

LANE ELIMINATION APPLICATION

SR811:
NE 4TH
AVENUE/
WILTON
DRIVE

September 2016

Revised Sept. 16, 2016

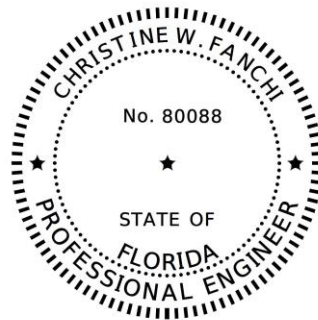




TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	3
INTRODUCTION.....	6
I. CORRIDOR CHARACTERISTICS.....	7
II. CONCEPT DESIGN.....	14
III. TRANSPORTATION IMPACT ANALYSIS.....	16
IV. RECOMMENDATION.....	30

LIST OF FIGURES

FIGURE 1: PROJECT LOCATION.....	6
FIGURE 2: EXISTING NE 4 TH AVENUE.....	7
FIGURE 3: EXISTING WILTON DRIVE.....	7
FIGURE 4: STRAVA BIKE DATA MAP FOR PROJECT AREA.....	9
FIGURE 5: STRAVA BIKE COUNTS.....	9
FIGURE 5: PROPOSED TYPICAL SECTION FOR NE 4 TH AVE & WILTON DRIVE.....	14
FIGURE 6: PROPOSED TYPICAL SECTION FOR NE 4 TH AVE & WILTON DRIVE.....	15

LIST OF TABLES

TABLE 1: SR811 FDOT AADT HISTORICAL REPORT, SITE 0002.....	16
TABLE 2: SR811 FDOT AADT HISTORICAL REPORT, SITE 0212.....	17
TABLE 3: NE 4 TH AVENUE ACTUAL TRAFFIC VOLUMES, 2015.....	18
TABLE 4A: CORRIDOR PERFORMANCE EVALUATION, PEAK HOUR, YEAR 2015.....	19
TABLE 4B: SCHOOL PEAK HOUR VS. PEAK HOUR, 2015.....	19
TABLE 5: EXISTING SPEED DATA.....	19
TABLE 6: LOS TABLE.....	21
TABLE 7: INTERSECTION PERFORMANCE EVALUATION, 2015.....	22
TABLE 8A: FORECASTED FUTURE TRAFFIC VOLUMES.....	22
TABLE 8B: FORECASTED FUTURE PEAK HOUR PERFORMANCE.....	23
TABLE 9: INTERSECTION PERFORMANCE EVALUATION, 2035.....	23
TABLE 10: CORRIDOR PERFORMANCE EVALUATION, BEFORE & AFTER.....	23
TABLE 11: PROPOSED TURN LANE QUEUE LENGTHS.....	25
TABLE 12: CRASH MODIFICATION FACTORS.....	29



APPENDIX

APPENDIX A:

- A.1: HISTORICAL FDOT AADT REPORT
- A.2: EXISTING TRAFFIC VOLUMES- AADT & SPEEDS
- A.3: EXISTING TURNING MOVEMENT COUNTS
- A.4: EXISTING TRAFFIC VOLUMES & SPEEDS- DURING SCHOOL YEAR

APPENDIX B: BROWARD COUNTY: TRANSIT ROUTE & BOARDINGS & SIGNAL TIMING SHEETS

APPENDIX C: WILTON DRIVE TIA, 2006

APPENDIX D: FORT LAUDERDALE HIGH SCHOOL COORDINATION

APPENDIX E:

- E.1: CITY OF FORT LAUDERDALE PUBLIC OUTREACH
- E.2: CITY OF WILTON MANORS PUBLIC OUTREACH
- E.3: BROWARD MPO PUBLIC FORUMS
- E.4: FDOT PUBLIC FORUMS (*COMING SEPTEMBER 2016*)
- E.5: COMMISSION RESOLUTION OF SUPPORT: CITY OF FORT LAUDERDALE
- E.6: COMMISSION RESOLUTION OF SUPPORT: CITY OF WILTON MANORS

APPENDIX F:

- F.1: 2015 AM PEAK SYNCHRO ANALYSIS REPORT
- F.2: 2015 PM PEAK SYNCHRO ANALYSIS REPORT
- F.3: 2035 AM PEAK (1-LANE) SYNCHRO ANALYSIS REPORT/2035 AM HCM REPORT
- F.4: 2035 PM PEAK (1-LANE) SYNCHRO ANALYSIS REPORT/2035 PM HCM REPORT

APPENDIX G: FDOT SAFETY IMPROVEMENTS

APPENDIX H: PROPOSED STREET DESIGN PLANS



EXECUTIVE SUMMARY

The City of Fort Lauderdale and Wilton Manors are seeking to eliminate a vehicle lane of traffic in each direction of SR811/NE 4th Avenue/Wilton Drive between Sunrise Boulevard and NE 26th Street. The purpose of this request is to improve safety conditions for all users along the corridor as well as increase the connectivity of the bicycle network through the installation of buffered bicycle lanes. The proposed lane elimination project is consistent with the policy direction provided by residents through the City's Fast Forward Fort Lauderdale 2035 Vision, Complete Streets Policy, Connecting the Block Program, and Vision Zero Initiative.

The addition of bicycle lanes on NE 4th Avenue/Wilton Drive will complete a significant piece of a regional bicycle network that crosses city borders and will connect to complementary efforts in both cities including projects on NE 13th Street, NE 26th Street, and Old Dixie Highway to also add bicycle lanes. This concentration will help to create a mode shift by providing a network of multimodal streets that allow residents the ability to choose to use a bicycle for transportation between residential and commercial districts.

NE 4th Avenue is a prime candidate to repurpose the travel lanes to accommodate multiple modes of transportation due to an array of factors with one of the most significant being that there is already a latent demand with it having one of the highest bicycle trip counts north of Sunrise Boulevard yet has no bicycle facilities. Currently bicyclists must utilize the outside vehicular lane (11' wide) without the presence of bicycle signing or markings. The corridor has 3,000 students within a ½ mile radius surrounding the corridor, three large public parks, 45,000 transit riders per year on Route #50, the highest ratio of children per household at 1 in 4, and an average household income of only \$45,000/year. The posted speed limit along NE 4th Avenue is 30 mph, yet almost half of all vehicles are exceeding the speed limit. There is also a significant safety issue with 575 crashes in only 3 years, including 193 injury and 2 fatalities. Safety improvements such as the implementation of bicycle lanes to improve safety are quantified in the Crash Modifications Factors summarized in Table 13.

The Broward Metropolitan Planning Organization (MPO) has programmed funding for the addition of bicycle lanes on NE 4th Avenue from Sunrise Boulevard to NE 26th Street for design programmed in FY16 and construction in FY18 due to the significance of this project towards the goal of creating a regional bicycle network. NE 4th Avenue is a State roadway and the design and construction of the project will be managed by the Florida Department of Transportation (FDOT). If approved, the proposed lane elimination would be implemented through this project.

Proposed Lane Elimination Project

The project is 1.90 miles along SR811, including one mile within the City of Fort Lauderdale from Sunrise Boulevard to the South Fork of the Middle River and 0.90 miles within Wilton Manors from the South Fork of the Middle River to NE 26th Street.

The existing conditions within the City of Fort Lauderdale is currently two 11-foot lanes in each direction, an 11-foot center turn lane with medians, detached 5-foot sidewalks, and no bike lanes within the 80-feet of rights-of-way. Within Wilton Manors, the street includes 6-foot attached sidewalks, 8-foot on-street parking lanes, 3-foot bike shoulders, four 12-foot travel lanes, and a 12-foot center turn lane within 90-feet of existing rights-of-way.



The proposed lane elimination project would reduce the number of vehicular travel lanes for the entire length of the project to one lane in each direction, plus the center turn lane. The curb lanes would be replaced with buffered bike lanes, bus bays, or wider sidewalks. The eventual design would be approved by the cities of Fort Lauderdale and Wilton Manors, Broward MPO and FDOT through the design process. Left-turn pockets would continue to be provided and lengthened to meet the future traffic growth, and bus stops would be examined for the possibility for relocation based on designated crosswalk locations to improve safety for transit riders. Evaluation of turn lane and bus stop relocation design will be evaluated and determined during the design phase based on existing constraints to include driveway access.

Effect of Proposed Lane Elimination Project on Traffic Flow and Safety

SR811/NE 4th Avenue/Wilton Drive is currently owned and maintained by FDOT and therefore any proposal to eliminate a lane must be considered under a formal Lane Elimination Application reviewed by FDOT staff. The objective of this review is to determine whether any adverse impacts to traffic flow, safety and community interests would occur with the elimination of a vehicle travel lane.

NE 4th Avenue currently does not have any bicycle infrastructure to allow safe travel of bicyclist within this corridor. The traffic analysis completed evaluates the vehicular demand on this corridor down the second, but currently there is no tool to show the non-vehicular demand created by the installation of bicycle infrastructure and improved separation for pedestrians and transit riders. The vehicular traffic analysis does show an increase in delay in seconds for motorists traveling within the one lane scenario. Overall, the analysis concluded that the lane elimination would increase delay for motor vehicles during the worst time of the day by 4 minutes to travel northbound from Sunrise Boulevard to NE 26th Street. This delay is offset in the improved conditions for transit riders, pedestrians, and bicyclists' safety improvements. All efforts to create a balanced, multi-modal facility will be considered to provide ultimate efficiency for the three lane configuration with bike lanes and detached sidewalks to include the addition of right-turn lanes where appropriate, longer left-turn lanes, improved signal timing, and improved coordination of signals.

The proposed lane elimination will significantly improve the safety of all users on the corridor, with special attention paid to the most vulnerable users including bicyclists and pedestrians. There was a total of 575 crashes within the corridor between August 23, 2013 to August 23, 2016, resulting in two fatalities and 193 injury including 26 of those being pedestrians and 22 being bicyclists. By making improvements to the street through traffic calming measures, by reducing the distance that pedestrians must cross the street, and by providing a dedicated, buffered bicycle lane the safety will be improved.

Community Input to Proposed Lane elimination Project

The City of Wilton Manors and the City of Fort Lauderdale have presented the proposal for a lane elimination along SR811/NE 4th Avenue/Wilton Drive to residents and business owners of the surrounding neighborhoods. Since July 2015, the NE 4th Avenue/Wilton Drive lane elimination project has been presented and discussed at over 12 meetings open to the public. The City of Fort Lauderdale has received support from over 60 neighbors adjacent to this project within the South Middle River Terrace Civic Association as well as the Central City Alliance and the Central City CRA. The Middle River Terrace Neighborhood Association provided support to move forward with the analysis and application development; however during their April 14, 2016 meeting pushed the City to continue to investigate alternatives



which did not include the removal of travel lanes due to concerns over traffic congestion. The City of Fort Lauderdale Commission voted on April 19, 2016 to support submitting an application for a Lane Elimination on NE 4th Avenue.

The City of Wilton Manors passed two Commission Resolutions to support the study of the lane elimination and the project to move forward as a lane elimination on November 10, 2015 and April 14, 2016 respectively. In addition to the project being discussed at multiple City Commission meetings and Wilton Drive Improvement District meetings, the City of Wilton Manors held a public meeting on April 12, 2016 specific to this project.



INTRODUCTION

The City of Fort Lauderdale and City of Wilton Manors are seeking to eliminate a lane in each direction on SR811/NE 4th Avenue/Wilton Drive to balance the modes of transportation by adding bike lanes, retaining shade trees, improving pedestrian accommodations for children, neighbors and transit riders, and overall improving safety for all users.

This project is consistent with the policy direction provided in the City of Fort Lauderdale including the City's *Fast Forward Fort Lauderdale 2035 Vision*, Complete Streets Policy, Connecting the Blocks Program and Fort Lauderdale's Vision Zero Initiative. The number one goal established in the Vision was to become a connected City, where it is convenient and safe to move as a pedestrian, bicyclist or public transit passenger. In an effort to deliver that goal, the City executes an annual Neighbor Survey to evaluate progress and establish priorities. In 2014, the number one priority in transportation from Fort Lauderdale residents was to "improve safety of biking". Traffic flow was number four. In 2015, the number one priority of residents improvement to "management of traffic flow" followed closely by "safety of biking". This direction from our residents has determined the charge of the City Transportation and Mobility Department.

Within the City of Fort Lauderdale's Transportation Master Plan, *Connecting the Blocks*, NE SR811/NE 4th Avenue is identified to receive bike lanes and create a critical link of the interconnected bicycle network with Wilton Manors.

In 2006, the City of Wilton Manors completed a traffic analysis along SR811/NE 4th Avenue/Wilton Drive between Sunrise Boulevard to NE 26th Street which recommended a lane elimination to support the goals of creating a pedestrian friendly entertainment/shopping district with calm traffic speeds and safer operations for bikes, transit, and people without severely impacting traffic flow. That previous effort along with more recent community advocacy for the need for improvements along Wilton Drive due to pedestrian incidents has caused the City to revisit the necessary approvals for the lane elimination.

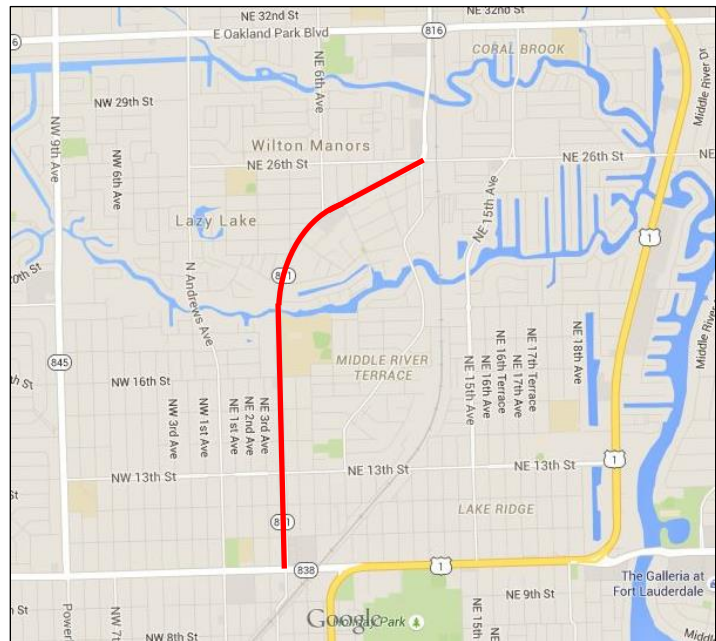


Figure 1: Project Location

To incorporate bicycle lanes on SR811/NE 4th Avenue, the City of Fort Lauderdale is proposed to modify the existing lane configuration from a 4-lane divided roadway without bicycle lanes to a 2-lane divided collector street with buffered bike lanes. The center median and turn lanes will remain. Within the City of Wilton Manors, enhanced bicycle lanes will be implemented as well enhanced pedestrian safety with the elimination of the lanes.



The purpose of this report is to provide data and analysis of the potential impacts to traffic flow, transit operations, bicycle and pedestrian access, emergency access, and traffic crashes. Also included in this report is documentation of the stakeholder coordination and outreach efforts associated with the proposed lane elimination.

It is anticipated that this lane elimination project, if approved, would be funded for implementation through by the Broward MPO through FDOT's project #431657-1.

I. CORRIDOR CHARACTERISTICS

SR811/NE 4th Avenue/Wilton Drive is a north-south state minor arterial street connecting residential and local commercial uses within the City of Fort Lauderdale and Wilton Manors. It is a 4-lane divided street with a raised median and left turn lanes serving the densest population of children within the City of Fort Lauderdale. Within Wilton Manors the roadway is within a prime central business district. Within the City of Fort Lauderdale there is a mix of commercial and residential uses. The roadway within the project corridor includes three schools, three parks, and over 45,000 transit boarding's annually.

The study corridor is 1.90 miles long and extends from Sunrise Boulevard to NE 26th Street. NE 4th Avenue (SR811) is not part of the Strategic Intermodal System (SIS) and is not a designated evacuation route.

A summary of the corridor characteristics include:

Project Length: 5300' (1-mile): City of Fort Lauderdale
 4700' (.90 Miles): City of Wilton Manors
 10,000' (1.9 Miles) Total



Figure 2: Existing NE 4th Avenue in the City of Fort Lauderdale



Figure 3: Wilton Drive in the City of Wilton Manors



Existing Posted Speed:	30 mph
Street Classification:	Commercial Avenue
Access class:	7
ROW width:	80 feet (City of Fort Lauderdale)/90 feet (City of Wilton Manors)
Existing Signals:	10 locations: Sunrise Blvd, NE 11 th St, NE 13 th St, NE 16 th St, and Fort Lauderdale H.S. (Ped Signal), Ped Signal south of NE 21 st St, NE 21 st Ct, NE 6 th Ave, NE 9 th Ave, NE 26 th St
Bus Route:	Route #50 includes 17 bus stop locations (8 NB/9 SB) 18 Min headways during peak periods 30-45 min headways during non-peak periods Over 45,000 people boarding the bus each year (in one direction in this segment)
Schools:	Fort Lauderdale High (NE 16 th St) – Over 2,150 students Northside Elementary (NE 11 th Street). – 500 students Wilton Manors Elementary School (NE 26 th St)- Over 600 students 2 school zones exist – with existing School Zone signal beacons.
Parks:	Warfield Park (NE 11 th Street), Middle River Terrace Park (7 th Avenue) Richardson Park (NE 20 th Street)
Crash Data:	August 23, 2013 to August 23, 2016 (Signal Four Analytics) 575 Total Crashes 316 Passenger Cars 26 Pedestrians 22 Bicyclists 8 Motorcyclists 193 Injuries 16 Incapacitating Injury 2 Fatals (Both Pedestrians)

Neighborhood: Within Fort Lauderdale on the west side of SR811/NE 4th Ave is South Middle River Civic Association and on the east side is Middle River Terrace Neighborhood Association. This community has the highest residential density in the city with more than 12 people/ acre. This community also has the highest number of children per acre at 3 children/ acre (*US Census Bureau American Community Survey 2007-2012- 5 year estimates*). Therefore, 1 in 4 residents in this project are under 18 years old. Also, per census data, this neighborhood includes a high number of households who do not have a vehicle and have an average household income of less than \$45,000/year.

Within the City of Wilton Manors, SR811/Wilton Drive travels through the Central Business District and is the main commercial boulevard. It is located within the Central Area Neighborhood Association. This corridor hosts a dense population of restaurants, shopping, entertainment,



and civic buildings all fronting onto Wilton Drive. Multi-family, condos, apartments and dense single family homes populate the areas just one block off Wilton Drive to allow many residents to utilize transit, walk, and bike to nearby amenities on a daily basis.

Existing preferred bike route: Even with no bike lanes, it is evident from the Strava data in Figure 4 that bicyclists prefer to utilize NE 4th Avenue/Wilton Drive over Andrews Avenue to directly connect them to downtown Fort Lauderdale and central Wilton Manors. This mapping shows the existing demand for bicycle facilities as this only represents those riders who use the Stava Application on their phones. Figure 5 shows the data behind the Strava map illustrating a significant increase bicycling between 2012 to 2014, increasing by 3000% in only 2 years. Part of this increase is likely due to increased usage of Stava, however by numbers alone there is a clear need to provide bike facilities on NE 4th Avenue.

Strava trips noted are only the trips documented by users through the Strava Application on smartphone devices. These trips are only a portion of the actual trips being made along this project corridor. Based on FDOT statewide database for actual tube counts verses Strava counts between 2012-2014, Strava counts make up approximately 4% of actual counts seen in the field. Therefore, we can estimate over 21,500 trips annually in this corridor.

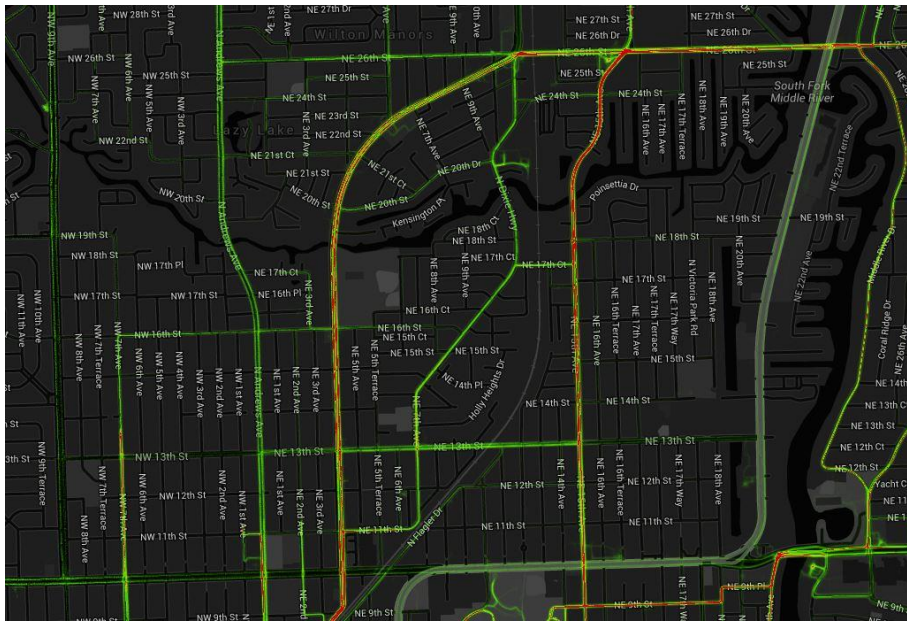
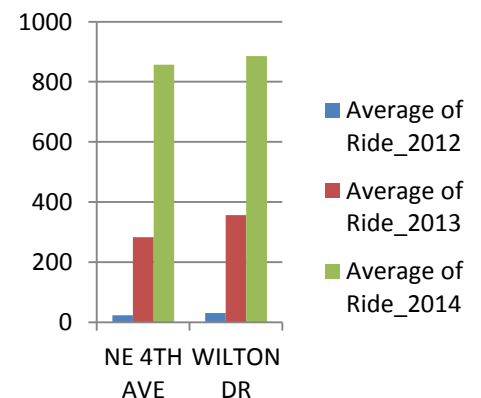


FIGURE 4: Strava.com Global Heat Map of Fort Lauderdale-Bike trips from 1/2014 through 5/2015

FIGURE 5: STRAVA BIKE COUNTS (FDOT DATABASE, 2012-2014)

SEGMENT	2012 RIDES	2013 RIDES	% INCREASE 12/13	2014 RIDES	% INCREASE 13/14
NE 4 th AVE: FORT LAUDERDALE	23	284	1135%	857	202%
WILTON DR: WILTON MANORS	31	357	1052%	885	148%
TOTAL AVG TRIPS FOR CORRIDOR	26	311	1096%	868	179%





Consistency with plans: This application is consistent with local, county and state plans. The Fort Lauderdale City Commission has adopted a Complete Streets Policy and Manual consistent with the Broward MPO Complete Streets Guidelines, the Complete Streets Standards adopted by Broward County, and the FDOT Complete Streets Policy. These policies highlight the commitment of the all partners to create a connected multimodal network.

Fort Lauderdale has also adopted Connecting the Blocks Plan in August 2014 to implement the Community's *Fast Forward Fort Lauderdale 2040 Vision* of having a "connected community." SR811/NE 4th Avenue is identified within the plan to have a road diet to implement buffered bike lanes, connected detached sidewalks, consistent shade canopy, and enhanced pedestrian crossings. The project is also consistent with the recently adopted Vision Zero Fort Lauderdale Initiative to improve the safety of all users on streets within Fort Lauderdale. NE 4th Avenue is located within the Central City CRA and was identified in their CRA Plan as a recommended improvement to include Complete Streets upgrades to support the businesses along this corridor.

SR811/NE 4th Avenue is identified in the LRTP 2035 as a Cost Feasible Bicycle Project. It is also consistent with the new Broward MPO Long Range Plan Commitment 2040 which identifies bicycle and pedestrian improvements to existing roadways as a priority with specific emphasis on connecting to transit. Commitment 2040 builds on previous efforts of the LRTP 2035 by integrating existing ideas, concepts and plans with the latest available information and public opinion. This project will help to reduce congestion by taking vehicles off the street through providing multimodal options to residents and visitors to the area. Many studies completed following lane elimination projects around the country have shown significant improvements in speed management, severe injury reduction, and overall crash rate reduction as cited in the FDOT Lane Elimination Guide. One example, Nebraska Avenue in Tampa, FL was converted from 4 lanes to 3 lanes with bike lanes and bus pullouts saw a 45% reduction in fatal/incapacitating crashes per year, pedestrian crashes reduced from 7.0 per year to 2.7 per year, and overall crash rate decrease from 8.5 to 3.3 crashes per million vehicle miles traveled.

Additionally, this project is consistent with the goals of the City of Wilton Manors to create a safe walkable entertainment district within the City's core. The City of Wilton Manors completed a traffic analysis for the potential 3 lane scenario in 2006. It concluded that the 3 lane scenario was feasible even with higher projected auto volumes at that time. The City of Wilton Manors has had several public meetings to receive public input for this project during the preparation of the Lane Elimination Application and have receive significant support as noted in the next section of this report.

Public Outreach: The cities have executed public outreach protocol which includes outreach directly to the neighborhood associations and merchant associations impacted by this project which included:

The Neighborhood Association of Wilton Manors Meeting- July 15, 2015 at Hagen Park at 7:00pm hosted approximately 70 residents. At this meeting the joint complete streets project including lane elimination was introduced and was discussed by speakers from FDOT, Wilton Manors, and City of Fort Lauderdale staff for NE 4th Avenue and Wilton Drive. When the project was mentioned, there were applause as a show of support. (Meeting agenda and sign-in sheets included in Appendix E.)



South Middle River Civic Association- August 25, 2015 at 6:30pm at the Lauderdale Tennis Club. The preliminary concept of exploring a lane elimination was introduced and discussed. The project received support from over 40 residents in attendance. The Association voted to support moving forward with the analysis for the potential of a lane elimination. Meeting minutes and sign-in sheet included in Appendix E.

Middle River Terrace Neighborhood Association- September 17, 2015 at 5:30pm at the Police Substation on NE 13th Street. The preliminary concept of exploring a lane elimination was introduced and discussed. Half of the residents were fully supportive and other half of residents remain open to the idea if the traffic analysis concludes the lane elimination to not be detrimental to vehicular travel on the corridor. Approximately 10 residents attended this meeting. Meeting minutes and sign-in sheet included in Appendix E.

Central City CRA Advisory Board – October 7, 2015 at 6:00 pm at City Hall. The proposed lane elimination was presented to the Central City CRA Advisory Board for their review and comment. NE 4th Avenue within Fort Lauderdale is within the Central City CRA and was identified in their CRA Plan as a recommended improvement to include Complete Streets upgrades to support the businesses along this corridor. One member requested more information about the traffic analysis between Sunrise Blvd to NE 13th Street as he was concerned at the current peak hour delay in this area. The Central City CRA Advisory Board provided full support of the proposed lane elimination and recommended that the CRA also provide support. Agenda and Meeting Minutes included in Appendix E.

Central City Alliance- A support email (included in Appendix E) from the President of the Central City Alliance was sent on July 16, 2016 to the City of Fort Lauderdale to *"proffer strong support for this right-sizing traffic project. We are very excited about slowing the traffic and returning the road to a pedestrian/multi-modal corridor."*

South Middle River Civic Association- February 23, 2016 at 6:30pm at the Lauderdale Tennis Club. The results of the analysis for the lane elimination were presented and discussed. SMRCA members voted at the February meeting unanimously to support the application for a lane elimination to FDOT by the City to allow for the repurposing of the lane to include a buffered bike lane. Approximately 30 attendees. Meeting Minutes and sign-in sheet included in Appendix E.

Middle River Terrace Neighborhood Association- March 17, 2016 at 6:00pm at Middle River Terrace Park Pavilion. The results of the FDOT first submittal of the lane elimination analysis for were presented and discussed. Residents requested a copy of the study for review and to return to discuss at April meeting. Agenda and Meeting Minutes included in Appendix E. Approximately 8 attendees.

Technical Advisory Committee (TAC) Meeting, Broward MPO- March 23, 2016- Agenda Item A-2 "Motion to recommend Broward MPO Approve an Amendment to the Fiscal Year 2015/16-2019/20 Transportation Improvement Program (TIP)- SR 811/NE 4th Ave. from SR-838/Sunrise Blvd. to NE 20th Street (Bike Lane/Sidewalk). Item A-2 was reviewed and motion made to approve. In a voice vote, the motion passed unanimously. This approved to recommend the Broward MPO Board to extend the project from NE 20th Street to NE 26th Street. No public comments or committee comments were noted on this topic. Meeting Agenda and minutes attached in Appendix E. In a voice vote, the motion passed unanimously.



Citizen's Advisory Committee, Broward MPO- March 23, 2016, 2:30pm- Agenda Item A-2

"Motion to recommend Broward MPO Approve an Amendment to the Fiscal Year 2015/16-2019/20 Transportation Improvement Program (TIP)- SR 811/NE 4th Ave. from SR-838/Sunrise Blvd. to NE 20th Street (Bike Lane/Sidewalk). TIP amendment did not include language regarding the lane elimination yet several comments regarding the lane elimination were noted during this meeting to include comments in favor of the lane elimination as well as concerns over the safety with large trucks and existing traffic congestion. In a voice vote, the motion passed unanimously. Agenda and minutes attached in Appendix E.

South Middle River Civic Association sent the City of Fort Lauderdale a letter on March 31, 2016 stating strong support for the project including *"We support the project to protect the existing large oak trees within the corridor, repurpose the outside lane to install buffered bike lanes, and create improved crossing designs at intersections."* The entire letter is included in Appendix E.

Wilton Drive Complete Streets Information Meeting, April 12, 2016, 5:30pm in the City Commission Chambers- City Commission hosted this informational meeting to provide an update to residents on the Wilton Drive/SR811 Complete Streets Project. Public comments were heard from 6 residents. Five spoke in support of the proposed project and one spoke in favor of a design to build a parking garage. Additionally, Mayor and Commission members clarified their support for safety improvements, traffic calming, and complete streets improvement included in this project. Meeting minutes included in Appendix E.

Wilton Manors Improvement District Meeting, April 13, 2016, 5:30pm at Emergency Operations Center- Public comment was heard from members of the public. A resolution to support the FDOT lane elimination and narrowing of SR811 passed unanimously. Approximately 15 attendees. Minutes attached in Appendix E.

Broward MPO Board Meeting- April 14, 2016, 9:30am- Agenda Item A-2 "Motion to Approve an Amendment to the Fiscal Year 2015/16-2019/20 Transportation Improvement Program (TIP)- SR 811/NE 4th Ave. from SR-838/Sunrise Blvd. to NE 20th Street (Bike Lane/Sidewalk). Wilton Manors resident spoke to suggest a referendum to the voters to reduce the travel lanes and Vice Mayor Green noted the overwhelming support for the project. In a voice vote, the motion passed unanimously. Meeting minutes included in Appendix E.

Middle River Terrace Neighborhood Association- April 14, 2016 at 6:00pm at Middle River Terrace Park Pavilion. The draft results of the analysis of the lane elimination application which included the initial review of FDOT were presented and discussed. MRT residents voted 9 opposed and 2 in favor of the lane elimination application being moved forward and submitted to FDOT due to concerns over vehicle traffic congestion. Meeting agenda, sign-in sheet, and minutes are attached in Appendix E. Approximately 13 attendees.

South Middle River Civic Association- July 26, 2016 at Lauderdale Tennis Club, 6:30 p.m.- City staff attended the civic association meeting (25 attendees) to give a project update on NE 4th Avenue. Meeting agenda and sign in sheet are attached in Appendix E.



Central City Community Redevelopment Advisory Board provided a letter of support on July 27, 2016 to proceed with the lane repurposing to create buffered bike lanes and keep the existing trees in place to complement the economic sustainability of the area and promote safe, multi-modal travel for residents and customers. This letter is included in Appendix E.

NE 4th Avenue/Wilton Drive Joint Public Workshop, September 13, 2016 at 6pm at Fort Lauderdale High School Cafeteria. The cities of Wilton Manors and Fort Lauderdale hosted a joint public workshop specifically to discuss this project and gain further public input on the opportunities to improve the bike connectivity between the two cities in regards to the lane elimination application. Approximately 150 people attended this meeting and turned in 75 comment cards for a total of 177 comments received. Overall, the project was supported to move forward and many comments were collected to be addressed during the design phase of the project. Meeting announcement, presentation, summarized comments, and all comment cards are included in Appendix E.

City officials' endorsement:

City of Fort Lauderdale: The City Commissioner's whose district is impacted by this project was involved throughout the process. City staff met with Commissioner Trantalis on Monday, August 24, 2015 and received support for the lane elimination study to proceed with reaching out to the neighborhoods and completing the necessary traffic analysis. On Tuesday, April 19, 2016, City Commission voted to pass a resolution authorizing the application to FDOT for a lane elimination. The City of Fort Lauderdale Commission will review a secondary resolution in support of the lane repurposing on September 20, 2016 following the public workshop. Resolution included in the Appendix E.

City of Wilton Manors: November 10, 2015, City Commission passed a resolution to support the City of Fort Lauderdale application to FDOT requesting lane elimination along SR811/Wilton Drive from Sunrise Boulevard to Five Points Intersection.

April 12, 2016, City Commission passed a resolution to support the lane elimination to narrow Wilton Drive from Sunrise Boulevard to NE 26th Street. On their meeting of July 28, 2015, the Wilton Manors City Commission unanimously supported a motion to explore the lane reduction of Wilton Drive. Resolutions included in the Appendix E.



II. CONCEPT DESIGN

FDOT District 4, Broward MPO, City of Wilton Manors, and City of Fort Lauderdale have worked in collaboration to develop a conceptual typical section and analysis for the proposed lane elimination. Various design alternatives were explored throughout the process to determine the best alternative to meet the intent of the project to add bicycle lanes and improve the overall safety of NE 4th Avenue/Wilton Drive. The preferred concept calls for eliminating the outside lane in both directions and reconfiguring this lane to accommodate a buffered bike lane. Wilton Drive will also consider on-street parking configuration, transit bus bays, or door zone buffer where appropriate within the context of the street section. The width of the remaining travel lanes are proposed to remain at eleven feet in width. The ultimate design typical section will be approved by the FDOT design team to meet the context of the street for each section of the corridor in coordination with the cities.

There are 17 bus stops within the project limits, eight northbound and nine southbound. The pavement markings and street design will consider the potential cross-over conflict of bicyclist and bus pull off areas.

Proposed Lane Configuration: One Northbound, One Southbound, and Center Turn Lane/median to remain, Bike Lane, with On-Street Parking where appropriate

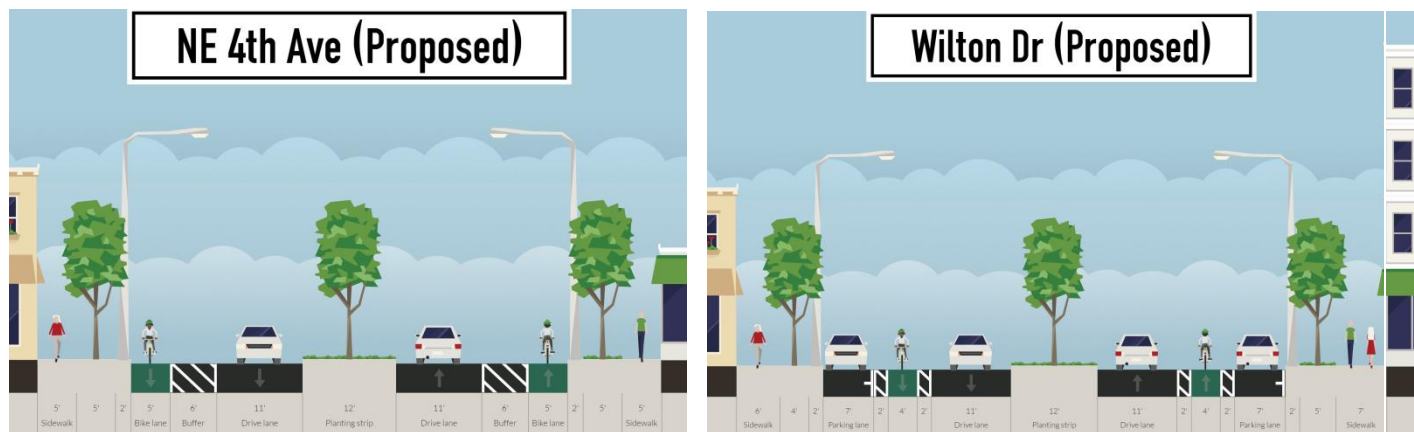


FIGURE 6: Proposed Typical Section for NE 4th Avenue and Wilton Drive

Proposed Design Speed: 30 mph

Proposed ROW width: 80 feet/90 feet - No change requested

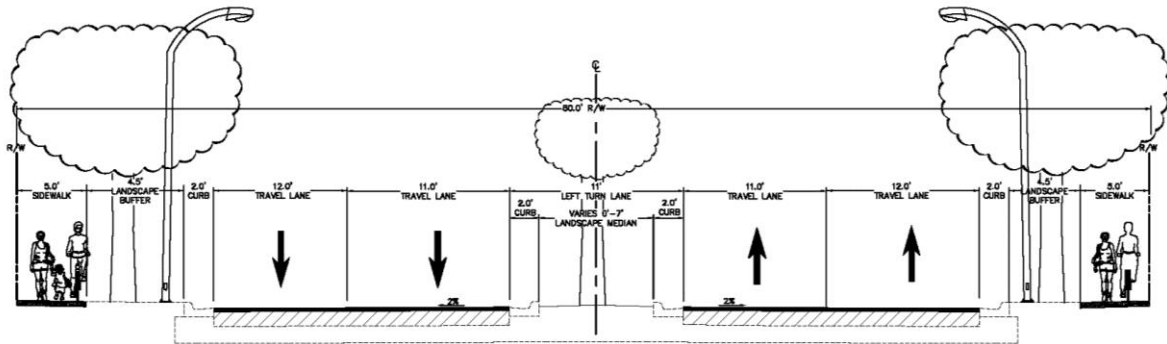
Proposed Development: Current land use and zoning designations are CB (Community Business or Neighborhood Serving Commercial) or Community Facilities in Fort Lauderdale High School. Redevelopment could request mixed-use development with a conditional use to develop a maximum residential density of 50 units per acre. With neighborhood compatibility requirements, maximum height will be no greater than 75 feet.

NE 4th Ave/Wilton Drive: FDOT 431657-1, the following project milestones are anticipated:

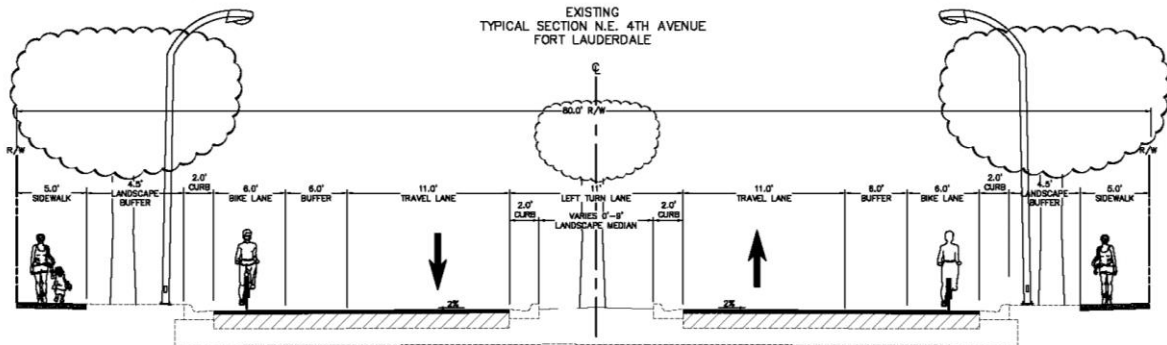
January 22, 2016	Consultant Acquisition
September 2016	Public Meeting
December 2016	Initial Engineering (30%)



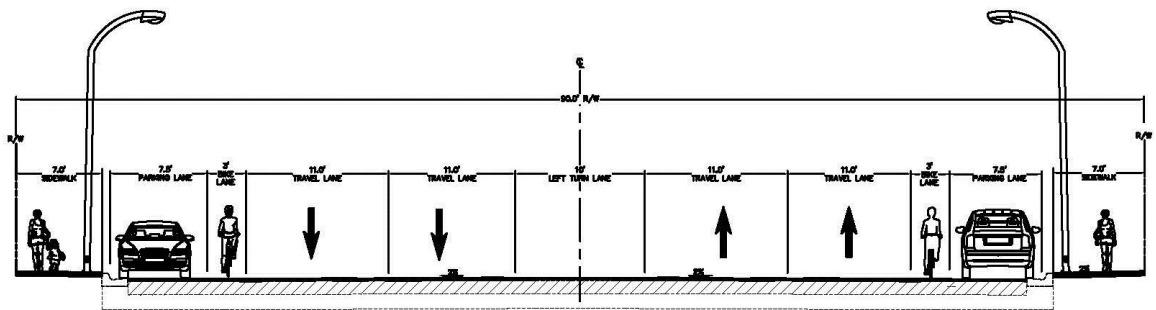
March 2017	Constructability Plans (60%)
July 2017	Biddability Plans (90%)
October 2017	Production Plans (Final)
December 6, 2017	Construction Bidding
April 1, 2018	Construction Start



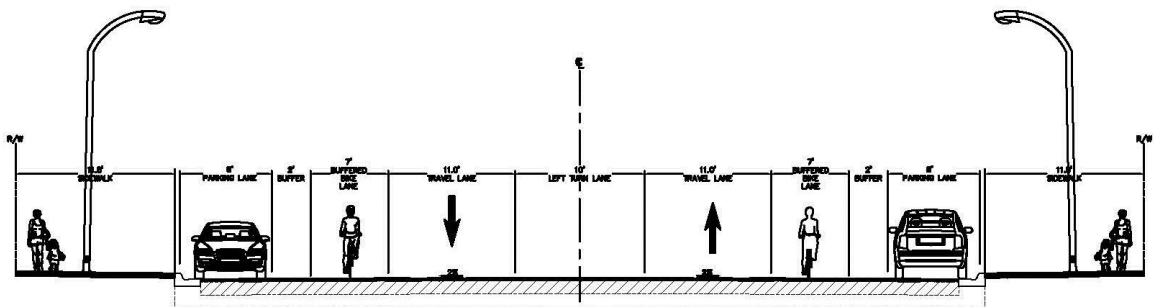
EXISTING
TYPICAL SECTION N.E. 4TH AVENUE
FORT LAUDERDALE



PROPOSED
TYPICAL SECTION N.E. 4TH AVENUE
FORT LAUDERDALE



EXISTING
TYPICAL SECTION - WILTON DRIVE
WILTON MANORS



PROPOSED
TYPICAL SECTION - WILTON DRIVE
WILTON MANORS





Location: SR811/Wilton Drive- South of NE 26th Street
 2014 FDOT ADT: 14,900
 Historical Growth Rate: (FDOT 2001-2014): -0.15% Annual Growth Rate

Table 2: SR811/Wilton Drive, Site 0212 FDOT AADT Report

FLORIDA DEPARTMENT OF TRANSPORTATION TRANSPORTATION STATISTICS OFFICE 2014 HISTORICAL AADT REPORT								
COUNTY: 86 - BROWARD								
SITE: 0212 - SR 811/WILTON DR - S OF NE 26 ST								
YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2014	14900 C	N	7100	S	7800	9.00	54.20	5.10
2013	16400 C	N	8500	S	7900	9.00	53.60	5.10
2012	13800 C	N	6900	S	6900	9.00	52.20	2.80
2011	14500 C	N	7700	S	6800	9.00	52.50	2.80
2010	12100 C	N	6200	S	5900	8.35	52.69	2.80
2009	12100 C	N	6200	S	5900	8.53	53.89	7.30
2008	13900 C	N	7400	S	6500	8.81	54.16	7.30
2007	13300 C	N	6600	S	6700	8.63	55.75	2.90
2006	14500 C	N	7300	S	7200	8.40	55.34	4.40
2005	14800 C	N	7300	S	7500	8.20	51.70	3.60
2004	13600 C	N	6800	S	6800	9.10	55.30	3.60
2003	13800 C	N	7100	S	6700	8.60	57.50	3.60
2002	13100 C	N	6700	S	6400	8.70	56.40	4.50
2001	15200 C	N	7800	S	7400	9.00	60.20	4.40

Existing Fort Lauderdale High School Operations

The City met directly with school administration and staff to understand the current and future transportation circulation and access. School starts at 7:35 a.m. and students arrive between 7:00 a.m. to 7:35 a.m. Fort Lauderdale High School is a magnet school with 63% of their 2,150 students arriving via bus. Only about 100 students drive vehicles, 20 ride bicycles, 30 ride skateboards, some are driven/picked up, and a majority of the remaining students walk.

Since the parent drop-off and bus drop off occurs over a period of 30 minutes each morning, there are limited issues with vehicles queueing or blocking lanes within NE 4th Avenue during that period. The school release is the primary time period where there is queuing waiting in preparation for release; however once the release occurs at 2:41 pm it clears quickly. To prepare for this release, busses line up within the bus bays and queue out onto NE 4th Avenue to approximately 500 feet south of the bus driveway, leaving gaps for exiting parents. Parent pick-up vehicles are queued within the front of the school on the school property in two lines which is facilitated by FLHS staff to improve operations. When school releases, the students file out onto the street to the crosswalk or along NE 4th Avenue sidewalks, buses fill and proceed to move the queue within the school grounds. By 2:55 pm, students are clear and traffic operations on NE 4th Avenue resume to normal.

Some improvements can be coordinated with the school staff to make parent pick-up more efficient and reduce impacts to NE 4th Avenue. The school is currently under construction and has provided input on how to improve the street to compliment near term improvements. Improvements to the high school will support improvements along NE 4th Avenue including moving student parking on the immediate site to reduce pedestrians crossing NE 4th Avenue to primarily walkers and adding 60 bike lockers to increase bicycle usage. Suggestions include



realigning the crosswalk with the new courtyard being constructed where the release of students will occur and increasing school staff direction with parents in the drop off area to maximum that space available. Section V includes recommendations for street improvements to complement the school access and safety for the students. High School meeting minutes and site improvement plans are included in Appendix D.

Existing Conditions Corridor Operations Analysis

The City of Fort Lauderdale contracted with Quality Counts to collect traffic volume and speed data for this study. Tube counts to collect traffic volume data were taken on Tuesday, August 11, Wednesday, August 12th, and Thursday, August 13th in 2015. Additionally, traffic volume counts were collected the first week of school, Tuesday August 25 through Thursday, August 27, 2015 to understand the traffic impacts created by school. As school traffic counts accounted for less than a 0.6% increase in traffic, this analysis will utilize the primary counts adjusted utilizing the FDOT seasonal factor of 1.08.

**Table 3: Existing Traffic Volume
SUMMER COUNTS**

Traffic Volume (24-hour NB/SB)		8.11.15	8.12.15	8.13.15	Avg. Weekday Traffic	Adjusted (1.08 Seasonal Factor)
1	NE 4 th AVE: N of SUNRISE BLVD	14,286	15,312	14,996	14,863	16,052
2	NE 4 th AVE: N of NE 16 th ST	14,720	15,991	15,179	15,298	16,522
3	WILTON DR: N of NE 6 th AVE	13,226	13,820	13,810	13,617	14,706
4	WILTON DR: S of NE 21 st CT	14,104	14,747	14,516	14,455	15,611

AADT=15,723

SCHOOL IN-SESSION COUNTS

Traffic Volume (24-hour NB/SB)		8.25.15	8.26.15	8.27.15	Avg. Weekday Traffic	% INCREASE FOR SCHOOL
2	NE 4 th AVE: N of NE 16 th ST	15,860	15,054	15,138	15,352	0.3530%
3	WILTON DR: N of NE 6 th AVE	13,928	13,322	13,829	13,692	0.5508%

Using ARTPLAN Software from FDOT QLOS, the existing LOS of the 4-lane corridor can be calculated. ARTPLAN was developed by the FDOT to aid in determining the multi-modal level of service of a variety of facilities. It is used in the planning phase of a transportation project to complete a high-level multi-modal assessment. Using this software, the overall corridor of NE 4th Avenue/Wilton Drive is LOS D for the automobiles utilizing current 180s, 160s, 120s, 100s signal cycles coordinated, while the bicycle level of service is D/E, pedestrian LOS is C/B, and the Bus Transit LOS is C. LOS D for vehicles ranges from 14,501 vehicles to 32,399 vehicles, therefore the corridor is significantly under capacity in its current condition.

Peak Hour Operations, Year 2015

Bi-direction or two-way peak hour traffic volumes range from 1,224 to 1,474 along SR811/NE 4th Avenue/Wilton Drive within the study limits. Table 4A shows the analysis of traffic operations based on FDOT's Quality/Level of Service Handbook 2012. The results show additional vehicular capacity in the current configuration.

**Table 4A: Corridor Performance Evaluation, Peak Hour, Year 2015**

LOCATION	PEAK HOUR- 2-WAY VOLUME *	LOS: 4-LANE**
NE 4 th AVE: N of Sunrise BLVD	1,224	C
NE 4 th AVE: N of NE 16 th ST	1,474	D
WILTON DR: N of NE 6 th AVE	1,263	C
WILTON DR: S of NE 21 st CT	1,258	C

* 5:00PM to 6:00PM 2-Way Volume adjusted for season

** TABLE 4 of the 2012 FDOT QLOS HANDBOOK TABLES. Note: 2-lane alternative receives 5% increase in capacity due to the median.

Fort Lauderdale High School is a destination which creates traffic trips in the morning and afternoon during arrival and dismissal times. School starts at 7:35 a.m. and dismissal is 2:41 p.m. Traffic volumes are shown in Table 4B to show that even though traffic volumes during the 7-8am demand for Fort Lauderdale High School were high, they were not higher than traffic during the morning peak hour between 8:00 a.m. to 9:00 a.m. Therefore, the peak hour for the corridor utilized the peak hour volumes between 8:00am to 9:00am.

Table 4B: School Peak Hour VS. AM Peak Hour, Year 2015

LOCATION	AM PEAK COMPARISON		PM PEAK COMPARISON	
	PEAK HOUR- 2-WAY VOLUME	PEAK HOUR 2-WAY VOLUME	PEAK HOUR- 2-WAY VOLUME	PEAK HOUR- 2-WAY VOLUME
	7am – 8am	8am to 9am	3pm-4pm	5pm -6pm
NE 4 th AVE: N of NE 16 th ST	941	952	1087	1365
WILTON DR: N of NE 6 th AVE	637	762	978	1169

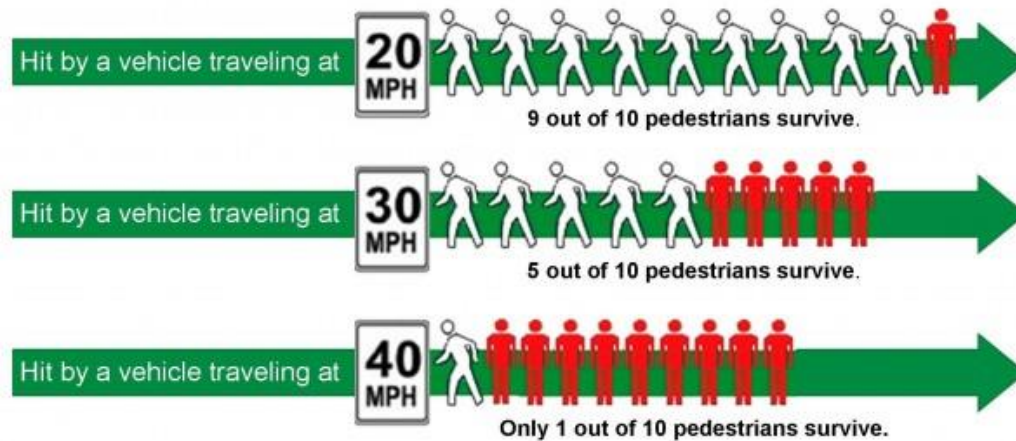
Speed Counts: The City of Fort Lauderdale collected speed data between August 11, 2015 to August 13, 2015 along four sections of the corridor. The speed data is summarized in Table 5 and raw speed data is included in Appendix B. The posted speed on NE 4th Avenue/Wilton Drive is 30 mph.

Table 5: Existing Speed Data (Aug. 11-13, 2015): Existing Posted Speed =30 MPH

LOCATION		DIRECTION	AVG SPEED (MPH)	TOTAL VEHICLES COUNTED (3 days)	85 th PERCENTILE SPEED	% VEHICLES > 30 MPH
1	NE 4 th AVE: N of Sunrise BLVD	NB	26	21,462	35	47.2%
		SB	26	23,132	33	32.0%
2	NE 4 th AVE: N of NE 16 th ST	NB	31	22,426	41	70.3%
		SB	30	22,600	37	23.8%
3	WILTON DR: N of NE 6 th AVE	NB	29	20,546	35	51.3%
		SB	25	20,286	33	29.6%
4	WILTON DR: S of NE 21 st CT	NB	27	21,890	34	40.1%



Overall, average speeds along the corridor are at or below posted speed limits; however, the measured 85th percentile speed is 4-7 mph over the posted speed limit for this segment of SR811/NE 4th Avenue/Wilton Drive and approximately 43 percent of all vehicular traffic travels at a higher speed than the posted limit. The proposed lane reduction will help to lower travel speeds and improve the safety of pedestrians along this corridor as seen below with the chances of survival based on vehicular speed.



Crash Analysis – Florida is number one for pedestrian fatalities in the country and Fort Lauderdale has the second highest per capita pedestrian fatality rate in the country according to NHTSA. The City of Fort Lauderdale and City of Wilton Manors are actively working to improve safety for pedestrians through enforcement, education, and engineering. The City of Fort Lauderdale recently adopted Vision Zero Fort Lauderdale in a comprehensive effort to improve safety for all users on the City's streets where no fatality is acceptable.

Human behavior is greatly affected by the built environment therefore, engineering our streets to match the context as along with adding other crash modification factors is key to creating safe, livable streets and communities. Between January 1, 2013 and December 31, 2015, 278 crashes were reported. In total there were 267 motor vehicle crashes, 8 pedestrians, 2 bicycles, and 1 dog to include 56 injury and 2 fatalities. Crashes were primarily at intersections with the highest rate of crashes happening around NE 16th Street by Fort Lauderdale High School.

In 2015, FDOT completed a Safety Study for Wilton Drive within the project limits. Many improvements are proposed to improve the pedestrian safety and reduce excessive speeding on this corridor. A copy of this study and proposed improvements are included in the Appendix. Improvements are programmed within fiscal year 2016-17.

By implementing the lane elimination, it will help to move vehicle users closer to the desired travel speed, reduce potential conflict points therefore reducing risks along this corridor and assist in bringing the crash rates down.

**Existing Conditions Intersection Analysis, Year 2015**

The existing conditions traffic operational analysis focused on evaluating the performance of all of the signalized intersections and corridor performance with and without the lane elimination project. Existing traffic data and Synchro (version 8) software was used to perform the operational analysis.

The intersection evaluation focused on the following eight signalized intersections within the study area:

1. Sunrise Boulevard
2. NE 11th Street
3. NE 13th Street
4. NE 16th Street
5. NE 21st Court
6. NE 6th Avenue
7. NE 9th Avenue
8. NE 26th Street

Intersection turning movements for vehicular, bicycle, and pedestrian counts were collected on August 11, 2015 during the a.m. (7-9 am) and p.m. (4-6pm) peak hours. Turning Movement Counts (TMCs) were adjusted to reflect peak season conditions by applying FDOT's peak season conversion factor of 1.08.

Intersection analysis was performed using the Synchro software to determine the intersection level of service and delay during the AM and PM peak hours under existing conditions for Year 2015 without lane elimination.

The Highway Capacity Manual, HCM, defines LOS (Level of Service) for signalized and unsignalized intersections as a function of the average vehicle control delay. Table 6 below defines the delay in seconds per LOS designation. Per the City of Fort Lauderdale Comprehensive Plan, Transportation Element (Ordinance C-08-18), an acceptable level of service for signalized intersections is LOS E for this corridor.

Table 6: LOS for Signalized Intersections

LOS	Delay (seconds)
A	≤ 10
B	10-20
C	20-35
D	35-55
E	55-80
F	≥ 80

As shown in Table 7, existing signalized intersection delay is acceptable in the current condition in both the AM and PM peak hours. Detailed outputs from Synchro are included in Appendix F. The lowest level of service among the intersections are at the two intersections that have the longest cycle lengths. Optimizing signal timing and better synchronization of traffic signals has been discussed with Broward County Traffic Engineering Department (BCTED) and will be evaluated moving forward to implementation.

**Table 7: Intersection Performance Evaluation, Peak Hour 2015**

Intersection	Year 2015 w/o Lane Elimination			
	AM Cycle Length (seconds)	AM Peak HCM LOS/ Delay (s)	PM Cycle Length (seconds)	PM Peak HCM LOS/ Delay (s)
Sunrise Blvd	180	D-45.2	180	D-51.0
NE 11 th St	160	B-12.5	90	B-16.8
NE 13 th St	100	C-30.6	110	C-34.2
NE 16 th St	100	B-15.5	100	A-9.9
NE 21 st Ct	120	B-14.3	120	B-17.9
NE 6 th Ave	120	C-20.9	120	C-22.0
NE 9 th Ave	80	A-6.6	80	A-7.2
NE 26 th St	110	D-52.2	110	E-62.8

Future Conditions Traffic Operations Analysis, Year 2035

Cities who are building complete streets to diversify the mode split and encourage more non-vehicular transportation are utilizing current traffic volumes as the best management practice to estimate the worst case condition for vehicular capacity needs. The City of Fort Lauderdale, through its Vision 2035 Plan, has committed to creating a city where the pedestrian is first and therefore believes in utilizing current traffic volumes as the worst case scenario. The cities of Fort Lauderdale and Wilton Manors have worked directly with FDOT to utilize a more conservative vehicular growth rate on this project to achieve this Vision.

Traffic volumes in the NE 4th Avenue corridor are trending downward based on historical vehicle counts from FDOT, reducing by 1% of vehicle trips annually. As the City of Fort Lauderdale and City of Wilton Manors are urbanized areas, FDOT practice is to utilize a 0.5% annual growth rate to conservatively plan for future year development and growth. Table 8A shows the estimated average daily traffic for current conditions and the proposed 2035 conditions with 0.5% annual growth in vehicular trips. Additionally, pedestrian crossings during the peak hours were increased by 50% in the Year 2035 scenarios and modeled respectively.

Table 8A: Forecasted Future Traffic Volume

Traffic Volume (24-hour NB/SB)	Actual 2015 Weekday Traffic	Adjusted 2015 (1.08 Seasonal Factor)	Future 2035 (0.5% Annual Growth)
1 NE 4 th AVE: N of Sunrise BLVD	14,863	16,052	17,735
2 NE 4 th AVE: N of NE 16 th ST	15,298	16,522	18,255
3 WILTON DR: N of NE 6 th AVE	13,617	14,706	16,249
4 WILTON DR: S of NE 21 st CT	14,455	15,611	17,248

FUTURE AADT= 17,372

**Table 8B: Forecasted Future Peak Hour Performance**

Traffic Volume (24-hour NB/SB)		2035 2-Way Peak Hour Volume	FDOT LOS Pk-Hour Volume LOS E Threshold*	2035 Vehicular Peak Hour Performance*
1	NE 4 th AVE: N of Sunrise BLVD	1,352	1,649	LOS D
2	NE 4 th AVE: N of NE 16 th ST	1,629	1,649	LOS E
3	WILTON DR: N of NE 6 th AVE	1,396	1,649	LOS D
4	WILTON DR: S of NE 21 st CT	1,390	1,649	LOS D

*Table 4 of the 2009 FDOT QLOS Generalized Peak Hour Two-Way Volumes for Urbanized Areas for a Class II facility including a 5% increase for median.

Using the conservative growth rate of 0.5% annual traffic growth and seasonal traffic growth factors to extrapolate the current traffic volumes to 2035, vehicular traffic along the corridor is still meeting acceptable levels of service based on FDOT Quality Level of Service tables for peak hour urbanized areas. This is the worst case scenario that can be modeled and therefore this corridor will perform better than the values shown in Table 8B for 23 hours of the day.

As there are many intersections within the corridor, traffic signals have been analyzed to understand the difference in delay between the existing 4-lane scenario and the proposed 2-lane scenario. At NE 13th Street, an additional northbound right-turn lane will need to be constructed to allow for improved movement of people and vehicles. Table 9A outlines the proposed LOS and delay in seconds for the proposed condition. Broward County Traffic Engineering Signal Timing for all red, all yellow, and minimum green times were utilized to complete the below analysis. In order to mitigate the increase in vehicular trips, Broward County Traffic Engineering Department staff has agreed to review the traffic signal cycle lengths to better allocate the right amount of seconds to each phase within each intersection.

Table 9A: Intersection Performance Evaluation, Peak Hour 2035

Intersection	Year 2035 with Lane Elimination			
	AM Peak Proposed Conditions		PM Peak Proposed Conditions	
	Cycle Length (seconds)	HCM LOS/ Delay(s)	Cycle Length (seconds)	HCM LOS/Delay (s)
Sunrise Blvd*	180*	E-59.0	180*	E-76.1
NE 11 th St	110	B-17.0	100	D-38.1
NE 13 th St	110	E-67.2	122.5	E-78.5
NE 16 th St	100	B-15.9	90	B-14.7
NE 21 st Ct	120	B-14.9	90	C-24.5
NE 6 th Ave	120	C-20.6	90	D-35.1
NE 9 th Ave	80	A-8.4	90	B-11.3
NE 26 th St*	110*	D-45.6	110*	E-62.2

*Broward County Traffic Engineering does not recommend the reduction in cycle length for this intersection as it is coordinated along Sunrise Boulevard corridor.

**Table 9B: Travel Time Comparison, Peak Hour 2035**

Direction	2035 TRAVEL TIME COMPARISON			
	2035 No Build	2035 Build	Increase in Travel Time	% Increase
2035 AM PEAK TRAVEL TIME (sec)				
Northbound	421.3	452.4	31.1	7%
Southbound	373.4	472.5	99.1	27%
2035 PM PEAK TRAVEL TIME (sec)				
Northbound	485.9	726.2	240.3	49%
Southbound	426.5	426.5	37.9	10%

As shown in Table 9 and 10, the corridor functions at an acceptable level of service (LOS E or better) during the AM and PM peak hours in the 2035 condition with the proposed three lane section, meeting the LOS E requirement of City of Fort Lauderdale for Non-SIS state roads. This includes the reconfiguration of the approach lanes to this corridor. Northbound NE 4th Avenue will include a trap right-turn lane approaching Sunrise Boulevard to create one through lane northbound, while southbound Dixie Highway/Wilton Drive will restripe the outside lane to be a right-turn only to create the one lane southbound within the project limits. Based on the Synchro model, the worst case scenario for motorists will be traveling this 2-mile corridor in the future condition during the hours of 5 to 6pm resulting in approximately 240 seconds more travel time verses the no-build condition in year 2035. Signal cycle lengths will be reviewed with Broward County Traffic Engineering Department to deliver the best conditions for all modes. The intersection of NE 13th Street and NE 4th Avenue will require dedicated right and left turn lanes. City staff coordinated with Broward County Traffic Engineering to review the revised signal cycle lengths. Broward County Traffic Engineering staff responded "they will certainly be willing to discuss the reduction in signal cycle lengths on this corridor, subject to the comments stipulated". Comments included the review of existing and adjacent signal timing, as well as FDOT, City of Fort Lauderdale, and City of Wilton Manors support for signal operations changes. Broward County communications email included in Appendix E.

Table 10: Corridor Performance Evaluation Before (Year 2015) & After (Year 2035)

LOCATION	2035 PEAK HOUR- 2-WAY VEHICULAR VOLUME *	VEHICULAR LOS		TRANSIT LOS		PEDESTRIAN LOS		BIKE LOS	
		4-LANE	2-LANE**						
		2015	2035	2015	2035	2015	2035	2015	2035
NE 4 th AVE: N of Sunrise BLVD	1,352	C	D	C	B	C	B	E	B
NE 4 th AVE: N of NE 16 th ST	1,629	D	E	C	B	C	B	E	B
WILTON DR: N of NE 6 th AVE	1,396	C	D	C	C	B	A	D	A
WILTON DR: S of NE 21 st CT	1,390	C	D	C	C	B	A	D	A

* 5:00PM to 6:00PM 2-Way Volume adjusted for season

** TABLE 4 of the 2012 FDOT QLOS HANDBOOK TABLES. Note: 2-lane alternative receives 5% increase in capacity due to the median.



Table 10 shows the improved balance of transportation options with the addition of separated bike lanes, greater separation between pedestrians and vehicles, and the narrower travel lanes to improve speeds. While the vehicular LOS decreases a letter grade within each segment, the transit, bike, and pedestrian LOS upgrade by one or more letters.

Synchro analysis also provided the 95th Percentile Queue Lengths estimated for the PM Peak Hour and summarized below in *Table 11*. Most of the project includes a flush, two-way left turn lane that can be re-stripped to attain the 2035 Peak Hour Queues. Minimal turn lane construction will need to be designed at NE 13th Street to accommodate needed right-turn movement.

**Table 11: Proposed Turn Lane Queue Lengths**

	Existing Left/Right Turn Lane Length (feet)	Required Queue Left/Right Turn Lane per 2035 Traffic Analysis (feet)	Meets/Does Not	Proposed Turn Lane Improvements
NORTHBOUND				
Sunrise Blvd	100/0	125/0	Does Not Meet/ Meets	Restripe Left-turn lane to be 160 feet
NE 11 th St	125/100	25/25	Meets/Meets	None
NE 13 th St	100/0	190/190	Does Not Meet/Does Not Meet	Reconstruct NB left turn lane to 190 feet of storage, and Construct 190-foot right-turn lane
NE 16 th St	100/0	130/0	Does Not Meet/Meets	Restripe to 130' storage
NE 21 st Ct	75/0	25/0	Meets/Meets	None
NE 6 th Ave	115/0	210/0	Does Not Meet/ Meets	Restripe Left-Turn Lane to 210 feet.
NE 9 th Ave	75/0	150/0	Does Not Meet/Meets	Restripe Left-Turn to 150 feet
NE 26 th St	190/190	28/210	Meets/ Does Not Meet	Restripe outside lane to 210 feet
SOUTHBOUND				
Sunrise Blvd	315/0	160/180	Meets/ Does Not Meet	Stripe right-turn lane of 180 feet long repurposing outside lane
NE 11 th St	100/0	45/0	Meets/Meets	None
NE 13 th St	100/0	115/0	Does Not Meet/ Meets	Restripe left turn lane to be 115 feet long
NE 16 th St	100/0	25/0	Meets/Meets	None
NE 21 st Ct	90/0	45/0	Meets/Meets	None
NE 6 th Ave	100/0	25/0	Meets/Meets	None
NE 9 th Ave	100/0	55/0	Meets/Meets	None
NE 26 th St	155/0	180/0	Does Not Meet/ Meets	Restripe Left-Turn lane to 180 Feet

Transit Operations and Infrastructure: Route #50 will continue to be a highly utilized transit corridor within both Fort Lauderdale and Wilton Manors. The 17 existing bus stops will remain and be evaluated for relocations better aligned with crosswalk locations. Based on coordination completed to date, BCT has expressed their preference to pull out of the travel lane and have far side stop locations which align with crosswalks. Broward County Transit should be coordinated with during the design phase being managed by FDOT to determine the most appropriate accommodations to maximize transit level of service. With the addition



of the buffered bike lane, buses will have appropriate space to pull out of travel lane completely in the proposed condition.

Bicycle and Pedestrian Infrastructure: This project will continue to build the network of bike accommodations within the City of Fort Lauderdale and Wilton Manors as well as regionally to create a connected network. The City of Fort Lauderdale is implementing new bike lanes and improved pedestrian amenities along NE 13th Street east of NE 4th Avenue in 2016 which will provide direct connectivity to this project. It will also connect to the efforts in Wilton Manors and Fort Lauderdale along Old Dixie Highway to install complete streets improvements including bike lanes. Wilton Manors has existing narrow bike lanes along NE 4th Avenue, but will see improved buffered areas and create connectivity with Fort Lauderdale with the installation of bike lanes south of the Middle River. The project will also link to the recently awarded Complete Streets and Local Initiatives Program project to add bicycle facilities along NE 26th Street in both Wilton Manors and Fort Lauderdale connecting this project to US1/Federal Highway.

By reducing the number of vehicle travel lanes needed to cross as well as implement design elements to help reduce the speeding occurring on this corridor, the pedestrian safety will be improved. See further information in Table 12 discussing Crash Modification Factors. Curb returns will be improved to include bump-outs and upgraded ADA accommodations to improve safety, while signal cycle revisions will improve the safety and convenience of walking in the corridor. By creating and separating the different modes of travel in this project, safety is improved for all modes creating a sense of awareness in people for when and where people are moving. The increased buffer between moving vehicles and the pedestrian realm will increase the safety and walkability of this corridor.

Special attention should be made during the design phase to maximize pedestrian infrastructure including working with the Fort Lauderdale High School in relation to their pedestrian crossing as well as continue the work that is being done in Wilton Manors to improve pedestrian safety in their central business district.

Traffic pattern and circulation changes

The proposed lane reduction will reduce the number of vehicle through lanes from four to two and add bicycle accommodations. This project will right-size the street design to provide an improved multi-modal LOS and still accommodate the existing 16,500 ADT and the future 18,300 ADT within the 3-lane configuration.

Parallel routes to NE 4th Avenue include Andrews Avenue, Old Dixie Hwy/NE 7th Avenue, NE 15th Avenue and US1 Federal Highway. These 4 corridors include vehicle lane assignments which currently have the capacity for existing and projected annual traffic volumes. Since the proposed lane elimination will not be detrimental to the roadway capacity along NE 4th Avenue, it is not anticipated that there will be a level of diversion that would degrade the existing capacity of the parallel facilities. No other significant traffic pattern or circulation changes are expected from this project.

A concern of traffic volumes diverted off of Sunrise Boulevard due to that failing roadway have been raised throughout the public outreach process. It is anticipated that through the current and future coordination with FDOT, the Broward MPO, and Broward County solutions will be developed to address that situation to alleviate the negative impacts that cut through traffic is having on neighborhood streets from Sunrise Blvd.



The MMLOS will be significantly upgraded for modes other than the vehicle. Bicycle LOS will be increase to a LOS B from having no accommodations currently. The Pedestrian LOS will be retained at C but be increase within this range, while bus LOS will also remain at LOS C.

By eliminating the lane, it provides the opportunity to create a NE 4th Avenue that allows all modes to participate at an acceptable level. With Andrews Avenue only ¼ mile west and US1/Federal Highway to the east, this provides the opportunity for the City to prioritize non-vehicular modes along NE 4th Avenue.

This project complements the many efforts by the City of Fort Lauderdale to deliver a multi-modal city to the neighbors as identified as a priority in the 2035 Fast Forward Fort Lauderdale plan as well as the City of Wilton Manors' efforts to improve safety within their central business district. The Cities have been working to create a mode shift through the installation of the necessary infrastructure accommodations to change the vehicle-centric transportation network to one that allows residents and guests to choose whichever mode preferred because there is a safe path. This is being accomplished in partnership with the Broward MPO, FDOT, Broward County and private developers to create that paradigm shift there many projects that are currently in design and to think about our roads as a way to move people, not just move cars.

Neighborhood impacts

Overall, these improvements will add to the quality of life by calming traffic speeds, increasing the buffer between vehicles and vulnerable users, and providing safer travel and crossings for children and adults to walk and bike.

The addition of bike lanes and the reduction in the number of vehicle lanes will improve the livability of the neighborhood and the safety of residents. Reducing the number of lanes will also help to slow traffic which will help improve the safety of all users of the roadway, especially students accessing the schools and residents accessing the commercial uses along NE 4th Avenue. Currently there is a small buffer between the sidewalk and the high speeds of vehicular traffic. The addition of a bike lane will widen that buffer for pedestrians from the moving traffic as well as provide safer accommodations for bicyclists. The lane elimination will also reduce the exposure of pedestrians crossing the street to moving vehicles. Access and safety to and from Northside Elementary School and Fort Lauderdale High School will be improved for students walking and bicycling as they will have improved facilities and potentially remove vehicular school trips from NE 4th Avenue.

Consistency with redevelopment plans

This project is consistent with local and regional plans as illustrated above. The area of NE 4th Avenue is partially within Fort Lauderdale which is within the Fort Lauderdale Central City CRA area and has been identified for a Complete Streets project to support the businesses in the area within their plan. This project is in compliance with Complete Streets policies adopted by the City, County and FDOT by providing safe accommodations for all modes of transportation in a context sensitive manner where the vehicle was previously prioritized to move quickly. The project is also identified in the Connecting the Blocks Program of the City of Fort Lauderdale for the addition of bicycle lanes and improved pedestrian accommodations and the Broward MPO 2040 Long Range Transportation Plan.



Site access impacts

There will be no adverse site access impacts. The design team will work with Fort Lauderdale High School to allocate appropriate bus, bicycle, and vehicle queueing accommodations to improve safety for all modes at the high school. No new medians are proposed and therefore site access will remain as in the current condition. The design team should closely coordinate with impacted property and business owners during the development of the project. If any additional access issues arise, they should be addressed to the satisfaction of all partners.

City and FDOT design team will work with adjacent property owners to understand delivery and loading zone requirements. Design will evaluate the need for specialty infrastructure including signing and markings to designate these areas.

Emergency Access

Emergency access for fire and police vehicles along this corridor has been considered as part of the design concepts. As with any two lane street, police and fire vehicles will use whatever means necessary to deliver services to those in need. Emergency vehicles will have access to bike lanes, bus bays, vehicular lanes, turn lanes, and driveways to get to the destination necessary. Emergency access will be considered as the project moves forward to design. Providing a buffered bike lane alongside the vehicular travel lane will provide the 15 feet of access required by the Fort Lauderdale Fire Department. City staff coordinated with Fort Lauderdale Fire Department regarding this project. Fire leadership supports moving forward with the lane elimination as no permanent vertical barriers will be constructed between the vehicular lane and the bike lane to limit the ability for vehicles to pull over to the bike lane for emergency responders to pass. This project meets the minimum 15' clearance requirement by Fort Lauderdale Fire for a fire truck (8.5' wide) to pass a passenger vehicle (6.5' wide).

Impacts on transit service

Access to transit service along this corridor will be improved for pedestrians by reducing the crossing distance from 5 lanes to 3 lanes. All transit stops and shelters will remain but may be relocated to align with marked crosswalks to increase safety of users. Transit pull-off areas will be considered to be incorporated through coordination with Broward County Transit. Conversations have begun with BCT and should continue by FDOT during the design phase.

Impacts on trucks and designated truck routes

The existing truck volumes along the corridor are between 1.9% to 4.5% in the AM Peak Hour and between 1.1% to 2.0% in the PM Peak Hour. NE 4th Avenue is not a designated truck route. It serves local commercial businesses that will utilize a local delivery truck (DL-23). These trucks can be accommodated into proposed eleven-foot vehicular lanes. Designated loading zones will be analyzed as part of the design phase.

Crash Modification Factors

Engineering plays a key role in crash reduction. In an effort to reduce frequency of crashes and prioritize the safety of vulnerable users, conceptual design includes many design modifications that have been shown to improve safety for all modes and all users.

Utilizing the Crash Modification Factors Clearinghouse (www.cmfclearinghouse.org) the following design modifications listed in Table 13 will greatly improve the safety of NE 4th Avenue/Wilton Drive for all users.

**Table 12: Summary of Crash Modification Factors**

CRASH MODIFICATION FACTORS			
Existing Condition	Proposed Condition	Crash Modification Factor	Crash Reduction Factor
No bike lanes	Install bike lanes	0.855	14.5%
12" White Crosswalk	High Visibility Crosswalk	0.6	40%
Does not currently exist	Installation of Colored Bike Lanes at Signalized Intersections	0.61	39%
Mid Block Bus Stops	Far Side Transit Stops	0.55	45%
Avg Speed 35 mph	10% reduction in mean speed	0.68	32%

Additional design efforts will be made which are not included in the CMF Clearinghouse to include curb extensions to reduce pedestrian exposure and calm traffic, signal timing improvements to improve pedestrian compliance and reduce exposure for pedestrians, bike detection to improve cyclist compliance with signals and reduce exposure, increasing the distance between pedestrians and vehicles from 6.5' to 18.5' will improve safety for pedestrians.

Overall, the project will improve safety for all modes and all users of this corridor and the design will match the posted design speed of 30mph in an area which has the highest density of children in the City, high transit ridership, local businesses, three schools, and three parks within ¼ mile of the project.



IV. RECOMMENDATION

Based on this context of the neighborhood land uses and the existing roadway conditions, converting SR811/NE 4th Avenue/Wilton Drive from a 4 lane roadway to 2 lanes to improve safety for all users and improve accommodations for bicyclists and pedestrians is being requested. This conclusion is based on data review, analysis, and public outreach which has been the majority in support of this proposal. This project is a connector street providing local needs such as shopping, services, and dining. It allows improved transportation options for children and residents with limited access to vehicles in this dense, mixed-use area to get to the parks, schools, and other destinations safely via walking, riding the bus, or riding bicycles. In Wilton Manors this roadway serves the central business/entertainment district with high volumes of pedestrians accessing those businesses. These improvements will provide safer access for all users of the district. The proposed lane elimination project is consistent with the policy direction provided by residents through the City's Fast Forward Fort Lauderdale 2035 Vision, Complete Streets Policy, Connecting the Block Program, and Vision Zero Initiative to reduce all traffic fatalities and major injuries on our streets to zero.

Traffic volumes have been decreasing on SR811/NE 4th Avenue/Wilton Drive since 2006, therefore it is not expected that traffic volumes will increase significantly on this corridor. As the many planned multimodal infrastructure improvements come to fruition, it will provide the necessary network of multimodal accommodations that will create a paradigm shift away from single occupancy vehicle trips. These efforts to create choice for users other than the car are the only way to successfully improve the transportation network and reduce vehicle trips and are consistent with the City's visions expressed by their residents as what they would like to see their cities as in the future as well as begin consistent with the MPO's Long Range Transportation Plan.

Per the FDOT Lane Elimination Guide cites "According to studies by FHWA, under most ADT conditions, lane elimination of one through lane per direction seems to have minimal effects on vehicle capacity because left-turning vehicles are moved into a common two way left turn lane. Four lane roadways with and ADT of up to 20,000 (or up to 1,750 vehicles per peak hour) have been shown to be good candidates for lane elimination. When a street is converted to two lanes, this helps to calm traffic, in part by eliminating the opportunity for passing and in part because the slower drivers set the speed." Speed reduction is a major safety improvement for this corridor which hosts school age children daily. Based on the existing and future traffic capacity analysis within this report, the corridor meets the capacity requirements of the FDOT and the City of Fort Lauderdale within the 2-lane proposed configuration in the existing and Year 2035 conditions.

In order to provide this revitalization and meet the goals of the residents in this neighborhood, suggested design considerations include:

- Continuous buffered bike lanes in both directions. Green colored bicycle lanes will be incorporated per FDOT standards.
- Reduction in number of lanes from 4 lanes to 2 lanes. Additional right turn lane constructed along northbound NE 4th Avenue at NE 13th Street to include 190 feet of storage.
- Hold existing curbs and protect existing trees within the City of Fort Lauderdale. All intersections should be explored to add bump-outs to shorten crossing distance and tighten curb returns radius to encourage appropriate turn speeds for multi-modal corridor in line with FDOT Design Standards.



- Traffic signal head locations and signal cycle timing will be reviewed and evaluated by BCTED to meet the future conditions.
- Work directly with Fort Lauderdale High School to evaluate the location and type of pedestrian crossing necessary for the school's use based on their redevelopment plans.
- Coordinate with BCT in the evaluation of existing bus stops and the possibility to relocate closer to signalized crossings and the potential of designing bus bays along this corridor.



APPENDIX

APPENDIX A:

- A.1: HISTORICAL FDOT AADT REPORT
- A.2: EXISTING TRAFFIC VOLUMES- AADT & SPEEDS
- A.3: EXISTING TURNING MOVEMENT COUNTS
- A.4: EXISTING TRAFFIC VOLUMES & SPEEDS- DURING SCHOOL YEAR

APPENDIX B: BROWARD COUNTY: TRANSIT ROUTE & BOARDINGS & SIGNAL TIMING SHEETS

APPENDIX C: WILTON DRIVE TIA, 2006

APPENDIX D: FORT LAUDERDALE HIGH SCHOOL COORDINATION

APPENDIX E:

- E.1: CITY OF FORT LAUDERDALE PUBLIC OUTREACH
- E.2: CITY OF WILTON MANORS PUBLIC OUTREACH
- E.3: BROWARD MPO PUBLIC FORUMS
- E.4: FDOT PUBLIC FORUMS (*COMING SEPTEMBER 2016*)
- E.5: COMMISSION RESOLUTION OF SUPPORT: CITY OF FORT LAUDERDALE
- E.6: COMMISSION RESOLUTION OF SUPPORT: CITY OF WILTON MANORS

APPENDIX F:

- F.1: 2015 AM PEAK SYNCHRO ANALYSIS REPORT
- F.2: 2015 PM PEAK SYNCHRO ANALYSIS REPORT
- F.3: 2035 AM PEAK (1-LANE) SYNCHRO ANALYSIS REPORT
- F.4: 2035 PM PEAK (1-LANE) SYNCHRO ANALYSIS REPORT

APPENDIX G: FDOT SAFETY IMPROVEMENTS

APPENDIX H: PROPOSED STREET DESIGN PLANS