EXHIBIT "A"
SCOPE OF SERVICES
SR 948/NW 36th Street from SR 826/Palmetto Expressway to US-1/SR 5
Roadway ID 87220000 and 87090000
Multimodal Corridor Study
FM No. 436426-1-12-01
Advertisement No. 20601

A. INTRODUCTION

SR 948/NW 36th Street is an east-west corridor in Miami-Dade County, Florida. From SR 826/Palmetto Expressway to I-195/SR 112/Julia Tuttle Causeway, SR 948 is 8.626 miles long and traverses the cities of Virginia Gardens, Miami Springs, Hialeah, and Miami. This corridor serves the Miami International Airport (MIA), Florida East Coast Railroad's (FEC's) Hialeah Yard, and major recreational and community centers such as the Miami Springs Golf & Country Club, Casino Miami, Tropicana Flea Market, Miami Jackson Senior High School, and The Shops at Midtown Miami.

The western half of SR 948 (i.e., Roadway 87220000) is a Principal Arterial that continues west into the City of Doral as Doral Boulevard. This segment of the corridor is 3.998 miles long and provides access to numerous businesses in the aviation industry, including facilities located north of MIA's 8L/26R runway. This segment of the corridor also provides indirect access to the FEC's Hialeah Yard via NW 67th Avenue. This segment of SR 948 is a six (6) lane divided facility carrying between 58,500 – 70,500 Annual Average Daily Traffic (AADT), of which 3,878 – 4,388 are trucks (i.e., AADTT is between 6.2% - 6.6%).

The western half of SR 948 experiences significant recurring congestion which impacts commuting travel times, freight mobility, the environment, and overall quality of life. Congestion along this segment of the corridor occurs due to a multitude of factors. One factor is the close proximity between Perimeter Drive and SR 948. These two roadways have closely spaced signalized intersections with NW 67th Avenue, NW 62nd Avenue, NW 59th Avenue, and NW 57th Avenue. Short queueing distances and heavy traffic around these intersections contribute to the general congestion along SR 948 and compound safety concerns due to the high number of traffic conflict points present. Furthermore, this western half of SR 948 functions as a secondary east-west route to the heavily transited SR 836/Dolphin Expressway corridor. Therefore, SR 948 has high transportation demand as an alternate route to access both the cargo and passenger terminals at MIA.

The eastern half of the SR 948 (i.e. Roadway 87090000) parallels SR 112/Airport Expressway and I-195/SR 112/Julia Tuttle Causeway. This segment of SR 948 is classified as a Minor Arterial, measures 19.882 miles long, and provides access to numerous commercial, recreational, and residential land uses. Between US-27/SR 25/Okeechobee Road and US-1/SR 5, this segment of SR 948 carries between 19,500 and 30,000 vehicles per day (of which 1,100 – 1,860 are trucks) and also experiences significant recurring congestion.

SR 948/NW 36th Street has multiple transit services within its influence area. On the corridor, Miami-Dade County's Department of Transportation and Public Works (DTPW) operates four (4) Metrobus routes, including routes 36/36A/36B, 95 Express Golden Glades, 132, and 110/J. Metrobus Route 36 connects the Dolphin Mall, Miami International Mall, and Miami-Dade College West Campus with the City of Doral Center, Miami Springs Circle Park, and Allapattah Metrorail Station. Metrobus Route 95 connects the City of Doral, Miami Civic Center, and Downtown Miami, with the City of Aventura and Carol City. Metrobus Route 95 also connects to the Golden Glades Multimodal Transportation Facility (GGMTF) which accommodates a multitude of transit services including inter-city bus service and Tri-Rail. Metrobus Route 132 connects Downtown Doral with the Hialeah Market Tri-Rail Station. Lastly, Metrobus Route 110/J connects the Miami Intermodal Center (MIC) with the City of Miami Beach.

In close proximity to SR 948, DTPW operates two (2) Metrorail routes (Orange and Green Lines) with two (2) stations within the influence area of the corridor (i.e., Earlington Heights and Allapattah Stations). The South Florida Regional Transportation Authority (SFRTA) operates Tri-Rail which has one (1) station within the influence area of SR 948 (i.e., Hialeah Market Station). Metrobus, Metrorail, and Tri-rail all converge at the Miami Intermodal Center (MIC) which is located less than a mile south of SR 948 and can be easily accessed by vehicles through SR 953/LeJeune Road or NW South River Drive.

B. STUDY GOAL AND OBJECTIVES

The goal of this scope of services is to document the range and complexity of professional transportation planning and traffic engineering services required for the development and evaluation of multimodal improvements that address existing and future mobility, operational, social, economic, and safety needs along SR 948/NW 36th Street. The objectives of this study are to:

- Evaluate existing transportation conditions along the corridor and identify locations of recurring congestion, operational deficiencies, safety issues, and multimodal needs,

- Conduct public and intergovernmental coordination, with a focus on decision makers and primary stakeholders,
- Forecast future needs along the corridor based on existing conditions,
- Develop and evaluate alternative improvements to address existing and future needs along the corridor, and
- Recommend and prioritize the most appropriate improvements based on a practical implementation strategy.

Furthermore, the recommendations from this planning study are intended to advance through the Florida Department of Transportation's (FDOT's) project development process. Hence, analyses and decisions made throughout this study shall be documented in sufficient detail to meet the requirement of use in FDOT's Environmental Review Process. This means deliverables from this planning study should be appropriate for adoption, or incorporation by reference, into a Project Development and Environmental (PD&E) Study to meet the requirements of the National Environmental Policy Act (NEPA) and 40 CFR § 1502.21 [as in effect on the date of enactment of the Fixing America's Surface Transportation (FAST) Act].

Therefore, to achieve the study's goal and objectives, the following eight (8) principal tasks need to be performed.

1. Project Management
2. Public Involvement and Stakeholder Coordination
3. Performance Measures of Effectiveness
4. Existing Conditions Analysis
5. Development of Project Description and Purpose and Need
6. Travel Analysis
7. Conceptual Alternatives Development and Evaluation
8. Recommendations and Final Report

C. SCOPE OF SERVICE

Task 1 - Project Management

1.1) General Management and Administrative Services

Project management and control is an ongoing task throughout the duration of this planning study. This task includes coordination of work efforts with the FDOT Project Manager and within the CONSULTANT project team to accomplish all tasks described herein in a timely and cost-effective manner. This task includes general activities associated with project management such as administration, coordination of labor, regular

progress meetings with the FDOT Project Manager, review of work products developed, and general project oversight.

As part of this task, the FDOT and CONSULTANT Project Managers shall meet at least once a month for the duration of the study. At the discretion of the FDOT Project Manager, the monthly progress meeting can be performed in-person or through the use of telecommunication technology. The CONSULTANT shall maintain documentation of all progress meetings, including meeting agendas. The meeting agenda shall include a progress report of all efforts completed during the period between progress meetings, including but not limited to efforts such as work products delivered and public/stakeholder meetings attended.

This task includes the development and maintenance of a project schedule, including calendar deadlines and meeting dates. At the initiation of the project, a Critical Path Method (CPM) schedule of tasks, meetings, presentations, and milestones shall be developed by the CONSULTANT. The schedule shall be maintained throughout the duration of the project and updated on a monthly basis or as necessary.

Task 2 - Public Involvement and Stakeholder Coordination

2.1) Public Involvement Plan (PIP)

The CONSULTANT shall develop a Public Involvement Plan (PIP) to identify methods for obtaining input from the community and primary/secondary stakeholders. The PIP shall include applicable goals and objectives developed in collaboration with the FDOT Project Manager and primary stakeholders. Moreover, the PIP should describe policies to guide the project team in conducting public and stakeholder. This task includes identifying points of contact, establishing a Project Advisory (PAT) team, and collecting all data need to create the PIP.

2.2) Public and Stakeholder Meetings

The CONSULTANT shall maintain documentation of all public involvement/stakeholder coordination meetings, including meeting agendas, sign-in sheets, and meeting minutes for each occurrence. The CONSULTANT shall also develop display graphics and formal audiovisual presentations for these meetings at the discretion of the FDOT Project Manager. The CONSULTANT shall coordinate, organize, and set-up the following anticipated meetings.

2.2.1) *Project Advisory Team (PAT) Meetings*

A total of three (3) meetings at key milestones of the planning study with an organized PAT. As appropriate, the PAT may be comprised of one or representatives from Miami-Dade Expressway Authority (MDX), Miami-Dade County Aviation Department, Miami-Dade County Department of Transportation and Public Works (DTPW), FDOT Intermodal Systems Development/Planning and Environmental Management Office (ISD/PLEMO), FDOT Roadway Design Office, FDOT Traffic Operations Office, South Florida Regional Transportation Authority (SFRTA), CSX Transportation, Florida East Coast (FEC) Railway, and representatives from the cities of Doral, Virginia Gardens, Miami Springs, Hialeah, and Miami. At the discretion of the FDOT Project Manager, the PAT members may review and comment on all work products delivered by the CONSULTANT.

2.2.2) *Corridor Workshops*

A total of three (3) public workshop meetings at key milestones of the planning study and after the PAT meetings. Workshops give individuals an opportunity to provide comments and discuss project-related materials with the project team in an informal gathering. The CONSULTANT shall take into consideration pertinent comments provided by the public and modify analyses or recommendations as appropriate.

2.2.3) *County Commissioner Meetings*

A total of six (6) meetings, two (2) each, with the Miami-Dade Commissioners from Districts 2, 3, and 6. These meetings are intended to provide decision-makers with relevant information resulting from the study analyses and PAT Meetings/Corridor Workshops.

2.2.4) *TPO Sub-Committee Meetings*

A total of ten (10) meetings, two (2) each, with staff from the Miami-Dade County Transportation Planning Organization (TPO), and the Miami-Dade County TPO Transportation Planning Committee (TPC), Citizen's Advisory Committee (CTAC), Bicycle and Pedestrian Advisory Committee (BPAC), and Freight

Transportation Advisory Committee (FTAC). Information provided in these meetings should be tailored to address the specific subjects/purpose of each sub-committee.

2.2.5) *Additional Unscheduled Meetings*

A total of four (4) additional unscheduled meetings at the discretion of the FDOT Project Manager. These meetings may be with secondary stakeholders such as Miami Downtown Development Authority (DDA), Wynwood Business Improvement District (BID), major employers, business groups, area developers, and/or community-based organizations within the study area.

2.2.6) *FDOT Internal Meetings*

A total of two (2) meetings with FDOT staff from ISD/PLEMO, Roadway Design Office, and Traffic Operations Office. These meetings are anticipated to address project issues identified within FDOT District Six through interdepartmental briefings and Interchange Review Coordinator (IRC) meetings. One (1) of these meetings shall be conducted as part of the Tier 1 Evaluation under **Task 7.2**. This meeting will serve as a Conceptual Alternative Development workshop.

2.3) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

2.3.1) *Public Involvement Plan (PIP)*

This deliverable shall document all efforts performed under **Task 2.1**. This deliverable shall be updated by the CONSULTANT throughout the duration of the study to ensure proper and effective collection of public and stakeholder input.

2.3.2) *Technical Memorandum 1: Public/Stakeholder Involvement*

This Technical Memorandum shall document all efforts performed under **Task 2.2**. This deliverable shall include all documents presented to the public and project stakeholders.

Task 3 - Performance Measures of Effectiveness

3.1) Development of Performance Measures of Effectiveness (MOEs)

Comparative evaluation of project alternatives requires the selection of performance Measures of Effectiveness (MOEs) to evaluate the existing and future operating conditions. Selecting appropriate MOEs allows for an impartial evaluation of performance. Selected MOEs should be specific to the characteristics of SR 948/NW 36th Street within the study limits and to the goal and objectives outlined herein. These MOEs are intended to guide data collection efforts to develop a basis for evaluating proposed improvements. The level of detail required for reporting performance MOEs should be commensurate with the scope of work; alternatives and modifications being considered, capabilities of analysis tools, level of detail needed to evaluate and compare alternatives, and other factors such as degree of over saturation.

Given Fixing America's Surface Transportation (FAST) Act requirements, FDOT has been developing performance measurements and targets. MOEs developed for this project shall address technical concerns identified in the FAST Act. Performance measures shall be developed for the following four (4) areas:

1. Mobility,
2. Quality of Travel,
3. Safety, and
4. Freight Movement.

At a minimum, the CONSULTANT shall include the following performance MOEs:

- Systemwide
  - Vehicle Miles Travelled (VMT)
  - Vehicle Hours Travelled (VHT)
- Signalized Intersections
  - Level of Service (LOS)
  - Delay
  - Volume-to-Capacity Ratio (V/C)
  - Queue Length
- Arterials
  - Level of Service (LOS)
  - Travel Time
  - Travel Speed
  - Multimodal LOS

The CONSULTANT shall assemble a draft set of performance MOEs and targets based on efforts from FDOT Central Office and other existing data sources such as FDOT's Project Development and Environmental (PD&E) Manual, Part 2, Chapter 2, Section 2.23 and FDOT's Context Classification Document.

3.2) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

3.2.1) *DRAFT and FINAL Technical Memorandum 2: Performance Measures of Effectiveness Selection*

This Technical Memorandum shall document all efforts performed under **Task 3.1**.

Task 4 - Existing Conditions Analysis

The CONSULTANT shall collect and document information of existing conditions in sufficient to be able to fully understand and describe the project's purpose and need for the environmental review process. The Existing Conditions Analysis shall include descriptions of existing infrastructure and transportation services within the study limit (i.e., mode, typical section features, facility types, multimodal features, and/or major structures). This analysis should also describe issues and opportunities regarding system linkage, capacity, transportation demand, legislation, social demand, economic development, modal interrelationships, safety, and roadway geometry. The CONSULTANT shall assemble transportation planning, social, and economic data within the study's influence area based on the most current available data from recent studies or publicly-owned databases. The CONSULTANT shall also collect new data as part of this effort. All data collection shall be consisted with the selected performance MOEs to be able to compare proposed improvements with a "No Build" alternative comprised of existing conditions plus committed projects within the study's influence area. Furthermore, the amount of new data collected should be sufficient to develop thorough conceptual improvements.

Pertinent information to be assembled/collected includes previously complete studies, planned/programed improvements within the project's influence area, freight data, origin-destination data, and traffic, bicycle, and pedestrian count data. More specifically, the CONSULTANT shall collect the following data.

4.1) Aerial Photography

The CONSULTANT shall obtain copies and electronic files of existing aerial photography/raster images of the study corridor. Copies of relevant and available maps should also be obtained (e.g., right-of-way maps, transit route maps, zoning maps, etc.). The CONSULTANT shall collect new or additional aerial photography if needed. Aerials are needed to depict existing land use, right-of-way, highway characteristics, and to present Conceptual Engineering Alternatives. Aerial photography should be at a scale of approximately 1 inch = 100 feet, in order to show sufficient detail of individual lanes for existing and proposed conditions. The aerial photography shall be controlled color digital photography with the capability to be utilized as raster images. The aerial photography shall be provided in plan sheets with a scale of at least 1 inch = 200 feet and a minimum resolution of 1 inch = 1 foot.

4.2) Ongoing and Complete Studies/Transportation Plans/Work Programs

The CONSULTANT shall obtain copies of relevant ongoing and recently completed transportation plans which relate to or impact the study's influence area. At a minimum, the CONSULTANT shall collect and summarize the following plans and studies:

- Miami-Dade County
  - Long Range Transportation Plan (LRTP)
  - Transportation Improvement Plan (TIP)
  - Transit Development Plans (TDPs)
  - Freight Plan
  - Bicycle and Pedestrian Plan
- FDOT
  - Five-Year Work Program
  - Florida Transportation Plan (FTP)
  - Freight Mobility and Trade Plan (FMTP)
  - SIS Five-Year Work Program
  - SIS Second-Five Year Plan
  - SIS Cost Feasible Plan
  - SIS Unfunded Needs Plan
  - State Transportation Improvement Plan (STIP)
- Local government comprehensive plans
- Bikeway and sidewalk master plans
- Local master development plans
- Local Capital Improvement Plans (CIPS)
- Applicable safety and operational studies
- Applicable Developments of Regional Impact (DRIs)

- Permit plans
- MDX Five-year Work Program

In addition, the CONSULTANT shall research and document any on-going or programmed construction projects on the corridor or within the study influence area. The CONSULTANT shall review completed goods movement studies and other relevant plans, studies, and construction documents including, but not limited to:

- Miami Intermodal Center Capacity Improvement (MR-MICCI) project
- Strategic Airport Master Planning Study for the Miami International Airport (MIA)
- PortMiami Strategic Plan
- Miami River Corridor Economic Study
- Southeast Florida Regional Freight Plan
- Proposed Intermodal Logistics Hub developments within the FEC Hialeah Rail Yard
- Concept design for the extension of NE 37th Street
- Doral Boulevard Master Plan
- Doral Trolley/SMART Plan Coordination Study
- SR 826/Palmetto Expressway Managed Lanes PD&E Study
- Connect 4 Express PD&E Study
- Iron Triangle – Urban Interchange Mobility Planning Study (SR 953/NW 42nd Avenue with SR 948/NW 36th Street and US-27/SR 25/Okeechobee Road – FM# 438521-1-12-01)
- I-195 – Urban Interchange Mobility Planning Study (I-95 / NW 12 Avenue to SR907 / Alton Road – FM# 440228-1-22-01)
- National Highway System (NHS) Intermodal Connectors Signal Retiming (FM# 437911-1-32-01)
- Connecting the Highways Network Missing Links

The Consultant shall search for and obtain other relevant freight movement plans and studies not mentioned herein. Special attention should be paid to freight movement data to identify areas in need of improvement as well as major freight generators.

4.3) Existing Roadway Characteristics

4.3.1) Typical Sections

Describe and illustrate the width and extent of cross-sectional element including number and type of lanes, on-street parking facilities, bicycle facilities, and pedestrian facilities.

4.3.2) Right-of-Way

Obtain right-of-way information within the project limits from FDOT, Miami-Dade County, or appropriate municipality. Right-of-way determination shall be made for interchanges, ramps, crossroads, drainage easements, and any retention areas. Establish property lines based on available existing data, such as right-of-way maps/GIS database as available from FDOT. Identify right-of-way for parallel-related transportation corridors, as necessary.

4.3.3) Lighting

Determine the type of lighting, lighting intensity, and location of key lighting infrastructure within study area.

4.3.4) Signage

Identify the location, dimension, and type of all overhead and post-mounted signs and sign structures along the corridor that may be impacted by potential proposed improvements.

4.3.5) Interchange/Ramp Design

Identify collector, distributor, and frontage roads, auxiliary lanes, and all access connections within the study area.

4.3.6) Intelligent Transportation System (ITS) Equipment

Identify existing ITS equipment or infrastructure within the corridor. Review existing documents and plans relating to ITS in the study area.

4.3.7) Posted and Design Speed Limits

Identify posted speed limits throughout study area from RCI database or field visits. Obtain design speed from as-built/record

drawings. Convey any discrepancies between posted or design speed limits and FDOT's database to the FDOT Project Manager.

4.3.8) *Roadway Alignments*
Identify available horizontal and vertical alignment data.

4.3.9) *Traffic Signals*
Obtain information from Miami-Dade County Signs and Signals Division to identify traffic signal infrastructure and signal timings.

4.3.10) *Drainage Systems*
Identify existing drainage systems and discharge points from available information or field visits.

4.3.11) *Utility Information*
Identify utility structures and installations that may hinder corridor expansion/redesign and other utilities which may require consideration in the development of transportation corridor improvements. The CONSULTANT shall coordinate with the District Utilities Engineer to request a utility design ticket. The CONSULTANT shall be responsible for summarizing the relevant information from all potentially affected utility companies (including public and private utilities) along the corridor.

4.3.12) *Structure Characteristics and Conditions*
Obtain, compile, and summarize characteristics including typical section, structure type, structure conditions, horizontal/vertical clearance, span arrangements, pier locations, and channel data (if over water).

4.3.13) *Access Management*
Identify access classification for the corridor and evaluate compliance with applicable standards.

4.3.14) *Context Classification*

Identify the context classification for the corridor and evaluate compliance with FDOT's Design Manual and Context Classification Document.

4.3.15) *Public Transportation Data*

Obtain, compile, and summarize existing and planned transit services, transit facilities, van-pool/carpool activities, park-and-ride facilities, ridership, and connections to airports, seaports, and rail facilities within the study area. At a minimum, transit routes, schedules, and ridership data shall be collected, summarized, and evaluated. The CONSULTANT shall identify all locations of transit stops/stations and stop amenities including bicycle parking and pedestrian access routes along the corridor.

4.4) Existing Freight Characteristics and Infrastructure

Starting with the roadway network identified within the Southeast Florida Regional Freight Plan and the Florida Strategic Intermodal System (SIS), the following information should be collected from existing sources and field review, if necessary. The data should be focused on freight mobility.

- Traffic characteristics
- Traffic signal phasing
- Sight distance
- Turning radii
- Vertical Clearance
- Weight Restrictions
- Lane storage
- Merging and weaving characteristics
- Truck parking locations and practices

4.5) Traffic and Transit Data Collection and Analysis

The CONSULTANT shall utilize any existing traffic counts provided by FDOT and, where traffic counts are not available, the CONSULTANT shall conduct the necessary counts at the locations described herein. Existing transit data is to be provided by Miami-Dade County DTPW, SFRTA, and all municipalities with local circulator services on, across or near the study corridor.

The CONSULTANT shall be responsible for furnishing all existing traffic and transit data required for this study. If applicable and appropriate, the CONSULTANT may propose to use recent FDOT traffic count data, other official local traffic data, and/or approved data from recent studies and/or efforts. If the CONSULTANT proposes to use recent count data, the CONSULTANT shall be responsible for review and verification of quality and reasonableness of the traffic count data. Recent traffic counts are considered to be traffic counts collected no more than twelve (12) months before the Notice to Proceed (NTP) date. In individual cases, FDOT may approve the use of traffic count data older than twelve (12) months. Verification and reasonableness checks should account for the timing of the traffic counts versus network and land use changes such as new roadway connections, new or increased transit services, widening of existing roadways, major developments, etc., within or in the vicinity of the traffic study area.

4.5.1) *Data Collection*

At a minimum, the following initial data shall be collected within the study limits:

4.5.1.1) *Annual Average Daily Traffic (AADT) and Design Factors*

Historical and current AADT counts from the 2018 Florida Traffic Online (2018-FTO) count database. Design factors such as K, D, and T factors may also be obtained from the 2018-FTO website and the Project Traffic Forecasting Handbook.

4.5.1.2) *72-Hour Bi-Directional Machine Counts*

72-hour bi-directional machine counts with vehicle classification recorded hourly or in 15-minute intervals at selected locations along the corridor between critical intersections or where volume or roadway characteristics change. The 72-hour machine counts with vehicle classification shall be performed on three consecutive weekdays, typically on Tuesday, Wednesday, and Thursday. The 72-hour machine counts shall be furnished for the following locations (refer to **Figures 1 – 6**):

1. NW 36th Street between NW 82nd Avenue and NW 79th Avenue

2. SR 826/Palmetto Expressway On-Ramps from NW 36th Street
3. SR 826/Palmetto Expressway Off-Ramps to NW 36th Street
4. NW 36th Street east of 7100 Block
5. NW 36th Street east of NW 57th Avenue
6. NW 36th Street between Sheridan Drive and Coolidge Drive
7. SR 112/Airport Expressway On-Ramp from EB NW 36th Street
8. SR 112/Airport Expressway Off-Ramp to WB NW 36th Street
9. NW 36th Street between NW 38th Avenue and NW 37th Avenue
10. NW 36th Street between NW 23rd Court and NW 23rd Avenue
11. NW 36th Street between NW 17th Avenue and NW 15th Avenue
12. I-195 On-Ramp from EB NE 38th Street
13. I-195 Off-Ramp to WB NE 38th Street
14. I-195 Off-Ramp to WB NE 36th Street
15. NE 36th Street between Biscayne Boulevard and I-195/Julia Tuttle Causeway

4.5.1.3) 6-Hour Turning Movement Counts

6-hour Turning Movement Counts (TMCs), including bicycle and pedestrian, for AM and PM peak periods at intersections along the corridor for 3 consecutive days. Selection of peak hours may be based upon comparison of data available from the 2018-FTO database, 72-hour machine counts, and field observations. 59 count locations are anticipated, including adjacent intersections along Perimeter Road. At a minimum, TMCs should be collected at the following intersections (refer to **Figures 1 – 6**):

Signalized:

1. NW 79th Avenue
2. SR 826/Palmetto Expressway SB Off-Ramp (87260248)
3. SR 826/Palmetto Expressway NB Off-Ramp (87260249)
4. SR 969/NW 72nd Avenue

5. 7100 Block
6. NW 67th Avenue
7. NW 66th Avenue
8. NW 57th Avenue/Curtiss Parkway
9. NW 5300 Block
10. Palmetto Drive/NW 53rd Avenue
11. South Drive
12. NW 4900 Block/La Villa Drive
13. East Drive
14. Lee Drive
15. Sheridan Drive
16. SR 953/LeJeune Road
17. S. Royal Poinciana Boulevard and NW S. River Drive
18. US-27/SR 5/Okeechobee Road and NW N. River Drive
19. NW 37th Avenue
20. NW 36th Avenue
21. NW 32nd Avenue
22. NW 30th Avenue
23. SR 9/NW 27th Avenue
24. NW 22nd Avenue
25. NW 18th Avenue
26. NW 17th Avenue
27. NW 14th Avenue
28. SR 933/NW 12th Avenue
29. NW 10th Avenue
30. US-441/SR 7/NW 7th Avenue
31. NW 5th Avenue
32. NW 2nd Avenue
33. N. Miami Avenue
34. NE 2nd Avenue and Federal Highway
35. US-1/SR 5

Unsignalized:

1. SR 826 SB Directional On-Ramps
2. SR 826 NB Directional On-Ramps
3. NW 74th Avenue
4. Motel 6/Wendy's Driveway
5. Palmetto Ford/Atlantic Tower
6. Avex Building/NW 6405 Block
7. Space Coast Credit Union/NW 6301 Block
8. NW 62nd Avenue

9. NW 5950 Block
10. NW 59th Avenue/Regions Bank Driveway
11. Popeye's Restaurant Driveway
12. Denny's Restaurant Driveway
13. NW 5550 Block
14. Hugh Frank Drive
15. AeroThrust Driveway
16. De Leon Drive
17. De Soto Drive
18. Minola Drive
19. Mokena Drive
20. Miller Drive
21. Forrest Drive
22. Kenmore Drive
23. Coolidge Drive

Additional intersections exists along adjacent facilities that influence the operations of the corridor:

Perimeter Drive

1. NW 67th Avenue (signalized)
2. NW 62nd Avenue (signalized)
3. NW 59th Avenue (unsignalized)
4. NW 57th Avenue (unsignalized)

NW 12th Avenue

1. NW 39th Street
2. NW 40th Street

NW 10th Avenue

1. NW 39th Street

N. Miami Avenue

2. SR 112/I-195 EB Off-Ramp
3. NE 38th Street and SR 112/I-195 EB On-Ramp

Biscayne Boulevard

1. NE 38th Street and I-195 EB On-Ramp

4.5.1.4) Queue Length

Queue length data during the AM and PM peak conditions.

4.5.1.5) Travel Time and Delay

Travel time and delays, or other similar measures, shall be collected for typical peak hour conditions. Six (6) total runs shall be performed for each peak period condition (AM and PM) in each travel direction on a Tuesday, Wednesday, or Thursday of a typical week.

4.5.1.6) Origin-Destination (OD) Data

Origin-Destination (OD) data for the SR 948/NW 36th Street corridor. The data shall include information regarding the origins and destinations for both passenger vehicles and trucks to understand the lane usage and travel pattern of these modes. The CONSULTANT, in coordination with the FDOT Project Manager, shall select the most appropriate data source.

4.5.1.7) Bus Stop/Station Inventory

The following characteristics of bus stops and stations along the corridor shall be identified:

- Adjacent Roadway Name
- Direction of Travel
- Adjacent Roadway Number of Lanes
- Type of Adjacent Lane (Through, Auxiliary, Right-Turn Only, On-Street Parking, Bicycle Lane, etc.)
- Adjacent Bicycle Lane Characteristics
- Adjacent On-Street Parking Characteristics
- Presence of Curb and Gutter
- Location (Farside, Nearside, or Midblock)

- Midblock stops are considered to be those stops located between 500-ft or more of nearest signalized intersections\
- Presence of Bus Bay
- Type of Stop (Shelter or Sign Post)
- Presence of Landing Pad
- Presence of Detectable Warning Surface
- Presence of Bench
- Presence of Trash Receptacle
- Presence of Bicycle Rack
- Presence of Lighting

4.5.1.8) *Transit Routes and Operations*

The CONSULTANT shall obtain all information regarding existing transit operations within the corridor. The frequency, hours of operations, type of vehicles, and ridership data (latest three years per route per hour and per stop/terminal) for all transit routes within the corridor shall be obtain.

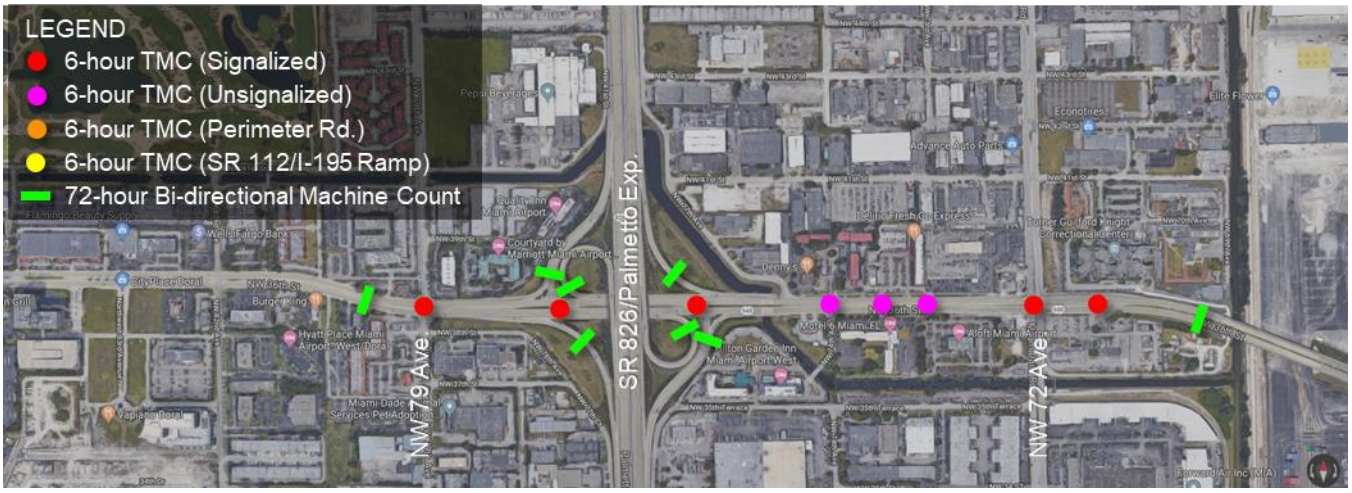

Figure 1: NW 36th Street from NW 79th Avenue to NW 69th Avenue

Figure 2: NW 36th Street from NW 69th Avenue to Garden Dr.

Figure 3: NW 36th Street from Garden Dr. to NW N. River Dr.

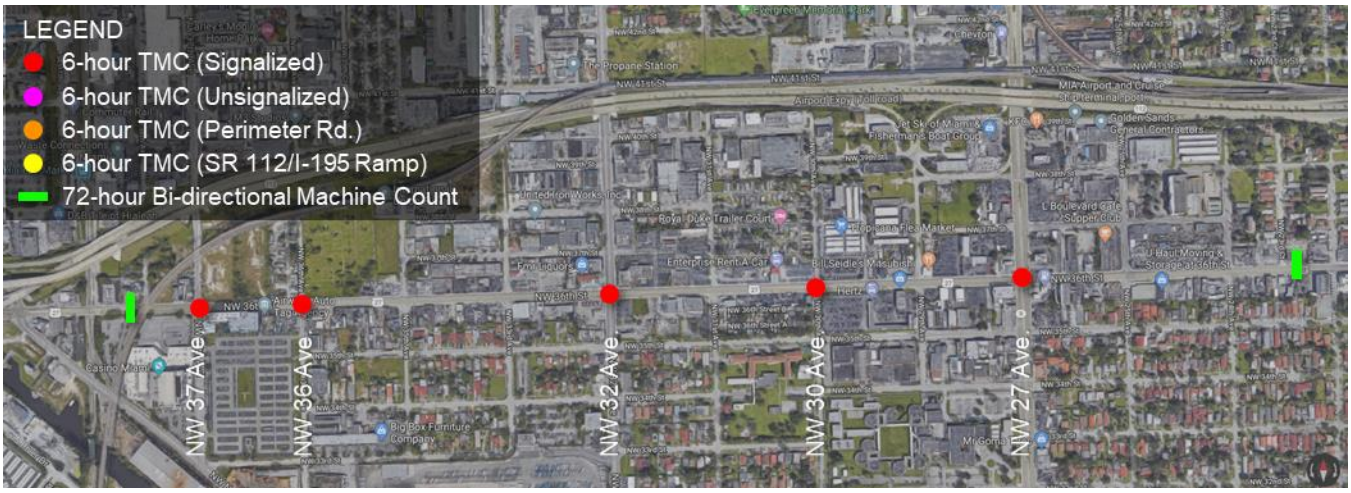

Figure 4: NW 36th Street from NW N. River Dr. to NW 23rd Avenue

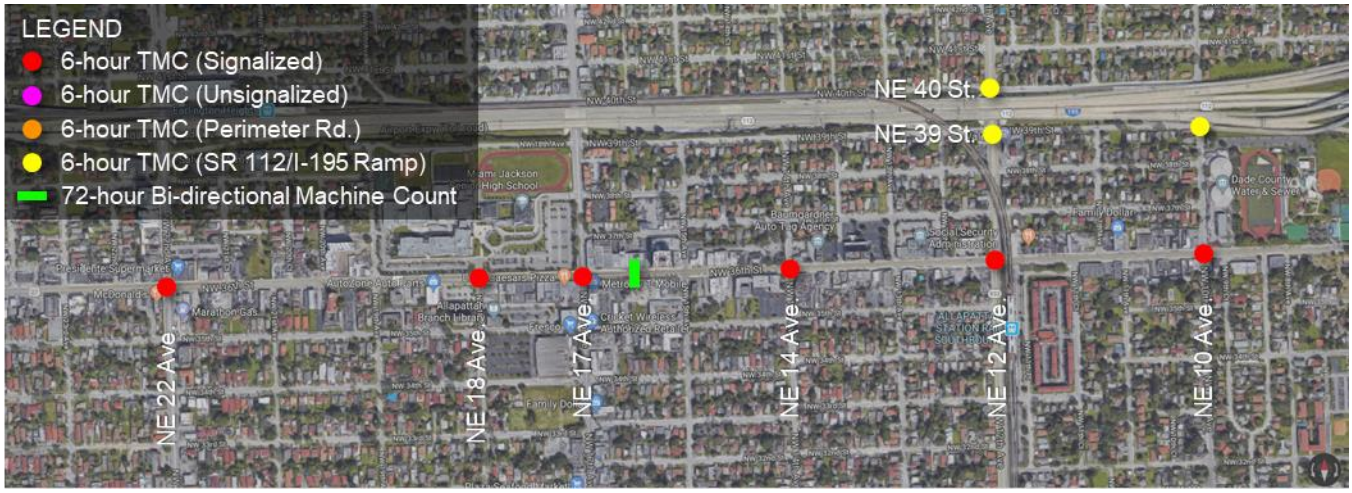

Figure 5: NW 36th Street from NW 23rd Avenue to NW 8th Avenue

Figure 6: NW 36th Street from NW 8th Avenue to I-195

4.5.2) *Data Analysis*

Existing operating conditions shall be determined by analyzing data collected with methodologies contained in the most recent edition of the Highway Capacity Manual and appropriate FDOT analysis software utilizing the collected data. Lane utilization, intersection movement delay, and other traffic data shall be used for calibrating the operational analysis software. This analysis shall result in identified operational deficiencies throughout the corridor. The operational analysis shall identify conflicts between pedestrians, bicycles, and vehicles at intersections and crossings.

The CONSULTANT shall review the analysis to verify if the results reasonably represent the existing conditions. The CONSULTANT shall document any adjustments to collected data values to achieve a reasonable representation of existing conditions. Depending on the parameter that is adjusted, corresponding adjustment may be carried over into the analysis of future condition scenarios. The CONSULTANT shall document and provide support for all input factors such as Peak Hour Factor (PHF) and truck percentages used in the analysis. Electronic copies of all input and output files shall be provided to the DEPARTMENT.

Transit ridership data shall be evaluated to determine travel patterns during peak conditions and high ridership stops/terminals. Transit headways, hours of operations, and geometric constraints shall also be documented to evaluate how people are using available transit along the corridor and whether that service is actually meeting their mobility needs. The CONSULTANT may provide suggestions for improving existing transit route or operations. The CONSULTANT shall coordinate the transit analysis with Miami-Dade DTPW and ongoing efforts such as the Better Bus Project by the Miami Transit Alliance and the Strategic Miami-Area Rapid Transit (SMART) Plan.

4.6) Crash Data Collection and Analysis

The most recent available crash data (5 years) within the study influence area shall be compiled from crash databases maintained by FDOT, Miami-Dade County, and/or local municipalities (if readily available). A crash data analysis shall be prepared by the CONSULTANT to identify crash frequencies along SR 948/NW 36th Street, SR 826/Palmetto Expressway,

SR 112/Airport Expressway, SR 953/LeJeune Road, US-27/SR 25/Okeechobee Road, SR 9, SR 933/NW 12th Street, US-44/SR 7/NW 7th Avenue, and I-95, as appropriate. Predominant crash patterns, high crash locations, severity of crashes, and other pertinent crash statistics shall be documented. Analysis of crash data shall determine the frequency of crash type (vehicle, bicycle, and/or pedestrian crash; angle, head-on, side-swipe, etc. crash; fatal, injury, or property damage only crash) and the existence of trends that would indicate the potential for a particular improvement type. The safety analysis shall be performed in accordance to the policies and procedures of the District's Traffic Operations Office. This task does not include detailed collision diagrams or benefit/cost analysis.

In addition, the CONSULTANT shall determine if intersections along SR 948 are identified within the high crash spot or segment list. The CONSULTANT shall document the safety and/or operational deficiencies along the corridor. Where possible, the CONSULTANT shall identify countermeasures (design or operational) to address crash patterns for vehicular/truck traffic as well as crashes involving bicycle and pedestrian traffic.

4.7) Cultural and Historic Features

The CONSULTANT shall obtain and analyze data on cultural and historic features along the corridor. These features shall be described in sufficient detail to be able to complete a Preliminary Environmental Discussion (PED) as outlined in FDOT's PD&E Manual, Part 1, Chapter 4, Part 1, Chapter 3, Section 3.2.1 and ETDM Manual, Chapter 4, Section 4.4.5. The purpose of this data is to determine design constraints or potential impacts of proposed improvements. This information shall aid in the development of an Advance Notification Package once the project enters the Environmental Programming Screen process.

Sensitive cultural and historical sites need to be identified along the corridor and depicted on scaled 11-inch x 17-inch maps. Such sites shall include, but may not be limited to:

- Major or important medical facilities
- Educational facilities (public and private)
- Religious institutions
- Cemeteries (public and private)

- Publicly-owned or utilized lands (parks, recreation areas, conservation areas, wildlife refuges)
- Generalized archaeological areas and historical districts or sites

4.8) Hydrological and Natural Features

The CONSULTANT shall obtain and analyze data on hydrological and natural features along the corridor. These features shall be described in sufficient detail to be able to complete a PED. The purpose of this data is to determine design constraints or potential impacts of proposed improvements. This information shall aid in the development of an Advance Notification Package once the project enters the Environmental Programming Screen process. These features need to be identified and mapped at an appropriate scale to be able to:

- Determine, through comparison of the Florida Land Use Cover and Forms Classification System (FLUCFCS) with aerial photography, the limits of wetlands within or adjacent to the corridor. These wetland areas shall be illustrated on appropriately scaled 11-inch x 17-inch maps, to allow for preliminary identification of potential impacts.
- Determine the location and extent of any Outstanding Florida Waters within the corridor.
- Identify and plot on appropriately scaled 11-inch x 17-inch maps, all base (100-year frequency) floodplains using Flood Insurance Rate Maps (FIRM), Flood Hazard Boundaries Maps (FHBM), quadrangle maps, water management district topographic maps, FDOT drainage maps, etc. with special regard to use of this roadway for storm evacuation.
- Identify and plot on appropriately scaled 11-inch x 17-inch maps, all floodway using floodway maps or information from the Federal Emergency Management Agency (FEMA).
- Obtain stormwater management or master drainage plans prepared by local authorities in order to identify problem areas.
- Identify "critical habitat" through research of literature, review of US Fish and Wildlife Service (USFWS) databases, and coordination with local governments and the Florida Natural Areas Inventory.
- Coordinate with the USFWS, Florida Fish and Wildlife Commission (FWC), and National Marine Fisheries Service (NMFS).
- Prepare a list of endangered “Listed Species Technical Memorandum” to establish the possible presence of, and potential impacts to identified species, other wildlife, and their critical habitat within the project vicinity. If endangered or threatened species

involvement is identified, outline a biological assessment for later formal consultations.

4.9) Other Environmental Features

The CONSULTANT shall collect and analyze data regarding to noise impacts and hazardous waste/contaminated sites along the corridor.

4.10) Field Reviews

The CONSULTANT shall conduct and document formal field reviews of the site to coordinate the collection and application of planning and engineering data. The CONSULTANT shall conduct up to three (3) formal field reviews of the corridor. At a minimum, the CONSULTANT shall document the following recognizable characteristics/features: existing roadway characteristics; freight roadway infrastructure; traffic operations and travel patterns; evidence of potential safety/security hazards and roadway deficiencies; cultural and historic features; hydrological and natural features; and other environmental features.

4.11) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

4.11.1) DRAFT and FINAL Technical Memorandum 3: Existing Conditions

This Technical Memorandum shall document all efforts performed under **Task 4.1 through 4.10**.

Task 5 - Development of Project Description and Purpose and Need

The purpose and need statements are the foundation of a project. These statements clearly and concisely describe the transportation issues that need to be resolved and explain why these issues should be resolved in the first place. Hence, these statements become rules to be obeyed by any proposed solutions. If project alternatives do not fully address the stated purpose and need, they can be eliminated from further consideration with documentation. These statements also provide a direct link from planning to PD&E processes; making them critical for the advancement of projects to the Design and Construction phase.

5.1) Project Description

FDOT's PD&E Manual, Part 2, Chapter 1 provides guidance on developing a project description and purpose and need. The CONSULTANT shall prepare a preliminary project description and purpose and need with sufficient detail to easily advance the project into the Programming Screen. Transportation planning data gathered throughout Task 2 through 4 shall be used to assist in establishing the purpose and need. This preliminary purpose and need may change as the project advances through Programming Screen and PD&E Study with the availability of new information or public input. However, the CONSULTANT should try to be as thorough as possible while only describing the appropriate purpose and need categories that are applicable to this corridor.

SR 948/NW 36th Street serves multiple land uses and is an important arterial corridor for many competing modes of transportation including freight, transit, vehicular, bicycle, and pedestrians. While the western and eastern halves of SR 948 have unique transportation characteristics, further segmentation may be needed (or not needed) to develop projects that have logical termini, are of sufficient length to address environmental issues in a broad scope, have independent utility, and do not preclude foreseeable transportation improvements. The CONSULTANT, in consultation with the FDOT Project Manager, shall decide how to segment the corridor. The CONSULTANT shall develop distinct project descriptions and purpose and need statements for each segment of SR 948. Decisions and justifications for segmenting the corridor shall be documented by the CONSULTANT.

The preliminary project description shall include the following items:

- Project name;
- A brief description of the existing facility;
- Project location, including limits, length, and logical termini;
- Jurisdictions within the project location;
- A project location map illustrating the project location and jurisdictional limits
    - The map should label as many major landmarks as possible such as State Roads/Interstates, MIA, FEC Hialeah Yard, Turner Guilford Knight Correctional Center, Flagler Global Logistics, Virginia Gardens City Hall, Virginia Gardens Park, Miami Springs Golf and Country Club, Miami Intermodal

Center, rail stations, Casino Miami, Miami-Dade Transit Central Bus Facility, Melrose Elementary School, Tropicana Flea Market, Dade Juvenile Detention Center, Miami Jackson Senior High School, Social Security Administration, Dade County Water and Sewer Maintenance Facility, Moore Park, Roberto Clemente Park, The Shops at Midtown Miami, FEC Railway, Woodson Mini Park, Albert Pallot Park, Stearns Park, and Martell Park.

5.2) Project Purpose and Need Statements

The preliminary purpose statement shall identify the primary and secondary goals of the project. Selected goals shall not be mutually exclusive or be described too broadly or narrowly as to not be specific, measurable, attainable, or preclude a range of alternatives that reasonably address the project needs.

The preliminary needs statement shall identify deficiencies, issues, and/or concerns existing within the project corridor based on factual and objective descriptions supported by data and engineering analysis. Specifically, the needs statement needs to address the following elements:

- System Linkage
- Capacity
- Transportation Demand
- Social Demands or Economic Development
- Modal Interrelationships
- Safety
- Roadway Deficiencies

5.3) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

5.3.1) *DRAFT and FINAL Technical Memorandum 4: Purpose and Need Statement*

This Technical Memorandum shall document all efforts performed under **Task 5.1 through 5.2**.

Task 6 - Travel Analysis

Future traffic and transit ridership forecasts developed in this task shall provide the basis for the development of mobility strategies and conceptual alternatives. Forecasts shall account for future traffic and transit demand along SR948/NW 36th Street and within the study area.

6.1) Future Travel Volume Forecasting

Future traffic projections shall be developed and used to prepare improvement concepts for roadway typical sections, interchange, and intersection designs. A Traffic Volume Forecasting Methodology Memorandum shall be developed, reviewed, and approved by FDOT prior to the development of future traffic forecasts.

Average daily traffic, design hour volumes, and AM and PM peak hour turning movement volumes shall be developed for the base year 2020 and design year 2045. The opening year 2025 shall be developed by extrapolating between base and design year. The development of future traffic volumes shall be consistent with the policies and procedures outlined in the FDOT Project Traffic Forecasting Handbook and Project Traffic Forecasting Procedure No. 525-030-120. Future year forecasts shall utilize the latest version of the Southeast Florida Regional Planning Model (SERPM 7). A review of the highway and transit networks for the study area shall be conducted to ensure they accurately represent the Miami-Dade TPO's Existing plus Committed (E + C) transportation network. For the long-term planning horizon, the planned Connect 4 Express PD&E Study, direct connection from SR 112/Airport Expressway to westbound NW 36th Street, and a partial new interchange at NW 37th Avenue to and from the east on SR 112 should also be included in the SERPM transportation network to develop future year traffic volumes. Future AM and PM peak hour traffic forecasts for intersections shall be developed using the FDOT's TM Tool or a similar analysis tool.

The existing activity-based travel demand model (SERPM Version 7 Series) shall form the basis of the traffic forecasts, base year 2020 and design year 2045. To support the operational analysis of traffic within the urban interchange study area, a separate subarea assignment model representing the study corridor shall be developed from SERPM 7 by using standard subarea extraction techniques to produce corridor level trip

tables. These trip tables shall be calibrated to observed conditions and used as input into the microsimulation models to support the more detailed operational analysis.

The refined models shall be utilized to develop the future travel demands. The forecasts shall include Daily and Design Hour Volumes suitable for planning purposes and the development of peak period 15-minute trip table inputs for the CORSIM microsimulation modeling.

Existing 2020 traffic shall be provided to validate base year traffic and confirm with data collected in Task 3 including, but not limited to, field reviews and traffic data collection.

Standard industry-wide measures of travel demand assignment validation shall be used consistent with the criteria identified in the Project Traffic Forecasting Handbook, FDOT's Traffic Analysis Handbook, and FHWA's Toolbox Volume IV: Guidelines for Applying CORSIM Microsimulation Modeling Software to compare the assigned volumes to observed traffic counts. The assigned volumes shall be considered validated when they produce traffic conditions within the microsimulation models that closely match the observed conditions.

Future year AM and PM turning movement volumes for the intersections within the study area shall be developed using FDOT's TM Tool or a similar analysis tool.

6.2) Future Operations Analysis

Intersection, corridor, and interchange influence area capacity analyses shall be performed based upon software based on the Highway Capacity Manual (HCM) 2000 and 2010 Editions, as applicable, and CORSIM software. The analyses shall be consistent with the guidelines outlined in FHWA's Traffic Analysis Toolbox technical documents and shall evaluate the study area's operations based upon the selected MOEs in Task 3. Queue spillbacks shall be documented, and the conceptual design alternatives shall address existing and future spillback throughout the study area.

The analysis shall include existing conditions, future without improvements (long-term), and future with improvements (long-term) scenarios during applicable two (2) peak hours (AM and PM).

The operational analysis shall be the basis for the development of short-term and long-term conceptual improvements. Software analysis tools that may be used for the traffic operational analysis include the most recent version of the Highway Capacity Software (HCS) for ramps/weaving analyses and Synchro 9 or latest version available for intersection analyses. Existing condition Synchro analyses shall be calibrated from the collected traffic data and peak period field reviews (queue lengths, lane utilization, etc.) HCS shall be utilized to examine ramp areas and merge/diverge areas.

A CORSIM microsimulation model shall be developed for the urban interchange and adjacent influence area, including all direct connections, frontage roads, and ramp junctions for both the AM and PM peak periods. These simulation models shall assist in analyzing the operational performance for the study area. The CORSIM model shall be calibrated to existing conditions based on FDOT/FHWA guidelines and criteria. The calibrated CORSIM model shall be used to develop models of future (long-term) no-build (future traffic without improvements) and build alternatives (future traffic with improvements).

Simulation analyses shall be performed to assess operating conditions for the network within the area of influence. CORSIM traffic simulation models shall be used for evaluating traffic operations for the No-Build Alternative and the Build Alternatives. The following scenarios shall be analyzed:

- Existing Conditions (model calibration)
- 2045 No-Build and Build Alternatives (long-term)

The number of build alternatives to be modeled in the full CORSIM model shall be limited to three (3) alternatives comprised of long-term improvements. Transportation Systems Management and Operations (TSM&O) improvements must be one of the alternatives improvements evaluated.

6.3) Deliverable(s)
The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

6.3.1) *DRAFT and FINAL Technical Memorandum 5: Travel Forecasting Methodology*
This Technical Memorandum shall document all efforts performed under **Task 6.1 through 6.2**.

6.3.2) *DRAFT and FINAL Technical Memorandum 6: Future Operations*
This Technical Memorandum shall document all efforts performed under **Task 6.1 through 6.2**.

Task 7 - Conceptual Alternatives Development and Evaluation

7.1) Development of Multimodal Transportation Improvement Strategies
The CONSULTANT must research and identify preliminary multimodal transportation improvement strategies which can be implemented along the corridor and within the corridor's influence area. The strategies must include, but shall not be limited to:

- Strategies that provide additional capacity to address operational deficiencies including, but not limited to, grade separation, managed lanes, widening, and reversible lanes.
- Strategies to reduce single occupant vehicle usage or as an alternative to any general-purpose lane proposals, including managed lanes.
- Strategies to increase transit usage. Include operational improvements and special use lanes to increase patronage of transit service. Improve passenger amenities and other features for transit service within the corridor.
- Traffic operations techniques such as Intelligent Transportation Systems (ITS) strategies, and Transportation Systems Management & Operations (TSM&O) strategies.
- TDM measures or trip reduction techniques such as car/van pooling, alternative work scheduling or parking management.
- Pedestrian, transit, and bicycle facilities should include techniques to improve usage, reduce conflicts on existing facilities, and eliminate elements that would deter or make usage unsafe on new facilities.

- Strategies to address safety deficiencies identified within the limits of this study.
- Strategies for future land use patterns to encourage transit usage and reduce single occupant vehicle usage.

These strategies form the basis for developing Conceptual Multimodal Engineering Alternatives. These alternatives must include a combination of strategies to improve multimodal mobility, connectivity, accessibility, and sustainability of SR 948.

7.2) Development of Conceptual Multimodal Engineering Alternatives

The Consultant must develop three (3) build alternatives comprising long-term improvements that address this study's goal and objectives. To ensure this is accomplished, the build alternatives must improve on the MOEs selected through adherence with the Multimodal Transportation Improvement Strategies. The CONSULTANT shall seek to avoid or minimize impacts to the environment when developing the build alternatives. Each build alternative must have logical termini and independent utility. In addition to the build alternatives, the CONSULTANT must develop a Transportation Systems Management and Operations (TSM&O) alternative.

The CONSULTANT shall develop these alternatives by first performing a sketch planning exercise to define high-level concepts. These concepts shall include a broad number of improvements and the CONSULTANT shall eliminate unreasonable or nonviable concepts based on Fatal Flaw analysis. FDOT design criteria and standards must be used when developing the high-level concepts compatible with context classification and other applicable design controls. The CONSULTANT shall coordinate with the FDOT Project Manager to discuss the high-level concepts that were developed and evaluated. At the discretion of the FDOT Project Manager, the CONSULTANT may have to modify or add high-level concepts based on this coordination.

With approval from the FDOT Project Manager, the CONSULTANT can proceed to develop Conceptual Multimodal Engineering Alternatives. These alternatives shall be developed as roll plots for presentation and discussion in the Alternatives Work Shop. These alternatives shall be developed based on traffic simulations stated in **Task 6**. The

CONSULTANT shall try to ensure the alternatives meet or exceed the selected MOEs.

The alternatives must consider the following: Connect 4 Express conceptual alignment, planned direct ramp connection from SR 112 to westbound NW 36th Street, and a new partial interchange at NW 37th Avenue and SR 112. These alternatives shall be evaluated from the standpoint of constructability considering two main factors: how the improvements can be implemented independently and how they can be implemented to minimize the potential "throw-away" of the short-term concepts. Once the CONSULTANT has developed preliminary build alternatives, and with approval from the FDOT Project Manager, the alternative development effort can proceed to the next phase.

7.3) Alternatives Work Shop

The CONSULTANT shall organize and conduct an alternatives workshop with representatives from the following FDOT Departments: ISD/PLEMO, Roadway Design Office, Consultant Management, and Traffic Operations Office. The purpose of this workshop is to assess the benefits and disadvantages of the three (3) build alternatives and the TSM&O alternative. Specifically, the CONSULTANT shall look for feedback regarding:

- Complete Streets
- Pedestrian and Bicycle Accommodations
- Traffic Operations and Safety
- Access Management
- Potential Utilities Impacts
- Freight Movement and Railroads
- Constructability
- Environmental Considerations

The CONSULTANT shall prepare a meeting agenda and sign-in sheet as well as meeting minutes. Based on the comments and opinions expressed in this workshop, the CONSULTANT shall modify the alternatives to better accomplish the goal and objectives of this study. Furthermore, this workshop shall serve as basis for conducting the Comparative Alternatives Evaluation.

7.4) Comparative Alternatives Evaluation

The CONSULTANT shall evaluate and compare each alternative, including the "No Build" Alternative, to recommend the alternative that best accomplishes the goal and objectives of this study. This evaluation must balance between meeting the identified needs, environmental impacts, engineering considerations, public opinion, and project costs. The analysis requires all alternatives to be evaluated objectively and to the same level of detail to be able to compare the tradeoffs between each alternative. Suggested criteria to include in the comparative evaluation include:

- High Level Project Cost
  - Design
  - ROW Acquisition/Relocations/Business Damages
  - Construction
  - Construction Engineering and Inspection (CEI)
  - Utility Relocation Cost
  - Social and Economic Environment
  - Number and scope of parcels impacted
  - Number of relocations
  - Impacts to religious/worship buildings/places
  - Impacts to schools
  - Impacts to medical facilities
- Cultural Environment
  - Section 4(f)
  - Impacts to historic sites and districts
  - Impacts to archaeological sites
  - Impacts to recreational areas
  - Natural Environment
  - Floodplains
- Physical Environment
  - Contamination/hazardous waste sites
  - Noise receptors
  - Water quality and stormwater
  - Utilities
  - Bicycles and Pedestrians
- Traffic Operations and Safety
  - LOS
  - Throughput
  - Delay
  - Travel Time
  - Safety
  - Vehicle Hours Traveled/Vehicle Miles Traveled (VMT)

    - Travel Time Reliability
- Multimodal
    - Freight connectivity and accessibility
    - Reduction of modal conflicts

The CONSULTANT shall select appropriate criteria to evaluate how well the alternatives meet the project needs, goal, and objectives. The CONSULTANT shall present a draft matrix of criteria and scoring methodology to the FDOT Project Manager for his/her approval. With approval, the CONSULTANT can proceed to evaluate all alternatives and score the alternatives accordingly. The CONSULTANT shall recommend the alternative that results in the most favorable score.

7.5) Recommended Alternative and Detailed Cost Estimate

The CONSULTANT must prepare a revised roll plot of the recommended alternative. This roll plot shall be sufficiently detailed to plans and typical sections for the recommended alternative. The final roll plot shall clearly label ROW impacts, adjacent buildings and facilities, impacts to cultural and social, bicycle and pedestrian improvements, freight improvements, and roadway improvements. The CONSULTANT shall develop detailed a cost estimate based on FDOT's Long-Range Estimate (LRE) for the recommended alternative. This cost estimate shall also include the high-level cost estimate for ROW acquisition/relocations/business damages developed in **Task 7.4**.

7.6) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

7.6.1) DRAFT and FINAL Technical Memorandum 7: Conceptual Alternatives Development and Evaluation

This Technical Memorandum shall document all efforts performed under **Task 7.1 through 7.5**.

Task 8 - Recommendations and Final Report

In this Task the CONSULTANT shall summarize the main purpose, overall effort, and results of each of the preceding tasks. This task is intended to provide an overall summary of the effort and to document the process followed to reach the recommended alternative. The final recommended alternative shall be further explained to fully capture the nuances discovered throughout the study. Furthermore, the CONSULTANT shall document next steps and potential risks to further developing the project.

8.1) Preliminary Environmental Discussion

The CONSULTANT shall document environmental issues in a Preliminary Environmental Discussion (PED). The PED is part of the text included in the Advance Notification distributed during the Programming Screening of a PD&E Project. The PED shall be developed based on documented existing conditions, impacts associated with the final recommended alternative, and additional environmental issues discovered through an Area of Influence (AOI) GIS Analysis. The DEPARTMENT shall assist the CONSULTANT in developing the AOI Analysis. The CONSULTANT shall summarize the results from the AOI Analysis and prior environmental knowledge in the PED. The appropriate chapters in Part 2 of the PD&E Manual shall be reviewed for guidance on identifying and analyzing issues associated with the following categories.

- Social and Economic
    - Land Use Changes
    - Social
    - Relocation Potential
    - Farmlands
    - Aesthetic Effects
    - Economic
    - Mobility
- Cultural
    - Section 4(f) Potential
    - Historic and Archaeological Sites
    - Recreational Areas
    - Natural
    - Wetlands and Other Surface Waters
    - Water Quality and Quantity
    - Floodplains
    - Coastal Zone Consistency
    - Wildlife and Habitat
    - Coastal and Marine

- Physical
    - Noise
    - Air Quality
    - Contamination
    - Infrastructure
    - Navigation
- Special Designations
    - Outstanding Florida Waters
    - Aquatic Preserves
    - Scenic Highways
    - Wild and Scenic Rivers
- Anticipated Permits
- Anticipated Technical Studies

8.2) Deliverable(s)

The CONSULTANT shall provide a DRAFT and FINAL version of all deliverables through electronic delivery to the FDOT Project Manager.

8.2.1) *DRAFT and FINAL Technical Memorandum 8: Final Report*

This Technical Memorandum shall document all efforts performed under **Task 8.1 through 8.2**.

Summary of Deliverables

The following section summarizes all deliverables associated with **Tasks 1 through 8**:

Task 1 – Project Management

- *DRAFT and FINAL Study Fact Sheets and Brochures*
- *Any and all work products associated with project management such as administration, coordination of labor, regular progress meetings with the FDOT Project Manager, review of work products developed, and general project oversight (Progress reports, meeting agendas, sign-in sheets, meeting minutes, display graphics, and schedules)*

Task 2 – Public Involvement and Stakeholder Coordination

- *Public Involvement Plan (PIP)*
- *Technical Memorandum 1: Public/Stakeholder Involvement*

Task 3 – Performance Measures of Effectiveness

- *DRAFT and FINAL Technical Memorandum 2: Performance Measures of Effectiveness Selection*

Task 4 – Existing Conditions Analysis

- *DRAFT and FINAL Technical Memorandum 3: Existing Conditions*

Task 5 – Development of Project Description and Purpose and Need

- *DRAFT and FINAL Technical Memorandum 4: Purpose and Need Statement*

Task 6 – Travel Analysis

- *DRAFT and FINAL Technical Memorandum 5: Travel Forecasting Methodology*
- *DRAFT and FINAL Technical Memorandum 6: Future Operations*

Task 7 – Conceptual Alternatives Development and Evaluation

- *DRAFT and FINAL Technical Memorandum 7: Conceptual Alternatives Development and Evaluation*

Task 8 – Recommendations and Final Report

- *DRAFT and FINAL Technical Memorandum 8: Final Report*

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