TRAFFIC IMPACT STUDY
THE CLOSURE OF SW 7th TERRACE AT
SW 107TH AVENUE

TECHNICAL MEMORANDUM

Prepared for:

Florida Department of Transportation, District Six

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EXECUTIVE SUMMARY

F.R. Aleman & Associates (FRA) has been retained by FDOT District VI to study and analyze the effects of the SW 7th Terrace closure at the intersection of SR 985/SW 107th Avenue. Considering the possible diversion routes, the study area is bounded between SW 8th Street and SW 4th Street and between SW 109th Avenue and SW 107th Avenue which is within the City of Sweetwater, Miami-Dade County, Florida.

The on-going roadway improvement projects, completed studies and reports within this study area were reviewed. With the incorporating the geometric and safety improvements of roadway and intersections in these projects and studies, traffic simulations were developed for open year and design year as well as simulations under existing conditions.

Traffic simulation results clearly show that there are very low potential traffic impacts on the study area intersections from the SW 7th Terrace closure. The main reason is the traffic volumes from/to SW 7th Terrace to/from SW 107th Avenue are negligibly low to have an effect on the other intersections. With the incorporation of the proposed roadway improvements on SW 107th Avenue and the optimization of the signalized intersections, the Level of Service (LOS) is indeed improved from existing conditions.

Closing the western connection of SW 7th Terrace to SW 107th Avenue will eliminate the weaving problem caused by exiting traffic from SW 7th Terrace making the left turn at SW 107th Avenue. This will eliminate right angle and sideswipe crashes from this side street. The closure will also benefit the residents and create pedestrian friendly environment in the Linear Park along SW 7th Terrace. A cul-de-sac will be proposed and Road Termination signage as per FDOT Index (17349) will be installed on SW 7th Terrace at the intersection of SW 108th Avenue for the traffic circulation at SW 7th Terrace.

The Miami-Dade County Public Works Department Traffic Engineering Division has revised its Traffic Flow Modifications(s) / Street Closure(s) Procedure in January 2009. It is recommended to follow this procedure and close the western connection of SW 7th Terrace.
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1. INTRODUCTION

F. R. Aleman & Associates was retained by FDOT District VI to evaluate the effects of SW 7th Terrace closure. Meanwhile, several projects/studies have been done or proceeding within the study area. District VI has submitted 30% roadway plans for SR 985 / SW 107th Avenue from SW 12th Street to SW 4th Street (FPID 412479-3-52-01) in June 2010 and from SW 5th Street to north of W Flagler Street (FPID 412479-2-52-01) on December 12, 2008 respectively. SW 8th Street (from SR 821/HEFT to SR 826/Palmetto Exwy. FPID 425145-1(2, 3, 4 & 5)-52-01) roadway plans were completed by Consul-Tech Enterprises, Inc at the end of 2011. Traffic Operations and Safety Studies for SW 107th Avenue corridor between just north of SR 90/SW 8th Street (MP 6.213) and just north of West Flagler Street (MP 6.701) SW 4th Street was performed by CH Perez and Associates Consulting Engineering, Inc. (CHP) in September 2011 under project FM: 249796-2-32-07. 2006 – 5% High Crash Location Safety Study (FM: 249796-2-32-04) on Segment 10/Section 87120/SR 90/SW 8th Street at SW 107th Avenue was finished in January 2010 by CHP as well. Both Project Development Report and Project Development Summary Report on Project Development and Environment Study (FM: 412479-2-22-01) from SR 90/SW 8th Street/Tamiami Trail to CR 968/West Flagler Street were submitted on March 8, 2007 and June 15, 2007 respectively by URS Corporation Southern concerned corridor.

Incorporating the improvements and findings in these on-going projects and completed studies around the study area, this study will further evaluate the impacts of the SW 7th Terrace closure on the study area, and provide necessary improvements along the corridor to enhance capacity, safety and accessibility on SR 985/SW 107th Avenue, SW 109th Avenue and SW 8th Street. This project is located in a residential area, and vicinity of Sweetwater Elementary school, Florida International University, a fire station, and Sweetwater City Hall and Police Complex.

SR 985/SW 107th Avenue is a divided urban arterial running along north-south direction and SR 90/SW 8th Street running along east-west direction. SR 985/SW 107 Avenue has a raised median with four lanes north of SW 8th Street and six lanes south of SW 8th Street. The posted speed limit for SW 107th Avenue and SW 8th Street are 40 mph and 45 mph respectively.

The corridor is about 0.25 miles in length for both SW 107th Avenue and SW 8th Street. The study corridors are included in the high crash segment of Miami-Dade County from 2008-2010.
SW 7th Terrace is a two lane undivided local collector with one lane in each direction running east-west parallel to SW 8th Street for approximately 0.25 miles from SW 109th Avenue to SW 107th Avenue (SR 985) within the study area in the City of Sweetwater, Miami-Dade County, Florida. It provides local residents to access SW 107th Avenue and SW 109th Avenue from the north side. Tamiami Canal runs parallel to the south side of SW 7th Terrace. There are road side parking and sidewalk on the north side of SW 7th Terrace. The James M. Beasley Linear Park is located along the Tamiami Canal and SW 7th Terrace. It extends from SW 107th Avenue to SW 117th Avenue, and offers a bike path and vita course stretching the one mile length of the park. There are also benches, lighting, water fountains and two shelter rest stations. There are no other intersections in the area as close to SW 8th Street as the intersections with SW 7th Terrace.

Figure 1: Traffic Study Area
This report reviews on-going projects and completed studies within the study area, provides traffic diversions due to SW 7th Terrace closure, performs Synchro analysis based on the existing traffic counts, traffic projection and diversion, consider the geometric impacts of SW 7th Terrace closure, review the Miami-Dade County street closure procedure and gives the recommendations and suggestions for the SW 7th Terrace closure.

2. SUMMARY OF ON-GOING PROJECTS AND PERFORMED STUDIES

There are three on-going projects and three completed studies within the study area. They are summarized as below.

2.1. Roadway Improvement Projects

- SW 107th Avenue from SW 12th Street to SW 4th Street (30% Plans submitted in June 2010) includes roadway widening from four lanes to six lanes, median improvements and intersections improvements.
- SW 107th Avenue from SW 8th Street to Flagler Street (30% Plans submitted on December 12, 2008) includes roadway widening from four lanes to six lanes, median improvements, drainage improvements and intersections improvements.
- SW 8th Street from SR 821 to SR 826 includes roadway improvements, signing and pavement marking improvements, and signalization improvements.

2.2. Traffic Operations and Safety Studies

District Six Traffic Operations: Performed by CH Perez & Associates Consulting Engineers, Inc. (CHP) in September 2011. FM: 249796-2-32-07. The improvements proposed were as follows:

- Access management improvements including full median opening and closures at SW 7th Terrace (east leg), SW 6th Street (west leg) and SW 3rd Street (east leg)
- Median opening conversions from full openings to NB directional at SW 7th Street and SW 5th Street (west leg). In addition, a modified directional opening at SW 6th Street (east leg) to allow SB and WB left turns only, and
SW 7TH TERRACE CLOSURE TRAFFIC IMPACT STUDY

- Access management changes were proposed to reduce the number of crashes within the project limits.

2.3. 2006 – 5% High Crash Location Safety Study

Operations & Safety Study was performed by CHP in January 2010 (FM: 249796-2-32-04). Safety improvements were proposed as follows:

- The extension of EB and WB left turn bays along SW 8th Street and SW 107th Avenue. This entails full closure of directional median opening at east of the intersection on SW 8th street, and
- Additional NB and SB left turn lanes.

2.4. Project Development Report and Project Development Summary Report

A PD&E study was performed for SR 985 from SW 107th Avenue and SW 8th Street to SW 107th Avenue to Flagler Street. The project objectives were to improve roadway conditions, increase capacity to reduce congestion and accommodate future traffic, safety, access management and drainage. The improvements were proposed as follows:

- Adding one lane in each direction to improve existing intersections, improving drainage and providing adequate access management.

3. TRAFFIC IMPACT STUDY ON SW 7TH TERRACE CLOSURE

To evaluate the impact of the roadway closure of SW 7th Terrace, traffic data was collected, traffic trips were redistributed and traffic simulations were developed for the study area.

3.1. Study Methodology

The study is conducted in accordance with the general guidelines of FDOT District VI and Miami-Dade County. The study involves inventory of roadway and intersection conditions,
collecting traffic volume data, estimating project generated detoured trips, and intersection analysis using Synchro Simulation Model. A 0.42% growth factor is proposed to determine the background traffic for year 2036 depending on the historical traffic data. Traffic diversions will consider the worst case scenario due to the relative low traffic generated from SW 7th Terrace. Traffic simulations have been developed for the study area for the existing year (2012), open year (assuming 2016) and design year (assuming 2036).

3.2. Data Collection and Analysis

Turning movement counts (TMC) were collected during weekdays between Tuesdays and Thursday. AM and PM peak traffic data were collected for the below listed intersections:

1. SW 8th Street & SW 109th Avenue,
2. SW 7th Terrace & SW 109th Avenue,
3. SW 7th Street & SW 109th Avenue,
4. SW 7th Terrace & SW 108th Avenue,
5. SW 7th Street & SW 108th Avenue,
6. SW 4th Street & SW 108th Avenue,
7. SW 8th Street & SW 107th Avenue,
8. SW 7th Terrace & SW 107th Avenue,
9. SW 7th Street & SW 107th Avenue, and
10. SW 4th Street & SW 107th Avenue.

Figure 2 shows the detail locations of 24-hour machine count and peak hour TMC.
Since traffic data was collected during the off-school season due to time constraint, the comparison between FRA traffic data and CHP traffic data during school time is listed in Table 1. It shows FRA traffic counts are greater than CHP counts even considering the addition of a one-year growth to the CHP data. However, to account for seasonal variations in traffic, especially for school seasons, the PSCF of 1.05 will be used for the simulations on existing conditions under worst case.
Table 1: Traffic Count Comparison between FRA and CHP

<table>
<thead>
<tr>
<th>Location</th>
<th>ADT (Month/Year)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FRA (7/2012)</td>
<td>CHP (9/2011)</td>
</tr>
<tr>
<td>SW 7 St W/O SW 108 Ave</td>
<td>1563</td>
<td></td>
</tr>
<tr>
<td>SW 107 Ave S/O SW 7 St</td>
<td>42595</td>
<td>41000</td>
</tr>
<tr>
<td>SW 108 Ave S/O SW 7 St</td>
<td>259</td>
<td></td>
</tr>
<tr>
<td>SW 4 St W/O SW 107 Ave</td>
<td>3400</td>
<td></td>
</tr>
<tr>
<td>SW 7 Terr W/O SW 107 Ave</td>
<td>270</td>
<td>204</td>
</tr>
</tbody>
</table>

The signal timing and signal operation data were also collected for the signalized intersections. High Crash segment list shows information about the project location being under a high crash zone from 2008-2011.

3.3. Traffic Diversion and Projection

Since the intersection of SW 7th Terrace with SW 107th Avenue is a right in/out only T-intersection, the existing SB right-in traffic from SW 107th Avenue will be required to make a right turn at SW 7th Street to access SW 7th Terrace while existing EB right-out traffic from SW 7th Terrace will be required to take SW 108th Avenue, SW 7th Street and SW 109th Avenue or SW 107th Avenue as a detour route after the closure of SW 7th Terrace. The original right-out traffic from SW 7th Terrace will have to take the red path and the right-in traffic from SW 107th Avenue will take the blue path to access SW 7th Terrace based on shortest distance principle indicated in Figure 3.

The existing right-in traffic at SW 7th Terrace will be assigned 100% to the proposed diversion path. On the other hand, the majority of existing right-out traffic should be diverted to take SW 107th Avenue SB, and minor portion of the traffic will choose SW 109th Avenue. However, since the existing right-out traffic is so light (less than 10 veh/hr at peaks), this report will take consideration of distributing 100% of this volume into either SW 107th Avenue or SW 109th Avenue for the worst case.
Figure 3: Traffic Flow Diversion

To obtain the growth rate for the design year, Traffic Station #871090 on SW 107th Avenue, 200 feet south of SW 8th Street and Station #870090 on SW 8th Street, 500 feet east of SW 109th Avenue were used for traffic projections. Figure 3 shows the traffic growth is 0.24% at SW 107th Ave under the linear growth method. The best fit regression for Station #870090 is a decaying method, and the growth rate is 0.42% from 2011 to design year on SW 8th Street within the study area as shown in Figure 4. To be conservative, a growth rate of 0.42% will be used for the traffic simulation in the study area, and this growth rate is reasonable for this highly urbanized area.
Figure 4: Traffic Projection at SW 107th Avenue

Figure 5: Traffic Projection at SW 8th Street
3.4. Simulations and Results

Synchro 8 was used to analyze the existing and proposed traffic conditions using the existing and projected AM and PM peak TMCs collected along the concerned corridor. In order for the model to accurately simulate the existing roadway and intersection conditions during AM and PM peak hours, the model was calibrated using balance volumes to reflect accurate driver behavior and patterns within the study area.

Three signalized and four unsignalized intersections are being studied within the collected existing project limits. These intersections are either in the traffic diversion paths or critical intersections. Synchro modeling for the existing condition was performed using the traffic data, signal timing and existing signal plans. The tables below show the Level of Service, Max v/c ratio and delay for the signalized intersections under current conditions.

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>E</td>
<td>1.21</td>
<td>75.2</td>
</tr>
<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>E</td>
<td>1.15</td>
<td>74.2</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>D</td>
<td>0.98</td>
<td>46.4</td>
</tr>
<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/WB Stop Sign)</td>
<td>B</td>
<td>0.21</td>
<td>13.0</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>9.0</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>C</td>
<td>0.23</td>
<td>24.4</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>8.5</td>
</tr>
</tbody>
</table>
Table 3: 2012 Existing Condition Level of Service (PM)

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>F</td>
<td>1.28</td>
<td>100.9</td>
</tr>
<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>B</td>
<td>0.64</td>
<td>19.2</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>E</td>
<td>1.56</td>
<td>77.8</td>
</tr>
<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/ WB Stop Sign)</td>
<td>C</td>
<td>0.42</td>
<td>24.8</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>A</td>
<td>0.04</td>
<td>9.6</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>C</td>
<td>0.06</td>
<td>17.8</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Table 2 and Table 3 show that existing traffic conditions are already congested especially at the intersection SW 8th Street with SW 107th Avenue in PM peak. The Level of Service of “F” at this intersection operationally justifies the additional lanes in the on-going roadway improvement projects.

The field review found the LOS at intersection of SW 4th Street and SW 107th Avenue at AM peak was better than “E” shown in Table 2. The reason is there was no school at that time. To better represent the school season scenario, the exclusive pedestrian signal phase was added in the simulation according to Traffic Operations and Safety Studies by CHP. The simulation results match the CHP results during school season.

In order to reduce the congestion and the delays, an additional through lane on SW 107th Avenue is proposed in the on-going project (FPID 412479-3-52-01). The proposed geometric conditions will add one additional lane in both NB and SB direction along SW 107th Avenue from SW 8th Street to SW 5th Street. At the intersection of SW 107th Avenue and SW 8th Street, additional left turning bays are added on both SB and NB directions. With implementations of these roadway improvements in this upcoming project, Tables below show the results of the Synchro analysis for the proposed conditions in 2016, including the detoured traffic, additional lanes, median closure on SW 107th Avenue and SW 7th Terrace closure.
Figure 6: Existing Lane Configuration at SW 107th Avenue
Table 4: 2016 LOS with Proposed Geometric Conditions (AM)

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>E</td>
<td>1.10</td>
<td>65.3</td>
</tr>
<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>C</td>
<td>0.84</td>
<td>30.0</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>D</td>
<td>0.85</td>
<td>35.0</td>
</tr>
<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/WB Stop Sign)</td>
<td>B</td>
<td>0.25</td>
<td>13.9</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>A</td>
<td>0.03</td>
<td>9.7</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>B</td>
<td>0.06</td>
<td>10.6</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>8.5</td>
</tr>
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</table>

Table 5: 2016 LOS with Proposed Geometric Conditions (PM)

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>E</td>
<td>0.94</td>
<td>63.2</td>
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<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>B</td>
<td>0.80</td>
<td>12.3</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>E</td>
<td>0.99</td>
<td>56.2</td>
</tr>
<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/WB Stop Sign)</td>
<td>C</td>
<td>0.42</td>
<td>24.6</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>A</td>
<td>0.04</td>
<td>9.6</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>B</td>
<td>0.04</td>
<td>13.2</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>8.6</td>
</tr>
</tbody>
</table>

With the completion of the on-going roadway improvement projects, timing optimization, roadway closure at SW 7th Terrace, traffic diversions and projections in 2016, the Level of Service of the signalized intersections are presented in Table 4 and Table 5. The average delays are improved to an acceptable LOS.

To further investigate the traffic conditions under the design year, traffic were projected to year 2036 and Synchro analyses were carried out for the lane configurations following the roadway improvement project (FPID 412479-3-52-01) and SW 7th Terrace closure. Existing signal cycle length will remain the same as the existing for both AM and PM peaks due to corridor
coordination while the individual timings will be optimized to obtain a better intersection Level of Service. The results are shown below in Table 6 and Table 7 for AM and PM peaks in 2036 respectively.

**Table 6: 2036 LOS with Proposed Geometric Conditions (AM)**

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>E</td>
<td>1.05</td>
<td>65.4</td>
</tr>
<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>C</td>
<td>0.87</td>
<td>31.1</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>D</td>
<td>0.92</td>
<td>39.0</td>
</tr>
<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/WB Stop Sign)</td>
<td>C</td>
<td>0.31</td>
<td>15.4</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>B</td>
<td>0.03</td>
<td>10.2</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>A</td>
<td>0.04</td>
<td>8.9</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.01</td>
<td>8.5</td>
</tr>
</tbody>
</table>

**Table 7: 2036 LOS with Proposed Geometric Conditions (PM)**

<table>
<thead>
<tr>
<th>Intersection (Traffic Control)</th>
<th>LOS</th>
<th>Max V/C</th>
<th>Delay(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 8th St &amp; SW 107th Ave (Signal # 3709)</td>
<td>E</td>
<td>1.01</td>
<td>69.8</td>
</tr>
<tr>
<td>SW 4th St &amp; SW 107th Ave (Signal # 4560)</td>
<td>B</td>
<td>0.82</td>
<td>13.1</td>
</tr>
<tr>
<td>SW 8th St &amp; SW 109th Ave (Signal #5430)</td>
<td>E</td>
<td>1.09</td>
<td>69.0</td>
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<tr>
<td>SW 109th Ave &amp; SW 7th St (EB/WB Stop Sign)</td>
<td>D</td>
<td>0.49</td>
<td>30.2</td>
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<td>SW 108th Ave &amp; SW 7th St (NB/SB Stop Sign)</td>
<td>A</td>
<td>0.04</td>
<td>9.8</td>
</tr>
<tr>
<td>SW 107th Ave &amp; SW 7th St (EB Stop Sign)</td>
<td>B</td>
<td>0.06</td>
<td>13.3</td>
</tr>
<tr>
<td>SW 108th Ave &amp; SW 7th Terr (SB Stop Sign)</td>
<td>A</td>
<td>0.02</td>
<td>8.6</td>
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With a traffic growth rate of 0.42%, traffic conditions in the study area for design year of 2036 outperform existing conditions. This concludes that local intersections are able to operate at an acceptable level with the on-going roadway improvement projects and SW 7th Terrace closure.
4. GEOMETRIC AND OTHER CONSIDERATIONS

4.1. Geometric and Safety Concerns

The proposed widening of SW 107th Avenue (FPID 412479-2-52-01 & 412479-3-52-01) will add an additional SB lane on SW 107th Avenue. The additional lane has increased the weaving difficulty for traffic that exits SW 7th Terrace and needs to make a left turn at SW 8th Street. Previously, traffic from SW 7th Terrace had to cross two lanes of SB traffic now they have to cross three lanes of proposed SB traffic. With the close proximity to the stop bar on SB SW 107th Avenue (85 feet), traffic from SW 7th Terrace is unable to enter the SB SW 107th Avenue left turn lanes safely. Based on the Traffic Operations & Safety Studies by CHP, there were total five (5) rear-end and sideswipe types of crashes near the intersection of SW 7th Terrace with SW 107th Avenue from year 2007 to 2009.

The addition of a concrete separator to stop the traffic from SW 7 Terrace entering the SB left turn lane would require an additional 5.5 feet of median width (4 foot separator and 1.5 feet of offset) this option will not fit within the proposed Right-of-Way. The addition of tubular delineators will discourage some drivers but will not prevent all drivers from entering the left turn lane. With signage and a directional island on SW 7th Terrace as the only way to prohibit this weaving maneuver and no way to physically stop this operation, drivers will persist in doing the unsafe weaving movement, resulting in an increase in accidents.

Even with no minimum distance requirement between intersections, it is recommended that SW 7th Terrace be closed since it is difficult for exit vehicles to find gaps and make a right turn due to the heavy SB traffic and queue buildup at the intersection of SW 107th Avenue and SW 8th Street at peak hours.
4.2. Drainage issues

The raising of the profile along SW 107th Avenue has created a drainage issue on the adjoining private properties on the north side of SW 7th Terrace. Raising and widening SW 107th Avenue has raised the SW 7th Terrace profile approximately two feet higher than existing. This will interrupt the historical drainage pattern of surface flow to SW 7th Terrace, creating low points on the adjacent properties. To prevent flooding the adjacent properties, drainage inlets will be required to be placed on the impacted private properties. Also, with the increased height of the SW 7th Terrace profile, the adjacent driveways will now have steeper slopes with a “U” shape profile.

Approximately 200 feet of adjacent private property along SW 7th Terrace will be impacted due to the raising of the SW 7th Terrace profile. The area needed for harmonization will extend up to 30 feet onto the adjacent private properties.

4.3. FIU and City of Sweetwater Development Impact

Conceptual plan in Appendix J indicates that there are redevelopment opportunities along SW 7th Terrace, SW 107th Avenue and SW 109th Avenue. Transit Greenway Expansion and TIGER Grant Extents are proposing improvement at 109th Avenue as well as a pedestrian bridge crossing SW 8th Street near SW 109th Avenue. With the improvement of SW 109th Avenue, the traffic from redevelopment along SW 7th Terrace is more likely to take SW 109th Avenue SB to FIU main campus instead of taking SW 107th Avenue. Closure of the SW 7th Terrace EB connection to SW 107th Avenue do not seem to have any major impact on the FIU related traffic, plus SB traffic has already reached its capacity at the intersection of SW 107th Avenue and SW 8th Street and the queue buildup will block the EB right turn movement from SW 7th Terrace during peak hours.
4.4. Recommendations

Construction of a Cul-de-Sac per AASHTO Chapter five and street termination signage per FDOT Design Standards Index No. 17349 will be proposed on SW 7th Terrace.

Closing the western connection of SW 7th Terrace to SW 107th Avenue will eliminate the above issues and safety concerns. The closure will create a more pedestrian friendly environment for the residents of SW 7th Terrace and users of the Liner Park along the bank of the Tamiami Canal.

5. STREET CLOSURE(S) PROCEDURE

A lane may be closed permanently only upon receiving consent from Miami-Dade County. All the applicants, whether residing within unincorporated Miami-Dade County or municipality may submit a request for lane closure(s) to Miami-Dade County Public Works Department (PWD) in the form of a letter to complete the lane closure application. Should the request be initiated through or by a municipality of the FDOT, then these agencies, at their option, may conduct traffic studies utilizing their staff or a traffic consultant.

The Miami-Dade County PWD will make the determination based on concurrence from the residents and property owners. A municipality may pass a resolution after a public hearing requesting the Miami-Dade County PWD to consider the proposed traffic flow modifications or street closures. The Miami-Dade County PWD will mail out ballot to obtain concurrences from the public and the further action is based on the concurrences obtained from the public. There are two phases involved. A detailed procedure is given in Appendix H.
6. CONCLUSIONS AND RECOMMENDATIONS

This traffic impact study clearly shows there are very low potential traffic impacts on the study area intersections from the SW 7th Terrace closure. The reason is the traffic volumes from/to SW 7th Terrace to/from SW 107th Avenue are negligibly low to affect the other intersections. With the incorporation of the proposed roadway improvements on SW 107th Ave and the optimization of the signalized intersections, the LOS is improved from existing conditions.

Closing the western connection of SW 7th Terrace to SW 107th Avenue will eliminate the weaving problem caused by exiting traffic from SW 7th Terrace making the left turn at SW 107 Avenue. This will eliminate right angle and sideswipe crashes from this side street. With no minimum distance requirement between intersections, it is recommended that SW 7th Terrace be closed since it is difficult for exit vehicles to find gaps and make a right turn due to the heavy SB traffic and queue buildup at the intersection of SW 107th Avenue and SW 8th Street during peak hours.

SW 7th Terrace closure will also benefit local residents. The James M. Beasley Linear Park extends from SW 107th Avenue to SW 117th Avenue located between the Tamiami Canal and SW 7th Terrace. The closure at the beginning of the Linear Park will lead to less traffic at SW 7th Terrace and create a more pedestrian friendly environment.

The Miami-Dade County Public Works Department Traffic Engineering Division has revised its Traffic Flow Modifications(s) / Street Closure(s) Procedure in January 2009. It is recommended to follow this procedure and close the western connection of SW 7th Terrace.