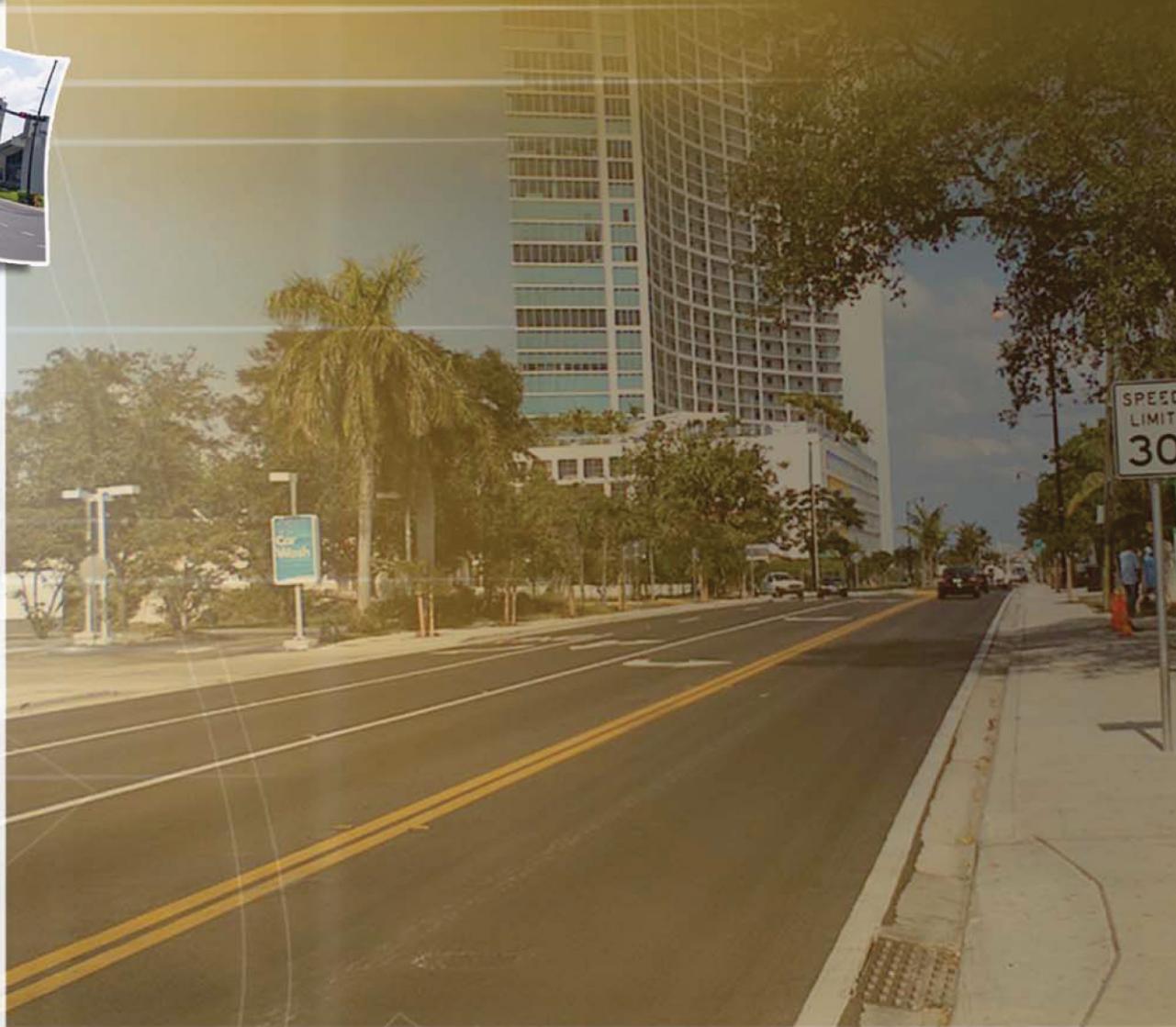


# NW/NE 36TH STREET

*Study*



Kimley-Horn  
and Associates, Inc.



# NW/NE 36<sup>th</sup> Street Study

## FINAL REPORT

**Prepared for:**



**Miami-Dade County Metropolitan Planning Organization  
(Miami-Dade MPO)**

**Prepared by:**



**Kimley-Horn  
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Fort Lauderdale, Florida

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# EXECUTIVE SUMMARY

## Introduction

NW/NE 36<sup>th</sup> Street is an important east-west mobility corridor in the City of Miami. The corridor is designated as SR 25 and US 27. This corridor and the adjacent areas have experienced unprecedented growth over the past few years, which is expected to continue over the next several years as large projects, such as Midtown Miami, become occupied. However, the positive aspects of redevelopment come with challenges as well. Maintaining mobility at an acceptable level is critical to the surrounding residential communities, employment areas, businesses, and activity centers.

The objective of this study was to develop and evaluate mobility enhancement alternatives along the NW/NE 36<sup>th</sup> Street corridor in the study area bound by NW/NE 54<sup>th</sup> Street to the north, NW/NE 20<sup>th</sup> Street to the south, I-95 to the west, and Biscayne Bay to the east. The *NW/NE 36<sup>th</sup> Street Study* performs a review of existing and future traffic conditions and makes recommendations on how to enhance mobility in the study area. A primary purpose of this study was to evaluate the impact of increased demand on the area's transportation network and to make recommendations on how to accommodate the increase in future traffic.

## Study Area

The boundaries of the *NW/NE 36<sup>th</sup> Street Study* are defined as NW/NE 54<sup>th</sup> Street to the north, NW/NE 20<sup>th</sup> Street to the south, NW 7<sup>th</sup> Avenue/S.R. 7/US 441 to the west, and Biscayne Bay to the east. The study area is located between dense residential areas, such as communities on the barrier island including Miami Beach and mainland communities in the northeastern part of the county including Aventura, and major employment centers such as Downtown Miami, Brickell, and the Health District. As a result of its location in the middle of these dense residential areas and major employment centers, travel through the study area puts excessive demand on the transportation network. In particular, heavy directional flows result from traffic traveling to and from the employment centers in the morning and afternoon, respectively. The intense development presently occurring within the study area will place additional demand on the transportation network in the near future.

## Background Research

Background research was performed by reviewing a number of studies, plans and programs. Recommendations and strategies were identified, and they provided a foundation of improvements that could be built upon. The following were examined as part of the background research.

- I-195 Project Development and Environment (PD&E) Study
- Miami 21
- Miami Streetcar Study
- South Florida East Coast Corridor Study
- Major Use Special Permit (MUSP) Traffic Studies
- Midtown Miami Project
- 36<sup>th</sup> Street RRR Project
- N Miami Avenue Improvements
- State Road 7 (NW 7<sup>th</sup> Avenue) Reversible Lane Project
- City of Miami Capital Improvement Program
- Miami Downtown Transportation Master Plan
- Miami Downtown Development Authority Master Plan
- Miami-Dade Transportation Improvement Program (TIP)
- Miami-Dade Long Range Transportation Plan (LRTP)
- Miami-Dade Transit Development Program
- Miami-Dade County Comprehensive Development Master Plan

### **Existing Traffic Conditions**

The existing traffic conditions were assessed within the NW/NE 36<sup>th</sup> Street study area to establish a baseline for future transportation needs. Included in the analysis was identification of the primary transportation network, accumulation of traffic volumes, level of service analysis, and safety analysis. Right-of-way data was obtained and it was determined that most of the major roadways within the study area are constrained from widening by the existing available right-of-way. Accordingly, the mobility strategies subsequently developed in this study generally consisted of solutions to increase person movement capacity through means other than traditional roadway widening.

Results of level of service (LOS) analysis demonstrated that traffic conditions along the east-west roadway segments analyzed are generally acceptable, operating at LOS C or LOS D. The AM peak direction of travel for the east-west corridors was predominately the eastbound direction and the PM peak direction was largely the westbound direction. The results of the LOS analysis along the north-south corridors indicate that several of the roadway segments analyzed are operating at poor LOS. Segments of NW 7<sup>th</sup> Avenue, NW 2<sup>nd</sup> Avenue, N Miami Avenue, Federal Highway, and Biscayne Boulevard are experiencing LOS E and LOS F conditions. The AM peak direction of travel for the north-south corridors was predominately the southbound direction and the PM peak direction of travel was largely northbound.

A volume to capacity analysis was conducted for the major north-south surface streets that traverse the study area. The purpose of conducting the overall capacity volume to capacity analysis was to determine the ability of the overall surface street network to accommodate the directional travel demand and to determine if excess capacity may be available along some of the surface streets that could potentially relieve some of the streets experiencing heavier traffic demand. The north-south surface streets were found to be carrying volumes approaching their overall capacity. With the expected increase in travel demand, strategies will need to be developed to increase the person movement capacity in these corridors. The lack of overall excess capacity demonstrates the need to preserve the existing north-south capacity along the major north-south surface streets.

Crash data was obtained from the Florida Department of Transportation (FDOT). Most of the major intersections within the study area were considered high crash intersections. The high incidence of crashes within the study area is reflective of the deficient conditions which include traffic signals that lack pedestrian features and often do not provide protected left-turn phases, a lack of turn lanes with sufficient deceleration and storage lengths, and other constraints. Recommendations developed in this study included strategies to address these deficiencies.

### **Existing Transit Service**

Existing transit service in the NW/NE 36<sup>th</sup> Street study area was inventoried to gauge current transit service levels, operating characteristics, and ridership. Transit service in the study area is provided by Miami-Dade Transit (MDT) Metrobus routes and three private jitney services. Extensive bus transit service exists within the NW/NE 36<sup>th</sup> Street study area. Several routes run along Biscayne Boulevard, NW/NE 36<sup>th</sup> Street, NE 2<sup>nd</sup> Avenue, and NW 7<sup>th</sup> Avenue/SR 7. The routes within the NW/NE 36<sup>th</sup> Street corridor are among the most successful routes in MDT's system in terms of ridership.

### **Determination of Mobility Needs**

Based on analysis of transportation data and land use patterns, mobility needs and deficiencies in the areas of traffic operations, transit, bicycle and pedestrian facilities, and neighborhood traffic management were identified. Additionally, input was obtained from the study advisory committee (SAC) to further develop the list of transportation mobility needs. Issues that were identified included traffic impacts associated with redevelopment, limited available capacity along north-south roadways, intersection capacity constraints at the intersections of NE 36<sup>th</sup> Street at NE 2<sup>nd</sup> Avenue/Federal Highway and NE 36<sup>th</sup> Street at Biscayne

Boulevard, constrained right-of-way limits opportunities for roadway widening, safety, speeding, and cut through traffic.

The majority of the bus routes within the study area are located along Biscayne Boulevard and primarily serve north-south mobility needs. The Little Haiti Connector is the only route that provides localized service and primarily travels north-south following an indirect route, winding through neighborhoods, connecting Little Haiti with the Design District. East-west transit service is mostly limited to the NW/NE 36<sup>th</sup> Street corridor, which can be largely attributed to the limited crossings along the Florida East Coast (FEC) rail corridor. The overall lack of infrastructure and amenities such as benches and shelters at bus stops contribute to low transit ridership. The lack of bus stop amenities exposes those who ride transit to the elements, such as rain and the sun, and makes transit less desirable for potential riders.

There is a general lack of bicycle facilities and continuous routes within the study area. Most streets within the study area are primarily designed for motorized vehicles at the expense of non-motorized modes of travel. Currently, the lack of convenient and appropriate bicycle facilities in the area often leads to bicyclists riding in mixed traffic conditions, which may discourage some people who would like to bicycle as a means of transportation or recreation.

In general, there are large gaps in pedestrian facilities. Examples include lack of sidewalks, discontinuous sidewalks, lack of crosswalks, and excessive driveway curb cuts. In addition, pedestrian facilities at intersections have been noted as not satisfying ADA requirements, providing deficient crossings and lacking pedestrian signal heads and push buttons.

### **Transportation Mobility Strategies**

Based on the transportation data analysis and identification of transportation needs, a program of transportation strategies was developed to accommodate local mobility needs for the NW/NE 36<sup>th</sup> Street study area. The strategies are intended to address transportation system deficiencies while also enhancing the character of the community and improving the quality of life for its residents. The transportation mobility strategies were divided into sections based on transportation mode. The strategies that specifically address traffic and roadway needs were further divided into two sections: transportation system management (TSM) and neighborhood traffic management. Sections addressing mobility strategies for alternative transportation modes include transit, bicycle, and pedestrian. Table ES-1 and Figure ES-1 present the recommended improvements.

### **Summary and Next Steps**

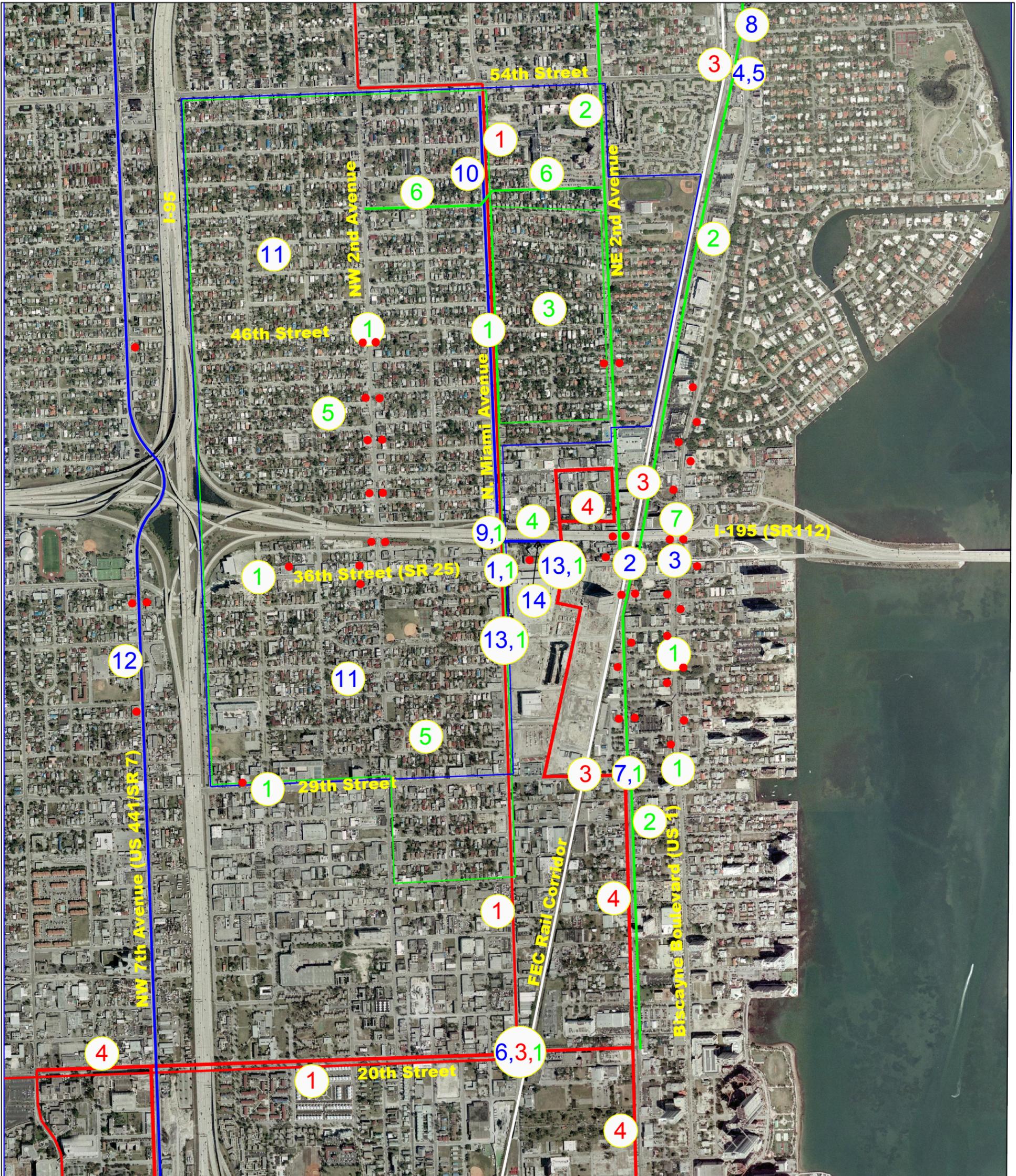
A number of transportation issues were identified during the course of this study and a program of transportation strategies was developed to address transportation system deficiencies. The recommended improvements range from specific intersection improvements to new fixed guideway transit lines. The *NW/NE 36<sup>th</sup> Street Study* provides the framework to assist in the programming of transportation improvements. Agencies have been identified for implementing the improvements based on jurisdictional responsibility. The improvements should be adopted into the appropriate plans and programs of the specified agencies. The study may also be used as a tool to seek funding to implement transportation improvements, as the plan demonstrates that there is a comprehensive vision toward providing multi-modal transportation opportunities to reduce reliance on the single occupant automobile. Finally, the study should be examined periodically to assess the status of the implementation of the identified improvements.

Table ES-1: Recommended Improvements

Location	Improvement Description	Jurisdiction <sup>1</sup>
<b>Traffic Operations</b>		
N 36 <sup>th</sup> St @ N Miami Ave	Upgrade eastbound and westbound signal heads to include protective-permissive phasing	FDOT/MDC
NE 36 <sup>th</sup> St @ NE 2nd Ave/Federal Hwy	Provide a ten second protected lead for eastbound left turns onto Federal Highway and NE 2 <sup>nd</sup> Avenue	FDOT/MDC
NE 36 <sup>th</sup> St @ Biscayne Blvd	Overlap eastbound right-turn with northbound-southbound left-turns	FDOT/MDC
NE 54 <sup>th</sup> St @ Biscayne Blvd	Restripe eastbound approach to make two left-turn lanes and one right-turn lane, and overlap eastbound right-turn with northbound left-turn	FDOT/MDC
Federal Hwy North of NE 54 <sup>th</sup> St	Construct a connector road between Biscayne Boulevard and Federal Highway allowing southbound traffic to bypass the intersection of NE 54 <sup>th</sup> Street and Biscayne Boulevard.	FDOT/COM
N Miami Ave @ I-195 Ramps	Install "Do Not Block Intersection" signs	MDC
N Miami Ave @ I-195 Ramps	Eliminate on-street parking on the east side of N Miami Avenue between 38 <sup>th</sup> and 39 <sup>th</sup> Street to provide an additional northbound through lane	COM/ MDC
N Miami Ave @ I-195 Ramps	Construct connector road at eastbound off-ramp to connect with NE 1 <sup>st</sup> Avenue	FDOT/COM
N Miami Ave @ I-195 Ramps	Improve turning radii	FDOT/MDC
N 20 <sup>th</sup> St @ N Miami Ave	Improve intersection alignment	MDC/COM
NE 29 <sup>th</sup> St @ NE 2nd Ave	Improve intersection alignment	MDC/COM
NE 36 <sup>th</sup> St @ NE 1st Ave	Install new traffic signal	FDOT/MDC
NW 7 <sup>th</sup> Ave	Implement Reversible Lanes	MDC/FDOT
N Miami Ave @ N 34 <sup>th</sup> St	Install new traffic signal	MDC
N Miami Ave @ N 29 <sup>th</sup> St	Improve traffic signal	MDC
<b>Neighborhood Traffic Management</b>		
N Miami Ave between N 39 <sup>th</sup> St and N 54 <sup>th</sup> St	Construct a median similar to the median along N Miami Avenue adjacent to Midtown Miami	COM
<b>Transit</b>		
FEC Rail Corridor	Premium transit service	FDOT/MDT
Miami Streetcar	Implement streetcar transit service	COM/MDT
Along major bus routes	Provide bus stop improvements, such as shelters that provide protection from the elements and benches, at locations where space is available	COM
N Miami Ave from N 54 <sup>th</sup> St south to N 20 <sup>th</sup> St then east to NW 8 <sup>th</sup> Ave to the Hospital District	Realign Little Haiti Connector Metrobus Route	MDT
<b>Bicycle/Pedestrian</b>		
Federal Hwy from 36 <sup>th</sup> St to the north of 54 <sup>th</sup> St	Add bicycle lanes/facilities	COM
Biscayne Blvd @ I-195 Overpass	Install ADA compliant ramps	FDOT
NE 2 <sup>nd</sup> Ave between NE 20 <sup>th</sup> St and 54 <sup>th</sup> Ave	Add bicycle lanes/features	COM/ MDC
20 <sup>th</sup> St @ N Miami Ave	Install ADA compliant ramps, pedestrian signal heads, and push buttons	MDC
NW 29 <sup>th</sup> St @ NW 5 <sup>th</sup> Ave	Install ADA compliant ramps	MDC/COM
NE 29 <sup>th</sup> St @ NE 2 <sup>nd</sup> Ave	Install ADA compliant ramps	MDC/COM
NE 29 <sup>th</sup> St @ Biscayne Blvd	Install ADA compliant ramps, pedestrian signal heads and crosswalk markings	FDOT/MDC
NE 33 <sup>rd</sup> St @ Biscayne Blvd	Install pedestrian signal heads	FDOT/MDC
NW 36 <sup>th</sup> St @ NW 5 <sup>th</sup> Ave	Install pedestrian signal heads	FDOT/MDC
N 36 <sup>th</sup> St @ N Miami Ave	Install pedestrian signal heads and push buttons	FDOT/MDC
NE 39 <sup>th</sup> St between N Miami Ave and NE 1 <sup>st</sup> Ave	Streetscape improvements	COM
NW 46 <sup>th</sup> St @ N Miami Ave	Install ADA compliant ramps, pedestrian signal heads, and push buttons	MDC
Between I-95 and N Miami Ave	Develop potential east-west pedestrian corridors to improve residential neighborhood pedestrian connections to transit	COM
N Miami Ave north of I-195	Install textured crosswalks along N Miami Avenue to complement east-west pedestrian corridors	MDC/COM
Buena Vista Historical District	Develop potential east-west pedestrian corridors to improve residential neighborhood pedestrian connections to transit	COM
Wayfinding Signage System	Install wayfinding signage to enhance accessibility of study area destinations	COM

Note: (1) FDOT = Florida Department of Transportation, MDC = Miami-Dade County, COM = City of Miami, MDT = Miami-Dade Transit

FIGURE ES-1: RECOMMENDED IMPROVEMENTS



POTENTIAL PROJECT REFERENCE NUMBER AND DESCRIPTION

- TRAFFIC:  
RECOMMENDED IMPROVEMENTS**
- 1. N 36TH ST & N MIAMI AVE (SIGNAL IMPROVEMENTS)
  - 2. NE 36TH ST & FEDERAL HWY/NE 2ND ST (SIGNAL IMPROVEMENTS)
  - 3. NE 36TH ST & BISCAYNE BLVD (SIGNAL IMPROVEMENTS)
  - 4. NE 54TH ST & FEDERAL HWY (SIGNAL/INTERSECTION IMPROVEMENTS)
  - 5. NE 54TH ST & BISCAYNE BLVD (SIGNAL/INTERSECTION IMPROVEMENTS)
  - 6. N 20TH ST & N MIAMI AVE (INTERSECTION REALIGNMENT)
  - 7. NE 29TH ST & NE 2ND AVE (INTERSECTION REALIGNMENT)
  - 8. FEDERAL HWY AND BISCAYNE BLVD CONNECTOR (CONNECT SOUTHBOUND BISCAYNE BLVD TO SOUTHBOUND FEDERAL HWY)
  - 9. I-195 RAMPS & N MIAMI AVE (INTERSECTION IMPROVEMENTS)
  - 10. N MIAMI AVE MEDIAN IMPROVEMENTS (N 38TH STREET TO N 54TH STREET)

- 11. NEIGHBORHOOD TRAFFIC MANAGEMENT (TRAFFIC CALMING AND CUT THROUGH TRAFFIC DETERRENTS) (AREA OUTLINED IN BLUE)
- 12. SR 7 REVERSIBLE LANE PROJECT
- 13. NEW SIGNALS
- 14. NEW FRONTAGE ROAD

- TRANSIT:  
RECOMMENDED IMPROVEMENTS**
- 1. REROUTE LITTLE HAITI CONNECTION
  - 2. BUS STOP IMPROVEMENTS (LOCATIONS WITH SPACE FOR IMPROVEMENTS REPRESENTED BY RED DOTS ON MAP)
  - 3. FEC CORRIDOR (POTENTIAL COMMUTER RAIL STATION LOCATIONS)
  - 4. MIAMI STREETCAR

- BICYCLE-PEDESTRIAN:  
RECOMMENDED IMPROVEMENTS**
- 1. PEDESTRIAN SIGNAL FEATURES/ADA IMPROVEMENTS
  - 2. BICYCLE FACILITIES
  - 3. BUENA VISTA EAST HISTORIC DISTRICT (STREETSCAPE IMPROVEMENTS, EXTEND TO NE 50TH STREET)
  - 4. NE 38TH STREET (STREETSCAPE IMPROVEMENTS)
  - 5. IMPROVE PEDESTRIAN CONNECTIONS BETWEEN I-95 AND N MIAMI AVENUE (INCLUDING TEXTURED CROSSWALKS ALONG N MIAMI AVENUE)
  - 6. IMPROVE PEDESTRIAN CONNECTIONS BETWEEN SCHOOLS AND AGED HOME
  - 7. INSTALL ADA COMPLIANT RAMPS



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## ACKNOWLEDGEMENTS

The Miami-Dade Metropolitan Planning Organization (MPO) initiated the *NW/NE 36<sup>th</sup> Street Study* to analyze the impending transportation demands for the area given the widespread redevelopment that is occurring in the corridor. At the outset of the study, Kimley-Horn worked with the Miami-Dade County Metropolitan Planning Organization (MPO) to identify a study advisory committee (SAC), whose members would serve as a steering group to review study documents and assist in developing recommendations. The SAC met regularly throughout the course of the study, providing data and input for this study. The members of the *NW/NE 36<sup>th</sup> Street Study* SAC are listed below.

### NW/NE 36<sup>th</sup> Street Study SAC Members

- Larry Foutz Miami Dade MPO (Project Manager)
- John Garcia Miami Dade Transit
- Maria C. Batista Miami Dade Transit
- Phil Steinmiller FDOT
- Ali Toghiani FDOT
- Leopoldo Gimenez Miami Dade Public Works Department
- Joan Shen Miami Dade Public Works Department
- Rolando Jimenez Miami Dade Public Works Department
- Muhammed Hasan Miami Dade Public Works Department
- Lilia Medina City of Miami
- Javier Heredia Miami-Dade Public Works Department
- Denis Pradel Buena Vista Historic Neighborhood Association
- Luis Rodriguez BCC Engineering
- Dacha Quintana BCC Engineering

David Henderson of the Miami-Dade Metropolitan Organization and Kevin Brown of the City of Miami have also provided knowledge and advice on current issues affecting the area.

## INTRODUCTION

NW/NE 36<sup>th</sup> Street is an important east-west mobility corridor in the City of Miami. The corridor is designated as SR 25 and US 27. This corridor and the adjacent areas have experienced unprecedented growth over the past few years, which is expected to continue over the next several years as large projects, such as Midtown Miami, become occupied. Redevelopment, combined with the expectation of residential population growth, has fueled the revitalization of the area. However, the positive aspects of redevelopment come with challenges as well. Maintaining mobility is a significant challenge for an area experiencing an influx of high density redevelopment. Maintaining traffic flow at an acceptable level-of-service is critical to the surrounding residential communities, employment areas, businesses, and activity centers.

Currently, NW/NE 36<sup>th</sup> Street provides continuous east-west mobility across Interstate 95 (I-95). In the study area, NW/NE 36<sup>th</sup> Street runs parallel to Interstate 195 (I-195), which extends to the east as the Julia Tuttle Causeway. Several bottlenecks exist within the NW/NE 36<sup>th</sup> Street Corridor including its intersections with NW 7<sup>th</sup> Avenue (SR 7/U.S. 441), NE 2<sup>nd</sup> Avenue, and Biscayne Boulevard (SR 5/U.S. 1). The interchange of Biscayne Boulevard and I-195 is another congested area within the corridor. Traffic volumes in the area are expected to increase significantly in the future as large development projects are completed.

The objective of this study is to develop and evaluate mobility enhancement alternatives along the NW/NE 36<sup>th</sup> Street corridor in the study area bound by NW/NE 54<sup>th</sup> Street to the north, NW/NE 20<sup>th</sup> Street to the south, I-95 to the west, and Biscayne Bay to the east. The *NW/NE 36<sup>th</sup> Street Study* performs a review of existing and future traffic conditions and makes recommendations on how to provide an acceptable level-of-mobility in the study area. A primary purpose of this report is to evaluate the impact of the greater density on the area's transportation network and to make recommendations on how to accommodate the increase in future traffic.

This report is divided into the following chapters, which approximates the steps performed in conducting the study:

- Study Area
- Background Research
- Existing Traffic Conditions
- Existing Transit Service
- Determination of Mobility Needs
- Transportation Mobility Strategies
- Summary and Next Steps



**Midtown Miami Development Looking South on N Miami Avenue**

## STUDY AREA

As shown in Figure 1, the boundaries of the NW/NE 36<sup>th</sup> Street Corridor are defined as NW/NE 54<sup>th</sup> Street to the north, NW/NE 20<sup>th</sup> Street to the south, NW 7<sup>th</sup> Avenue/S.R. 7/US 441 to the west, and Biscayne Bay to the east. The core study area is defined as NW/NE 46<sup>th</sup> Street to the north, NW/NE 29<sup>th</sup> Street to the south, NW 7<sup>th</sup> Avenue/S.R. 7/US 441 to the west, and Biscayne Boulevard to the east. Much of the data collection and field reviews were concentrated within this core study area, although several recommended improvements encompass the overall study area.

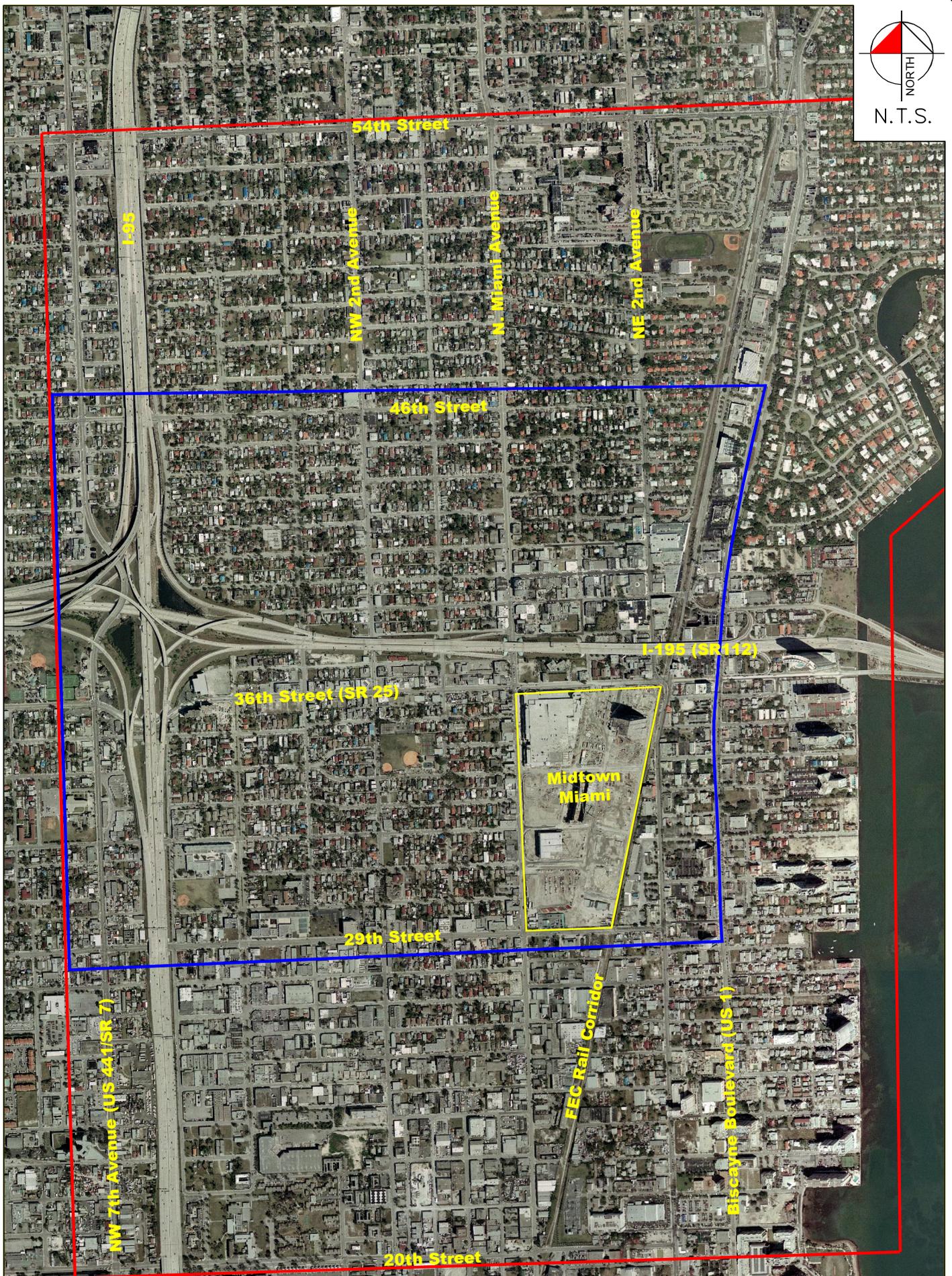
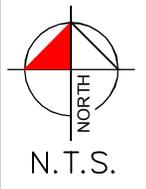
Major surface roadways and freeways within the study area include:

- Biscayne Boulevard
- NE 2<sup>nd</sup> Avenue
- N Miami Avenue
- NW 2<sup>nd</sup> Avenue
- NW 7<sup>th</sup> Avenue
- NW/NE 20<sup>th</sup> Street
- NW/NE 29<sup>th</sup> Street
- NW/NE 36<sup>th</sup> Street
- NW/NE 46<sup>th</sup> Street
- NW/NE 54<sup>th</sup> Street
- Interstate 95
- Interstate 195

The Florida East Coast rail corridor (FEC) runs north-south within the study area but is currently limited to minimal freight service; however, in the future there is the potential for passenger rail service. Within the study area there are a number of new condominium and commercial developments along the Biscayne Boulevard corridor and the large mixed-use Midtown Miami project. To the north of NW/NE 36<sup>th</sup> Street and east of N Miami Avenue is the flourishing Miami Design District. Also located within the study area are the neighborhoods of Wynwood, Buena Vista, and Buena Vista Heights. A concern for these neighborhoods is the cut-through traffic associated with the increase in traffic accessing Downtown Miami.

The study area is located between dense residential areas, such as communities on the barrier island including Miami Beach and mainland communities in the northeastern part of the county including Aventura, and major employment centers such as Downtown Miami, Brickell, and the Health District. As a result of its location in the middle of these dense residential areas and major employment centers, travel through the study area puts excessive demand on roadway segments and intersections during peak periods. In particular, heavy directional flows result from traffic traveling to and from the employment centers in the morning and afternoon, respectively. The intense development presently occurring within the study area will place additional demand on the transportation network in the near future.

Evidence of the growth that the study area is expected to experience is reflected in the Miami-Dade MPO's travel forecasting model. According to the MPO's Florida Standard Urban Transportation Model Structure (FSUTMS) travel forecasting model, the traffic analysis zones (TAZs) in the study area are expected to experience a growth of population from approximately 12,000 to over 75,000 residents by the year 2030 along with a growth in employment of approximately 8,000 jobs. In addition, the number of jobs in Downtown Miami is expected to increase by approximately 26,000 and the number of jobs in the Health District is expected to increase by approximately 10,000 by the year 2030. This growth in population and employment will result in more trips both within and passing through the study area.



**Legend**

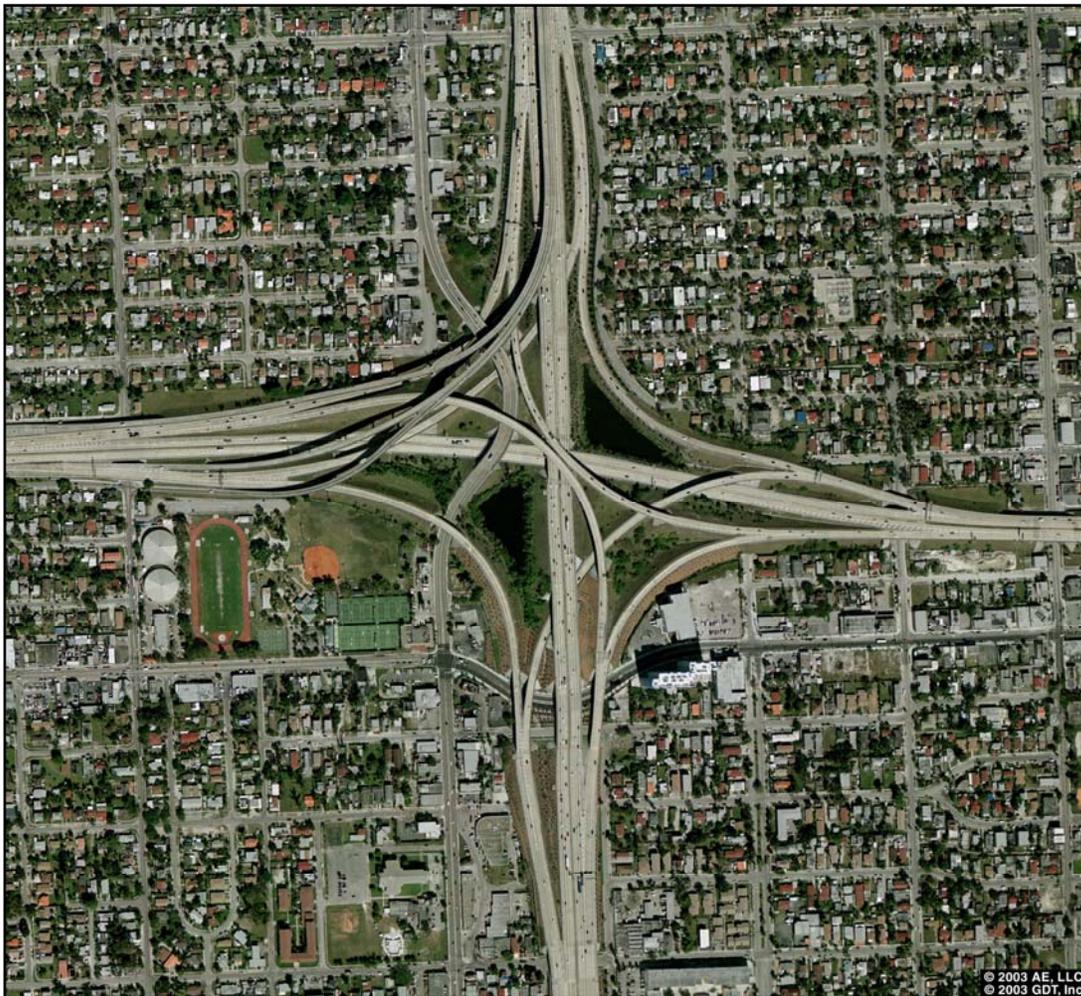
- Study Area
- Core Study Area

Figure 1: Study Area



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The I-95 corridor is located along the western portion of the study area. Much of the through north-south traffic traverse through the study area on this limited access freeway. During the typical morning and afternoon peak traffic periods, heavy traffic congestion along the I-95 is prevalent. In addition, frequent incidents along I-95 often force commuters to seek alternate routes, with many routes leading through the study area on its surface streets. Although I-95 does not have any direct connections to the surface street within the study area, it does significantly influence traffic flow and traffic can access I-95 via I-195. I-195 (SR 112/Julia Tuttle Causeway) is the major east-west corridor in the study area and this limited access freeway does provide two connections (N Miami Avenue and Biscayne Boulevard) to surface streets within the study area. The I-195 corridor provides regional connections to Miami Beach to the east and Miami International Airport and points to the west via the Airport Expressway.



**I-95/I-195 Interchange**

The study area is served by 18 Miami-Dade Transit (MDT) Metrobus routes. Three (3) of these routes run along NW/NE 36<sup>th</sup> Street and 7 of these routes run along Biscayne Boulevard to the south of NE 36<sup>th</sup> Street, providing connections to Downtown Miami. The bus routes along Biscayne Boulevard have some of the highest ridership in Miami-Dade County. The intersection of NE 36<sup>th</sup> Street and Biscayne Boulevard serves a transfer between east-west oriented bus routes and north-south oriented bus routes. Several bus routes also run along NE 2<sup>nd</sup> Avenue and along NW 7<sup>th</sup> Avenue on the western boundary of the study area. The bus route with the highest ridership in the study area runs along NW 7<sup>th</sup> Avenue.

## BACKGROUND RESEARCH

Background research was performed for the *NW/NE 36<sup>th</sup> Street Study* by reviewing a number of studies, plans and programs. This effort represents a key study component so that recommendations and strategies may be developed consistent with improvements that have already been identified in existing programs and plans. The following were examined as part of the background research.

- I-195 Project Development and Environment (PD&E) Study
- Miami 21
- Miami Streetcar Study
- South Florida East Coast Corridor Study
- Major Use Special Permit (MUSP) Traffic Studies
- Midtown Miami Project
- 36<sup>th</sup> Street RRR Project
- N Miami Avenue Improvements
- State Road 7 (NW 7<sup>th</sup> Avenue) Reversible Lane Project
- City of Miami Capital Improvement Program
- Miami Downtown Transportation Master Plan
- Miami Downtown Development Authority Master Plan
- Miami-Dade Transportation Improvement Program (TIP)
- Miami-Dade Long Range Transportation Plan (LRTP)
- Miami-Dade Transit Development Program
- Miami-Dade County Comprehensive Development Master Plan

Relevant information from these prior studies has been summarized in this chapter of the report.

### **I-195 Project Development and Environment (PD&E) Study**

The Florida Department of Transportation (FDOT) completed a Project Development and Environment (PD&E) study for a 1.5 mile section of I-195/SR 112 to determine the need and alternatives for improvements to I-195 and the adjacent local street network. The limits of the study were NW 10<sup>th</sup> Avenue to the west and the West Shore Waterway at Biscayne Bay to the east, and included access points and the local street network in the immediate vicinity. The Preliminary Engineering Report of the I-195 PD&E study, completed in February 2002, was reviewed.

The Preliminary Engineering Report assessed the need for improvements within the study area, the existing conditions, traffic conditions including existing and future projections, development and analysis of alternatives, summary of public involvement, and value engineering. The opening year was anticipated to be 2010, with an interim analysis year of 2020 and a design year of 2030. The traffic data utilized in the study was collected in either 1997 or 2000; the older data was obtained from previous studies.

The alternatives were divided into four separate categories: access improvements at N Miami Avenue, improvements at the intersection of NE 2<sup>nd</sup> Avenue/Federal Highway/NE 36<sup>th</sup> Street, improvements for mainline I-195, and local street improvements. This study was initiated over seven years ago and, therefore, the existing conditions analyzed in the study are different than the existing conditions today.

Five alternatives were analyzed for the access point to I-195 at N Miami Avenue. The specific deficiency identified was the lack of direct access to northbound N Miami Avenue from eastbound I-195. Please note several improvements have already been successfully implemented and this deficiency no longer exists. The recommended alternative includes the following additional improvements:

- Install dual left-turn lanes from the eastbound I-195 off-ramp to northbound N Miami Avenue
- Install one through lane from the eastbound I-195 off-ramp to a proposed one-lane frontage road connecting N Miami Avenue to NE 1<sup>st</sup> Avenue
- Provide new signal control to accommodate geometric improvements at intersection of eastbound I-195 off-ramp and N Miami Avenue

The intersection of NE 2<sup>nd</sup> Avenue/Federal Highway/NE 36<sup>th</sup> Street is a 5-leg intersection with an unconventional alignment which restricts several left-turn movements. The two alternatives developed for this intersection included (1) a realignment of the intersection allowing for all left-turn movements and (2) a two-lane roundabout. The realignment of the intersection to allow all left-turn movements and provide full access at the intersection was the selected alternative and has been recently implemented.

The major concern with the study section of I-195 was the weave in both directions between I-95 and N Miami Avenue. Two alternatives were developed for the mainline section including (1) a continuous auxiliary lane between I-95 and N Miami Avenue and (2) a braided ramp to/from SR 112 to/from N Miami Avenue. The continuous auxiliary lane was the recommended option for this location and results in a continuous two-lane on-ramp from I-95 northbound to I-195 eastbound, and these improvements are currently in the design phase.

In the vicinity of the Design District and I-195, a number of local cross street deficiencies were identified. An overall alternative was developed for the local street improvements and was presented to the public. The public was supportive of the overall alternative with the exception of the proposed frontage road between Biscayne Boulevard and NE 2<sup>nd</sup> Avenue. The following is a list of the improvements that comprise the overall improvement for the immediate local street network:

- Widen Biscayne Boulevard from six-lanes to eight-lanes and provide exclusive right-turn lanes at major intersections
- Improve the I-195 westbound off-ramp to Biscayne Boulevard (NE 38<sup>th</sup> Street) with median separation and continuous sidewalks
- Widen Federal Highway to four-lanes and provide exclusive turn lanes at major intersections
- Construct a new frontage road along NE 38<sup>th</sup> Street between Biscayne Boulevard and NE 2<sup>nd</sup> Avenue
- Improve NE 2<sup>nd</sup> Avenue to a two-lane divided roadway and provide wider sidewalks and on-street parking
- Improve NE/NW 36<sup>th</sup> Street between NW 1<sup>st</sup> Avenue and Biscayne Bay
- Improve the NE 37<sup>th</sup> Street frontage roadway from east of Biscayne Boulevard to NE 6<sup>th</sup> Avenue (north of I-195)

## **Miami 21**

In recognition of Miami's dynamic change over the past years, the City of Miami Planning Department has commissioned the help of a team of consultants to undertake the task of providing planning guidance, known as Miami 21, which will systematically address the pressures the City is facing. Miami is attempting to plan for the 21<sup>st</sup> century and beyond by outlining the necessary steps to achieve a common goal for a prosperous future. According to the City of Miami, the mission of Miami 21 is to completely overhaul the City's zoning code to create a more predictable and efficient regulation. The project will take a holistic approach in planning for Miami's future by implementing more "smart growth" concepts.

The Miami 21 plan includes key aspects of urban planning including form-based code, economic development, transportation, parks and public places, arts and culture, and historic preservation. The

transportation component will review the existing transportation network including conditions of major corridors, transit services, traffic conditions, and parking requirements and needs. Recommendations will be provided to help alleviate congestion, improve the existing roadway network, support roadway design that is more compatible with surrounding neighborhoods, and promote alternate modes of transportation. The plan emphasizes the importance of pedestrian friendly improvements including wider sidewalks, raised medians, and more trees and landscaping to promote alternate modes of transportation and to cater more to the pedestrian rather than exclusively to the automobile.

For the purposes of Miami 21, the City of Miami was divided into four quadrants (North, South, East, and West). The majority of the study area for the *NW/NE 36<sup>th</sup> Street Study* is included in the east quadrant, which is the first quadrant being studied. The western limits of the NW/NE 36<sup>th</sup> Street study area, from approximately I-95 west to NW 7<sup>th</sup> Avenue, is included in the north quadrant. The draft results of Miami 21 for the east quadrant identify various pedestrian sheds, proposed transit routes and extensions, proposed parking facilities, proposed street extensions, and a proposed extension of the baywalk.

### **Miami Streetcar Study**

The City of Miami's proposal to implement a streetcar transit system was based on the need to address the unprecedented residential and commercial growth within the City. The implementation of the streetcar system will help to alleviate traffic congestion traveling generally north-south through the corridor. The defined study area for the Miami Streetcar project is generally defined by the Miami River on the south and NW 50<sup>th</sup> Street on the north. The proposed initial route is illustrated in Figure 8.

The Miami Streetcar system will not serve a significant number of regional trips; it is geared more towards serving local trips within the downtown area. The alignment of the streetcar within the NW/NE 36<sup>th</sup> Street study area will provide a transportation alternative for residents and workers traveling downtown or within the study area. The phase one segment is proposed to have a total of nine stops spaced approximately every two to five blocks within the NW/NE 36<sup>th</sup> Street study area. According to the City of Miami *Initial Streetcar Corridor Feasibility Study, Final Report, April 2005*:

- The proposed project can effectively provide attractive, convenient and reliable transit connections between Downtown Miami and redeveloping areas.
- Streetcars are the most appropriate and readily available transit technology for the needs of the study area.
- The proposed project can efficiently increase the capacity and use of the City's local and regional public transportation system through integration with the existing and proposed enhanced Miami-Dade Transit (MDT) system.
- The proposed project can guide and sustain economic development and support a sustainable pattern of urban land use activities.
- The proposed project can feasibly operate on segments of selected roadway corridors without adversely impacting traffic flow, parking facilities, business operations, and other corridor characteristics.
- The proposed project is financially feasible and can be implemented with existing and new revenue sources.

The City of Miami *Initial Streetcar Corridor Feasibility Study* has determined that the project is feasible from a physical standpoint given that it can be built within the urban environment with minimal impacts. The proposed route will effectively serve the area, providing an alternative to the automobile.

## **South Florida East Coast Corridor Study**

The Florida Department of Transportation (FDOT) commissioned a corridor study for potential commuter rail service along the Florida East Coast Rail corridor. The South Florida East Coast Corridor Study is examining the feasibility of implementing commuter rail along the corridor. The study limits extend 85 miles from Tequesta in Northern Palm Beach County south to Downtown Miami. The corridor connects a total of 28 municipalities in three counties, making it a transit corridor of regional significance. The goal of the study is to identify potential station locations along with alignment alternatives. The study identifies four locations within the NW/NE 36<sup>th</sup> Street study area. The following is a list of potential station locations identified by the study:

- Biscayne Boulevard and NE 54<sup>th</sup> Street
- Federal Highway and NE 39<sup>th</sup> Street
- NE 29<sup>th</sup> Street adjacent to the southeast quadrant of the Midtown Miami development
- N Miami Avenue and N 20<sup>th</sup> Street

These locations have been determined to have medium-high to high land use suitability based on their proximity to areas with dense populations and complementing land use types. Presently, negotiations are ongoing for the acquisition of railway usage rights for commuter rail service.

## **Midtown Miami Project**

Midtown Miami is major a mixed-use development that is situated within the core study area between NE 36<sup>th</sup> Street to the north, NE 29<sup>th</sup> Street to the south, the Florida East Coast (FEC) rail corridor to the east, and N Miami Avenue to the west. The area previously functioned as the Buena Vista Rail Yard for the FEC rail corridor. The Midtown Miami project is expected to consist of approximately 3,300 residential units and 600,000 square feet of retail including Target as a major tenant. The traffic generated by this project will have a major impact on the study area. Positive transportation related aspects of the project include a pedestrian friendly design and the provision of an envelope for the future Miami Streetcar. The project will also provide an activity center and destination for the community. Traffic generated from the development will adversely affect roadway traffic volumes, thus decreasing level-of-service in the area. A rendering of the Midtown Miami project is presented below.



**Rendering of Midtown Miami Mixed-Use Development**

## **Major Use Special Permit (MUSP) Traffic Studies**

Within the City of Miami, if a proposed land development project meets the thresholds for specific land uses and intensities, a Major Use Special Permit (MUSP) is required to obtain a building permit. A MUSP reviews the impacts of the proposed project and how it will affect the City of Miami. A traffic study is a requirement of a MUSP and includes a review of the existing traffic conditions and future traffic conditions after the project is complete. Within the NW/NE 36<sup>th</sup> Street study area, approximately 40 MUSPs have been submitted to the City of Miami reflecting the significant amount of development which is presently occurring. The traffic studies submitted as part of these MUSPs were analyzed in order to obtain a better perspective of the traffic generation expected with these new and proposed developments. In addition, these studies were a source of traffic data for this study.

## **36<sup>th</sup> Street RRR Project**

The FDOT recently completed a Resurfacing, Restoration, and Rehabilitation (RRR) project along the 36<sup>th</sup> Street corridor from NW 7<sup>th</sup> Avenue east to Biscayne Boulevard. Overall, the existing cross-section of 36<sup>th</sup> Street was maintained as a four-lane facility from NW 7<sup>th</sup> Avenue to NW 5<sup>th</sup> Avenue and from N Miami Avenue to Biscayne Boulevard. Additional capacity is not provided due to right-of-way constraints, as the cost to acquire right-of-way was not financially feasible. The section between NW 5<sup>th</sup> Avenue and N Miami Avenue remains a two-lane facility. Along 36<sup>th</sup> Street, exclusive left-turn lanes are provided at intersections and right-turn lanes are provided at a majority of the intersections. The project included a raised median between NW 7<sup>th</sup> Avenue and NW 5<sup>th</sup> Avenue, various driveway closures, drainage improvements, minor intersection improvements, on-street parking, bus bays, and landscaping improvements.

## **North Miami Avenue Improvements**

The Midtown Miami development is in the process of reconstructing a segment of N Miami Avenue between NE 29<sup>th</sup> Street and NE 34<sup>th</sup> Street. Presently, the roadway is an undivided four-lane facility. Improvements include roadway resurfacing, streetscape, and the addition of raised medians at the intersections of N Miami Avenue and 30<sup>th</sup> Street, 31<sup>st</sup> Street, 32<sup>nd</sup> Street and 34<sup>th</sup> Street. The purpose of these medians is to limit side street traffic to right-turn only movements onto N Miami Avenue and thereby reduce the incidence of traffic cutting through adjacent residential neighborhoods. This project is in the final stages of construction and is nearing completion.

## **NW 7<sup>th</sup> Avenue/SR 7 Reversible Lane Project**

A preliminary feasibility study was completed that assessed reversible lane operations along NW 7<sup>th</sup> Avenue/SR 7, and the project is presently in the preliminary engineering phase. The project limits extend from the Golden Glades Interchange to Downtown Miami. Interestingly, a reversible bus lane operated in this corridor between NW 119<sup>th</sup> Street and NW 5<sup>th</sup> Street during the mid-1970s as part of a demonstration project. The currently proposed reversible lanes will provide added southbound capacity in the morning and added northbound capacity in the afternoon.

## **City of Miami Capital Improvement Program**

The City of Miami Capital Improvement Program outlines all capital improvement projects within the City limits. Outlined are the project, the dedicated funding sources, 2005-2006 appropriations, and future funding estimates. Table 1 summarizes the improvements within the study area.

**Table 1: City of Miami Capital Improvement Program**

<b>Project</b>	<b>Funding Source</b>
Miami Streetcar (Project, Survey, Utility Master Plan Midtown Miami CDD, Marlin Program, Underground Infrastructure, Program Management, Geotechnical Services)	Grant State - FDOT Other Transit Half-Cent Surtax Mass Transit
NE 2 <sup>nd</sup> Avenue Improvements (RRR) (20 <sup>th</sup> Street to 87 <sup>th</sup> Street) Status - County Roadway, Currently Under Design by City	Grant Dade County - Peoples Transportation Plan City Bonds – Homeland Defense Bonds (Series 1,2) Transit Half-Cent Surtax Streets and Sidewalks
NW 21 <sup>st</sup> Street Beautification Phase 1	City Bonds – Streets Bond Program
Buena Vista Heights Phase I	CIP Fees/Revenues – Local Option Gas Tax Streets and Sidewalks
Buena Vista Heights Phase II	City Bonds – Streets Bond Program
NE 38 <sup>th</sup> Street Reconstruction	City Bonds – Streets Bond Program Transit Half-Cent Surtax Streets and Sidewalks
NE 1 <sup>st</sup> Avenue Reconstruction (Resurfacing) (36 <sup>th</sup> Street to 40 <sup>th</sup> Street) City Street	City Bonds – Streets Bond Program CIP Fees/Revenues – Local Option Gas Tax Streets and Sidewalks
Buena Vista East Historic District Streetscape	City Bonds – Streets Bond Program, Homeland Defense Bonds (Series 1)
Citywide Traffic Circles	CIP Fees/Revenues – Local Option Gas Tax Transit Half-Cent Surtax
Transportation Services for Miami 21 Project	CIP Fees/Revenues – Local Option Gas Tax Streets and Sidewalks
NE 40 <sup>th</sup> Street Reconstruction (N Miami Avenue to NE 2 <sup>nd</sup> Avenue) Status - Recently Completed	CIP Fees/Revenues – Local Option Gas Tax CIP Fees/Revenues – Stormwater Utility Trust Fund
NE 39 <sup>th</sup> Street Reconstruction (Design District/FEC) (N Miami Avenue to NE 2 <sup>nd</sup> Avenue) Status – Will Begin During First Quarter of 2007	CIP Fees/Revenues – Impact Fees Transit Half-Cent Surtax Streets and Sidewalks
NW 20 <sup>th</sup> Street Streetscape (NE 2 <sup>nd</sup> Avenue to west of N Miami Avenue)	Transit Half-Cent Surtax
Neighborhood Gateways – District 5	Streets and Sidewalks
Design District/FEC series 2 Balance (SWAP)	Streets and Sidewalks
Design District/FEC Corridor – Various Projects	Streets and Sidewalks
NE 43 <sup>rd</sup> , 42 <sup>nd</sup> , and 41 <sup>st</sup> Street Reconstruction (Streetscape Project) (Buena Vista Heights - West of N Miami Avenue) Status – Under Construction, Nearing Completion	Streets and Sidewalks
N Miami Court Reconstruction <sup>1</sup>	Streets and Sidewalks
NE 1 <sup>st</sup> Court Reconstruction <sup>1</sup>	Streets and Sidewalks
NE Miami Place Reconstruction <sup>1</sup>	Streets and Sidewalks
N Miami Avenue Reconstruction <sup>1</sup>	Streets and Sidewalks

Note: (1) These projects are included in the Design District Master Plan and will be implemented if funding is available.

## **Miami Downtown Transportation Master Plan**

The Miami Downtown Transportation Master Plan (MDTMP) was developed to set a general framework for future transportation projects within Downtown and produce specific transportation recommendations through the year 2020. The need for the study was based upon the congestion levels experienced within Downtown Miami. The study area for the MDTMP extends from I-95 east to Biscayne Bay and from I-195 south to SE 26<sup>th</sup> Road. According to the MDTMP, the goal is “to create a unique, progressive, and vibrant Downtown Miami through a balanced transportation system, preservation of neighborhoods, protection of the environment, and improvement of the community’s quality of life.”

The development of alternatives was based upon a three-tier process which included input from the public, previous studies, and a technical advisory committee. The improvements were evaluated based on six goals which incorporated transportation benefits, social benefits, economic activities, environmental benefits, growth and development benefits, and transportation investment. The study placed more emphasis on transit, rather than traditional roadway widening, to reduce dependence on the automobile. A series of recommendations were presented for the Downtown Miami area including roadway improvements, transit improvements, pedestrian improvements, travel demand management, and improvement for other modes. The following is a list of specific recommendations applicable to the NW/NE 36<sup>th</sup> Street study area:

- Implement a free-fare transit zone
- Improve transit amenities and attributes in the area
- Connect other neighborhoods with transit
- Develop an extensive network of pedestrian corridors
  - N Miami Avenue from South 12<sup>th</sup> Street to North 36<sup>th</sup> Street
  - Biscayne Boulevard from Biscayne Boulevard Way to NE 36<sup>th</sup> Street
  - NW 5<sup>th</sup> Avenue from NW 21<sup>st</sup> Street to NW 36<sup>th</sup> Street
  - West 2<sup>nd</sup> Avenue from SW 15<sup>th</sup> Road to NW 36<sup>th</sup> Street
  - North 20<sup>th</sup> Street from I-95 to Biscayne Boulevard
  - North 29<sup>th</sup> Street from I-95 to Biscayne Boulevard
  - North 36<sup>th</sup> Street from I-95 to Biscayne Boulevard
- Improve bicycle facilities
  - North 20<sup>th</sup> Street from I-95 to Biscayne Boulevard
  - Biscayne Boulevard from Pace Park to NE 36<sup>th</sup> Street
- Provide a shuttle system into Wynwood
- Extend Metromover into Wynwood
- Provide a partial I-95 Interchange at NW 29<sup>th</sup> Street

A majority of the above improvements are currently not included as programmed projects in any agency’s programs. However, a portion of North 29<sup>th</sup> Street pedestrian corridor, from the FEC rail corridor east to N Miami Avenue, has been constructed by the Midtown Miami development. In addition, it has been determined that the construction of the Miami Streetcar would offset the need for the Metromover to be extended into the Wynwood neighborhood, as was recommended in the MDTMP.

## **Miami Downtown Development Authority Master Plan**

The boundary of the Miami Downtown Development Authority (DDA) is generally bordered by SW 15<sup>th</sup> Road to the south, NW/SW 1<sup>st</sup> Avenue to the west, NE 17<sup>th</sup> Street to the north and Biscayne Bay to the east. The Miami Downtown Development Authority Master Plan was not reviewed in detail as part of this study, as it does not cover of the NW/NE 36<sup>th</sup> Street study area.

## **Miami-Dade Transportation Improvement Program**

The Miami-Dade Transportation Improvement Program (TIP) is a document prepared to fulfill Federal statutory requirements in order to obtain funding for programmed transportation projects. The TIP specifies proposed improvements to be implemented within Miami-Dade County over the next five years. The 2007 TIP is for fiscal years 2007 to 2011 and is organized into the following three sections:

- Three-Year Federal Funded Project Listing: As required by federal regulations, projects receiving federal funding must be chosen from this list.
- Five-Year Project Listing: Projects beyond the third year are included as proposed so they will be periodically evaluated by the MPO.
- Unfunded Priority Needs: This category includes MPO priorities not included in the other two sections.

Improvements identified in the TIP are characterized as Intermodal, Highway, Transit, Aviation, Seaport, and Non-Motorized. Projects programmed within the boundaries of the NW/NE 36<sup>th</sup> Street study area are presented in Table 2.

**Table 2: Transportation Improvement Program (TIP) Projects**

<b>Year</b>	<b>Project/Facility</b>	<b>From</b>	<b>To</b>	<b>Project Description</b>
2006 - 2007	SR 7/NW 7 <sup>th</sup> Avenue	NW 36 <sup>th</sup> Street	NW 79 <sup>th</sup> Street	Landscaping
2006 - 2008	SR 5/US 1/ Biscayne Boulevard	NE 15 <sup>th</sup> Street	NE 38 <sup>th</sup> Street	Resurfacing
2007 - 2009	FEC Dwnt. Lead Tracks	NW 79 <sup>th</sup> Street	Port of Miami	Rail Capacity Project
2008 - 2009	SR 5/US 1/ Biscayne Boulevard	NE 37 <sup>th</sup> Street	NE 67 <sup>th</sup> Street	Landscaping
2008 - 2009	SR 5/US 1/ Biscayne Boulevard	NE 36 <sup>th</sup> Street	NE 45 <sup>th</sup> Street	Resurfacing

## **Miami-Dade 2030 Long Range Transportation Plan**

The Miami-Dade 2030 Long Range Transportation Plan (LRTP), adopted by the MPO, was developed to guide long-term transportation investments in Miami-Dade County. The LRTP focuses on the County's transportation infrastructure needs including connections to major activity centers. The LRTP also addresses transit, bicycle, and pedestrian facilities, as well as other modes of transportation.

The LRTP lists a number of improvements categorized by priority and project description. The improvements were selected and prioritized based on goals and objectives approved by the MPO. The LRTP divided Miami-Dade County into six analysis areas; the NW/NE 36<sup>th</sup> Street study area is located in the "North Area." The projects summarized in Table 3 are improvements listed in the LRTP within the study area.

**Table 3: Miami-Dade 2030 Long Range Transportation Plan**

Priority	Time	Project/Facility	From	To	Project Description
II	2010 - 2015	SR 112/I-195	I-95 (NW 10 Avenue)	Biscayne Boulevard	Interchange/Ramp Improvements and Auxiliary Lanes
II	2010 - 2015	NW/NE 36 <sup>th</sup> Street Corridor	SR 826	US-1	ITS (Includes CCTV, Roadway Sensors, Arterial Dynamic Message Signs, Wireless Comm)
IV	2021 - 2030	Northeast Corridor	Downtown Miami	Broward County Line	Premium Transit
IV	2021 - 2030	SR 112/I-195	I-95 (NW 10 Avenue)	Biscayne Boulevard	Interchange/Ramps Improvements and Auxiliary Lanes
IV (Unfunded)	2021 - 2030	Miami Streetcar <sup>1</sup>	SW 1 Street	NE 79 Street	LRT

Note: (1) The Miami Streetcar is the same project described previously in the "Miami Street Car Study" section.

The Northeast Corridor is a 13.6 mile rapid transit corridor from Downtown Miami to the Broward County Line (NE 215th Street) along Biscayne Boulevard and the Florida East Coast Corridor right-of-way. The purpose of this project is to serve the high densities and population concentrations along the coast, provide a regional link to Broward County, and provide premium transit service to multiple municipalities and neighborhoods.

### **Miami-Dade Transit Development Program**

The Miami-Dade Transit Development Program (TDP) was completed by Miami-Dade Transit (MDT). The 2006 update to the TDP presents the operating environment, committed improvements, an amended five year Recommended Service Plan (RSP), and financial analysis of the proposed transit improvements for the period ending in 2011. The committed improvements are projects that affect the delivery of transit services and are expected to be implemented during the next five years. These improvements, in conjunction with the 2006 TDP's existing conditions, form the baseline conditions from which the 2011 RSP is developed. The RSP addresses and prioritizes unmet community transit needs. The committed improvements are funded projects, whereas projects in the RSP are unfunded. Table 4 summarizes the committed and RSP improvements for transit service within the NW/NE 36th Street study area. Please note that the committed improvements are being funded through the People's Transportation Plan (1/2 cent sales tax).

**Table 4: Miami-Dade Transit Development Program/Peoples Transportation Plan**

<b>Route</b>	<b>Committed Bus Service Improvements (PTP)</b>	<b>Recommended Bus Service Improvements (TDP)</b>
2	Improve weekday headway north of NW 84 Street from 60 to 30 minutes; All night service, every 60 minutes, seven days a week; Realign northern terminus to future Golden Glades Intermodal Terminal	Extend weekend service to 167 Street Terminal
6	Improve peak headways from 30 to 15 minutes; Extend route to serve the future Miami Intermodal Center	Extend service span to 7 AM to 10 PM (seven days a week)
10	Improve peak headways from 30 to 15 minutes	No planned improvements
36	Extend route south to serve Dolphin Mall	No planned improvements
62	All night service, every 60 minutes, seven days a week	No planned improvements
93 (Biscayne MAX)	No planned improvements	Improve peak headways from 15 to 10 minutes; Introduce weekend service
95	No planned improvements	Introduce midday service into the Civic Center; Introduce weekend service
202 (Little Haiti Connection)	Improve peak headway from 30 to 15 minutes	Extend service to El Portal; Add a weekdays-only one-way loop (NE 79 St., NE 10 Ave., NE 96 St., Biscayne Blvd.) to serve displaced service area along NE 10 <sup>th</sup> Avenue (CBOA)
J	All night service, every 60 minutes, seven days a week	No planned improvements
T	Route to be transformed to Beach MAX	No planned improvements

Note: Routes 3, 9, 16, 54, 77, 236 Airport Owl and, 277 (NW 7th Avenue MAX) had no planned improvements listed in either the PTP (People's Transportation Plan) or the TDP (Transit Development Plan) either committed or recommended, but are within the study area.

## **Miami-Dade County Comprehensive Development Master Plan**

The Miami-Dade Comprehensive Development Master Plan (CDMP) provides the framework that guides development within Miami-Dade County. The Plan is organized into the following ten “Plan Elements”:

- Land Use Element
- Transportation Element
- Housing Element
- Conservation, Aquifer Recharge and Drainage Element
- Water, Sewer, and Solid Waste Element
- Recreation and Open Space Element
- Coastal Management Element
- Intergovernmental Coordination Element
- Capital Improvements Elements
- Educational Element
- Economic Element

The “Transportation Element” was the primary focus of this review for the NW/NE 36th Street Corridor Study. The purpose of the “Transportation Element” of the CDMP is to plan for an integrated multi-modal transportation system providing for the circulation of motorized and non-motorized traffic in Miami-Dade County. The “Transportation Element” is divided into five subelements, two of which are most relevant to this study. The “Traffic Circulation Subelement” addresses the needs of the automobile traffic, bicyclists, and pedestrians. The “Mass Transit Subelement” addresses the need to continue to promote and expand the public transportation system to increase its role as a major component of the County’s overall transportation system.

### *Traffic Circulation Subelement*

The “Traffic Circulation Subelement” (1) analyzes current roadway capacity and deficiencies in Miami-Dade County, (2) provides recommendations for improving future highway capacity, and (3) establishes goals, objectives, and policies aimed at meeting future needs. The overall goal of the “Traffic Circulation Subelement: is to develop, operate, and maintain a safe, efficient, and economical traffic circulation system in Miami-Dade County that provides ease of mobility for people and goods, is consistent with desired land use patterns, conserves energy, and protects the natural environment. Specific objectives toward attaining this goal include the following:

- Objective 1 – All roadways in Miami-Dade County should operate at level of service (LOS) C or better.
- Objective 2 – Right-of-Way and corridors needed for existing and future transportation facilities should be designated and reserved.
- Objective 3 – The County’s transportation system should emphasize safe and efficient management of traffic flow.
- Objective 4 – The “Traffic Circulation Subelement” should continue to be coordinated with the goals, objectives and policies of the “Land Use Element,” including the land uses, “Urban Development Boundary,” and “Urban Expansion Area” designated on the Land Use Plan map. The “Traffic Circulation Subelement” should also be coordinated with the goals, objectives, and policies of all other Elements of the CDMP.
- Objective 5 – The traffic circulation system should protect community and neighborhood integrity.
- Objective 6 – The transportation system should preserve environmentally sensitive areas, conserve energy and natural resources, and promote community aesthetic values.

- Objective 7 – Miami-Dade County’s “Traffic Circulation Subelement,” and the plans and programs of the State, region and local jurisdiction, should continue to be coordinated.

#### *Mass Transit Subelement*

The purpose of the “Mass Transit Subelement” is to provide a basis for the development of mass transit facilities to enhance mobility as a major component of the overall transportation system in Miami-Dade County. The Adopted Components of this subelement contain the mass transit goal, objectives and policies, a series of mass transit maps showing planned future facilities and service areas, and procedures for monitoring and evaluating conditions. The overall goal of the “Mass Transit Subelement” is to maintain, operate, and develop a mass transit system in Miami-Dade County that provides efficient, convenient, accessible, and affordable service to all residents and tourists.

## Summary

Recommendations and strategies included in existing studies, plans and programs were identified. These recommendations and strategies provide a foundation of improvements that can be built upon in subsequent chapters of this study. Relevant improvements included in the City of Miami Capital Improvement Program, Miami Downtown Transportation Master Plan, Miami-Dade Transportation Improvement Program, Miami-Dade 2030 Long Range Transportation Plan, and Miami-Dade Transit Development Program were identified for incorporation into this study's transportation mobility strategies. During the review of the existing studies, plans and programs, it was noted that several recommended improvements have already been implemented and are providing mobility benefits. Therefore, these improvements will not be further considered as part of this study.

Several of the recommended improvements from the I-195 PD&E study remain viable improvements for the study area, and these improvements will be evaluated and included as part of the recommended improvements of this study. A specific improvement identified for further consideration is the construction of a connector road to link the eastbound I-195 off-ramp with NE 1<sup>st</sup> Avenue, which will facilitate access to the Midtown Miami development.

In accordance with the Miami 21 Plan, the enhancement of pedestrian and bicycle facilities will be included as part of the recommended improvements of this study. Feasible locations to include pedestrian features, such as pedestrian signal heads, push buttons, and ADA compliant ramps, and bicycle facilities will be identified. This study will emphasize multi-modal transportation improvements to create a transportation network that is less dependent on the automobile, particularly for short trips within the study area.

The planned Miami Streetcar will contribute to the development of a more multi-modal transportation system. The streetcar will provide connections to Downtown Miami, the Health District, and Midtown Miami. This study will seek to identify improvements that will compliment the Miami Streetcar and promote its success. The South Florida East Coast Corridor Study has identified four potential station locations within the NW/NE 36<sup>th</sup> Street study area. The implementation of passenger rail service in this corridor will benefit the study area by providing access to regional destination via transit. This study will identify transportation improvements to better connect the potential stations to the surrounding community.

Some projects identified in this section of the report that are also included in this study's recommendations are:

- Construct a new frontage road south of I-195 linking N Miami Avenue to NE 1<sup>st</sup> Avenue
- Improve intersection of I-195 eastbound off-ramp and N Miami Avenue
- Implement Miami Streetcar
- Implement commuter rail service in the F.E.C. corridor
- Develop reversible lanes along NW 7<sup>th</sup> Avenue

## EXISTING TRAFFIC CONDITIONS

The existing traffic conditions were assessed within the NW/NE 36<sup>th</sup> Street study area to establish a baseline for future transportation needs. Included in the analysis was identification of the primary transportation network, accumulation of traffic volumes, level of service analysis, identification of right-of-way, and safety analysis.

Previous and ongoing studies were obtained and reviewed to gather information and identify data sources. Available data was retrieved from existing data sources including prior studies, Miami-Dade County Public Works Department, and FDOT. A field review was conducted to observe traffic flow patterns and identify potential constraints and opportunities that may not be readily apparent from traffic data.

### Roadway Network

For transportation planning purposes, roadway facilities are grouped by functional classification to help define the roadway's character. In urban areas the hierarchy of the functional system consists of principle arterials, minor arterials, collectors and local streets. Principal arterials primarily serve through traffic and carry the highest traffic volumes; minor arterials augment principal arterials at a somewhat lower level of mobility; collector roadways carry lower traffic volumes and provide a connection between high traffic corridors and the local street network; local streets provide access to adjacent land uses.

Figure 2 presents the functional classification of the NW/NE 36<sup>th</sup> Street study area's roadway network and Figure 3 illustrates the laneage and directionality of the roadway network. Four state arterials and two County arterials exist within the study area. Key roadways are described below.

#### *State Principle Arterial*

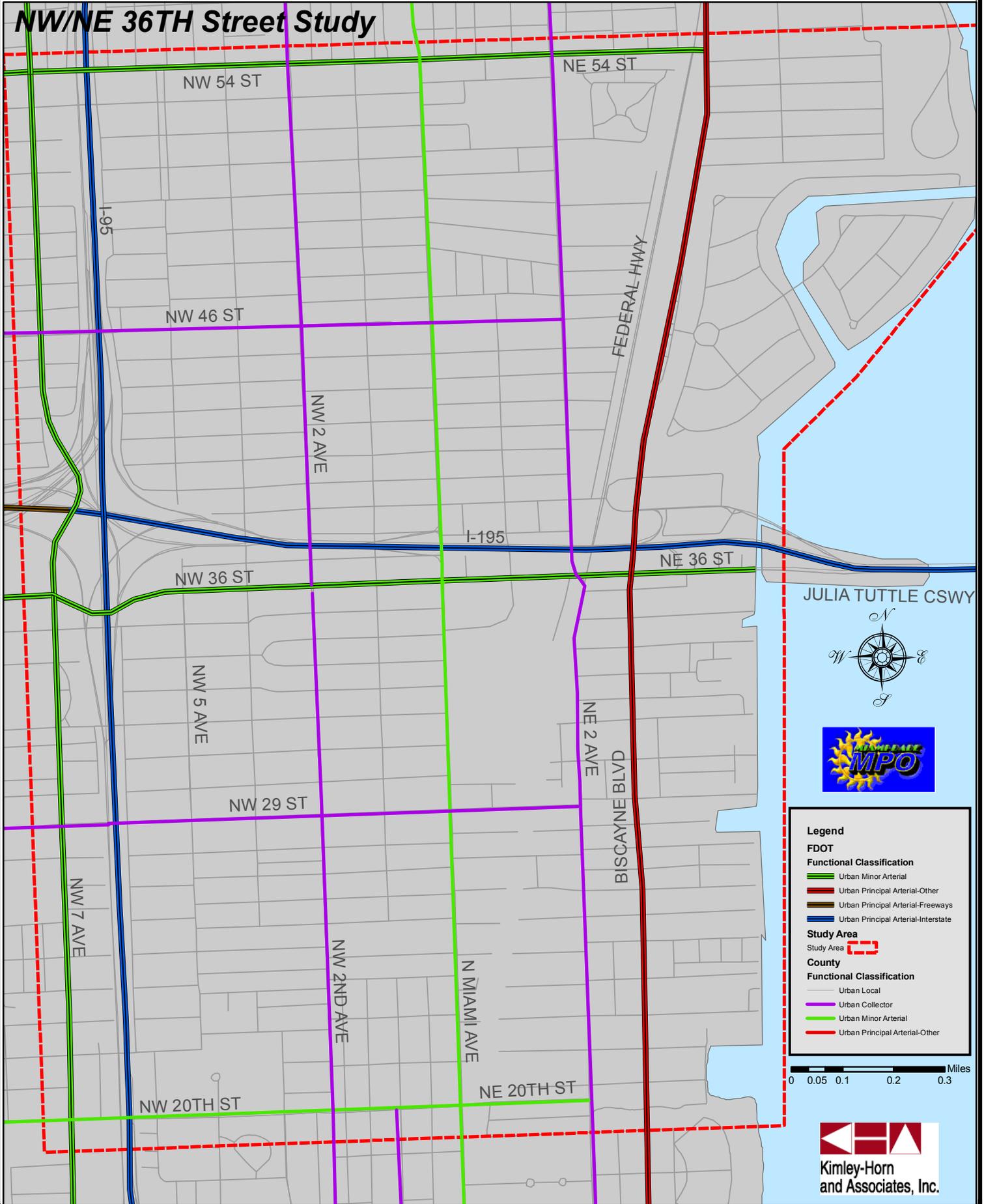
- Biscayne Boulevard – This four-lane divided facility runs north-south through the eastern edge of the study area. It is also known by its FDOT designation as SR 5 and its Federal designation as US 1. Biscayne Boulevard is a major thoroughfare providing connection from Downtown Miami to the Broward County Line and access to the east-west interstates within the County. Currently, Biscayne Boulevard is under reconstruction from NE 36<sup>th</sup> Street north to NE 54<sup>th</sup> Street.

#### *State Minor Arterials*

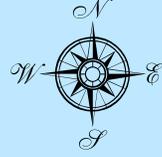
- 36<sup>th</sup> Street – 36<sup>th</sup> Street is primarily a four-lane undivided facility that provides east-west traffic flow and is the main study corridor. The section between NW 5<sup>th</sup> Avenue and N Miami Avenue is a two-lane undivided roadway. It is also known by its FDOT designation as SR 25 and its Federal designation as US 27. 36<sup>th</sup> Street connects to the Julia Tuttle Causeway/I-195 to the east providing access to Miami Beach and provides access to the west under I-95. As noted in the previous section of the report, 36<sup>th</sup> Street was recently reconstructed. On-street parking and bus bays were provided between NW 5<sup>th</sup> Avenue and N Miami Avenue as part of the project.
- 54<sup>th</sup> Street – This four-lane undivided facility provides east-west traffic flow through the northern edge of the study area. It enters the study area from the west providing access under I-95 and terminates at Biscayne Boulevard to the east. On-street parking is provided along this roadway.
- NW 7<sup>th</sup> Avenue – This four-lane divided facility provides north-south traffic flow along the western edge of the study area. It is also known by its FDOT designation as SR 7 and its Federal designation as US 441. A continuous two-way-left-turn lane is present along the study section of NW 7<sup>th</sup> Avenue; however, this lane does not extend through the overpass of SR 112. On-street parking is permitted in the outside lane in either direction during select times of the day. NW 7<sup>th</sup> Avenue is a principle arterial connecting to Downtown Miami to the south and the Golden Glades multi-modal terminal to the north.

# Figure 2: Roadway Functional Classification

## NW/NE 36TH Street Study



JULIA TUTTLE CSWY



**Legend**

**FDOT Functional Classification**

- Urban Minor Arterial
- Urban Principal Arterial-Other
- Urban Principal Arterial-Freeways
- Urban Principal Arterial-Interstate

**Study Area**

Study Area - - -

**County Functional Classification**

- Urban Local
- Urban Collector
- Urban Minor Arterial
- Urban Principal Arterial-Other

0 0.05 0.1 0.2 0.3 Miles





### *County Minor Arterials*

- 20<sup>th</sup> Street between NW 7<sup>th</sup> Avenue and NE 2<sup>nd</sup> Avenue – This segment of NW 20<sup>th</sup> Street is classified as a County Minor Arterial and is a four-lane divided facility within these limits.
- N Miami Avenue – This facility provides north-south traffic flow through the center of the study area and is primarily a four-lane divided facility north of 29<sup>th</sup> Street and a four-lane undivided facility south of 29<sup>th</sup> Street. It passes under and provides access to I-195 providing a critical connection for the north-south local and regional continuity of the roadway network. It also provides a key connection with Downtown Miami, eventually turning into a southbound one-way facility south of N 16<sup>th</sup> Street.

### *Collectors*

- 29<sup>th</sup> Street – This four-lane divided facility provides east-west traffic flow through the southern portions of the study area. An underpass is present at I-95; however, 29<sup>th</sup> Street does not connect the local roadway network with the interstate system.
- 46<sup>th</sup> Street – This two-lane undivided facility runs east-west through the northern portion of the study area. An underpass is present at I-95.
- NW 2<sup>nd</sup> Avenue – This two-lane undivided facility provides north-south traffic flow through the western neighborhoods in the study area and provides access under I-195, providing continuity in the local roadway network.
- NE 2<sup>nd</sup> Avenue – This four-lane undivided facility provides north-south flow through the eastern portions of the study area, including the Design District. A portion of NE 2<sup>nd</sup> Avenue, from NE 36<sup>th</sup> Street to NE 41<sup>st</sup> Street, is narrowed to one northbound lane and two southbound lanes. NE 2<sup>nd</sup> Avenue also connects the study area with Downtown Miami to the south. To the north of the study area, NE 2<sup>nd</sup> Avenue connects with Dixie Highway and points north.

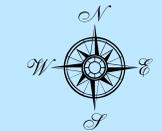
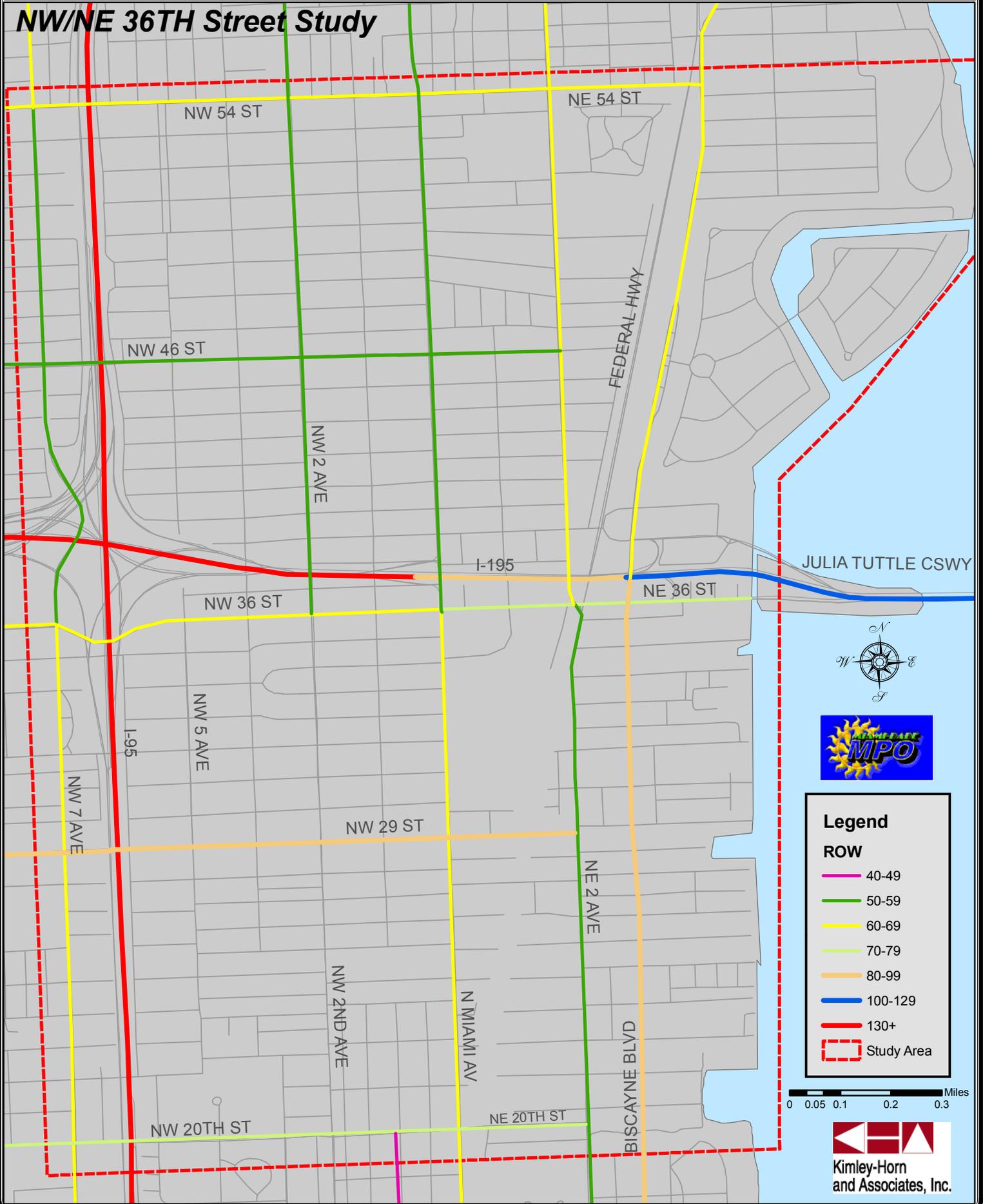
### *Local Roadways*

- NW 6<sup>th</sup> Avenue – This two-lane undivided facility provides north-south traffic flow north of I-195 and runs parallel to I-95. To the south, NW 6<sup>th</sup> Avenue becomes 40<sup>th</sup> Street and runs parallel to I-195, providing access to NE 2<sup>nd</sup> Avenue.
- NW 5<sup>th</sup> Avenue – This facility provides north-south traffic flow through the study area and is a two-lane undivided facility between I-195 and NW 46<sup>th</sup> Street, north of 46<sup>th</sup> Street it becomes a four-lane divided facility. South of I-195 it is a four-lane divided facility. NW 5<sup>th</sup> Avenue is not continuous in the vicinity of I-195.
- NW 3<sup>rd</sup> Avenue – This two-lane undivided facility provides north-south traffic flow through the study area. NW 3<sup>rd</sup> Avenue has breaks at various points between NW 30<sup>th</sup> Street and NW 22<sup>nd</sup> Street; however, an underpass is present at I-195.
- NW 1<sup>st</sup> Avenue – This two-lane undivided facility provides north-south traffic flow through the study area. NW 1<sup>st</sup> Avenue has breaks at various points between NW 20<sup>th</sup> Street and NW 29<sup>th</sup> Street. An underpass is present at I-195.
- Federal Highway – This two-lane undivided facility is adjacent to the FEC rail corridor and provides access to NE 36<sup>th</sup> Street, NE 54<sup>th</sup> Street, and commercial uses bordered by Biscayne Boulevard.

Right-of-way data was obtained from FDOT and Miami-Dade County Public Works Department Right-of-Way Division. Figure 4 illustrates the approximate right-of-way widths of the roadway network within the study area. Most of the major roadways within the study area are constrained from widening by the existing available right-of-way.

# Figure 4: Roadway Right-of-Way

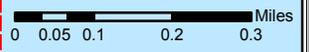
## NW/NE 36TH Street Study



**Legend**

**ROW**

- 40-49
- 50-59
- 60-69
- 70-79
- 80-99
- 100-129
- 130+
- Study Area



## **On-street Parking**

An on-street parking inventory was conducted within the core study area, which is bordered by 46<sup>th</sup> Street to the north, 29<sup>th</sup> Street to the south, NW 7<sup>th</sup> Avenue to the west, and Biscayne Boulevard to the east. Figure 5 presents the location and type of on-street parking available. Metered and non-metered parking was differentiated, as well as areas with peak hour parking restrictions.

Metered parking represents parking spaces that require payment for use. Non-metered parking represents parking spaces that do not require payment for use. On-street parking with peak period restrictions prohibits parking along designated sides of the street during the AM and PM peak periods. The AM peak period restrictions are between the hours of 7 and 9 AM, while the PM peak period restrictions are between the hours of 4 and 6 PM. These on-street parking restrictions provide additional roadway capacity in the peak travel direction during the peak hours.

On-street parking is prevalent throughout the study area, providing a valuable resource for both residents and patrons of the businesses. It should be noted that metered on-street parking is exclusive to the Design District and surrounding commercial area. Also, the majority of parking between NW 2<sup>nd</sup> Avenue and N Miami Avenue from NW 40<sup>th</sup> Street to NW 46<sup>th</sup> Street occurs in the swale and was not accounted for in the inventory.

Figure 5 also depicts the location where the peak period restrictions are enforced along portions of NW 7<sup>th</sup> Avenue and N Miami Avenue within the core study area. Restrictions are enforced along NW 7<sup>th</sup> Avenue between NW 36<sup>th</sup> Street and NW 29<sup>th</sup> Street and along N Miami Avenue between NW/NE 42<sup>nd</sup> Street and NW/NE 38<sup>th</sup> Street. The AM peak period restrictions are enforced for on-street parking along the southbound travel lanes, while the PM peak period restrictions are enforced for on-street parking along the northbound travel lanes.

The general impact of on-street parking in the study area is minimal from a roadway capacity standpoint, given that the majority of the on-street parking is located on local streets in residential neighborhoods. On-street parking along the major thoroughfares, such as NE 2<sup>nd</sup> Avenue, N Miami Avenue, and NW 7<sup>th</sup> Avenue, impose peak hour restrictions, with the exception of NE 2<sup>nd</sup> Avenue, which minimizes its impact when the demand for roadway capacity is greatest. A benefit of on-street parking is that it enhances retail districts by allowing customers to park close to the shops. The on-street parking also creates a buffer between automobile and pedestrian traffic, enhancing the pedestrian realm.

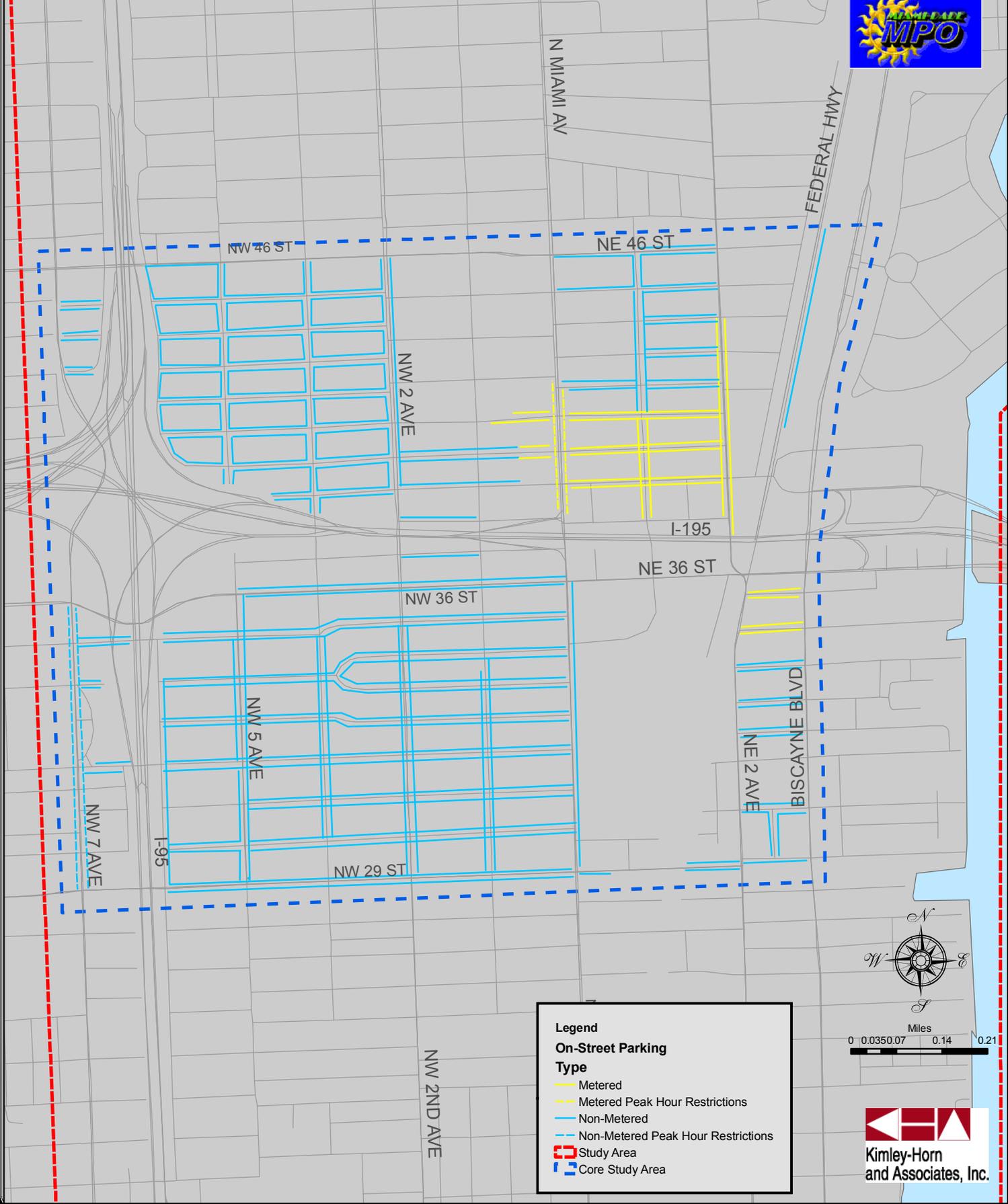
## **Traffic Data**

Traffic volume data was obtained from the MUSP traffic studies submitted to the City of Miami and from FDOT count stations. Only data collected within the last three years was considered recent enough for use in this study. The data obtained from these other sources is concentrated south of I-195 and east of N Miami Avenue, and along the state roadways within the study area (36<sup>th</sup> Street, 54<sup>th</sup> Street, NW 7<sup>th</sup> Avenue, and Biscayne Boulevard). In order to provide a better understanding of the existing traffic patterns within the study area, additional traffic counts were collected to fill in the voids. The focus of the data collection efforts was within the core study area, 29<sup>th</sup> Street to 46<sup>th</sup> Street.

The data utilized from the years 2004, 2005, and 2006 was converted to 2007 data using a growth rate developed for the study area. A growth rate of two percent was developed based upon historical FDOT count data from 2001 to 2005. Historical FDOT traffic data was obtained from the 2005 Florida Traffic Information CD-ROM for the following stations:

# Figure 5: On-street Parking

## NW/NE 36TH Street Study



- Station 87-5077 – NW 36<sup>th</sup> Street, 200 feet east of I-95
- Station 87-5355 – NE 54<sup>th</sup> Street, 200 feet west of Biscayne Boulevard
- Station 87-5005 – NW 7<sup>th</sup> Avenue, 200 north of NW 20<sup>th</sup> Street
- Station 87-9030 – NW 7<sup>th</sup> Avenue, 125 feet south of NW 46<sup>th</sup> Street
- Station 87-5058 – Biscayne Boulevard, 200 feet north of NE 29<sup>th</sup> Street
- Station 87-0143 – Biscayne Boulevard, 200 feet south of NE 36<sup>th</sup> Street
- Station 87-5059 – Biscayne Boulevard, 200 feet north of NE 36<sup>th</sup> Street
- Station 87-5060 – Biscayne Boulevard, 200 feet south of NE 54<sup>th</sup> Street

The historic growth trends along Biscayne Boulevard indicate some sections of this roadway have not experienced any growth in traffic, while other sections have experienced a decline of approximately two percent annually. The historical growth rates ranged from approximately one percent (1%) to eleven percent (11%) along the other roadways analyzed. An annual growth rate of two percent was considered appropriate for the study area and applied to traffic count data to account for background growth.

Traffic signals were inventoried from data provided by the Miami-Dade County Public Works Department. Figure 6 illustrates the location of the traffic signals in the study area. Traffic signals are key components of an urban traffic network. In particular, it was important to collect traffic signal data for calculating level of service (LOS), as described in the next section.

### **Level of Service Analysis**

#### **Major Roadway Corridors A.M. and P.M. Peak Hour LOS**

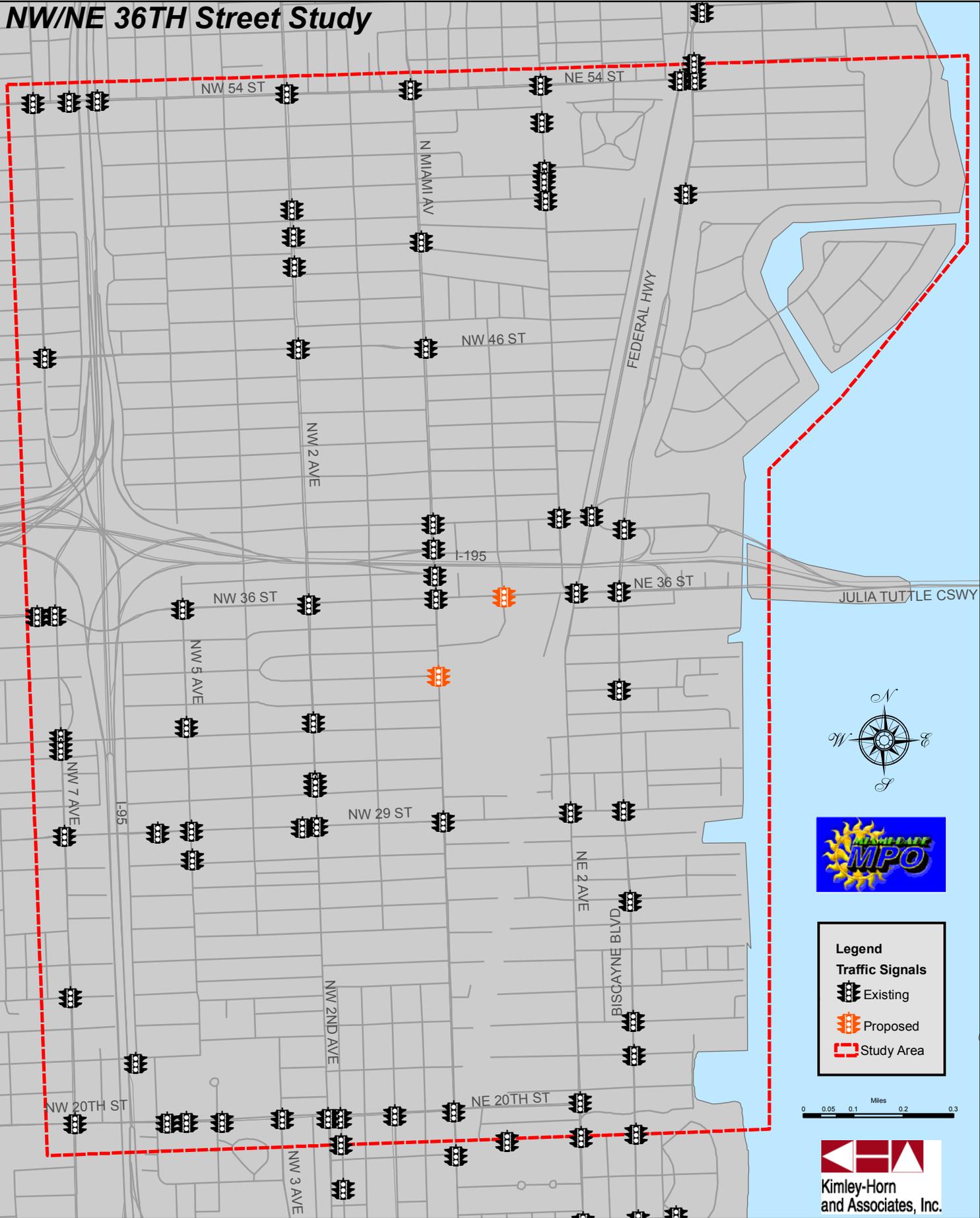
Level of Service (LOS) is a quality measure describing operational characteristics within a traffic stream generally in terms of such measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The level of service for a roadway is represented by one of the letters A through F, with LOS A representing the best operating conditions and LOS F the worst. Analytical methods specified in the *Highway Capacity Manual* (HCM 2000) establish methodologies to approximate level of service based upon quantitative measures such as maximum flow rates, volume-to-capacity ratios, and travel speeds.

The existing level of service for the major roadways in the NW/NE 36<sup>th</sup> Street study area was determined based upon the maximum flow rates provided in *FDOT's 2002 Quality / Level of Service Handbook*, which provides generalized level of service tables. These service volume tables estimate the number of vehicles a facility can carry at various levels of service for a particular classification and number of lanes. The analysis relied upon "Table 4-7" from *FDOT's 2002 Quality / Level of Service Handbook*, which provides peak hour directional volume thresholds. The 2007 peak season AM and PM peak hour volumes compiled for this study were used to calculate the LOS for each segment. Table 5 summarizes the traffic volumes and corresponding LOS for the roadway segments identified within the study area.

Results of the level of service (LOS) analysis demonstrate that traffic conditions along the east-west roadway segments analyzed are acceptable, operating at LOS C or LOS D. The AM peak direction of travel for the east-west corridors was predominately the eastbound direction and the PM peak direction was largely the westbound direction. The results of the LOS analysis along the north-south corridors indicate that several of the roadway segments analyzed are operating at poor LOS. Segments of NW 7<sup>th</sup> Avenue, NW 2<sup>nd</sup> Avenue, N Miami Avenue, Federal Highway, and Biscayne Boulevard are experiencing LOS E and LOS F conditions. The AM peak direction of travel for the north-south corridors was predominately the southbound direction and the PM peak direction of travel was largely northbound.

# Figure 6: Signal Locations

## NW/NE 36TH Street Study



**Legend**

**Traffic Signals**

- Existing
- Proposed
- Study Area

0 0.05 0.1 Miles 0.2 0.3



**Table 5: Level of Service for Major Roadways**

Roadway	Segment		Direction		Count Year(1)	Existing Volume		FDOT LOS C Standard Volume	FDOT LOS D Standard Volume	FDOT LOS E Standard Volume	Existing LOS	
	From	To	AM	PM		AM	PM				AM	PM
<b>East-West Corridors</b>												
20th Street	NW 7th Avenue	NW 3rd Avenue	EB	WB	2007	676	758	1120	1620	2580	C	C
	NW 3rd Avenue	N. Miami Avenue	EB	WB	2005	559	646	840	1215	1290	C	C
	N. Miami Avenue	NE 2nd Avenue	EB	EB	2006	330	302	480	760	810	C	C
29th Street	NW 7th Avenue	NW 3rd Avenue	EB	WB	2007	523	606	840	1215	1290	C	C
	NW 3rd Avenue	N. Miami Avenue	EB	EVEN	2004	334	417	840	1215	1290	C	C
	N. Miami Avenue	NE 2nd Avenue	WB	WB	2004	299	473	840	1215	1290	C	C
	NE 2nd Avenue	Biscayne Boulevard	WB	WB	2005	227	294	200	424	528	D	D
36th Street	NW 7th Avenue	NW 5th Avenue	EB	EB	2005	694	666	1360	1710	1800	C	C
	NW 5th Avenue	N. Miami Avenue	EB	EB	2004	585	537	590	810	850	C	C
	N. Miami Avenue	NE 2nd Avenue	EB	WB	2004	549	608	1292	1625	1710	C	C
	NE 2nd Avenue	Biscayne Boulevard	EB	EB	2007	412	472	618	1435	1634	C	C
46th Street	NW 3rd Avenue	N. Miami Avenue	WB	WB	2007	76	81	200	424	528	C	C
	N. Miami Avenue	NE 2nd Avenue	WB	WB	2007	42	78	200	424	528	C	C
54th Street	NW 3rd Avenue	N. Miami Avenue	EB	EB	2007	605	711	488	1185	1245	D	D
	N. Miami Avenue	NE 2nd Avenue	EB	WB	2007	479	597	1292	1625	1710	C	C
	NE 2nd Avenue	Biscayne Boulevard	EB	WB	2005	444	535	1292	1625	1710	C	C
<b>North-South Corridors</b>												
NW 7th Avenue	NW 20th Street	NW 36th Street	SB	NB	2005	1452	1745	1360	1710	1800	D	E
	NW 36th Street	NW 46th Street	SB	NB	2005	1355	1572	1810	1860	***	C	C
NW 6th Avenue	NW 40th Street	NW 54th Street	NB	NB	2007	32	44	200	424	528	C	C
NW 5th Avenue	NW 29th Street	NW 36th Street	SB	NB	2007	150	263	580	1140	1320	C	C
	NW 36th Street	NW 46th Street	SB	SB	2007	45	53	200	424	528	C	C
NW 3rd Avenue	NW 29th Street	NW 36th Street	SB	SB	2007	237	126	200	424	528	D	C
	NW 36th Street	NW 46th Street	NB	SB	2007	166	197	200	424	528	C	C
NW 2nd Avenue	NW 29th Street	NW 36th Street	SB	NB	2007	454	585	200	424	528	E	F
	NW 36th Street	NW 46th Street	NB	NB	2007	542	613	200	424	528	F	F
NW 1st Avenue	NW 29th Street	NW 36th Street	SB	NB	2007	118	69	200	424	528	C	C
	NW 36th Street	NW 46th Street	SB	NB	2007	102	63	200	424	528	C	C
N. Miami Avenue	N 20th Street	N 29th Street	SB	NB	2005	1148	855	840	1215	1290	D	D
	N 29th Street	N 36th Street	SB	NB	2004	977	1507	840	1215	1290	D	F
	N 36th Street	N 46th Street	SB	NB	2004	935	1600	1120	1620	1720	C	D
NE 2nd Avenue	NE 20th Street	NE 29th Street	SB	NB	2005	988	855	840	1215	1290	D	D
	NE 29th Street	NE 36th Street	SB	NB	2007	810	590	840	1215	1290	C	C
	NE 36th Street	NE 41 Street	SB	(2)	2007	682	(2)	420	608	645	F	(2)
	NE 36th Street	NE 41 Street	(2)	NB	2007	(2)	529	192	304	324	(2)	F
	NE 41st Street	NE 46th Street	SB	NB	2007	990	629	840	1215	1290	D	C
Federal Highway	NE 36th Street	NE 39th Street	SB	NB	2007	499	447	200	424	528	E	E
	NE 39th Street	NE 54th Street	SB	NB	2007	870	830	200	424	528	F	F
Biscayne Boulevard	NE 20th Street	NE 29th Street	SB	NB	2005	1743	1699	650	1510	1720	F	E
	NE 29th Street	NE 36th Street	SB	NB	2005	2091	1490	650	1510	1720	F	D
	NE 36th Street	NE 54th Street	SB	NB	2005	2050	1638	1360	1710	1800	F	D

Note:<sup>(1)</sup> Counts conducted in 2007 were taken during construction of Biscayne Boulevard between NE 36th Street and NE 54th Street.

<sup>(2)</sup>Northbound and southbound capacities vary during the A.M. and P.M. peak periods due to one northbound and two southbound lanes for this segment of NE 2nd Avenue.

Biscayne Boulevard was under construction between NE 36<sup>th</sup> Street and NE 54<sup>th</sup> Street when some of the counts were conducted, potentially contributing to greater traffic volumes on alternate north-south corridors. Furthermore, roadway segments may actually be metered by constrained intersections. Some roadway segments are operating at acceptable levels of service even though intersections at either end have been determined to be failing.

#### Overall Northbound-Southbound A.M. and P.M. Peak Hour Volume/Capacity Analysis

A volume to capacity analysis was conducted for the major north-south surface streets that traverse the study area. The volume to capacity ratio is the relationship between the volume of traffic a roadway is actually carrying and the volume of traffic that a roadway is theoretically capable of carrying. The purpose of conducting the overall capacity volume to capacity analysis was to determine the ability of the overall surface street network to accommodate the directional travel demand and to determine if excess capacity may be available along some of the surface streets that could potentially relieve some of the streets experiencing heavier traffic demand. The analysis was broken into two segments; north of NW/NE 36<sup>th</sup> Street and south of NW/NE 36<sup>th</sup> Street.

The major north-south surface streets that were identified north of NW/NE 36<sup>th</sup> Street are:

- NW 7<sup>th</sup> Avenue
- NW 2<sup>nd</sup> Avenue
- N Miami Avenue
- NE 2<sup>nd</sup> Avenue
- Federal Highway
- Biscayne Boulevard

The overall volume to capacity ratios for the north-south surface streets north of NW/NE 36<sup>th</sup> Street were determined to be 0.89 for southbound direction during the A.M. peak hour and 1.00 for the northbound direction during the P.M. peak hour. Refer to Table 6 for a detailed analysis. The results presented in Table 6 indicate that the overall travel demand already is approaching the theoretical capacity on these roadways. With the expected increase in travel demand, strategies will need to be developed to increase the person movement capacity in these corridors.

Several of the major north-south surface streets are not continuous south of NW/NE 36<sup>th</sup> Street. Therefore, the theoretical north-south capacity is less than to the north of NW/NE 36<sup>th</sup> Street. The major north-south surface streets south of NW/NE 36<sup>th</sup> Street are:

- NW 7<sup>th</sup> Avenue
- N Miami Avenue
- NE 2<sup>nd</sup> Avenue
- Biscayne Boulevard

The overall volume to capacity ratios for the north-south surface streets south of NW/NE 36<sup>th</sup> Street were determined to be 0.93 for the southbound direction during the A.M. peak hour and 0.92 for the northbound direction during the P.M. peak hour. These results, which are presented in Table 6, also demonstrate the need to develop strategies to increase the person movement capacity of these corridors.

The lack of overall excess capacity demonstrates the need to preserve the existing north-south capacity along the major north-south surface streets. The future growth in travel demand resulting from the expected growth in population and jobs within the study area and adjacent districts, combined with the limited amount of right-of-way to widen roadways, points to the need to develop multi-modal transportation strategies to

facilitate mobility in the study area. Accordingly, the mobility strategies developed in subsequent chapters of this study will need to consist of solutions to increase person movement capacity through means other than traditional roadway widening.

**Table 6: Volume/Capacity Analysis**

<b>North-South Roadway Volume/Capacity Analysis</b>			
<b>Major Arterial Roadways North of 36<sup>th</sup> Street</b>			
<b>Roadway</b>	<b>LOS E Capacity</b>		<b>SB AM Volumes</b>
			<b>NB PM Volumes</b>
NW 7 <sup>th</sup> Ave	1860		1355
NW 2 <sup>nd</sup> Ave	528		415
N Miami Ave	1720		935
NE 2 <sup>nd</sup> Ave	645 (SB)/324 (NB)*		682
Federal Hwy	528		870
Biscayne Blvd	1800		2050
<b>Total</b>	<b>AM</b>	<b>7081</b>	<b>6307</b>
	<b>PM</b>	<b>6760</b>	
<b>V/C</b>			<b>0.89</b>
<b>Major Arterial Roadways South of 36<sup>th</sup> Street</b>			
<b>Roadway</b>	<b>LOS E Capacity</b>		<b>SB AM Volumes</b>
			<b>NB PM Volumes</b>
NW 7 <sup>th</sup> Ave	1800		1452
N Miami Ave	1290		1148
NE 2 <sup>nd</sup> Ave	1290		988
Biscayne Blvd	1720		2091
<b>Total</b>	<b>6100</b>		<b>5679</b>
<b>V/C</b>			<b>0.93</b>

\* Northbound and southbound capacities vary during the A.M. and P.M. peak periods due to one northbound and two southbound lanes configuration for this segment of NE 2<sup>nd</sup> Avenue

## Safety Data

Crash data was obtained from the Florida Department of Transportation (FDOT) for the study section of NW/NE 36<sup>th</sup> Street. The most recent three years of available crash data (2003 to 2005) was analyzed to identify specific crash patterns and locations that may indicate a safety problem along the corridor. It should be noted that crash data is not readily available for roadways that are not part of the State roadway system. A total of 373 crashes were reported along the study segment of NW/NE 36<sup>th</sup> Street between January 2003 and December 2005. These crashes resulted in two fatalities and 238 injuries. Nearly twelve percent of the crashes occurred when the roadway surface was wet and approximately 30 percent occurred during dark conditions. Table 7 summarizes the crashes by type.

**Table 7: Crashes along NW/NE 36<sup>th</sup> Street Summarized by Type**

Crash Type	2003	2004	2005	Total	Average	Percentage
All Other <sup>1</sup>	50	49	54	153	51	41.0%
Angle	34	17	19	70	23	18.8%
Rear End	19	22	9	50	17	13.4%
Sideswipe	9	13	12	34	11	9.1%
Left Turn	6	11	5	22	7	5.9%
Pedestrian	4	5	4	13	4	3.5%
Head-on	3	4	4	11	4	2.9%
Collision with Motor Vehicle Other Road	2	3	2	7	2	1.9%
Parked Car	1	4	2	7	2	1.9%
Right Turn	1	3	2	6	2	1.6%

1: All Other crashes refer to crashes coded as all other and any type of crash that made up less than 1.0 percent of the total crashes.

Figure 7 presents the number of crashes by milepost. As illustrated in Figure 6, the following five locations, which are all signalized and are the major intersections along the NW/NE 36<sup>th</sup> Street corridor, were identified as experiencing a high concentration of crashes:

- NW 7<sup>th</sup> Avenue
- NW 2<sup>nd</sup> Avenue
- N Miami Avenue
- NE 2<sup>nd</sup> Avenue
- Biscayne Boulevard

In addition, FDOT lists of high crash segments and high crash intersections were reviewed to determine if the any of the State roadways within the study area are high crash areas. It should be noted the most recent three years of available data (2003 to 2005) is typically reviewed; however, the 2005 high crash segments and intersections data was unavailable. Table 8 and 9 indicate the high crash locations. It was noted that the entire NW/NE 36<sup>th</sup> Street study corridor was considered a high crash segment in 2003 and 2004. Portions of NW/NE 54<sup>th</sup> Street, Biscayne Boulevard, and NW 7<sup>th</sup> Avenue were also considered high crash segments. Most of the major intersections within the study area were considered high crash intersections. The high incidence of crashes within the study area is reflective of the deficient conditions which include traffic signals that lack pedestrian features and often do not provide protected left-turn phases, a lack of turn lanes with sufficient deceleration and storage lengths, and other constraints. Recommendations developed in subsequent chapters of this study will include strategies to address these deficiencies.

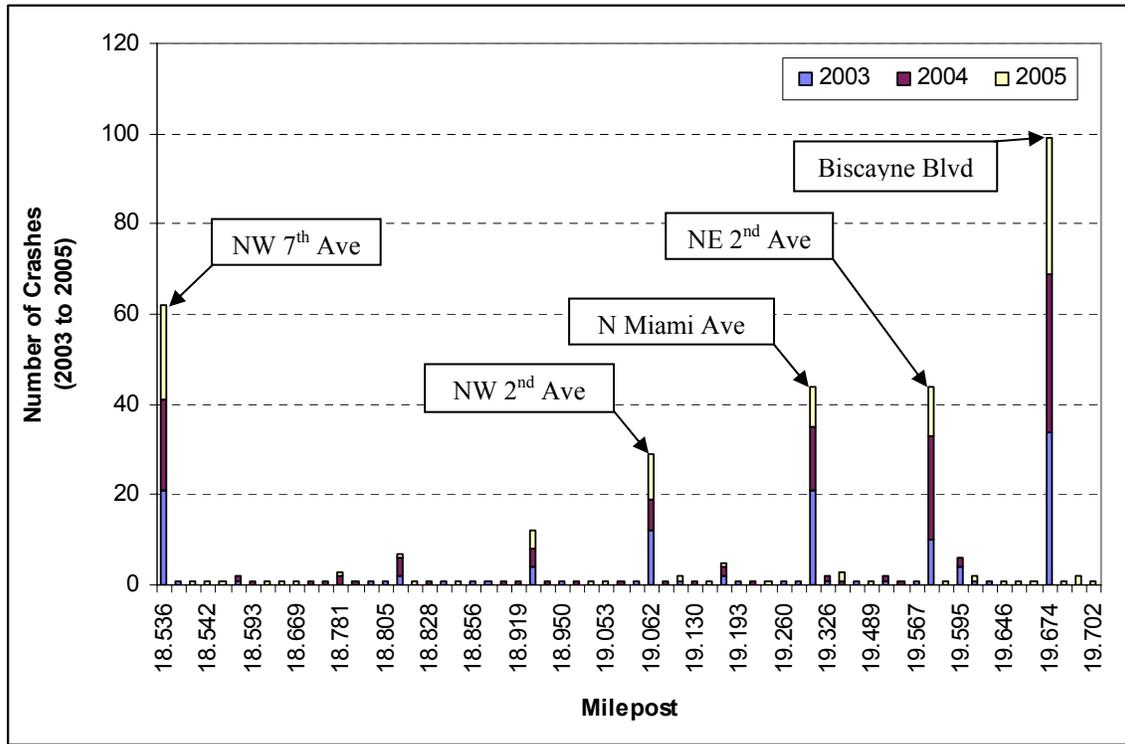


Figure 7: Histogram of Crashes along NW/NE 36<sup>th</sup> Street

Table 8: High Crash Segments

Location	BMP	EMP	2003	2004
36 <sup>th</sup> Street (SR 25)	18.809	19.317	X	X
	19.317	19.638	X	X
54 <sup>th</sup> Street (SR 944)	4.409	5.009		X
	4.409	5.209	X	
	5.109	5.309		X
	5.309	5.609	X	
Biscayne Boulevard (SR 5)	5.709	5.822	X	X
	12.722	13.022	X	
	13.222	13.635	X	X
NW 7 <sup>th</sup> Avenue (SR 7)	14.522	14.622	X	X
	2.409	3.113	X	
	2.509	2.809		X
	3.009	3.113		X
	3.432	3.732	X	
	3.432	3.832		X
	3.932	4.332		X
3.932	4.832	X		



**Table 9: High Crash Intersections**

Location	MP	2003	2004
<i>36<sup>th</sup> Street (SR 25)</i>			
NW 7 <sup>th</sup> Avenue	18.536		X
NW 5 <sup>th</sup> Avenue	18.809		X
NW 3 <sup>rd</sup> Avenue	18.936		X
NW 2 <sup>nd</sup> Avenue	19.062	X	X
N Miami Avenue	19.317	X	X
Miami Court	19.362	X	X
NE 2 <sup>nd</sup> Avenue	19.571		X
Federal Highway	19.595	X	X
Biscayne Boulevard	19.674	X	X
<i>54<sup>th</sup> Street (SR 944)</i>			
NW 6 <sup>th</sup> Place	4.534	X	X
NW 6 <sup>th</sup> Court	4.568	X	X
NW 6 <sup>th</sup> Avenue (South)	4.615	X	X
NW 6 <sup>th</sup> Avenue (North)	4.654	X	X
NW 5 <sup>th</sup> Court	4.707	X	
NW 5 <sup>th</sup> Avenue	4.752		X
NW 2 <sup>nd</sup> Avenue	5.005	X	X
NW 1 <sup>st</sup> Place	5.048	X	X
Miami Place	5.173		X
N Miami Avenue	5.259		X
Miami Court	5.290	X	X
NE 1 <sup>st</sup> Avenue(North)	5.370		X
NE 1 <sup>st</sup> Avenue(South)	5.389		X
NE 2 <sup>nd</sup> Avenue	5.513	X	
Service Road	5.563	X	
Federal Highway	5.794	X	X
Biscayne Boulevard	5.822	X	X
<i>Biscayne Boulevard (SR 5)</i>			
25 <sup>th</sup> Street	12.842	X	
26 <sup>th</sup> Street	12.890	X	
32 <sup>nd</sup> Street	13.268		X
35 <sup>th</sup> Street	13.428	X	
35 <sup>th</sup> Terrace	13.479	X	X
38 <sup>th</sup> Street	13.635	X	X
53 <sup>rd</sup> Street	14.528	X	X
<i>NW 7<sup>th</sup> Avenue (SR 7)</i>			
20 <sup>th</sup> Street	2.054	X	X
28 <sup>th</sup> Street	2.565	X	
29 <sup>th</sup> Street	2.632	X	X
7 <sup>th</sup> Avenue	3.456	X	X
44 <sup>th</sup> Street	3.512	X	
45 <sup>th</sup> Street	3.563	X	X
46 <sup>th</sup> Street	3.611	X	X
54 <sup>th</sup> Street	4.126	X	X

## EXISTING TRANSIT SERVICE

Existing transit service in the NW/NE 36<sup>th</sup> Street study area was inventoried to gauge current transit service levels, operating characteristics, and ridership. Transit service in the study area is provided by the following:

- Miami-Dade Transit (MDT)
- Jitney Services

MDT operates the 16<sup>th</sup> largest public transit system in the United States and the largest transit system in Florida. MDT's transit service in the NW/NE 36<sup>th</sup> Street study area only includes the Metrobus service.

### Miami-Dade Metro Bus Service

The NW/NE 36<sup>th</sup> Street study area is currently serviced by 18 Metrobus routes operated by MDT. The alignments of the Metrobus routes are illustrated in Figure 8 and each route is described below.

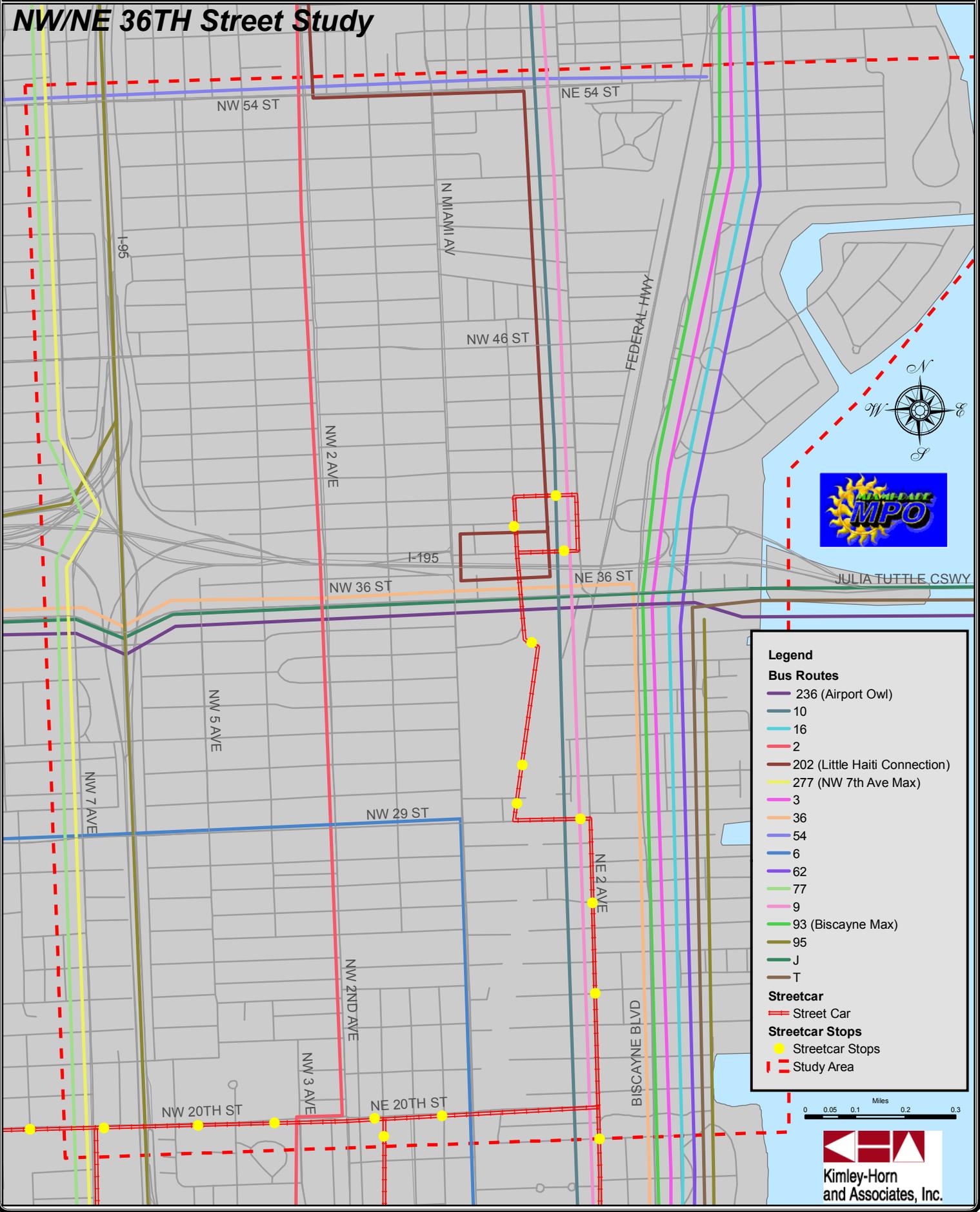
- **Metrobus Route 2** runs north-south through the study area and travels primarily along N Miami Avenue and NW 2<sup>nd</sup> Avenue. Route 2 operates Monday through Friday on 15-minute headways during both daytime and evening hours. Saturday service runs on 20-minute headways and there are 30-minute headways on Sundays.
- **Metrobus Route 3** runs north-south through the study area along Biscayne Boulevard. Route 3 operates Monday through Friday on 20-minute headways during both daytime and evening hours. Weekend service operates on 15-minute headways on Saturday and 30-minute headways on Sundays.
- **Metrobus Route 6** enters the study area from the south along N Miami Avenue and heads east on NW 29<sup>th</sup> Street exiting the study area to the west. Route 6 operates Monday through Friday on 30-minute headways during both daytime and evening hours. Weekend service operates on 40-minute headways.
- **Metrobus Route 9** runs north-south through the study area along NE 2<sup>nd</sup> Avenue. Route 9 operates Monday through Friday on 12-minute headways during the peak hours and 30-minute headways during non-peak hours. Weekend service operates on 30-minute headways.
- **Metrobus Route 10** runs north-south through the study area along NE 2<sup>nd</sup> Avenue. Route 10 operates Monday through Friday on 30-minute headways. Weekend service operates on 30-minute headways.
- **Metrobus Route 16** runs north-south through the study area along Biscayne Boulevard. Route 16 operates Monday through Friday on 20-minute headways. Weekend service operates on 30-minute headways.
- **Metrobus Route 36** enters the study area from the south along Biscayne Boulevard and exits the study area to the west along NW 36<sup>th</sup> Street. Route 36 operates Monday through Friday on 30-minute off-peak headways and 10-minute headways during morning and evening peak hours. Weekend service operates on 30-minute headways.
- **Metrobus Route 54** runs east-west through the study area along 54<sup>th</sup> Street. Route 54 operates Monday through Friday on 15-minute headways during the morning and evening rush and 30-minutes during off-peaks. Weekend service operates on 30-minute headways.
- **Metrobus Route 62** runs north-south through the study area along Biscayne Boulevard. Route 62 operates Monday through Friday on 10-minute peak hour headways and 15-minute non-peak hour headways. Weekend service operates on 30-minute headways.
- **Metrobus Route 77** runs north-south through the study area along NW 7<sup>th</sup> Avenue/SR 7. Route 77 operates Monday through Friday on 15-minute off-peak headways and 8-minute headways during morning and evening rush hours. Weekend service operates on 20-minute headways.

- **Metrobus Route 93 (Biscayne Max)** runs north-south through the study area along Biscayne Boulevard. Route 93 operates only Monday through Friday as a limited stop route with 15-minute headways.
- **Metrobus Route 95 (Brickell Norwood, Aventura Mall, and Carol City)** runs north-south through the study area along I-95 and also enters the study area from the south along Biscayne Boulevard where it terminates at NE 36<sup>th</sup> Street. Route 95 operates only Monday through Friday on various headways; however, it operates more frequently, 5-10 minute headways, during peak hours.
- **Metrobus Route 202 (Little Haiti Connection)** enters the study area from the north along NW 2<sup>nd</sup> Avenue and heads east along NW/NE 54<sup>th</sup> Street, south along NE 2<sup>nd</sup> Avenue where it loops within NE 39<sup>th</sup> Street, N Miami Avenue, NE 36<sup>th</sup> Street, and NE 2<sup>nd</sup> Avenue. Route 202 operates Monday through Friday on 30-minute headways. Weekend service also operates on 30-minute headways.
- **Metrobus Route 236 (Airport Owl)** runs east-west through the study area along NW/NE 36<sup>th</sup> Street/Julia Tuttle Causeway. Route 236 operates Monday through Friday on one-hour headways. Weekend service also operates on one-hour headways. This service only operates at night.
- **Metrobus Route 277 (NW 7<sup>th</sup> Avenue Max)** runs north-south through the study area along NW 7<sup>th</sup> Avenue. Route 277 operates exclusively Monday through Friday on 15-minute headways between 5-9 AM in the morning and 3-6 PM in the evening.
- **Metrobus Route J** runs east-west through the study area along NW/NE 36<sup>th</sup> Street/Julia Tuttle Causeway. Route J operates Monday through Friday on various headways ranging from 30-minute headways during off-peak hours and 15-minute headways during peak hours. Weekend service operates on 30-minute headways.
- **Metrobus Route T** enters the study area from the south along Biscayne Boulevard and heads east along NE 36<sup>th</sup> Street/Julia Tuttle Causeway. Route T operates Monday through Friday on various headways; however, the route has mostly 20-minute headways during peak hours and 30-minute headways during off-peak hours. Weekend service operates on 30-minute headways.

Table 10 lists the service and performance data for the Metrobus routes serving the NW/NE 36<sup>th</sup> Street study area. This information was obtained from Metrobus route schedules, the 2005 Transit Development Program prepared by MDT, and the Miami-Dade Transit Ridership Technical Reports prepared by MDT for the period from January 2006 to November 2006.

# Figure 8: Existing Bus and Proposed Streetcar Routes

## NW/NE 36TH Street Study



**Table 10: Miami-Dade Transit Metrobus Service and Performance Data**

Route	Hours of Operation	Headway (Peak/Off Peak) <sup>1</sup>	Average Weekday Ridership <sup>2</sup>
2	5:14AM – 11:24PM	15	3,490
3	24 HOURS	20	8,490
6	8:15AM – 6:46PM	30/40	895
9	5:09AM – 11:35AM	12/30	6,247
10	5:29AM – 11:53AM	30/30	2,712
16	5:17AM – 10:37PM	20/30	4,069
36	5:08AM – 9:48PM	10/30	3,312
54	24 HOURS	15/30	4,020
62	5:42AM – 1:12AM	10/15	4,484
77	24 HOURS	8/15	10,391
93 (Biscayne Max)	6:05AM – 7:40PM	15/30	3,696
95 (Brickell Norwood) (Aventura Mall) (Carol City)	5:57AM – 7:10PM	5-10/Various	1,870
202 (Little Haiti Connection)	5:24AM – 9:33PM	30	679
236 (Airport Owl)	12:28AM – 6:37AM	60	404
277 (NW 7 <sup>th</sup> Ave Max)	5:33AM – 9:42AM 3:10PM – 7:10PM	15	1,175
J (110)	5:02AM – 12:32AM	20/30	4,801
T (120)	5:12AM – 10:04PM	20/30	2,011

Notes: (1) Source: Transit Development Program 2005  
(2) Source: Miami-Dade Transit Ridership Technical Report (Jan. 2006 – Nov. 2006)

Data presented in Table 10 indicate that extensive bus transit service exists within the NW/NE 36<sup>th</sup> Street study area. The corridor has a large concentration of bus transit service along Biscayne Boulevard, NW/NE 36<sup>th</sup> Street, NE 2<sup>nd</sup> Avenue, and NW 7<sup>th</sup> Avenue/SR 7. The route with the highest ridership is Route 77 along NW 7<sup>th</sup> Avenue/SR 7. This route runs 24 hours a day and carries 10,391 passengers on an average weekday. The routes within the NW/NE 36<sup>th</sup> Street corridor are among the most successful routes in MDT's system in terms of ridership.

### **Comprehensive Bus Operations Analysis (CBOA) Data**

Comprehensive Bus Operations Analysis (CBOA) data was analyzed to identify bus stop locations in the study area with the highest amount of boardings and alightings. The CBOA data was limited to four Metrobus routes that serve the study area. Three of the Metrobus routes (Routes 3, 16, and 95) are run along Biscayne Boulevard and one Metrobus route (Route 77) runs along NW 7<sup>th</sup> Avenue. Boardings and alightings at bus stops within the study area along these routes, as obtained from the CBOA data, are presented in Table 11.

**Table 11: Stop Boardings and Alightings by Bus Stop**

Biscayne Boulevard Routes <sup>(1)</sup>			NW 7 <sup>th</sup> Avenue Route <sup>(2)</sup>		
Rank	Bus Stop Location	Total	Rank	Bus Stop Location	Total
1	NE 36 <sup>th</sup> Street	130	1	NW 20 <sup>th</sup> Street	196
2	NE 54 <sup>th</sup> Street	52	2	NW 54 <sup>th</sup> Street	90
3	NE 23 <sup>rd</sup> Street	45	3	NW 36 <sup>th</sup> Street	67
4	NE 35 <sup>th</sup> Street	44	4	NW 29 <sup>th</sup> Street	63
5	NE 32 <sup>nd</sup> Street	36	5	NW 35 <sup>th</sup> Street	59
6	NE 30 <sup>th</sup> Street	28	6	NW 47 <sup>th</sup> Street	32
7	NE 29 <sup>th</sup> Street	18	7	NW 32 <sup>nd</sup> Street	28
8	NE 52 <sup>nd</sup> Street	17	8	NW 49 <sup>th</sup> Street	20
9	NE 25 <sup>th</sup> Street	17	9	NW 44 <sup>th</sup> Street	19
10	NE 34 <sup>th</sup> Street	16	10	NW 28 <sup>th</sup> Street	19
11	NE 39 <sup>th</sup> Street	14	11	NW 50 <sup>th</sup> Street	15
12	NE 26 <sup>th</sup> Street	13	12	NW 48 <sup>th</sup> Street	12
13	NE 50 <sup>th</sup> Terrace	11	13	NW 34 <sup>th</sup> Street	12
14	NE 28 <sup>th</sup> Street	11	14	NW 21 <sup>st</sup> Terrace	12
15	NE 21 <sup>st</sup> Street	10	15	NW 53 <sup>rd</sup> Street	10
16	NE 22 <sup>nd</sup> Street	8	16	NW 46 <sup>th</sup> Street	10
17	NE 20 <sup>th</sup> Terrace	8	17	NW 25 <sup>th</sup> Street	10
18	NE 20 <sup>th</sup> Street	5	18	NW 52 <sup>nd</sup> Street	8
<b>Total</b>		<b>483</b>	19	NW 27 <sup>th</sup> Street	8
			20	NW 51 <sup>st</sup> Street	6
			21	NW 47 <sup>th</sup> Terrace	6
			22	NW 23 <sup>rd</sup> Street	6
			23	NW 22 <sup>nd</sup> Street	5
			24	NW 24 <sup>th</sup> Street	3
			25	NW 31 <sup>st</sup> Street	0
			<b>Total</b>		<b>716</b>

Notes: (1) Boardings and alightings along Biscayne Boulevard are for Routes 3, 16, and 95  
(2) Boardings and alightings along NW 7<sup>th</sup> Avenue are for Route 77

As indicated in Table 11, the bus stop at the intersection of Biscayne Boulevard and NE 36<sup>th</sup> Street has the highest number of boardings and alightings of the stops located along Biscayne Boulevard within the study area. Several north-south and east-west bus routes cross at this intersection and a number of transfers between routes occur. A significant amount of passenger activity was also noted at this location during field reviews. The bus stop is along Biscayne Boulevard underneath the I-195 overpass, which provides shelter from inclement weather and the sun.

The bus stop along NW 7<sup>th</sup> Avenue with the highest number of boardings and alightings is located at the intersection of NW 7<sup>th</sup> Avenue and NW 20<sup>th</sup> Street. This stop is located adjacent to the Health District, which is a major destination and employment center. The heavy passenger activity at this stop reflects the important role that transit serves in providing transportation to and from the Health District.

The data presented in Table 11 will be reviewed to identify bus stops within the study area with heavy amounts of passenger activity. Based on the amenities provided at these heavy activity bus stops and the

space available, recommendations will be proposed to improve conditions for patrons by providing shelters and/or benches.

### **Jitney Service**

Jitney services are privately owned and operated. These services utilize passenger vehicles and generally operate on a fixed route with a flexible schedule. The route does not have designated stops as it picks up and discharges passengers on demand. According to the Miami-Dade County Consumer Services Department Passenger Transportation Regulatory Division, there are approximately eleven jitney services operating in the City of Miami with three serving the NW/NE 36th Street study area. A map of jitney services within the study area is presented in Figure 9.

# Figure 9: Jitney Routes

## NW/NE 36TH Street Study



**Legend**

- Liberty City Jitney
- Miami Mini Bus
- Tri-Rail Jitney
- Study Area

0 0.05 0.1 0.2 0.3 Miles



## DETERMINATION OF MOBILITY NEEDS

Based on analysis of transportation data and land use patterns, mobility needs and deficiencies in the areas of traffic operations, transit, bicycle and pedestrian facilities, and neighborhood traffic management were identified. Additionally, input was obtained from the study advisory committee (SAC) to further develop the list of transportation mobility needs. This chapter of the report outlines deficiencies with the present mobility network for the NW/NE 36<sup>th</sup> Street Corridor Study Area. Potential multi-modal transportation improvements will be identified and addressed in the subsequent chapter of this report.

The “Determination of Mobility Needs” chapter of this report is divided into the following sections.

- Urban Activity Assessment
- Evaluation of Transportation Corridors
- Traffic
- Transit
- Bicycle
- Pedestrian
- Neighborhood Traffic Management

### **Urban Activity Assessment**

The NW/NE 36<sup>th</sup> Street study area is comprised of an abundance of varying land use types. It is critical to provide necessary connections to allow unconstrained interaction between the area’s unique urban features. The eastern edge of the study area, east of Biscayne Boulevard, is comprised mainly of high-rise residential development with the Biscayne Boulevard business corridor acting as its western boundary. The middle of the study area, between Biscayne Boulevard and N Miami Avenue consists of the historic Buena Vista neighborhood, the Miami Design District, the mixed-use Midtown Miami urban infill development, and industrial land uses on the southern edge. The western portion of the study area, between N Miami Avenue and NW 7<sup>th</sup> Avenue/SR 7, contains single family residential neighborhoods, an emerging art district along NW 36<sup>th</sup> Street, a garment district, and the NW 7<sup>th</sup> Avenue/SR 7 business corridor (See Figure 9).

Isolating the aforementioned districts, are a series of transportation networks which create boundaries constraining their interaction. The I-95 corridor limits east-west mobility on the western edge of the study area and the I-195 corridor limits north-south mobility in the center of the study area. The FEC rail corridor located on the eastern side of the study area limits east-west pedestrian and vehicular mobility between the Biscayne Boulevard corridor and areas to the west.

The existing land uses were assessed to identify unique districts and complementary land uses that would benefit from enhanced transportation connections. The Health District is an area that was identified as being a major employment center and destination for the surrounding community. Downtown Miami was identified as a major destination providing both employment and entertainment opportunities. Smaller districts within the study area such as an emerging art district along NW 36<sup>th</sup> Street, a garment district paralleling I-95 in the southwest quadrant of the study area, and the flourishing design district, present unique destinations within the area. Midtown Miami is a major mixed-use development of local and regional significance.

An abundance of redevelopment is presently occurring within the study and surrounding areas. This redevelopment will contribute to increased demand on the transportation system. In order to obtain a better understanding of the expected growth and commensurate travel demand, the population and employment data contained in the MPO’s Florida Standard Urban Transportation Model Structure (FSUTMS) travel

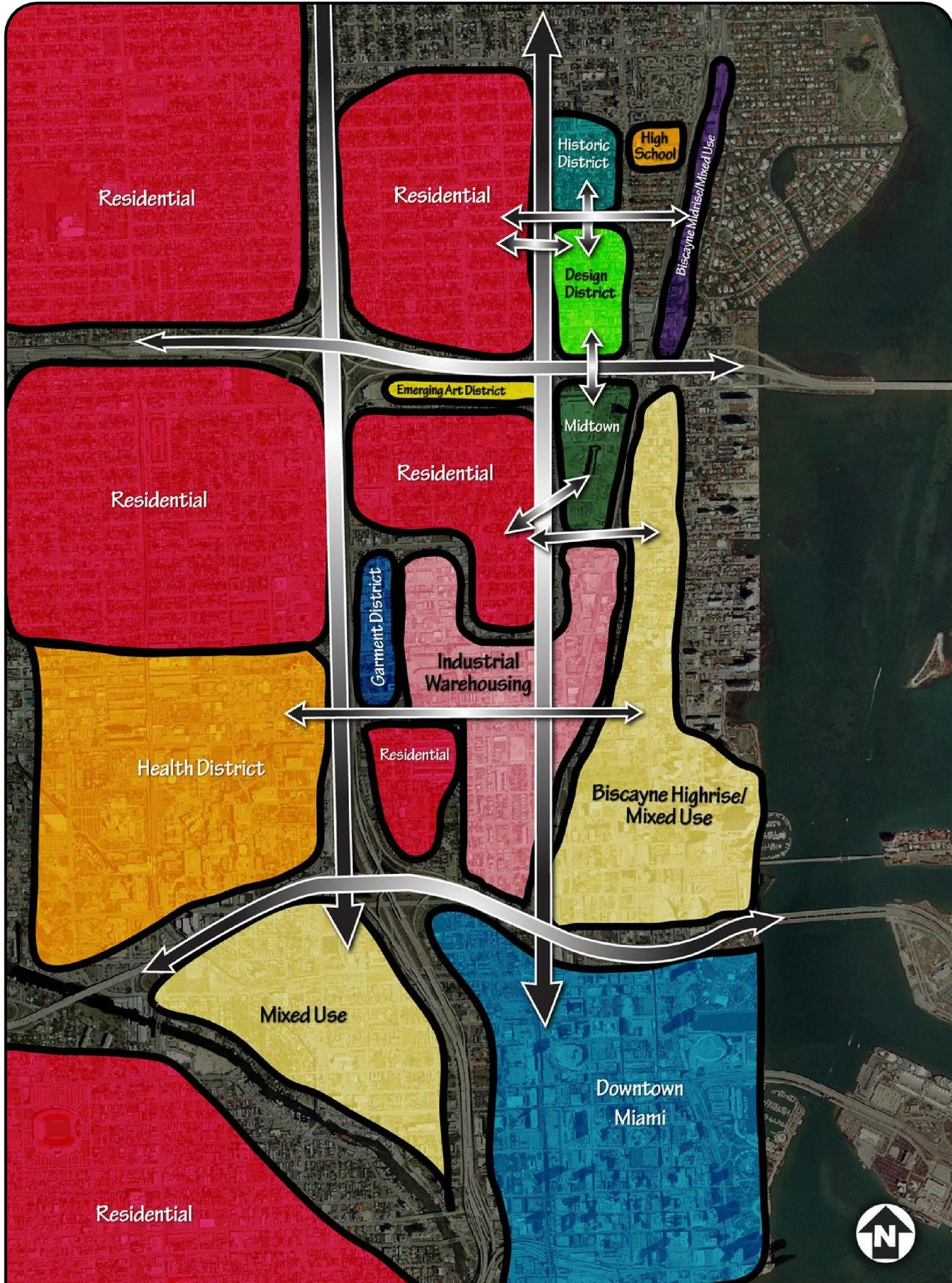


Figure 10: Urban Activity Assessment



forecasting model were examined. The population and employment figures for the traffic analysis zones (TAZs) within the study area and the adjacent Downtown Miami and Health District were examined. A comparison was made between the Year 2000 validation model and the Year 2030 Cost Affordable Model. Table 12 presents the population and employment data for the study area, Downtown Miami, and the Health District.

**Table 12: FSUTMS Model Population and Employment Data**

Population and Employment Statistics					
		Population		Employment	
		2000	2030	2000	2030
Study Area	Total	11,953	75,864	19,616	27,425
Downtown Miami	Total	5,565	17,398	83,839	109,662
Health District	Total	5,345	7,781	38,374	48,375

Source: Miami-Dade County FSUTMS Model 2000 Base Year and 2030

The zonal population and employment data reflects the tremendous amount of growth expected to occur within the immediate study area, particularly in population with approximately 64,000 additional residents. The zonal data also demonstrates that a significant number of new jobs are expected to be created in Downtown Miami (approximately 26,000 new jobs) and the Health District (approximately 10,000 new jobs). Providing enhanced transportation linkages between the new housing in the study areas and the new jobs in Downtown Miami and the Health District will be critical.

### **Evaluation of Transportation Corridors**

This section of the report builds upon the urban activity assessment, and identifies existing and potential transportation corridors that provide opportunities to enhance mobility throughout the study area. Modes of transportation taken into consideration include vehicular, bus, rail, and bicycle/pedestrian. Major north-south corridors such as Biscayne Boulevard, the FEC rail corridor, NE 2<sup>nd</sup> Avenue, N Miami Avenue, and NW 7<sup>th</sup> Avenue/SR 7 were identified as significant corridors that could potentially improve mobility through the development of transportation improvements. These corridors extend beyond the study area boundaries and not only serve local trips within the study area, but also regional trips (see Figure 11).

Downtown Miami to the south of the study area generates distinct directional demand during the A.M. and P.M. peak hours. Downtown commuters pass through the study area which causes peak hour traffic congestion. The eastern portion of the study area was identified as having two major north-south corridors including the FEC rail corridor which will potentially serve regional commuters via transit.

The Biscayne Boulevard multi-modal corridor is a main thoroughfare serving medium to high density residential and commercial land uses. It is also a major north-south surface street providing local and regional vehicular and transit connections. Although Biscayne Boulevard is presently approaching or exceeding its capacity, the ongoing reconstruction project is not adding vehicular capacity to the corridor. Furthermore, this corridor is experiencing intense redevelopment from the County line south into Downtown Miami and will experience even greater travel demand in the future. Since there are not any planned roadway capacity improvements, the additional travel demand will have to be met either with shifts in modes or routes.

The FEC/NE 2<sup>nd</sup> Avenue corridor is the second major north-south corridor on the east side of the study area. This corridor serves residential neighborhoods, special entertainment districts and provides a continuous connection to Downtown Miami. The corridor has a chokepoint created by the five-legged intersection at NE 36<sup>th</sup> Street/NE 2<sup>nd</sup> Avenue/Federal Highway. Capacity enhancements at this location are complicated by the alignment location of the FEC rail corridor which bisects the intersection. In particular, the intersection experiences severe congestion during the P.M. peak period in the northbound direction. However, the FEC/NE 2<sup>nd</sup> Avenue corridor presents opportunities for alternative transportation modes, including transit and bicycle facilities, with its existing rail corridor and underutilized right-of-way.

The N Miami Avenue corridor runs through the center of the study area and links residential neighborhoods north and south of I-195 to Downtown Miami, Midtown Miami, and other destinations. This corridor serves both local trips within the study area and regional commuters. Transit service would provide a much needed transportation alternative in this corridor to better serve the local area and provide transit connections to Midtown Miami.

The two main north-south corridors in the western portion of the study area are I-95 and NW 7<sup>th</sup> Avenue/SR 7. I-95 traverses the western edge of the study area providing regional connections and direct access to Downtown Miami. Although I-95 does not have any direct connections to surface streets in the study area, congestion and traffic incidents along this corridor frequently redirects regional traffic through the study area. The NW 7<sup>th</sup> Avenue/SR 7 corridor has the potential to increase north-south mobility through underutilized capacity. A reversible lane project is currently being considered in response to the heavy directional flow experienced in this corridor. This roadway improvement would increase directional A.M. and P.M. peak period capacity. The NW 7<sup>th</sup> Avenue/SR 7 corridor also serves Miami-Dade Transit Metrobus Route 77, which serves over 10,000 riders on average during the weekdays and provides a connection to the Golden Glades Intermodal facility.

NW/NE 36<sup>th</sup> Street is an east-west corridor in the heart of the study area, which provides surface level local connections to businesses and residences. This corridor connects multiple destinations such as the NW 7<sup>th</sup> Avenue/SR 7 business district, an emerging arts district, Midtown Miami, and the Biscayne Boulevard high-rise commercial and residential district. Running parallel to I-195, the NW/NE 36<sup>th</sup> Street corridor serves as a major surface street providing connections to the interstate system via north-south roadways such as N Miami Avenue and Biscayne Boulevard. This corridor has the potential to become a multi-modal corridor with improved transit service and bicycle/pedestrian facilities to accommodate the various transportation needs of its emerging pedestrian-oriented land uses.

Additional east-west surface streets generally serve local trips within the study area. Major transportation needs along the east-west surface streets include enhanced pedestrian facilities to connect the residential neighborhoods with transit and nearby destinations to the east and west. Primary corridors include NW/NE 54<sup>th</sup> Street, NW/NE 46<sup>th</sup> Street, NW/NE 29<sup>th</sup> Street, and NW/NE 20<sup>th</sup> Street.

I-195/SR 112, an elevated freeway, bisects the study area and provides regional connections to I-95, Miami Beach, and Miami International Airport. Interchanges at N Miami Avenue and Biscayne Boulevard provide access to I-195.



Figure 11: Transportation Needs



## Traffic

Notwithstanding that one of the main focuses of the study is to identify opportunities to increase the use of alternate modes of transportation, several intersections and roadways were identified during the assessment of transportation deficiencies. The study advisory committee (SAC) also provided insight to problem traffic areas within the study area. Issues that were identified include:

- North-south mobility including limited available capacity on I-95 and Biscayne Boulevard.
- Intersection capacity constraints at the intersections of:
  - NE 36<sup>th</sup> Street at NE 2<sup>nd</sup> Avenue/Federal Highway
  - NE 36<sup>th</sup> Street at Biscayne Boulevard
- Excessive delay
- Constrained right-of-way limits opportunities for roadway widening
- Traffic impacts associated with redevelopment
- Poor maintenance
- Parking constraints
- Safety
- Speeding
- Cut through traffic

Issues specific to study area corridors and intersections include:

- Biscayne Boulevard – This corridor is experiencing higher traffic volumes due to the recent development in the area along with increased delay due to reconstruction projects. Providing continuity through the study area to Downtown Miami and access to I-195, this is a vital north-south corridor within the study area. Intersection capacity deficiencies have been noted at the intersection of Biscayne Boulevard and NE 36<sup>th</sup> Street.
- NE 2<sup>nd</sup> Avenue/Federal Highway – Identified as major north-south corridors, these roadways provide continuity to Downtown Miami and also serve as alternate routes for traffic that would otherwise use Biscayne Boulevard. Delays at the intersection of NE 36<sup>th</sup> Street have been identified as being excessive during peak hours due to heavy traffic volumes and the 5-legged configuration of the intersection. Since the intersection has five approaches, it is more difficult to maintain acceptable level of service due to the number of conflicting movements and signal phases.
- N Miami Avenue – Identified as another major north-south corridor with continuity to Downtown Miami and access to I-195, traffic operations problems have been identified at several major intersections including N 36<sup>th</sup> Street and the I-195 ramps. In addition, the stretch of the corridor from 39<sup>th</sup> Street to 54<sup>th</sup> Street poses safety problems mainly due to speeding.
- NW 2<sup>nd</sup> Avenue – Identified as a major north-south corridor within the study area but does not provide continuity to Downtown Miami. The segment north of NW 36<sup>th</sup> Street is located primarily within a residential neighborhood. Speeding along this portion of the corridor has been identified as a problem.
- NW/NE 36<sup>th</sup> Street – The major east-west corridor that runs through the core of the study area will experience increased demand from redevelopment including Midtown Miami. With three intersections (N Miami Avenue, NE 2<sup>nd</sup> Avenue/Federal Highway, and Biscayne Boulevard) identified as potentially having future capacity problems along the corridor, limited right-of-way for capacity improvements, and a new signal proposed at NE 1st Avenue, capacity and safety are major concerns for this roadway.
- NE 46<sup>th</sup> Street – Concern has been expressed about the portion of NE 46<sup>th</sup> Street east of N Miami Avenue being used for cut-through traffic accessing NE 2<sup>nd</sup> Avenue. The segment of NE 46<sup>th</sup>

Street east of N Miami Avenue is classified as an urban collector which is contrary to the characteristics of the street.

- **NE 54<sup>th</sup> Street** – Intersection deficiencies have been identified at the eastern end of this roadway at Federal Highway and Biscayne Boulevard. Traffic flow from southbound Biscayne Boulevard onto southbound Federal Highway has been identified as being inefficient, as well as the opposite northbound traffic flow from Federal Highway transitioning to Biscayne Boulevard. Insufficient storage between the two intersections (Federal Highway and Biscayne Boulevard) has been identified.

Lack of roadway continuity further inhibits both north-south and east-west traffic flow through the study area. Several north-south streets lack continuity including NW 5<sup>th</sup> Avenue, NW 3<sup>rd</sup> Avenue, and NW 1<sup>st</sup> Avenue. NW 5<sup>th</sup> Avenue is interrupted at I-195 and cannot be connected without the reconstruction of the S.R. 112/I-95 interchange to provide additional clearance. In addition, the alignments of I-95 and I-395 preclude the continuity of NW 5<sup>th</sup> Avenue to the south into Downtown Miami. The alignment of NW 3<sup>rd</sup> Avenue is interrupted at NW 30<sup>th</sup> Street by Eneida M. Hartner Elementary School. NW 1<sup>st</sup> Avenue is interrupted between NW 25<sup>th</sup> Street and NW 23<sup>rd</sup> Street although an opportunity may exist to connect NW 1<sup>st</sup> Avenue by acquiring the warehouses located between those two blocks. However, the alignment of the Metrorail to the south of I-395 also interrupts the continuity of NW 1<sup>st</sup> Avenue.

The continuity of several east-west streets are interrupted by the FEC rail corridor, which has a limited number of grade crossings. Several east-west streets are skewed between the FEC rail corridor and Biscayne Boulevard. Intersections near grade crossings, such as NW 20<sup>th</sup> Street at NE 2<sup>nd</sup> Avenue and NE 20<sup>th</sup> Street at N Miami Avenue, are offset and would benefit from realignment.

Although there is a significant amount of on-street parking in the study area, its location primarily within residential neighborhoods does not warrant restrictions to help increase roadway capacity. However, the existing peak period parking restrictions along significant corridors such as NW 7<sup>th</sup> Avenue and N Miami Avenue should be more strictly enforced to preserve capacity in these corridors.

## **Transit**

Existing transit service within the study area is comprised of Miami-Dade Transit (MDT) Metrobus routes. Metrobus service primarily travels along major thoroughfares and caters mainly to regional transportation needs. The majority of the bus routes within the study area are located along Biscayne Boulevard and primarily serve north-south mobility needs. The Little Haiti Connector is the only route that provides localized service and primarily travels north-south following an indirect route, winding through neighborhoods, connecting Little Haiti with the Design District. East-west transit service is mostly limited to the NW/NE 36<sup>th</sup> Street corridor, which can be largely attributed to the limited crossings along the Florida East Coast (FEC) rail corridor.

During the background research portion of this study, several transit service gaps were identified. These included service gaps north of I-195 and along N Miami Avenue. Limited grade crossings of the FEC rail corridor north of I-195 contribute to the lack of east-west bus routes in this area. NE 2<sup>nd</sup> Avenue bus routes are also disconnected from land uses to the west such as Midtown Miami, because NE 2<sup>nd</sup> Avenue runs parallel to the FEC rail corridor with its limited grade crossings south of NE 36<sup>th</sup> Street. The lack of transit service along the N Miami Avenue corridor also negatively impacts accessibility to transit. There are no east-west bus routes between NE 54<sup>th</sup> Street and NE 36<sup>th</sup> Street or between NE 36<sup>th</sup> Street and NE 20<sup>th</sup> Street. This spacing of approximately one mile between routes is below urban transit service standards. In addition, there are no direct transit routes connecting the study area with the Health District.

With the potential for commuter rail service along the FEC rail corridor and the construction of the Miami Streetcar, transit options will eventually improve. The South Florida East Coast Corridor study has examined the suitability of commuter rail station locations. Four locations were identified within the study area as having high suitability based on criteria such as land use and proximity to dense populations. The planned Miami Streetcar will provide connections to Downtown Miami and the Health District. However, bicycle and pedestrian access to future rail and existing bus routes has been identified as a potential deficiency.

The overall lack of infrastructure and amenities such as benches and shelters at bus stops make transit a less desirable mode. There is a widespread absence of transit infrastructure along NW 2<sup>nd</sup> Avenue, NE 2<sup>nd</sup> Avenue, Biscayne Boulevard and NW/NE 36<sup>th</sup> Street. South Florida has extreme and fluctuating weather patterns during the summer months. The lack of bus stop amenities exposes those who ride transit to the elements, such as rain and the sun, and makes transit less desirable for potential riders. Providing the needed transit facilities will help coax “choice riders” to use transit as a transportation alternative.

### **Bicycle**

There is a general lack of bicycle facilities and continuous routes within the study area. Most streets within the study area are primarily designed for motorized vehicles at the expense of non-motorized modes of travel. Currently, the lack of convenient and appropriate bicycle facilities in the area often leads to bicyclists riding in mixed traffic conditions, which may discourage some people who would like to bicycle as a means of transportation or recreation. The only refuge bicyclists have from vehicular traffic is the sidewalk, which is not appropriate due to potential conflicts with pedestrians and sidewalk clutter such as light poles and bus stop infrastructure. In order for the area to be less reliant upon the automobile, multiple modes of transportation must be provided. Bicycles are a viable alternate mode of transportation. In addition, bicycles do not require much space for parking and can be easily stored on buses making them ideal for transit riders, consequently expanding transit service coverage.

### **Pedestrian**

The success of transit and other alternative modes of travel are highly dependant on the provision of pedestrian facilities and amenities. As a travel mode, walking offers the potential to reduce traffic congestion by encouraging short trips to be made on foot and by increasing accessibility to public transportation. As a recreational activity, walking offers the potential to contribute to a healthy population.

In general, there are large gaps in pedestrian facilities. Pedestrian facilities within the core study area have been identified as being sporadic and lacking consistency. Examples include lack of sidewalks, discontinuous sidewalks, lack of crosswalks, and excessive driveway curb cuts. In addition, pedestrian facilities at intersections have been noted as not satisfying ADA requirements, providing deficient crossings and lacking pedestrian signal heads and push buttons.

One of the more prominent examples is the lack of pedestrian continuity between existing transit service along NE 2<sup>nd</sup> Avenue and areas to the west including Midtown Miami. Another area lacking enhanced pedestrian corridors is the neighborhood north of I-195 between N Miami Avenue and NW 2<sup>nd</sup> Avenue. If pedestrian corridors and enhancements are developed and accessibility is improved, there may be a greater propensity to use transit.

## **Neighborhood Traffic Management**

Traffic management concerns in residential neighborhoods have been identified including speeding, cut-through traffic, and safety. Concerns over excessive speeds exist along the corridors of N Miami Avenue north of N 41<sup>st</sup> Street and also along NW 2<sup>nd</sup> Avenue north of NW 36<sup>th</sup> Street. Cut-through traffic concerns have been expressed for the segment of NE 46<sup>th</sup> Street between N Miami Avenue and NE 2<sup>nd</sup> Avenue; vehicles have been using this roadway as a direct route between N Miami Avenue and NE 2<sup>nd</sup> Avenue. Safety has also been a concern along N Miami Avenue north of N 36<sup>th</sup> Street due to excessive speeds along this corridor.

## TRANSPORTATION MOBILITY STRATEGIES

Based on the transportation data analysis and identification of transportation needs described earlier in this report, a program of transportation strategies has been developed to accommodate local mobility needs for the NW/NE 36<sup>th</sup> Street study area. The strategies recommended in this study are intended to address transportation system deficiencies while also enhancing the character of the community and improving the quality of life for its residents.

The transportation mobility strategies are divided into sections based on transportation mode. The strategies that specifically address traffic and roadway needs have been further divided into two sections: transportation system management (TSM) and neighborhood traffic management. Sections addressing mobility strategies for alternative transportation modes include transit, bicycle, and pedestrian. Table 13 presents all recommended improvements and the following sections explain the improvements in greater detail.

### **Transportation System Management Strategies**

Transportation system management (TSM) is the process of modifying or optimizing the existing transportation system through less capital intensive means to increase system efficiency. Unlike Transportation Demand Management (TDM) which focuses on driver behavior, TSM strategies focus on physical changes to the roadway network that increase capacity through less capital intensive measures than traditional roadway widening, including working within the constraints of existing right-of-way where possible. Most of the major roadways within the study area are constrained from widening by the existing available right-of-way. Potential TSM strategies are discussed below.

- **Traffic Signal Optimization** – Coordinating a group of traffic signals can provide efficient vehicle progression along a roadway corridor. Cycle lengths and signal offsets can be optimized to increase vehicle throughput. However, the needs of pedestrians must also be considered when timing traffic signals by providing sufficient pedestrian clearance intervals.
- **Geometric Improvements** – Spot roadway and lane improvements can be implemented to provide relief for specific bottlenecks along a corridor.
- **Intersection Improvements** – Intersections often represent the most severe capacity constraints on roadway networks in urban environments. Capacity improvements at intersections can often increase the capacity of an urban transportation network. Intersection improvement strategies include changes in traffic control, signal phasing modifications, safety improvements, pedestrian infrastructure, construction of additional turn lanes, or other traffic treatments.
- **Access Management Enhancements** – Access management is a comprehensive approach to the management and regulation of driveways, medians, median openings, and traffic signals. The goal of access management is to limit and separate traffic conflict points. Urban corridors with a proliferation of poorly located and closely spaced driveways, intersections, and traffic signals are candidates for access management enhancements.

Based on the mobility needs of the NW/NE 36<sup>th</sup> Street study area, TSM strategies offer the potential to increase transportation network capacity without requiring large scale right-of-way acquisition. A number of the traffic operations improvements listed in Table 13 are TSM strategies. Many of these improvements are described in the following section describing traffic operations improvements.

**Table 13: Recommended Improvements**

Location	Improvement Description	Jurisdiction <sup>1</sup>
<b>Traffic Operations</b>		
N 36 <sup>th</sup> St @ N Miami Ave	Upgrade eastbound and westbound signal heads to include protective-permissive phasing	FDOT/MDC
NE 36 <sup>th</sup> St @ NE 2 <sup>nd</sup> Ave/Federal Hwy	Provide a ten second protected lead for eastbound left turns onto Federal Highway and NE 2 <sup>nd</sup> Avenue	FDOT/MDC
NE 36 <sup>th</sup> St @ Biscayne Blvd	Overlap eastbound right-turn with northbound-southbound left-turns	FDOT/MDC
NE 54 <sup>th</sup> St @ Biscayne Blvd	Restripe eastbound approach to make two left-turn lanes and one right-turn lane, and overlap eastbound right-turn with northbound left-turn	FDOT/MDC
Federal Hwy North of NE 54 <sup>th</sup> St	Construct a connector road between Biscayne Boulevard and Federal Highway allowing southbound traffic to bypass the intersection of NE 54 <sup>th</sup> Street and Biscayne Boulevard.	FDOT/COM
N Miami Ave @ I-195 Ramps	Install "Do Not Block Intersection" signs	MDC
N Miami Ave @ I-195 Ramps	Eliminate on-street parking on the east side of N Miami Avenue between 38 <sup>th</sup> and 39 <sup>th</sup> Street to provide an additional northbound through lane	COM/ MDC
N Miami Ave @ I-195 Ramps	Construct connector road at eastbound off-ramp to connect with NE 1 <sup>st</sup> Avenue	FDOT/COM
N Miami Ave @ I-195 Ramps	Improve turning radii	FDOT/MDC
N 20 <sup>th</sup> St @ N Miami Ave	Improve intersection alignment	MDC/COM
NE 29 <sup>th</sup> St @ NE 2 <sup>nd</sup> Ave	Improve intersection alignment	MDC/COM
NE 36 <sup>th</sup> St @ NE 1 <sup>st</sup> Ave	Install new traffic signal	FDOT/MDC
NW 7 <sup>th</sup> Ave	Implement Reversible Lanes	MDC/FDOT
N Miami Ave @ N 34 <sup>th</sup> St	Install new traffic signal	MDC
N Miami Ave @ N 29 <sup>th</sup> St	Improve traffic signal	MDC
<b>Neighborhood Traffic Management</b>		
N Miami Ave between N 39 <sup>th</sup> St and N 54 <sup>th</sup> St	Construct a median similar to the median along N Miami Avenue adjacent to Midtown Miami	COM
<b>Transit</b>		
FEC Rail Corridor	Premium transit service	FDOT/MDT
Miami Streetcar	Implement streetcar transit service	COM/MDT
Along major bus routes	Provide bus stop improvements, such as shelters that provide protection from the elements and benches, at locations where space is available	COM
N Miami Ave from N 54 <sup>th</sup> St south to N 20 <sup>th</sup> St then east to NW 8 <sup>th</sup> Ave to the Hospital District	Realign Little Haiti Connector Metrobus Route	MDT
<b>Bicycle/Pedestrian</b>		
Federal Hwy from 36 <sup>th</sup> St to the north of 54 <sup>th</sup> St	Add bicycle lanes/facilities	COM
Biscayne Blvd @ I-195 Overpass	Install ADA compliant ramps	FDOT
NE 2 <sup>nd</sup> Ave between NE 20 <sup>th</sup> St and 54 <sup>th</sup> Ave	Add bicycle lanes/features	COM/ MDC
20 <sup>th</sup> St @ N Miami Ave	Install ADA compliant ramps, pedestrian signal heads, and push buttons	MDC
NW 29 <sup>th</sup> St @ NW 5 <sup>th</sup> Ave	Install ADA compliant ramps	MDC/COM
NE 29 <sup>th</sup> St @ NE 2 <sup>nd</sup> Ave	Install ADA compliant ramps	MDC/COM
NE 29 <sup>th</sup> St @ Biscayne Blvd	Install ADA compliant ramps, pedestrian signal heads and crosswalk markings	FDOT/MDC
NE 33 <sup>rd</sup> St @ Biscayne Blvd	Install pedestrian signal heads	FDOT/MDC
NW 36 <sup>th</sup> St @ NW 5 <sup>th</sup> Ave	Install pedestrian signal heads	FDOT/MDC
N 36 <sup>th</sup> St @ N Miami Ave	Install pedestrian signal heads and push buttons	FDOT/MDC
NE 39 <sup>th</sup> St between N Miami Ave and NE 1 <sup>st</sup> Ave	Streetscape improvements	COM
NW 46 <sup>th</sup> St @ N Miami Ave	Install ADA compliant ramps, pedestrian signal heads, and push buttons	MDC
Between I-95 and N Miami Ave	Develop potential east-west pedestrian corridors to improve residential neighborhood pedestrian connections to transit	COM
N Miami Ave north of I-195	Install textured crosswalks along N Miami Avenue to complement east-west pedestrian corridors	MDC/COM
Buena Vista Historical District	Develop potential east-west pedestrian corridors to improve residential neighborhood pedestrian connections to transit	COM
Wayfinding Signage System	Install wayfinding signage to enhance accessibility of study area destinations	COM

Note: (1) FDOT = Florida Department of Transportation, MDC = Miami-Dade County, COM = City of Miami, MDT = Miami-Dade Transit

## Traffic Operations Improvements

Several intersections were identified during this study for potential operational improvements including realignment, geometrical changes, and signal optimization. These improvements were based on existing traffic volumes and anticipated future traffic from new developments. In addition, study area roadway segments and intersections were identified as having a high amount of crashes. Improvements, such as protected left-turn signal phases at signalized intersections, have been developed to improve safety at several of these locations. The following specific traffic operations improvements were identified:

- N 36<sup>th</sup> Street and N Miami Avenue – Upgrade the eastbound and westbound signal heads to provide protected-permissive phasing for left turns. Noted in the field was the absence of an eastbound and westbound protected left-turn phase, which caused delay, with left-turn queues sometimes blocking heavy through traffic. In addition, this improvement should improve safety.
- NE 36<sup>th</sup> Street and NE 2<sup>nd</sup> Avenue/Federal Highway – Provide a ten-second protected lead for the eastbound left turn onto Federal Highway and NE 2<sup>nd</sup> Avenue. Observed in the field was the absence of a protected eastbound left-turn phase for traffic turning northbound onto Federal Highway and NE 2<sup>nd</sup> Avenue. This improvement will reduce delay and improve safety.
- NE 36<sup>th</sup> Street and Biscayne Boulevard – Overlap eastbound right turns with northbound-southbound left turns. Observed in the field was excessive delay on the eastbound approach, which this improvement will help alleviate.
- NE 54<sup>th</sup> Street and Biscayne Boulevard – Restripe eastbound approach to provide two left-turn lanes and one right-turn lane, and overlap the eastbound right turn with northbound left turns. Presently, the lane configuration is a left, shared left/right, and a right, and the eastbound approach has limited storage. Restriping would allow an eastbound right-turn overlap phase and also provide more dedicated storage for eastbound left turns.
- Federal Highway north of NE 54<sup>th</sup> Street – Construct a connector road between Biscayne Boulevard and Federal Highway. Just north of 54<sup>th</sup> Street, Federal Highway and Biscayne Boulevard almost converge. This improvement would allow southbound traffic to bypass the intersection of NE 54<sup>th</sup> Street and Biscayne Boulevard.
- N Miami Avenue and I-195 ramps – Install “Do Not Block Intersection” signs and enforce this regulation to reduce vehicles blocking the intersection. Eliminate on-street parking on the east side of N Miami Avenue between N 38<sup>th</sup> and N 39<sup>th</sup> Streets to provide two northbound lanes. Construct a connector road at the eastbound I-195 off-ramp to connect with NE 1<sup>st</sup> Avenue to reduce the demand for southbound left turns at the intersection of N Miami Avenue and N 36<sup>th</sup> Street, which will increase with the Midtown Miami project. Improve turning radius to accommodate for truck traffic at the westbound on-ramps.
- N 20<sup>th</sup> Street and N Miami Avenue – Improve intersection alignment. Presently the eastbound and westbound approaches are offset, creating sight distance deficiencies resulting in a safety hazard.
- NE 29<sup>th</sup> Street and NE 2<sup>nd</sup> Avenue – Improve intersection alignment. Presently the eastbound and westbound approaches are offset creating sight distance deficiencies and degrading safety.
- N Miami Avenue between 39<sup>th</sup> Street and 54<sup>th</sup> Street – Construct a median similar to the median along N Miami Avenue adjacent to the Midtown Miami development. Concerns about speeding have been raised along this segment of N Miami Avenue. This improvement would help calm traffic by giving the driver the perception of a narrower roadway.
- N 36<sup>th</sup> Street and NE 1<sup>st</sup> Avenue – New signal installation. With the completion of Midtown Miami, a new signal will be installed at the northern access point of the development. New features will include pedestrian signal heads, push buttons, and crosswalks.
- NW 7<sup>th</sup> Avenue – A reversible lane project is in the preliminary engineering phase for NW 7<sup>th</sup> Avenue. The project will extend from the Golden Glades Interchange to Downtown Miami. The reversible lanes will provide added southbound capacity in the morning and added northbound capacity in the afternoon.

- N Miami Avenue and N 34<sup>th</sup> Street – New signal installation. With the completion of Midtown Miami, a new signal will be installed at the northern access point of the development. New features will include pedestrian signal heads, push buttons, and crosswalks.

In addition to these recommendations, this study also recommends maintaining the existing number of lanes on NE 2<sup>nd</sup> Avenue through the Design District. The volume to capacity analysis conducted in this study determined that it is important to preserve existing roadway capacity to accommodate existing traffic volume along with future growth.

The recommended traffic operations improvements are presented in Figure 12.

### **Neighborhood Traffic Management**

Neighborhood traffic management seeks to improve neighborhood livability by reducing the impact of traffic in residential neighborhoods and promoting safe and pleasant conditions for all users of local streets.

Motorists often take advantage of long, straight roadways to drive more aggressively and at higher speeds than is appropriate on residential roadways. Neighborhood traffic management can be accomplished through means such as traffic calming measures to physically alter the environment or increased enforcement levels to change driver behavior. Since capacity for increased enforcement is often limited, local agencies often employ traffic calming techniques as a method of slowing automobile traffic on residential and local streets. Traffic calming techniques include measures to alter motorists' perception, such as streetscape, and measures to alter the physical nature of the roadway, such as constructing traffic circles or other physical traffic calming devices.

Neighborhood traffic management strategies are important components of enhancing the quality of life for residents. The following are the recommended neighborhood traffic management strategies for the study area:

- Construction of median improvements along N Miami Avenue between 39<sup>th</sup> Street and 54<sup>th</sup> Street to reduce speeding and dissuade cut-through traffic from entering neighborhood streets.
- Implement neighborhood traffic management strategies in single-family residential neighborhoods.

The recommended improvements are presented in Figure 12.

### **Transit**

During this study, it was determined that there is limited transit service in certain portions of the study area. While service provided by Miami-Dade Transit (MDT) is well-focused on regional travel, circulation for shorter trips within the study area is not served as well.

The FEC rail corridor has the potential to provide much needed premium transit service in the area. According to the South Florida East Coast Corridor Study, locations at NE 54<sup>th</sup> Street, NE 29<sup>th</sup> Street, and NE 20<sup>th</sup> Street were identified as having land use with high suitability for a station, but low potential ridership. A potential station location at NE 39<sup>th</sup> Street was identified as having medium-high land use suitability, but higher potential ridership suitability.

The Miami Streetcar presents another great opportunity for premium local transit service within the study area. The proposed alignment will complement the need for alternate modes of transportation within the areas of highest density.

The short-term transit improvements recommended in this study are as follows:

- Realign Little Haiti Connector Metrobus route to provide service along N Miami Avenue and extend service to the Health District. This improvement will better serve the residential neighborhoods and Midtown Miami, and will provide direct transit service to the Health District.
- Provide bus stop improvements, such as shelters that provide protection from the elements and benches, at locations where space is available.

The recommended transit improvements are presented in Figure 12.

### **Bicycle/Pedestrian**

While many bicyclists were observed in the field during this study, dedicated bicycle paths do not exist within the study area. This lack of facilities results in conflicts between bicyclists, motorists, and pedestrians. Pedestrian facilities are also less than adequate in certain areas. The main issues noted were lack of proper pedestrian signal heads at major intersections, lack of pedestrian crossing buttons, and lack of Americans with Disabilities Act (ADA) compliance.

The FEC rail corridor has been identified in the Miami-Dade MPO bicycle facilities plan for a potential bicycle route known as the Flagler Trail. The route outlined in the bicycle facilities plan would be located along the FEC rail corridor, traversing the study area from north to south. This route would provide a continuous north-south bicycle trail through the study area connecting with Downtown Miami and linking with the other bicycle trails throughout the county.

Multiple intersections were noted as not including pedestrian and ADA compliant features. These intersections are lacking pedestrian signal heads, push buttons, and ADA compliant ramps. The following is a list of deficient intersections and the features they need:

- Biscayne Boulevard and the I-195 Overpass – Install ADA compliant ramps. The north side of the intersection is lacking ADA compliant features. In addition, the northwest corner of the intersection is lacking a pedestrian ramp.
- N 20<sup>th</sup> Street and N Miami Avenue – Install ADA compliant ramps, pedestrian signal heads, and push buttons.
- NW 29<sup>th</sup> Street and NW 5<sup>th</sup> Avenue – Install ADA compliant ramps.
- NE 29<sup>th</sup> Street and NE 2<sup>nd</sup> Avenue – Install ADA compliant ramps.
- NE 29<sup>th</sup> Street and Biscayne Boulevard – Install ADA compliant ramps, pedestrian signal heads, crosswalk pavement markings, and reconstruct sidewalks. Sidewalks and ramps at this intersection have deteriorated.
- NE 33<sup>rd</sup> Street and Biscayne Boulevard – Install pedestrian signal heads.
- NW 36<sup>th</sup> Street and NW 5<sup>th</sup> Avenue – Install pedestrian signal heads.
- N 36<sup>th</sup> Street and N Miami Avenue – Install pedestrian signal heads and push buttons.
- NW 46<sup>th</sup> Street and NW 2<sup>nd</sup> Avenue – Install ADA compliant ramps, pedestrian signal heads, and push buttons.

The following non-intersection related bicycle/pedestrian improvements were identified:

- Federal Highway between NE 36<sup>th</sup> Street to north of NE 54<sup>th</sup> Street – The right-of-way along Federal Highway offers the potential to accommodate bike lanes. With potential future passenger rail service in the FEC rail corridor, this corridor could provide a multi-modal connection for commuters.

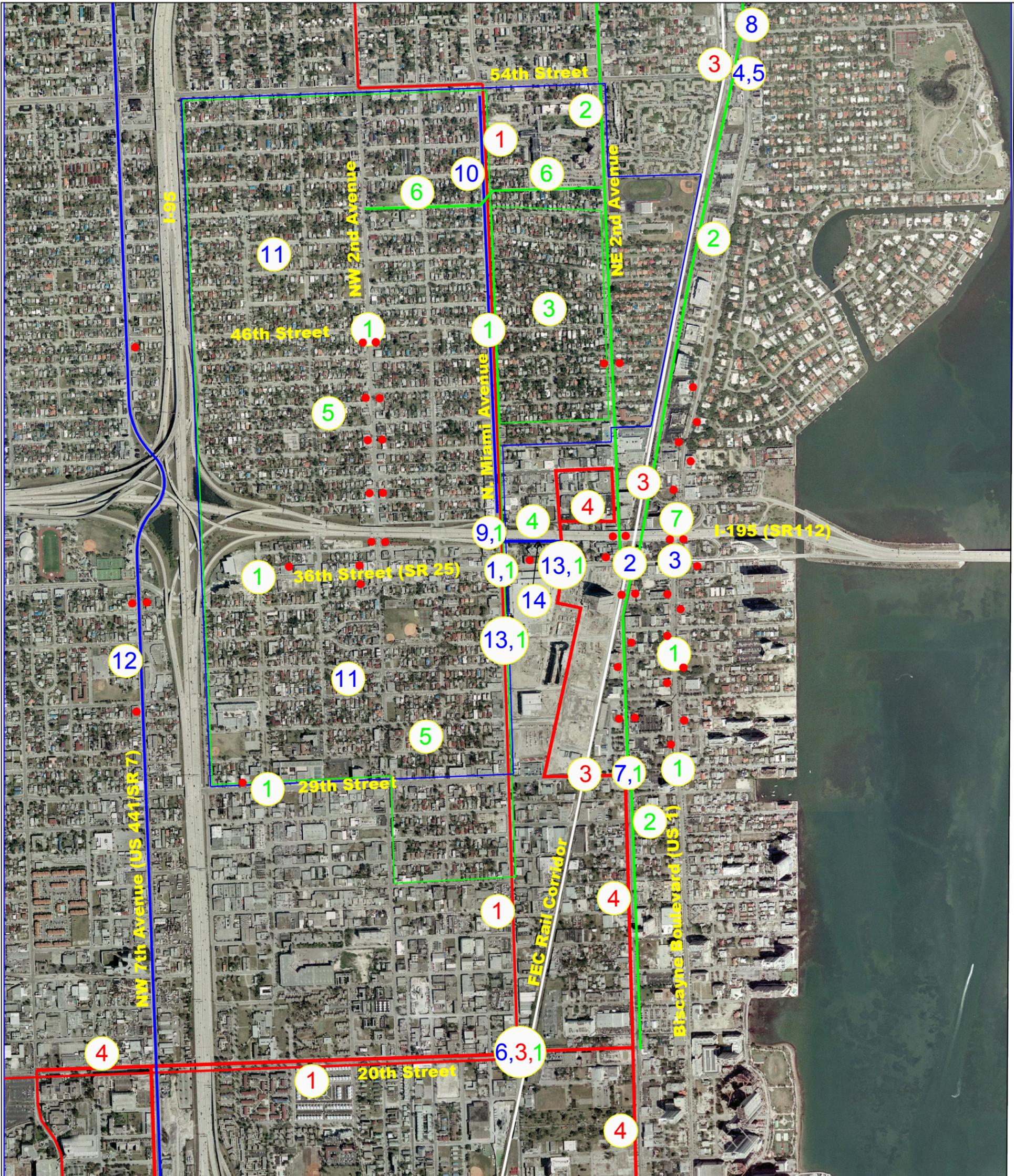
- NE 2<sup>nd</sup> Avenue between NE 20<sup>th</sup> Street and 54<sup>th</sup> Street – This roadway was identified as a potential bicycle corridor by the City of Miami. Presently, no bicycle lanes are provided. The roadway has ample right-of-way and would provide a north-south bicycle corridor through the study area. Improvements to NE 2<sup>nd</sup> Avenue, which include bicycle lanes, are currently in the design phase.
- NE 38<sup>th</sup> Street between N Miami Avenue and NE 1<sup>st</sup> Avenue – Sidewalks are lacking continuity due to overgrown landscaping and other various obstacles. Sidewalk and streetscape improvements would provide a pedestrian corridor to connect to future transit along N Miami Avenue and also enhance aesthetics.
- Between I-95 and N Miami Avenue – Identify potential east-west pedestrian corridors to improve residential neighborhood pedestrian connections to transit. Identified, was the need to provide neighborhood pedestrian connections to transit. This improvement would make transit more easily accessible to residential neighborhoods.
- N Miami Ave north of I-195 – Install textured crosswalks along N Miami Avenue to complement east-west pedestrian corridors. These pedestrian features will provide an extra safety feature for pedestrians by emphasizing the pedestrian crosswalks.
- Buena Vista Historical District Streetscape Improvements – Extend improvements to the north to NE 50<sup>th</sup> Street. This improvement will provide better pedestrian connections for the schools in the area.
- Bicycle racks should be provided at major entertainment, recreational, and retail locations to encourage bicycling as an alternate mode of transportation.

Two intersections adjacent to the Midtown Miami mixed-use development, one located on NE 36<sup>th</sup> Street at NE 1<sup>st</sup> Avenue and one located on N Miami Avenue at N 34<sup>th</sup> Street, are proposed to be signalized and incorporate pedestrian features into the intersection design. The existing signalized intersection at NE 29<sup>th</sup> Street and N Miami Avenue will be upgraded to include pedestrian features as well. The recommended pedestrian/bicycle improvements are presented in Figure 12.

The study area has a variety of destinations; a wayfinding signage system would assist in directing visitors to the various points of interest. A wayfinding signage system would benefit both pedestrian and automobile modes of transportation. Given the lack of continuity of some major roadways and limited crossings along the FEC rail corridor, a wayfinding signage system would direct visitors effectively and provide uniform sign design, eliminating a hodgepodge of uncoordinated signage.

The NW 2<sup>nd</sup> Avenue corridor between NW 36<sup>th</sup> Street and NW 20<sup>th</sup> Street has not been identified for any specific recommendations. The main contributing factor for the lack of specific improvements is the lack of available right-of-way. Any improvements would have right-of-way impacts on businesses and residential neighborhoods. Therefore, recommendations that would require right-of-way acquisition were not considered.

FIGURE 12: RECOMMENDED IMPROVEMENTS



POTENTIAL PROJECT REFERENCE NUMBER AND DESCRIPTION

- TRAFFIC:  
RECOMMENDED IMPROVEMENTS**
- 1. N 36TH ST & N MIAMI AVE (SIGNAL IMPROVEMENTS)
  - 2. NE 36TH ST & FEDERAL HWY/NE 2ND ST (SIGNAL IMPROVEMENTS)
  - 3. NE 36TH ST & BISCAYNE BLVD (SIGNAL IMPROVEMENTS)
  - 4. NE 54TH ST & FEDERAL HWY (SIGNAL/INTERSECTION IMPROVEMENTS)
  - 5. NE 54TH ST & BISCAYNE BLVD (SIGNAL/INTERSECTION IMPROVEMENTS)
  - 6. N 20TH ST & N MIAMI AVE (INTERSECTION REALIGNMENT)
  - 7. NE 29TH ST & NE 2ND AVE (INTERSECTION REALIGNMENT)
  - 8. FEDERAL HWY AND BISCAYNE BLVD CONNECTOR (CONNECT SOUTHBOUND BISCAYNE BLVD TO SOUTHBOUND FEDERAL HWY)
  - 9. I-195 RAMPS & N MIAMI AVE (INTERSECTION IMPROVEMENTS)
  - 10. N MIAMI AVE MEDIAN IMPROVEMENTS (N 38TH STREET TO N 54TH STREET)

- 11. NEIGHBORHOOD TRAFFIC MANAGEMENT (TRAFFIC CALMING AND CUT THROUGH TRAFFIC DETERRENTS) (AREA OUTLINED IN BLUE)
- 12. SR 7 REVERSIBLE LANE PROJECT
- 13. NEW SIGNALS
- 14. NEW FRONTAGE ROAD

- TRANSIT:  
RECOMMENDED IMPROVEMENTS**
- 1. REROUTE LITTLE HAITI CONNECTION
  - 2. BUS STOP IMPROVEMENTS (LOCATIONS WITH SPACE FOR IMPROVEMENTS REPRESENTED BY RED DOTS ON MAP)
  - 3. FEC CORRIDOR (POTENTIAL COMMUTER RAIL STATION LOCATIONS)
  - 4. MIAMI STREETCAR

- BICYCLE-PEDESTRIAN:  
RECOMMENDED IMPROVEMENTS**
- 1. PEDESTRIAN SIGNAL FEATURES/ADA IMPROVEMENTS
  - 2. BICYCLE FACILITIES
  - 3. BUENA VISTA EAST HISTORIC DISTRICT (STREETSCAPE IMPROVEMENTS, EXTEND TO NE 50TH STREET)
  - 4. NE 38TH STREET (STREETSCAPE IMPROVEMENTS)
  - 5. IMPROVE PEDESTRIAN CONNECTIONS BETWEEN I-95 AND N MIAMI AVENUE (INCLUDING TEXTURED CROSSWALKS ALONG N MIAMI AVENUE)
  - 6. IMPROVE PEDESTRIAN CONNECTIONS BETWEEN SCHOOLS AND AGED HOME
  - 7. INSTALL ADA COMPLIANT RAMPS



## SUMMARY AND NEXT STEPS

This study developed a multi-modal mobility plan for the NW/NE 36<sup>th</sup> Street study area aimed at improvements that will facilitate transportation options and improve quality of life for those that live and work in the area. The product of the study is a program of interrelated transportation improvements to address traffic congestion and provide attractive alternatives to the single occupant automobile as a method of transportation.

The study area is located between dense residential areas and major employment centers including Downtown Miami, Brickell, and the Health District. Its location in the middle of these dense residential and major employment centers results in heavy demand on its transportation facilities during peak periods. The intense development presently occurring within the study area, including the Midtown Miami project and approximately 40 additional projects in various stages of the development process, will place additional demand on the transportation network in the near future.

There have been many transportation studies performed over the years and a number of capacity enhancing improvements have been recommended; however, few of these improvements have been incorporated into relevant transportation programs with appropriate funding allocated. In particular, several of the recommended improvements from the I-195 PD&E study remain viable improvements for the study area, and these improvements were included as part of the recommended improvements of this study.

A number of transportation issues were identified during the course of this study including:

- Lack of overall north-south capacity
- Intersection capacity constraints
- Limited available right-of-way to facilitate roadway widening
- Increased future travel demand resulting from intense redevelopment
- Transit service gaps north of I-195 and along N Miami Avenue
- Lack of amenities at bus stops including benches and shelters
- Absence of designated bicycle facilities
- Gaps in pedestrian facilities
- Missing crosswalks and pedestrian features at signalized intersections
- Concerns over speeding and excessive cut-through traffic in residential neighborhoods

A program of transportation strategies was developed to address transportation system deficiencies. The transportation mobility strategies were grouped into sections based on transportation mode including traffic (transportation system management (TSM) and neighborhood traffic management), transit, bicycle, and pedestrian. The recommended improvements range from specific intersection improvements to new fixed guideway transit lines.

The *NW/NE 36<sup>th</sup> Street Study* provides the framework to assist in the programming of transportation improvements. Agencies have been identified for implementing the improvements based on jurisdictional responsibility. The improvements should be adopted into the appropriate plans and programs of the specified agencies. The study may also be used as a tool to seek funding to implement transportation improvements, as the plan demonstrates that there is a comprehensive vision toward providing multi-modal transportation opportunities to reduce reliance on the single occupant automobile. Finally, the study should be examined periodically to assess the status of the implementation of the identified improvements.