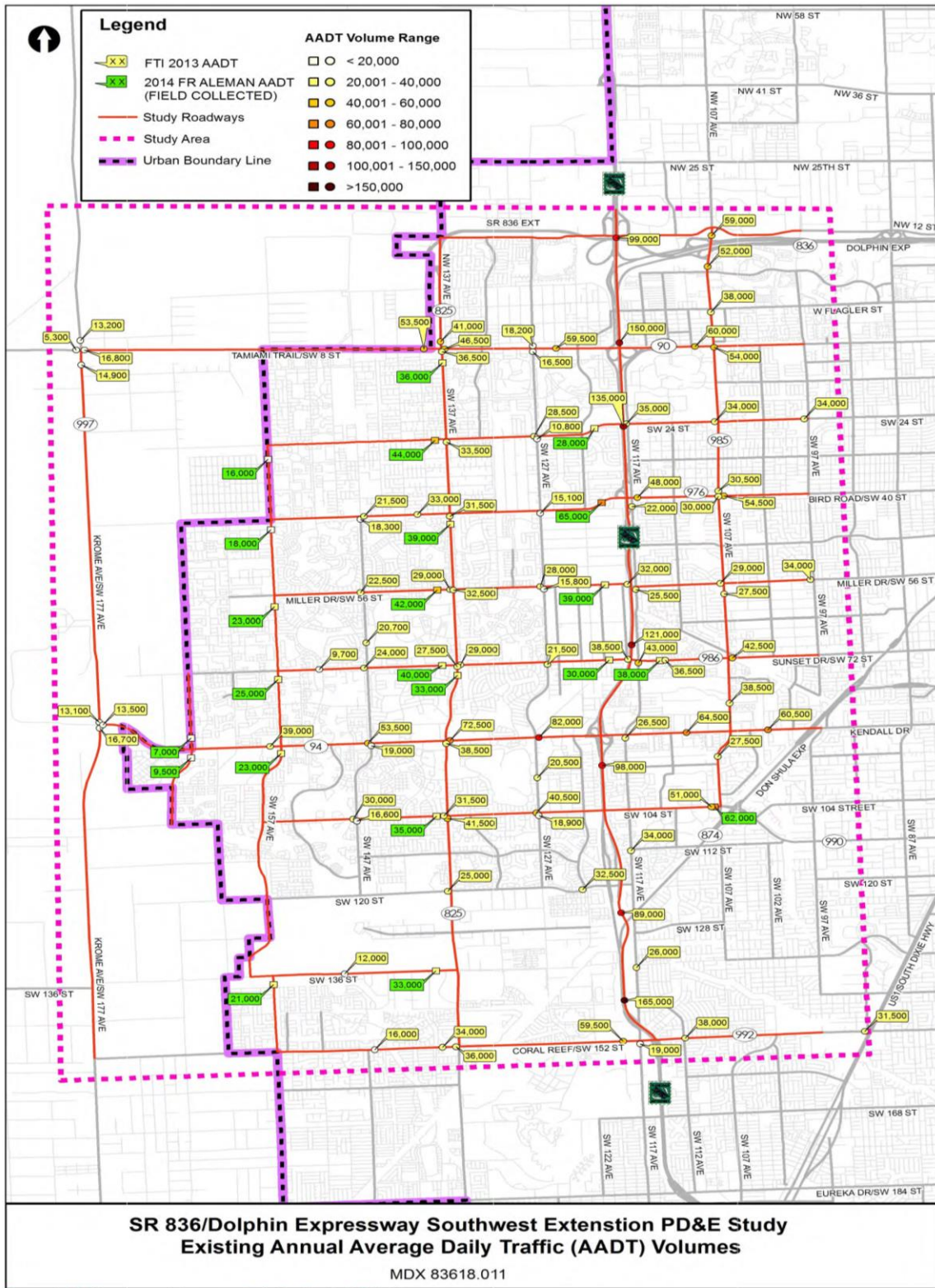


Figure 4: Existing Annual Average Daily Traffic (AADT) Volumes

Table 4: Peak Hour Directional Distribution Summary

Location	Peak Direction		Peak Hour Directional Distribution(*)		Source
	AM	PM	AM	PM	
NW 12 th St west of SR 821/HEFT	EB	WB	91%	70%	FDOT 2012
NW 12 th St east of SR 821/HEFT	EB	WB	85%	68%	FDOT 2012
SR 90/Tamiami Tr /SW 8 th St east of SR 997/Krome Ave	EB	WB	53%	52%	FDOT 2013
SR 90/Tamiami Tr/SW 8 th St west of SR 821/HEFT	EB	WB	62%	62%	FDOT 2013
SR 90/Tamiami Tr/SW 8 th St east of SR 821/HEFT	EB	WB	55%	53%	FDOT 2013
Coral Way/SW 26 th St west of SW 137 th Ave	EB	WB	68%	63%	FR Aleman 2014
Coral Way/SW 26 th St east of SR 821/HEFT	EB	WB	74%	59%	FR Aleman 2014
Bird Rd/SW 42 nd St west of SR 821/HEFT	EB	WB	73%	63%	FR Aleman 2014
SR 976/Bird Rd/SW 40 th St east of SR 821/HEFT	EB	WB	57%	62%	FDOT 2013
Miller Dr/SW 56 th St west of SW 137 th Ave	EB	WB	68%	64%	FR Aleman 2014
Miller Dr/SW 56 th St east of SR 821/HEFT	EB	WB	79%	60%	FR Aleman 2014
Sunset Dr/SW 72 nd St west of SW 137 th Ave	EB	WB	65%	59%	FR Aleman 2014
Sunset Dr/SW 72 nd St east of SW 137 th Ave	EB	WB	81%	60%	FR Aleman 2014
SR 986/Sunset Dr/SW 72 nd St east of SR 821/HEFT	EB	WB	73%	64%	FR Aleman 2014
SR 94/Kendall Dr east of SR 997/Krome Ave	WB	EB	64%	67%	FDOT 2013
SR 94/Kendall Dr east of SR 825/137 th Ave	EB	WB	69%	61%	FDOT 2013
SR 94/Kendall Dr east of SR 821/HEFT	EB	WB	58%	54%	FDOT 2013
Killian Pkwy/SW 104 th St west of SR 825/SW 137 th Ave	EB	WB	76%	63%	FR Aleman 2014
Killian Pkwy/SW 104 th St east of SR 821/HEFT	EB	WB	65%	65%	FR Aleman 2014
Howard Dr/SW 136 th St west of SW 137 th Ave	EB	EB	58%	63%	FR Aleman 2014
Coral Reef Dr/SW 152 ST 350' west of SW 137 th Ave	EB	WB	68%	62%	FDOT 2012
SR 992/Coral Reef Dr/SW 152 nd ST 350' east of SR 821/HEFT	EB	WB	59%	60%	FDOT 2013
SR 997/Krome Ave south of SR 90/SW 8 th St/Tamiami Tr	NB	SB	76%	70%	FDOT 2013
SR 997/Krome Ave north of SR 94/Kendall Dr	NB	SB	79%	74%	FDOT 2013
SW 167 th Ave north of SR 94/Kendall Dr	NB	NB	52%	56%	FR Aleman 2014
SW 167 th Ave south of SR 94/Kendall Dr	NB	SB	62%	58%	FR Aleman 2014
SW 157 th Ave south of Coral Way/SW 26 th St	NB	SB	82%	70%	FR Aleman 2014
SW 157 th Ave south of Bird Rd/SW 42 nd St	NB	SB	75%	67%	FR Aleman 2014
SW 157 th Ave south of south of SR 94/Kendall Dr	NB	SB	58%	52%	FR Aleman 2014
SW 137 th Ave south of SR 90/Tamiami Tr/SW 8 th St	NB	SB	77%	71%	FR Aleman 2014
SW 137 th Ave south of Bird Rd/SW 42 nd St	NB	SB	63%	61%	FR Aleman 2014
SW 137 th Ave south of Sunset Dr/SW 72 nd St	SB	SB	51%	53%	FR Aleman 2014
SR 985/NW 107 th Ave north of NW 7 th St	NB	SB	66%	55%	FDOT 2013
SR 985/NW 107 th Ave north of SR 94/Kendall Dr	NB	SB	51%	52%	FDOT 2013
Florida's Turnpike Toll Plaza at SR 976/Bird Rd/SW 40 th St	NB	SB	65%	58%	FL Turnpike 2014

(*) Average based on available data

As shown in Table 4, the peak direction, in most cases, is the eastbound/northbound in the AM peak period and the southbound/westbound in the PM peak period, with just a few exceptions such as SR 94/Kendall Drive (SW 88th Street) east of SR 997/Krome Avenue, and SW 137th Avenue

south of Sunset Drive (SW 72nd Street). It should be noted that, in general, the peak period directional split exceeds the 60% indicative of a highly directional area, which is characteristic of commuter-related traffic patterns. In addition, the directional splits are usually higher in the AM than the PM peak hour getting as high as 91% in NW 12th Street in the AM peak period.

5.1.3 VOLUME-TIME PROFILES

Volume-time profiles provided in Appendix D support the results shown in Table 4 illustrating that, over-all, the eastbound and northbound are the peak directions during the AM period and westbound and southbound directions are the peak directions during the PM period, with the exception of a few station locations.

With regards of the north/south interrupted study corridors, the volume-time profiles reveal the following traffic patterns:

- Peak spreading occurs on SW 157th Avenue and SW 137th Avenue during the PM peak period.
- The lowest volumes were reported on SW 167th Avenue, with less than 600 vph observed throughout the day.
- Profiles for SR 985/SW 107th Avenue are relatively flat, which is more indicative of local travel patterns (no discernable peak) than of commuter patterns (pronounced peaks).
- SR 997/Krome Avenue has more predominant peaks south of SR 90/Tamiami Trail (SW 8th Street).
- Peak spreading is more likely to occur during the evening in the southbound direction.
- The peak periods vary in duration (i.e., hours) and generally occur between 6:30 AM and 9:30 AM and 4:00 PM and 7:00 PM with the exceptions of a few stations at SW 157th Avenue and SW 137th Avenue, which experience later peak periods up to 7:30 PM.
- South of SR 90/Tamiami Trail (SW 8th Street), most of the north/south corridors (SR 997/Krome Avenue, SW 157th Avenue, SW 137th Avenue, and SR 985/SW 107th Avenue) carry up to approximately 1,000 vph during the AM and PM peak periods. However, SW 137th Avenue north of Bird Road (SW 42nd Street) carries almost double the number of vehicles with the largest amount of vehicles recorded south of SR 90/Tamiami Trail (SW 8th Street) - approximately 3,000 vph - during the AM period.

It was also noticed that the volumes steadily increase towards the northern portion of the study area on most of the north/south corridors, particularly on SW 137th Avenue which provides a connection to the interchange at the Dolphin Expressway/SR 836.

Additionally, the following observations were made regarding the east/west corridors based on their volume-time profiles:

- SR 90/Tamiami Trail (SW 8th Street) and SR 94/Kendall Drive (SW 88th Street) east and west of SR 997/Krome Avenue (SW 177th Avenue) have the lowest volumes, with approximately 800 vph.
- Although the start time and duration of the peak period varies depending upon location, it typically lasts longer than one hour. In general, the AM peak period occurs between 6:00 AM to 9:00 AM in streets located south of Miller Drive (SW 56th Street), with the peak period typically starting about 30 minutes later on streets north of Miller Drive (SW 56th Street), and the PM peak period occurs between 4:00 and 7:00 PM.
- SR 90/Tamiami Trail (SW 8th Street), Bird Road (SW 42nd Street/SW 40th Street/SR 976), SR 94/Kendall Drive (SW 88th Street) and Coral reef Drive (SW 152nd Street/SR 992) show patterns typically representative of local traffic east of the Turnpike, whereas the patterns seem to change to that of commuter traffic west of the Turnpike.
- Most of the east/west corridors carry approximately 2,000 to 2,500 vph during the AM and PM peak periods, with the exception of Sunset Drive (SW 72nd Street/SR 986) and Coral Reef Drive (SW 152nd Street/SR 992) east of SW 117th Avenue which carry about 1,800 vph. However, on SR 90/Tamiami Trail (SW 8th Street), Bird Road (SW 40th Street/ SW 42nd Street/SR 976), and SR 94/Kendall Drive (SW 88th Street) the volumes increase to about 3,600 vph on stations located near the interchanges with SR 836 and the Florida's Turnpike. Killian Parkway (SW 104th Street) also shows higher volumes reaching 3,000 vph near the Miami-Dade College.

Similar to the north/south corridors, the volumes along the east/west corridors steadily increase from west to east, particularly on roadways that connect with the Florida's Turnpike such as Bird Road (SW 40th Street/SW 42nd Street/SR 976), SR 94/Kendall Drive (SW 88th Street), and Coral Reef Drive (SW 152nd Street/SR 992).

5.2 Average Travel Speed and Level of Service

As previously noted, the Average Travel Speed (ATS) and Level of Service (LOS) along the major north-south and east-west arterials within the traffic study area were determined using the field collected travel time data and the recommended ATS thresholds listed in FDOT's *A Revised Version of the HCM 2010 Urban Streets Automobile LOS Methodology* (2012). The average AM and PM peak period travel speeds along with the corresponding LOS along the major arterials within the study area are shown in Figures 5 through 8, and Tables 5 and 6 summarize the posted speed limits and arterial class, as well as the LOS and LOS Standard for each of the study arterials. Additionally, the detailed travel time and travel speed data is provided Appendix E for further reference.

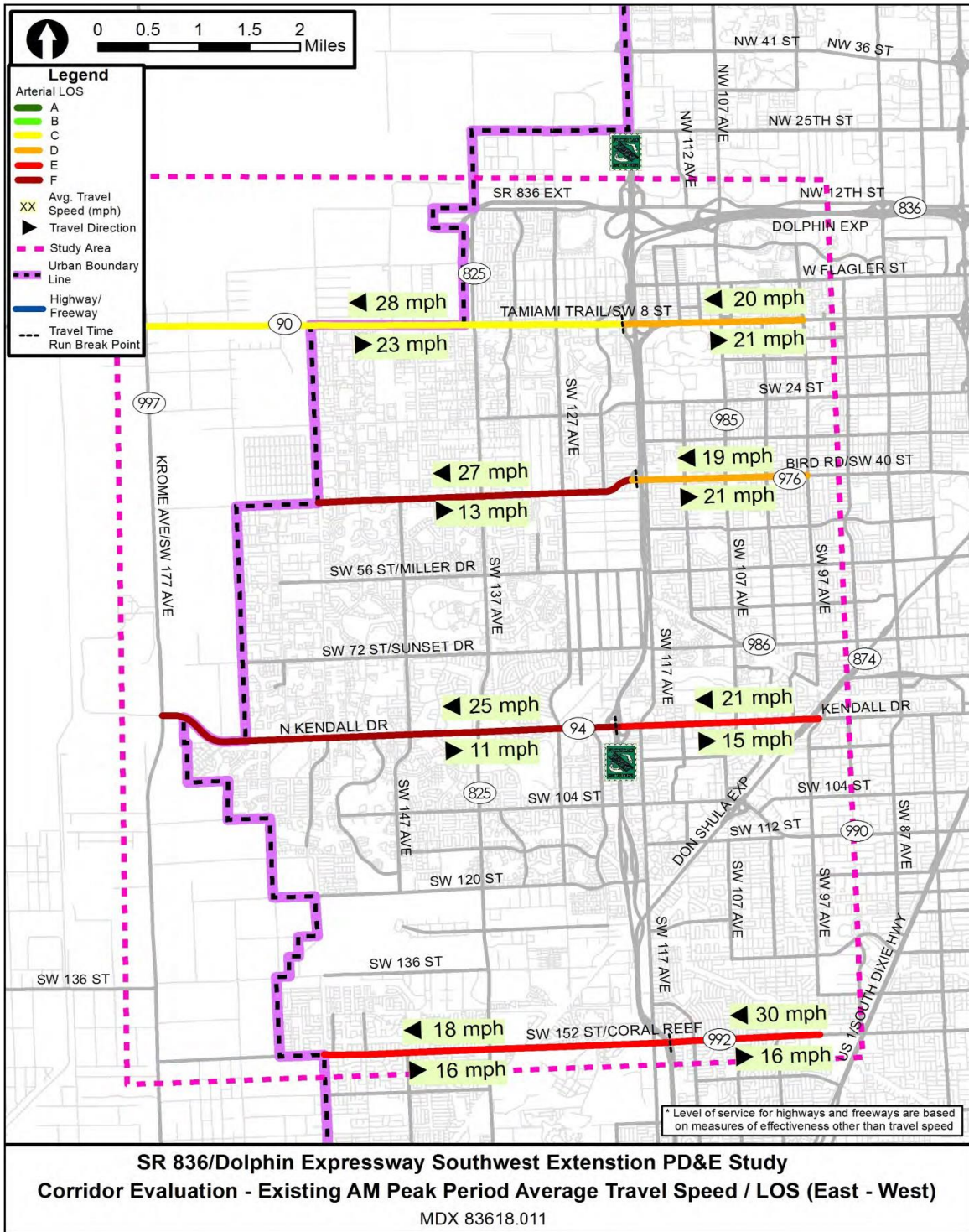


Figure 5: Existing AM Peak Period Average Travel Speed and LOS (East-West)

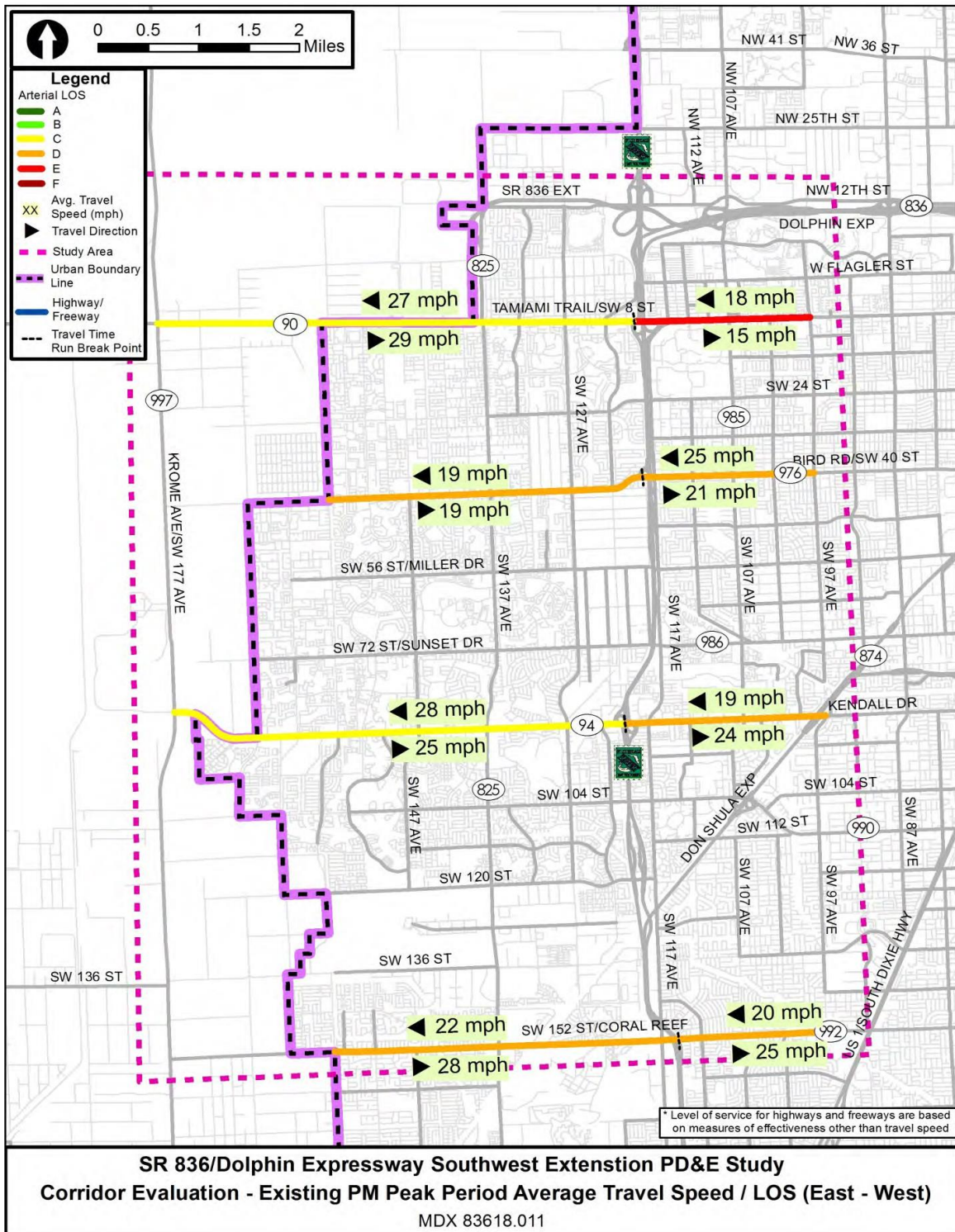


Figure 7: Existing PM Peak Period Average Travel Speed and LOS (East-West)

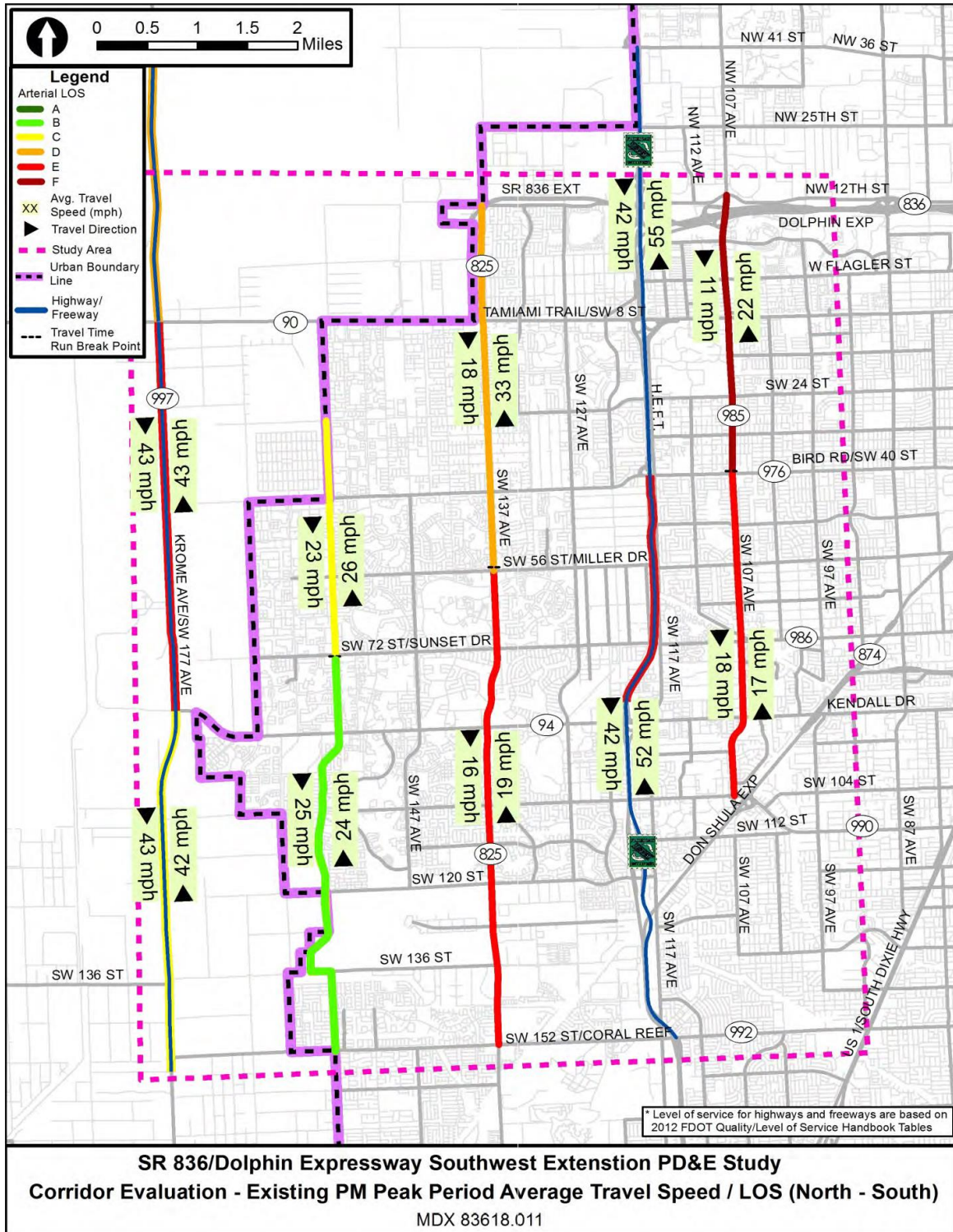


Figure 8: Existing PM Peak Period Average Travel Speed and LOS (North-South)

Table 5: Interrupted Flow Roadway Peak Period Level of Service (East- West)

Roadway	State Road	Travel Time Segment		Posted Speed Limit	Class	Within UDB	LOS Standard	AM Peak Period			PM Peak Period		
		From	To					Direction	LOS	Meets LOS Standard	Direction	LOS	Meets LOS Standard
East - West Roadways													
Coral Reef Dr (SW 152 nd St)	-	SW 157 th Ave	SR 821/HEFT	40	I	Yes	E	EB	E	Yes	WB	D	Yes
	SR 992	SR 821/HEFT	SW 97 th Ave	45	I	Yes	D	EB	E	No	WB	D	Yes
Kendall Dr (SW 88 th St)	SR 94	SR 997/Krome Ave (SW 177 th Ave)	HEFT	50/45	I	Yes ⁽¹⁾	D	EB	F	No	EB	C	Yes
	SR 94	SR 821/HEFT	SW 97 th Ave	45	I	Yes	D	EB	E	No	WB	D	Yes
Bird Road (SW 40 th St /SW 42 nd St)	-	SW 157 th Ave	SR 821/HEFT	40	I	Yes	E	EB	F	No	EB & WB	D	Yes
	SR 976	SR 821/HEFT	SW 97 th Ave	40	I	Yes	D	WB	D	Yes	EB	D	Yes
Tamiami Trl (SW 8 th St)	SR 90	SR 997/Krome Ave (SW 177 th Ave)	SR 821/HEFT	55/45	I	Yes ⁽²⁾	D	EB	C	Yes	WB	C	Yes
	SR 90	SR 821/HEFT	SW 97 th Ave	45	I	Yes	D	WB	D	Yes	EB	E	No

(1) LOS Standard for SR 94/Kendall Dr (SW 88th St) is 'C' outside the UDB, between SR 997/Krome Ave (SW 177th Ave) and SW 172nd Ave, and 'D' inside of the UDB, east of SW 172nd Ave. Therefore the majority of the segment is within the UDB.

(2) LOS Standard for SR 90/Tamiami Trl (SW 8th St) is 'C' outside the UDB, between SR 997/ Krome Ave (SW 177th Ave) and SW 157th Ave, and 'D' inside the UDB, east of SW 157th Ave. Therefore the majority of the segment is within the UDB.

Table 6: Interrupted Flow Roadway Peak Period Level of Service (North –South)

Roadway	State Road	Travel Time Segment		Posted Speed Limit	Class	Within UDB	LOS Standard	AM Peak Period			PM Peak Period		
		From	To					Direction	LOS	Meets LOS Standard	Direction	LOS	Meets LOS Standard
North - South Roadways													
Krome Ave/ SW 177 th Ave	SR 997	US Hwy 27	SR 90/ Tamiami Trl (SW 8 th St)	45	-	No	C	NB	D	No	SB	D	No
	SR 997	SR 90/ Tamiami Trl (SW 8 th St)	SR 94/ Kendall Dr (SW 88 th St)	45	-	No	C	NB	E	No	SB	E	No
	SR 997	SR 94/ Kendall Dr (SW 88 th St)	SW 184 th St	45	-	No	C	NB	C ⁽⁵⁾	Yes	SB	C ⁽⁵⁾	Yes
SW 157 th Ave	-	Coral Reef Dr (SW 152 nd St)	Sunset Dr (SW 72 nd St)	35 ⁽¹⁾	II	Yes	E	NB	B	Yes	NB	B	Yes
	-	Sunset Dr (SW 72 nd St)	Coral Way (SW 26 th St)	40 ⁽¹⁾	I	Yes	D	SB & NB	C	Yes	SB	C	Yes
NW 137 th Ave	SR 825 ⁽²⁾	Coral Reef Dr (SW 152 nd St)	Miller Rd (SW 56 th St)	40	I	Yes	E	NB	F	No	SB	E	Yes
	SR 825 ⁽³⁾	Miller Rd (SW 56 th St)	NW 12 th St	40 ⁽¹⁾	I	Yes	E	NB	F	No	SB	D	Yes
HEFT	SR 821	SR 976/Bird Rd (SW 40 th St)	SR 94/ Kendall Dr (SW 88 th St)	55	-	Yes	D	NB	F	No	SB	E	No

Roadway	State Road	Travel Time Segment		Posted Speed Limit	Class	Within UDB	LOS Standard	AM Peak Period			PM Peak Period		
		From	To					Direction	LOS	Meets LOS Standard	Direction	LOS	Meets LOS Standard
North - South Roadways													
SW 107 th Ave	SR 985	Killian Pkwy (SW 104 th St)	SR 976/ Bird Rd (SW 40 th St)	40	I	Yes	D	NB	F	No	NB	E	No
	SR 985	SR 976/Bird Rd (SW 40 th St)	NW 12 th St	40	I	Yes	D	NB	D	Yes	SB	F	No

(1) Posted speed limit for the majority of the segment

(2) NW 137th Ave is only a state road between SR 94/Kendall Dr (SW 88th St) and SW 128th St and therefore is treated as a non-state road for this segment.

(3) NW 137th Ave is only a state road north of SR 90/Tamiami Trl (SW 8th St) and therefore is treated as a non-state road for this segment.

(4) LOS for SR 997/Krome Avenue (SW 177th Ave) and SR 821/HEFT were determined using the 2012 FDOT Quality/Level of Service Handbook Tables (December 2012) based on Peak Hour Directional volumes.

(5) 2030 Urban Expansion Boundary limits at SR 997/Krome Ave/ SW 177th Ave - Transitioning Area Type south of Kendall Dr.

The planning level LOS for SR 821/HEFT and SR 997/Krome Avenue obtained using the FDOT Generalized LOS tables are also shown in the Figures 6 and 8, as well as Table 6.

As shown in Figures 5 through 8, the slowest average travel speed (less than 18 mph), with respect to direction and peak period, occurred at the following locations:

- AM Peak Period, East-West Roadways: Eastbound Bird Road (SW 42nd Street) west of SR 821/HEFT at 13 mph, eastbound SR 94/Kendall Drive (SW 88th Street) west of SR 821/HEFT at 11 mph, eastbound SR 94/Kendall Drive (SW 88th Street) east of SR 821/HEFT at 15 mph, eastbound Coral Reef Drive (SW 152nd Street) west of SR 821/HEFT at 16 mph, and eastbound SR 992/Coral Reef Drive (SW 152nd Street) east of SR 821/HEFT at 16 mph
- AM Peak Period, North-South Roadways: Northbound SW/NW 137th Avenue between Coral Reef Drive (SW 152nd Street) and the SR 836 western terminus, with an average travel speed of 13 mph and 11 mph south and north of Miller Drive (SW 56th Street), respectively, and northbound SR 985/SW 107th Avenue between SW 104th Street and SR 976/Bird Road (SW 40th Street) at 13 mph. Very slow travel speeds were also recorded for the northbound SR 821/HEFT between SR 992/Coral Reef Drive (SW 152nd Street) and SR 976/Bird Road (SW 40th Street) at 15 mph.
- PM Peak Period, East-West Roadways: Eastbound SR 90/Tamiami Trail (SW 8th Street) east of SR 821/HEFT at 15 mph.
- PM Peak Period, North-South Roadways: Southbound SW 137th Avenue between Miller Drive (SW 56th Street) and Coral Reef Drive (SW 152nd Street) at 16 mph, northbound SR 985/SW 107th Street between SW 104th Street and SR 976/Bird Road (SW 40th Street) at 17 mph, and southbound SR 985/SW/NW 107th Street between NW 12th Street and SR 976/Bird Road (SW 40th Street) at 11 mph.

Based upon the peak period/peak direction average travel speeds collected in the field and the peak hour directional volumes (SR 821/HEFT and SR 997/Krome Avenue), the study corridors are currently operating at an acceptable LOS during the AM and PM peak period, with the exception of the following segments which operate below the LOS Standard:

- Eastbound SR 992/Coral Reef Drive (SW 152nd Street) between SR 821/HEFT and SW 97th Avenue at LOS E during the AM peak period
- Eastbound SR 90/Kendall Drive (SW 88th Street) at LOS F between SR 997/Krome Avenue (SW 177th Avenue) and SR 821/HEFT during the AM peak period and LOS E between SR 821/HEFT and SW 97th Avenue during the AM peak period
- Eastbound Bird Road (SW 42nd Street) between SW 157th Avenue and SR 821/HEFT at LOS F during the AM peak period

- Eastbound SR 90/Tamiami Trail between SR 821/HEFT and SW 97th Avenue at LOS E during the PM peak period
- Northbound SR 997/Krome Avenue at LOS D between SR 90/Tamiami Trail and SR 94/Kendall Drive during the AM peak hour and LOS D in the southbound direction during the PM peak hour
- Northbound NW 137th Avenue at LOS F between Coral Reef Drive (SW 152nd Street) and NW 12th Street during the AM peak period
- Northbound SR 821/HEFT at LOS F between SR SR 976/Bird Rd and SR 94/Kendall Drive during the AM peak hour and LOS E in the southbound direction during the PM peak hour.
- Northbound SR 985/SW 107th Avenue between Killian Parkway (SW 104th Street) and SR 976/Bird Road(SW 40th Street) at LOS F during the AM peak period and LOS E during the PM peak period
- Southbound SR 985/SW 107th Avenue between SW 12th Street and SR 976/Bird Road (SW 40th Street) at LOS F during the PM peak period

The travel time data along the major study roadways were further disaggregated into smaller intervals within each peak period to determine breakdown speeds at intervals shorter than the peak period itself. The average travel speeds shown in Figures 9 through 12 are provided for reference only⁶. Since these sub-peak periods (of an hour or less) of higher congestion vary widely throughout the study area, these speeds represent the most congested time at different intervals during a given peak period, and are not representative of one simultaneous interval (hour or otherwise) throughout the study area.

⁶ The number of runs used to compute the average travel speed in Figures 9 through 12 may not be sufficient to achieve the desired level of confidence.

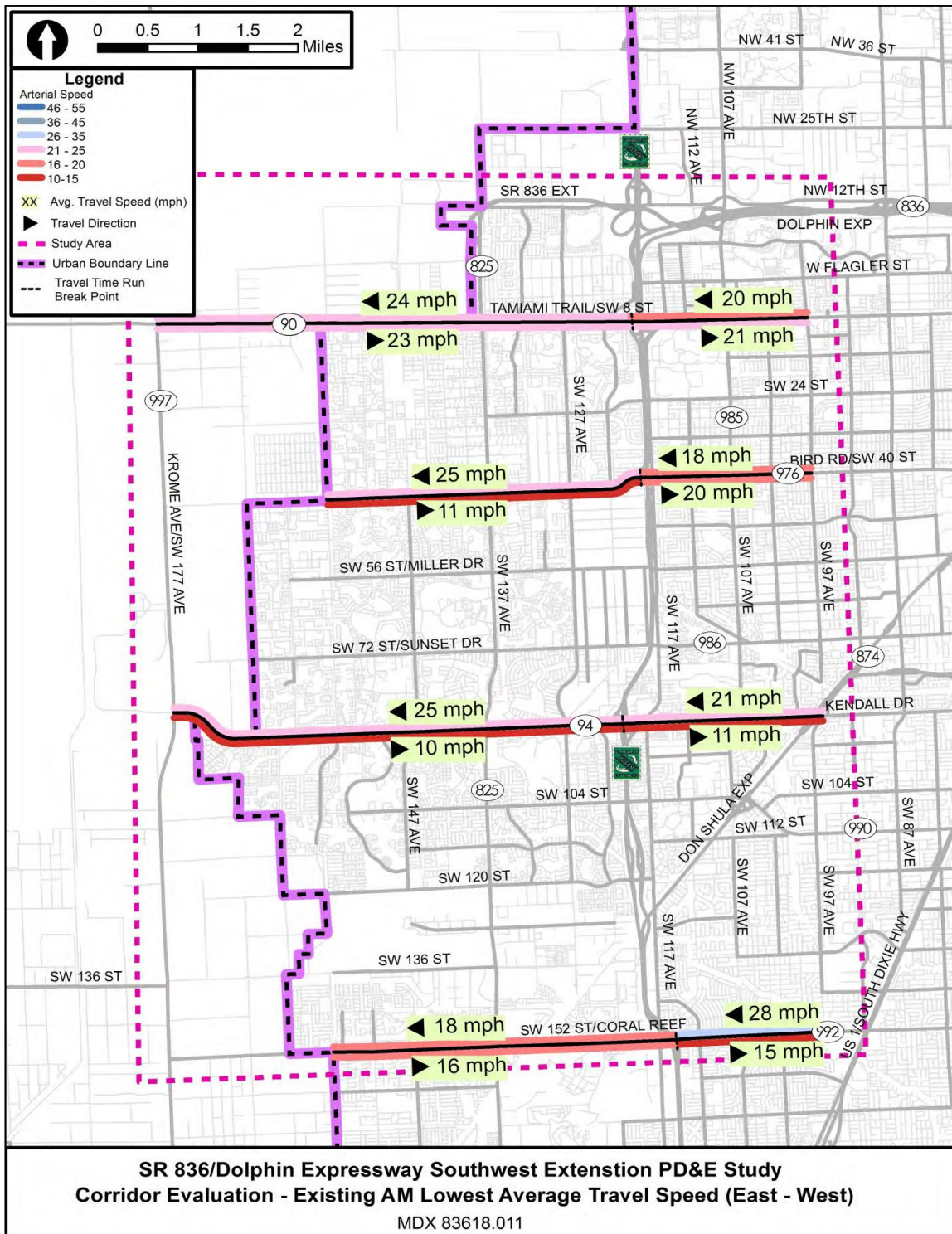


Figure 9: Existing Lowest Average Travel Speed (East-West) during Varying Intervals within AM Peak Period

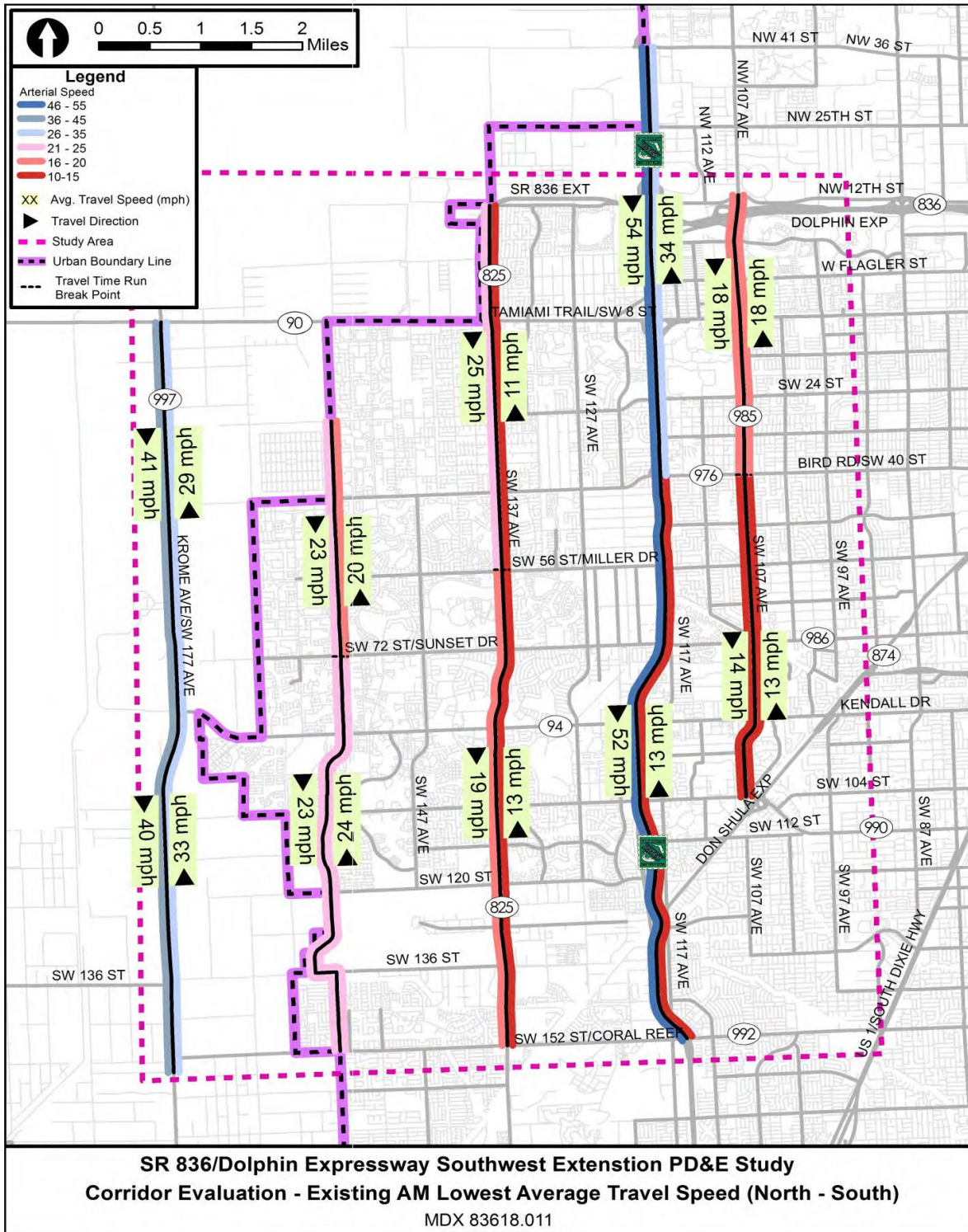


Figure 10: Existing Lowest Average Travel Speed (North-South) during Varying Intervals within AM Peak Period

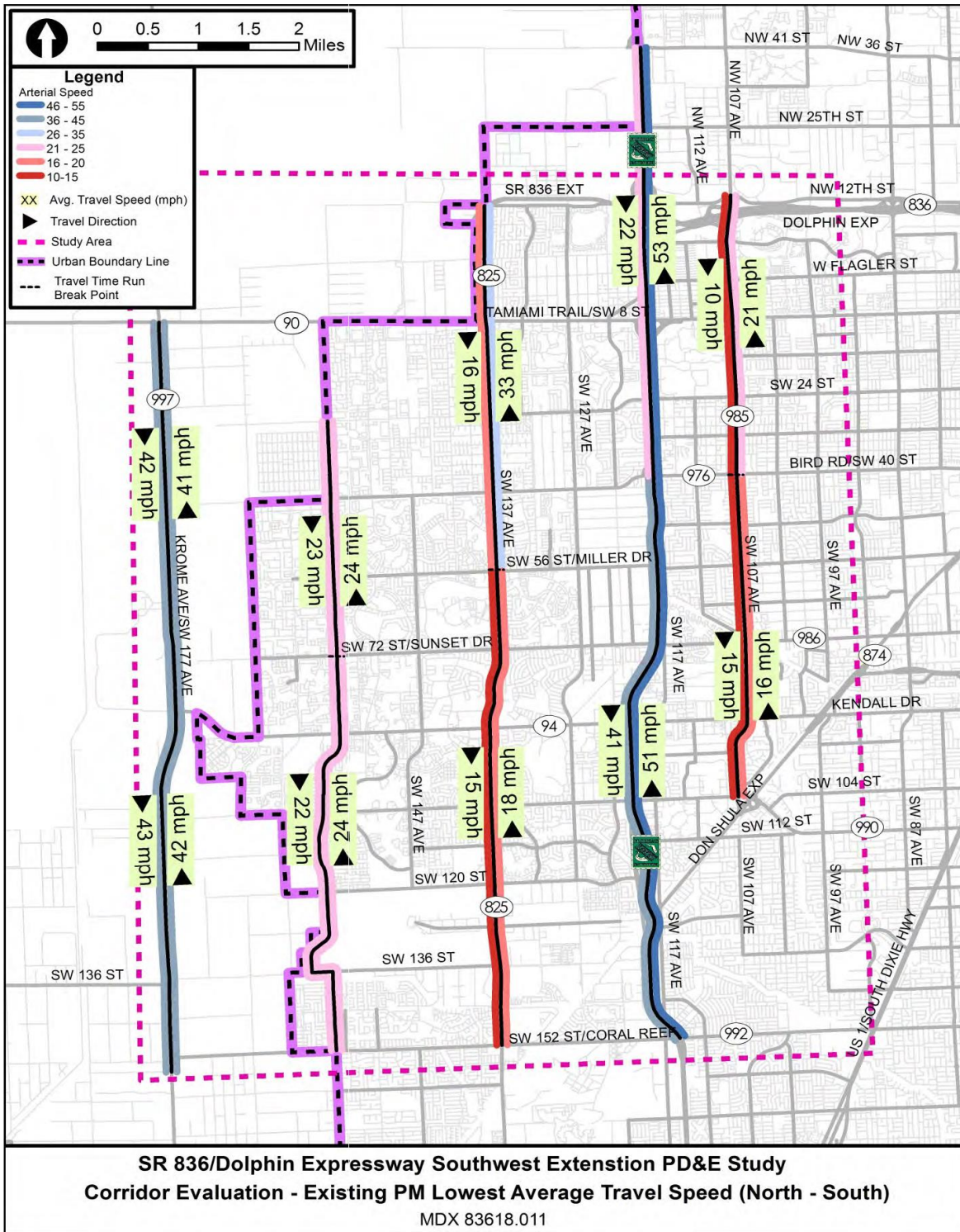


Figure 12: Existing Lowest Average Travel Speed (North-South) during Varying Intervals within PM Peak Period

5.3 Peak Hour Directional Volume over Capacity Ratio (V/C)

The AM and PM peak hour directional volume over capacity ratios (V/C) along the interrupted flow study roadways are presented in Figures 13 and 14, respectively. Locations in which the V/C ratio exceeds 1.0 in the peak direction during the AM and PM peak hour are summarized in Tables 7 and 8. A detailed table containing the V/C ratio at each traffic count station is also provided in Appendix F.

As shown in Figure 13 and Table 7, during the AM peak period, peak hour/peak directional volumes at 14 locations along the east-west roadways and seven locations along the north-south roadways exceeded the available capacity ($V/C > 1.0$). There were also 15 locations approaching capacity (i.e., V/C ratio between 0.9 and 1.0) during the morning peak period.

With respect to the PM peak period, the V/C ratio was greater than 1.0 at eight locations along the east-west roadways and five locations along the north-south roadways. In addition, the peak hour traffic volume was approaching capacity at 17 locations.

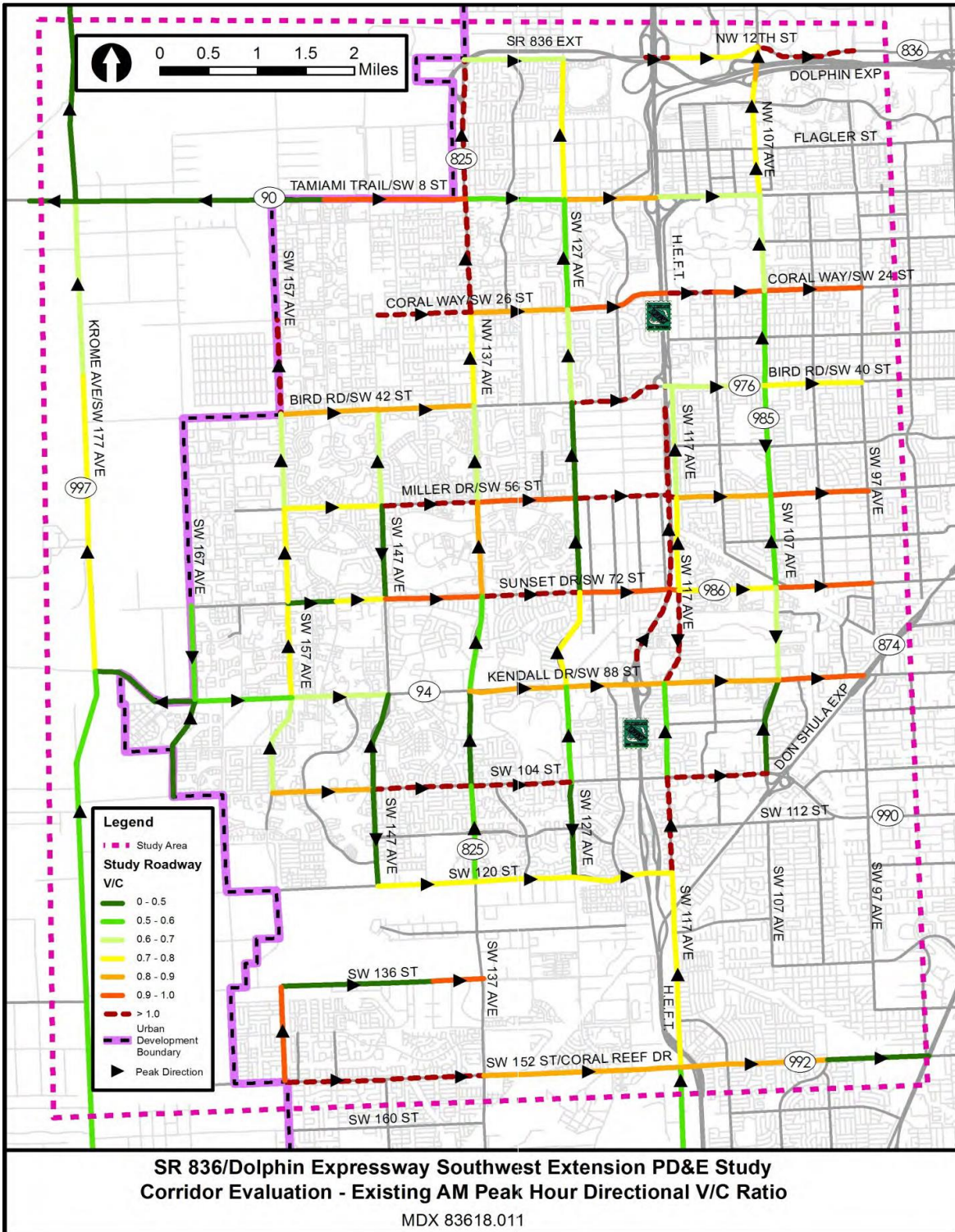


Figure 13: Existing AM Peak Hour Directional V/C Ratios

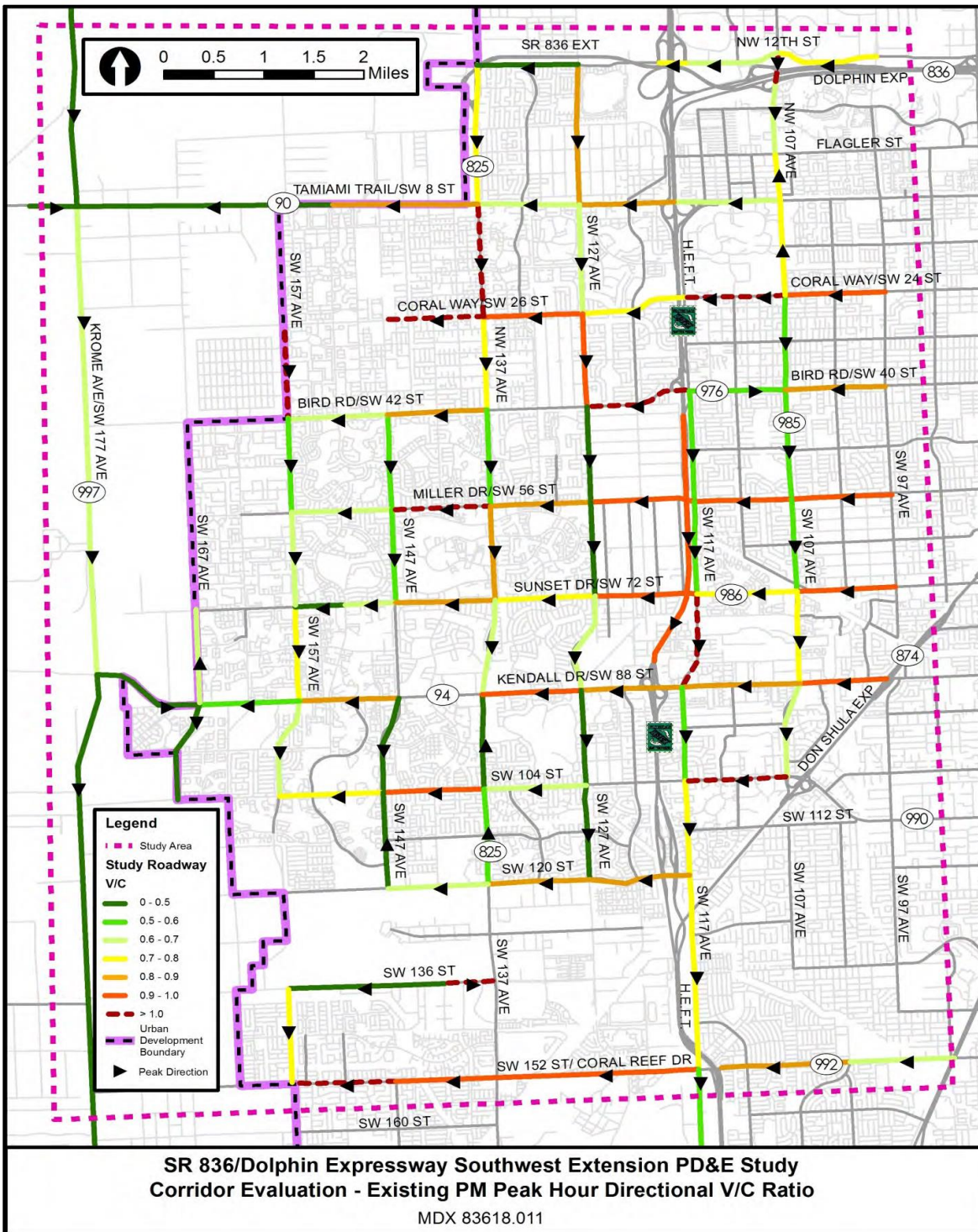


Figure 14: Existing PM Peak Hour Directional V/C Ratios

Table 7: Over Capacity Locations – AM Peak Hour

Roadway	Location	Peak Hour Directional V/C Ratio
NW 12th St	Station 878654 - NW 12 ST, 200' E OF NW 107 AV	1.00
	Station 878245 - NW 12 ST, 200' W OF FLA TPK/HEFT	1.12
Coral Way/ SW 26th St	Station 878146 - CORAL WAY/SW 26 ST, 200' W OF BRIDGE 870211	1.27
	Station 879261 - CORAL WAY/SW 26 ST, W OF SW 137 AV	1.34
Bird Rd/ SW 42nd St	Station 879040 - BIRD RD/SW 42 ST, W OF FLA TPK/HEFT	1.92
Miller Dr/ SW 56th St	Station 879562 - MILLER DR/SW 56 ST, W OF SW 117 AV	1.21
	Station 878149 - SW 56 ST, 200' W OF FLA TPK/SR-821	1.05
	Station 879561 - MILLER DR/SW 56 ST, W OF SW 137 AV	1.32
Sunset Dr/ SW 72nd St	Station 879723 - SUNSET DR/SW 72 ST, E OF SW 137 AV	1.07
Killian Pkwy/ SW 104th St	Station 879042 - KILLIAN PKWY/SW 104 ST, W OF SW 107 AV	1.15
	Station 878125 - SW 104 ST, 200' W OF SW 127 AV	1.03
	Station 879041 - KILLIAN PKWY/SW 104 ST, W OF SW 137 AV	1.13
Coral Reef Dr/ SW 152nd St	Station 878212 - SW 152 ST, 200' W OF SW 137 AV	1.01
	Station 878369 - CORAL REEF DR, 200' E OF SW 149 AV	1.05
SW 117th Ave	Station 878329 - SW 117 AV, 200' S OF SW 72 ST	1.13
	Station 878327 - SW 117 AV, 200' S OF SW 112 ST	1.10
SR 821/HEFT	Bird Road Tolling Station	1.07
SR 825/ SW 137th Ave	Station 879371 - SW 137 AV, S OF TAMIAMI TR/SW 8 ST	1.18
	Station 872509 - SW 137 AV, 500' N OF SW 8 ST	1.02
	Station 878232 - SW 137 AV, 200' S OF SW 8 ST/TAMIAMI TRL	1.21
SW 157th Ave	Station 879571 - SW 157 AV, S OF CORAL WAY/SW 26 ST	2.50

Table 8: Over Capacity Locations – PM Peak Hour

Roadway	Count Station Description	PM Peak Hour Directional V/C Ratio
Coral Way/ SW 26th St/ SW 24th St	Station 879261 - CORAL WAY/SW 26 ST, W OF SW 137 AV	1.21
	Station 878293 - SW 24 ST, 200' W OF SR 985/SW 107 AV	1.06
	Station 878146 - CORAL WAY/SW 26 ST, 200' W OF BRIDGE 870211 (West of SR 821/HEFT Bridge)	1.07
Bird Rd/ SW 42nd St	Station 879040 – BIRD RD/SW 42 ST, W OF FLA TPK/SR 821/HEFT	1.75
Miller Dr/ SW 56th St	Station 879561 - MILLER DR/SW 56 ST, W OF SW 137 AV	1.06
Killian Pkwy/ SW 104th St	Station 879042 – KILLIAN PKWY/SW 104 ST, W OF SR 985/SW 107 AV	1.26
Howard Dr/ SW 136th St	Station 879361 - HOWARD DR/SW 136 ST, W OF NW 137 AV	1.21
Coral Reef Dr/ SW 152nd St	Station 878369 – CORAL REEF DR, 200' E OF SW 149 AV	1.13
SR 985/ SW/NW 107th Ave	Station 878228 – SR 985/NW 107 AV, 200' N OF SR 836	1.16
SW 117th Ave	Station 878329 - SW 117 AV, 200' S OF SR 986/SW 72 ST	1.05
SW 137th Ave	Station 879371 – SW 137 AV, S OF SR 90/TAMIAMI TR/SW 8 ST	1.20
	Station 878232 – SW 137 AV, 200' S OF SR 90/SW 8 ST/TAMIAMI TRL	1.48
SW 157th Ave	Station 879571 - SW 157 AV, S OF CORAL WAY/SW 26 ST	1.61

6 Alternative Corridor Evaluation

A macroscopic modeling analysis was performed to compare the impact and benefits of each Alternative Corridor from a traffic standpoint. The Alternative Corridors were then screened using a series of summary performance measures extracted from the travel demand model. The Alternative Corridors, as well as the results of the travel demand modeling analysis are presented in this chapter.

6.1 Modeled Alternative Corridors

As previously mentioned, for the purposes of the travel demand modeling analysis, the Alternative Corridors being considered were narrowed down to four representative corridors based on similar alignment and traffic characteristics.

The Alternative Corridors, shown in Figure 15, were modeled as follows:

- Corridor 2: This alignment runs along SW 157th Avenue terminating at SW 136th Street with potential interchanges at SR 90/Tamiami Trail (SW 8th Street), Bird Road (SW 42nd Street), SR 94/Kendall Drive (SW 88th Street), and SW 136th Street.
- Corridor 5A: This alignment runs along SR 90/Tamiami Trail (SW 8th Street) and SR 997/ Krome Avenue (SW 177th Avenue) terminating at SW 136th Street with potential interchanges at SR 90/Tamiami Trail (SW 8th Street) and SW 157th Avenue, SR 90/Tamiami Trail (SW 8th Street) east of SR 997/Krome Avenue, SR 94/Kendall Drive (SW 88th Street), and SW 136th Street.
- Corridor 5B: This alignment runs along SR 90/Tamiami Trail (SW 8th Street) terminating at SR 997/Krome Avenue (SW 177th Avenue) with potential interchanges at SR 90/Tamiami Trail (SW 8th Street) and SW 157th Avenue, and SR 90/Tamiami Trail (SW 8th Street) and SR 997/ Krome Avenue (SW 177th Avenue).
- Corridor 6: This alignment runs along SR 90/Tamiami Trail (SW 8th Street), SW 167th Avenue, and SR 997/Krome Avenue (SW 177th Avenue) terminating at SW 136th Street with potential interchanges at SR 90/Tamiami Trail (SW 8th Street) and SW 157th Avenue, Bird Road (SW 42nd Street), SR 94/Kendall Drive (SW 88th Street), and SW 136th Street.

All four Alternative Corridor scenarios assumed a freeway to freeway connection from eastbound SR 836 to northbound SR 821/HEFT and southbound SR 821/HEFT to westbound SR 836 providing access between the SR 836 Southwest Extension and the SR 821/HEFT general purpose and express lanes to/from the north. The existing interchange at SW 137th Avenue also remained unchanged in all Build scenarios. All four Alternative Corridors were modeled as a four-lane toll facility.

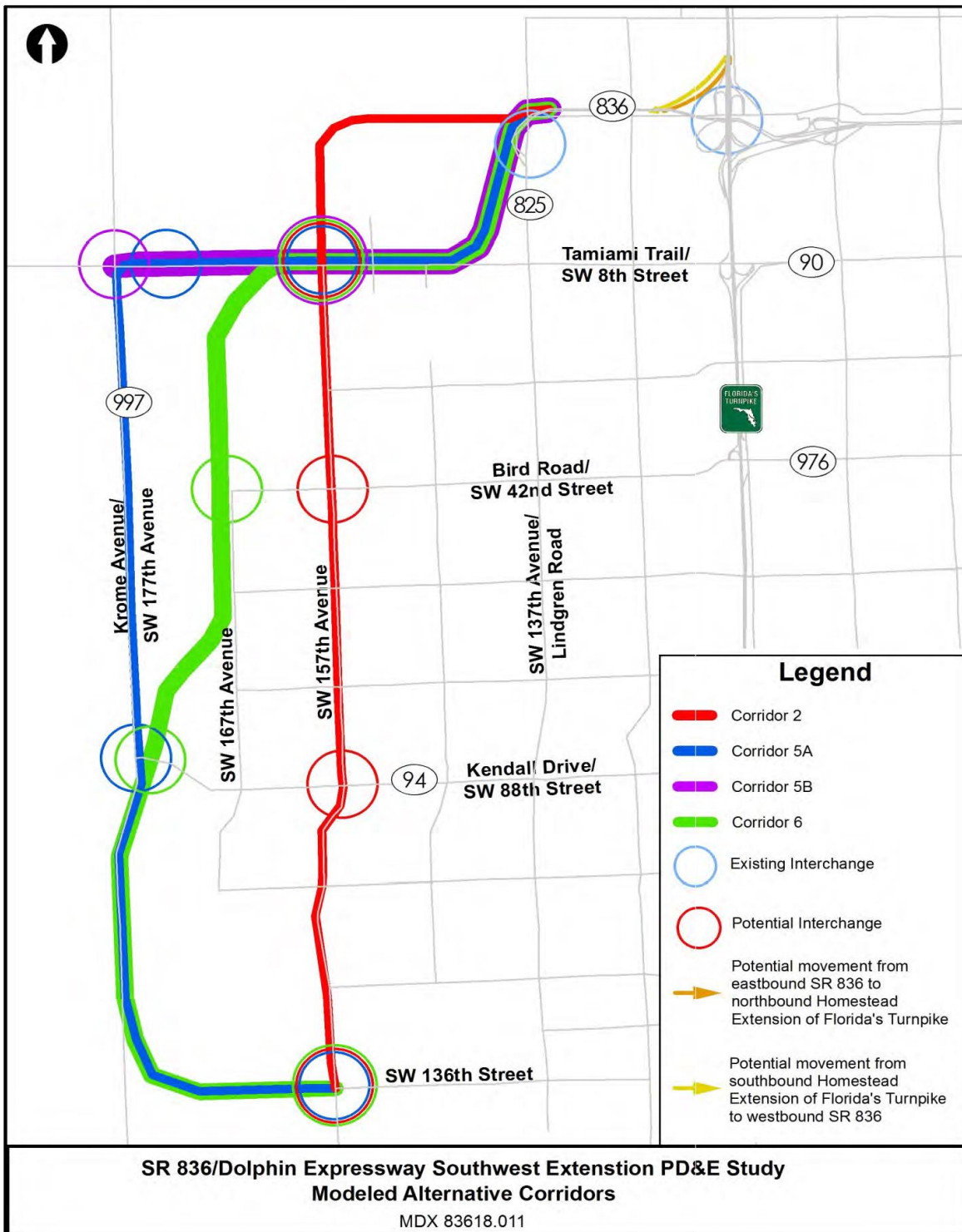


Figure 15: Modeled Alternative Corridors

The toll scheme used in the HEFT Express Lanes Model – the baseline model – was carried over ‘as is’ and applied in the SR 836 Models. The toll plaza between the existing SR 836 western termini and SR 821/HEFT remained as it was originally coded in the baseline model.

In addition, for all Build scenarios, a new toll plaza was coded between each set of interchanges along the SR 836 Southwest Extension. These toll plazas were coded as TOLLTYPE 3 (open-road tolling (ORT)) with a CARTOLL of \$0.12 per mile.

6.2 SERPM Performance Measures

Several traffic related performance measures for the study area were extracted from the Year 2050 travel demand models. Specifically, the following performance statistics were obtained from SERPM for the No-Build scenario and each Alternative Corridor:

- Demand (AADT)
- Vehicle Miles Traveled (VMT)
- Vehicle Hours Traveled (VHT)
- Original System User Speed
- Congested System User Speed

Year 2050 AADTs generated by SERPM for the No-Build and Alternative Corridors are graphically illustrated in Appendix G. In addition to daily volumes, the figures also depict the number of lanes along the different facilities. Furthermore, the AADTs along the SR 836 Extension between the proposed interchanges are summarized in Table 9.

Corridor 2 yielded the largest increase in daily traffic (approximately 120% of the No-Build AADT) on SR 836 west of the SR 821/HEFT, followed by Corridor 6 (approximately 102% of the No-Build AADT), Corridor 5A (approximately 96% of the No-Build AADT), and lastly Corridor 5B (approximately 94% of the No-Build AADT).

In addition to the daily volumes along the proposed extension, the total volume carried by interrupted (arterials and collectors) and uninterrupted flow facilities (tolled freeways) within the sub-area was also reviewed to determine the magnitude of traffic shifting from one facility type to another as a result of introducing a new north-south toll facility within the region. The Year 2050 total volume within the sub-area disaggregated by facility type for the 24-hour period, AM peak period, and PM peak period is shown in Table 10.

Table 9: SR 836 SW Extension AADT between Proposed Interchanges

Interchanges	AADT														
	No-Build			Corridor 2			Corridor 5A			Corridor 5B			Corridor 6		
	SB/W B	NB/EB	Total ¹	SB/WB	NB/EB	Total ¹	SB/WB	NB/EB	Total ¹	SB/W B	NB/EB	Total ¹	SB/WB	NB/EB	Total ¹
SR 821/HEFT	27,000	22,000	49,000	56,000	52,000	108,000	49,000	47,000	96,000	48,000	47,000	95,000	52,000	47,000	99,000
SR 825/ Lindgren Rd (NW 137th Ave)	-	-	-	43,000	43,000	86,000	34,000	33,000	67,000	33,000	31,000	64,000	38,000	38,000	76,000
SR 90/ Tamiami Trl (SW 8th St)	-	-	-	-	-	-	13,000	13,000	26,000	11,000	11,000	22,000	-	-	-
SR 997/ Krome Ave (SW 177th Ave)	-	-	-	33,000	34,000	67,000	-	-	-	-	-	-	20,000	21,000	41,000
Bird Rd (SW 42nd St)	-	-	-	-	-	-	6,000	5,100	11,000	-	-	-	-	-	-
SR 94/ Kendall Dr (SW 88th St)	-	-	-	21,000	22,000	43,000	-	-	-	-	-	-	16,000	15,000	31,000
SW 136th St	-	-	-	14,000	14,000	28,000	3,200	2,800	6,000	-	-	-	3,400	3,100	6,500

1) The total is the sum of the AASHTO rounded directional volumes.

2) Values rounded in accordance with AASHTO rounding standards

Table 10: Year 2050 Total Volume by Facility Type (Sub-area)

Facility Type	No-Build	Corridor 2		Corridor 5A		Corridor 5B		Corridor 6	
	Total Volume	Total Volume	% Difference ¹	Total Volume	% Difference ¹	Total Volume	% Difference ¹	Total Volume	% Difference ¹
Daily (24-hour Period)									
Interrupted	23,689,000	22,496,000	-5%	23,104,000	-2%	23,274,000	-2%	22,937,000	-3%
Uninterrupted	10,561,000	11,682,000	11%	11,216,000	6%	11,006,000	4%	11,472,000	9%
Total	34,250,000	34,178,000	0%	34,320,000	0%	34,280,000	0%	34,409,000	0%
AM Peak Period									
Interrupted	4,978,000	4,715,000	-5%	4,826,000	-3%	4,886,000	-2%	4,793,000	-4%
Uninterrupted	1,830,000	2,064,000	13%	2,002,000	9%	1,919,000	5%	2,028,000	11%
Total	6,808,000	6,779,000	0%	6,828,000	0%	6,805,000	0%	6,821,000	0%
PM Peak Period									
Interrupted	5,913,000	5,595,000	-5%	5,691,000	-4%	5,771,000	-2%	5,661,000	-4%
Uninterrupted	2,254,000	2,534,000	12%	2,466,000	9%	2,369,000	5%	2,500,000	11%
Total	8,167,000	8,129,000	0%	8,157,000	0%	8,140,000	0%	8,161,000	0%

1) Compared to No-Build

2) Values rounded in accordance with AASHTO rounding standards

Corridor 2 provided the largest volume shift, at sub-area level, from interrupted facilities to uninterrupted facilities, followed by Corridor 6, 5A, and 5B. For Corridor 2, the total volume on interrupted facilities is reduced by approximately 5%, while an increase of about 11% in total volume occurred on the uninterrupted facilities. The least notable shift occurred for Corridor 5B with a reduction of approximately 2% of the total volume on the interrupted facilities and about a 4% increase in total volume on the uninterrupted facilities. Generally speaking, interrupted facilities, due to stop-and-go conditions, have a larger impact on emissions than uninterrupted facilities at the same of traffic. Therefore, the shift to freeways and expressways could be indirectly interpreted as an environmental benefit.

Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) within the sub-area were also extracted from SERPM for the Year 2050 No-Build and Build (Alternative Corridor) Models. The VMT for the 24-hour period as well as the AM and PM peak periods are summarized by facility group in Table 11, while the VHT results have been disaggregated by facility type for the same three periods in Table 12.

Since the number of lane-miles increases within the sub-area with the introduction of the proposed corridor extension, it is not surprising that the overall VMT increased under all four Alternative Corridor scenarios. Albeit, during all three periods Corridor 2 provided the greatest reduction (6%) in VMT on interrupted facilities (arterials/collectors) compared to the No-Build condition, followed by Corridors 6, 5A, and 5B, which only provided a reduction of approximately 4%, 3%, and 1%, respectively. The VMT on uninterrupted, toll facilities increased since vehicles rerouted from the surrounding interrupted facilities to the SR 836 Southwest Extension.

The vehicle delay (i.e., congestion) experienced within a system is typically reported in terms of VHT. The analysis results indicate that future VHT within the sub-area was reduced under all Alternative Corridor scenarios. The total VHT was reduced by about 3% under Corridors 2, 5A, and 6 and 2% under Corridor 5B throughout the day. Similar reductions were also reported for the AM peak period; whereas, the total VHT was reduced about 6% under Corridor 2, 5% under Corridors 5A and 6, and 3% under Corridor 5B during the PM peak period.

Table 11: Year 2050 Vehicle Miles Traveled (VMT) by Facility Type (Sub-area)

Facility Type	No-Build	Corridor 2		Corridor 5A		Corridor 5B		Corridor 6	
	VMT	VMT	% Difference ¹	VMT	% Difference ¹	VMT	% Difference ¹	VMT	% Difference ¹
Daily (24-hour Period)									
Interrupted	6,270,000	5,925,000	-6%	6,163,000	-2%	6,225,000	-1%	6,058,000	-3%
Uninterrupted	4,462,000	4,955,000	11%	4,676,000	5%	4,573,000	2%	4,777,000	7%
Total	10,732,000	10,880,000	1%	10,839,000	1%	10,798,000	1%	10,835,000	1%
AM Peak Period									
Interrupted	1,318,000	1,239,000	-6%	1,282,000	-3%	1,305,000	-1%	1,268,000	-4%
Uninterrupted	770,000	878,000	14%	836,000	9%	796,000	3%	846,000	10%
Total	2,088,000	2,117,000	1%	2,118,000	1%	2,101,000	1%	2,114,000	1%
PM Peak Period									
Interrupted	1,560,000	1,465,000	-6%	1,506,000	-3%	1,535,000	-2%	1,488,000	-5%
Uninterrupted	940,000	1,068,000	14%	1,023,000	9%	974,000	4%	1,036,000	10%
Total	2,500,000	2,533,000	1%	2,529,000	1%	2,509,000	0%	2,524,000	1%

1) Compared to No-Build

2) Values rounded in accordance with AASHTO rounding standards

Table 12: Year 2050 Vehicle Hours Traveled (VHT) by Facility Type (Sub-area)

Facility Type	No-Build	Corridor 2		Corridor 5A		Corridor 5B		Corridor 6	
	VHT	VHT	% Difference ¹	VHT	% Difference ¹	VHT	% Difference ¹	VHT	% Difference ¹
Daily (24-hour Period)									
Interrupted	223,000	206,000	-8%	214,000	-4%	218,000	-2%	211,000	-5%
Uninterrupted	101,000	107,000	6%	101,000	0%	101,000	0%	104,000	3%
Total²	324,000	313,000	-3%	315,000	-3%	319,000	-2%	315,000	-3%
AM Peak Period									
Interrupted	51,000	47,000	-8%	49,000	-4%	50,000	-2%	48,000	-6%
Uninterrupted	21,000	22,000	5%	21,000	0%	21,000	0%	21,000	0%
Total²	72,000	69,000	-4%	70,000	-3%	71,000	-1%	69,000	-4%
PM Peak Period									
Interrupted	67,000	60,000	-10%	62,000	-7%	64,000	-4%	61,000	-9%
Uninterrupted	29,000	30,000	3%	29,000	0%	29,000	0%	30,000	1%
Total²	96,000	89,000	-6%	91,000	-5%	93,000	-3%	91,000	-5%

1) Compared to No-Build

2) The total is the sum of the AASHTO rounded values.

3) Values rounded in accordance with AASHTO rounding standards

The total reduction in delay (i.e., VHT on both interrupted and uninterrupted facilities) within the sub-area was also weighed against the additional length of each corridor extension. On a per lane-mile basis, Corridor 2 and 5B provided the largest decrease in VHT compared to the No-Build condition, which is somewhat expected since Corridor 2 provided a notably higher reduction in VHT and Corridor 5B, although providing much less reduction in VHT, is very short whereas all others have similar lengths. Corridors 5A and 6 provided a similar reduction in overall delay per lane-mile, with Corridor 5A providing the least benefit in terms of total vehicle delay per lane-mile. With respect to the interrupted facilities, the largest VHT reduction per lane-mile of extension occurred under the Corridor 2 scenario during all three time periods.

The original and congested system-wide user speeds for the sub-area were also extracted from the travel demand model. The original user speed represents the average user speed under free-flow conditions (i.e., prior to the loading of traffic onto the network); whereas, the congested speed represents the average user speed under congested conditions when the model is fully loaded. The average user speeds in the sub-area for the 24-hour period as well as the AM and PM peak periods are provided in Table 13.

As shown in Table 13, the system user speeds (original and congested) were relatively similar (within 1 mph) among all of the Build Corridor scenarios. In terms of congested speed, Corridor 2 provided the most benefit compared to the No-Build scenario during all three time periods, with Corridors 5A and 6 providing a comparable, albeit slightly less, improvement in average speed.

Table 13: Year 2050 System User Speeds (Sub-area)

System User Speed	No-Build	Corridor 2		Corridor 5A		Corridor 5B		Corridor 6	
	Speed	Speed	% Difference ¹	Speed	% Difference ¹	Speed	% Difference ¹	Speed	% Difference ¹
Daily (24-hour Period)									
Original Speed (mph)	42.6	43.4	2%	43.1	1%	43.0	1%	43.2	2%
Congested Speed (mph)	32.9	34.5	5%	34.1	4%	33.7	2%	34.2	4%
AM Peak Period									
Original Speed (mph)	41.6	42.4	2%	42.2	2%	42.0	1%	42.3	2%
Congested Speed (mph)	28.8	30.4	6%	30.1	5%	29.5	2%	30.2	5%
PM Peak Period									
Original Speed (mph)	41.7	42.6	2%	42.4	2%	42.1	1%	42.5	2%
Congested Speed (mph)	25.9	27.8	7%	27.6	6%	26.9	4%	27.7	7%

1) Compared to No-Build

7 Summary of Findings

The analyses documented in this technical memorandum correspond to the first phase — Corridor Evaluation—of the SR 836 Southwest Extension PD&E Study. These analyses were performed to provide substantiation to the purpose and need of the project; validate the travel demand model (SERPM) to Base Year (2010) for the traffic study sub-area; and provide transportation discipline input—at a macroscopic level—for the preliminary screening of the Alternative Corridors.

An area-wide operational analysis was conducted to assess the traffic characteristics and identify existing operational deficiencies along critical roadway facilities within the traffic study area. In general, the peak travel direction through the study area is eastbound/northbound in the AM peak period and southbound/westbound in the PM peak period. The peak hour directional split also exceeds 60% indicative of a highly directional area, which is characteristic of commuter-related traffic patterns. Furthermore, the peak period typically occurred from 6:00 AM to 9:30 AM and 4:00 PM to 7:00 PM, varying in duration and start time by location. As expected the volumes are higher near the Florida's Turnpike and SR 836 interchanges.

Average travel speed and volume data were also evaluated to determine the level of service (LOS) and volume over capacity (V/C) ratio on the study roadways. Travel speeds within the study area were found to be lower during the AM peak period compared to the PM peak period. Travel speeds lower than 18 mph were observed on Bird Road (SW 42nd Street), Kendall Drive (SW 88th Street), Coral Reef Drive (SW 152nd Street), SW 137th Avenue, and SW 107th Avenue during the AM peak period and Tamiami Trail (SW 8th Street), SW 137th Avenue, and SW 107th Avenue during the PM peak period. The roadways listed above are operating at LOS E and F representative of the level of congestion observed in the area.

In addition, the peak hour/peak direction V/C ratios revealed that in 20 and 13 roadway segments, the traffic demand exceeds the available capacity ($V/C > 1.0$) during the AM and PM peak hours, respectively. Besides these overcapacity segments, another 15 segments during AM, and 16 locations during the PM, are also failing (i.e., V/C ratio between 0.9 and 1.0) from the capacity standpoint.

The previously described results indicate that the study area experiences heavy congestion during the peak periods, with traffic approaching and exceeding capacity in many segments, unacceptable average traveling speeds, and peak spreading. The arterial network seems to be no longer able to handle the mobility demand of the traveling public, and while it provides access to abutting properties, it is not suitable for moving commuter traffic in and out the study area.

A macroscopic modeling analysis was also performed to compare the impact and benefits of each Alternative Corridor from a traffic standpoint. In addition to the No-Build (i.e., No Action) scenario, four Alternative Corridors were evaluated using the Project Design Year (2050) Model, namely Alternative Corridors 2, 5A, 5B, and 6.

Based on the results summarized in Chapter 6 of this memorandum, Corridor 2 is superior to the other alternatives from the traffic standpoint.

Corridor 2 attracts the most traffic throughout the day (approximately 124% of the No-Build AADT) on SR 836 west of the SR 821/HEFT, followed by Corridor 6 (approximately 105% of the No-Build AADT), Corridor 5A (approximately 98% of the No-Build AADT), and lastly Corridor 5B (approximately 96% of the No-Build AADT). This is expected given Corridor 2 is farthest to the east and provides for better access to the new extension.

In addition, Corridor 2 provides the largest volume shift, at sub-area level, from interrupted facilities (arterials) to uninterrupted facilities (freeways) during all three periods, followed by Corridor 6, 5A, and 5B. For Corridor 2, the total volume on interrupted facilities is reduced by approximately 5%, while an increase of about 11% in total volume occurred on the uninterrupted facilities. Moreover, Corridor 2 provided the greatest reduction (6%) in VMT on interrupted facilities (arterials/collectors) compared to the No-Build condition, followed by Corridors 6, 5A, and 5B.

With respect to system-wide vehicle delay, the total VHT in the sub-area was reduced by 3% under Corridors 2, 5A, and 6 and 1% under Corridor 5B throughout the day. Similar reductions were also reported for the AM peak period; whereas, the total VHT was reduced 7% under Corridor 2, 6% under Corridors 5A and 6, and 4% under Corridor 5B during the PM peak period. Moreover, weighted against the additional length of each corridor extension, Corridor 2 and 5B provided the largest decrease in VHT on a per mile basis compared to the No-Build condition. With respect to the interrupted facilities, the largest VHT reduction per lane-mile of extension also occurred under the Corridor 2 scenario during all three time periods.

Lastly, with respect to the average system-wide user speeds for the sub-area, the original and congested speeds were found to be relatively the same among the four Alternative Corridor scenarios. In terms of congested speed, Corridor 2 provided the most benefit compared to the No-Build scenario during all three time periods, with Corridors 5A and 6 providing a comparable, albeit slightly less, improvement in average speed.