Lakeland Area Alternatives Analysis

DRAFT Preliminary Safety Assessment

US 98/SR 37/SR 35/Florida Avenue

October 2017

Project Limits:
US 98/SR 35/N Florida: From US 92/Memorial Blvd to Lakeland Park Center Dr
SR 37/S Florida: From Ariana St to railroad (just south of Pine St)

Polk County, Florida

Financial Project Identification Number (FPID):
432459-1-22-01

Prepared for:
Florida Department of Transportation
District One
801 N. Broadway Avenue
Bartow, Florida 33830
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Prepared by:
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Tampa, FL 33602

_________________________
Benjamin Walker, P.E.
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Executive Summary

The Florida Department of Transportation (FDOT) is working to facilitate a complete transportation network to properly support renewed growth in north Lakeland, Florida. As one example, FDOT is conducting the Lakeland Area Alternatives Analysis (LAAA) to examine the community’s transportation needs not just for vehicles, but also for pedestrians, bicycles, transit, and the movement of freight and goods.

According to the Lakeland Economic Development Council (EDC), Lakeland had a growth rate of 22.96% between 2000-2014, which is tremendous compared to the nation’s growth rate of just under 1%. To accommodate this economic growth and development, while providing for the safety of the users, context-specific infrastructure must be in place.

Originally conceived as a study to examine the potential for widening US 98/SR37 to provide capacity needs, the Florida Department of Transportation (FDOT) broadened the analysis area and scope to create what is now known as the Lakeland Area Alternatives Analysis (LAAA) Study, to examine the community’s transportation needs in the north Lakeland area. This study’s scope adheres to FDOT’s new Complete Streets Initiative, with a refined vision of a complete transportation network for not just vehicles, but also for pedestrians, bicyclists, transit, and the movement of freight and goods. This is in concurrence with Polk Transportation Planning Organization’s (TPO) mission to partner with the community to plan and fund transportation projects and programs that provide safe, reliable travel for all users. Pedestrians and bicyclists need to feel safe travelling the corridors. Pedestrians prefer to walk in an inviting, safe space with wide sidewalks with room to comfortably walk side by side or to access businesses such as a restaurant or a boutique. Similarly, connectivity to transit is imperative to a functioning transportation system and to supporting future growth. Likewise, roadways must provide enough capacity to move vehicles. There is a true balancing act, but through working with stakeholders, analysis and creativity, solutions are achievable.
Figure 1:
Road Safety Audit Limits
1.0 Introduction

By following FDOT’s Complete Streets Initiative, this study will analyze the transportation system’s needs that incorporates all modes of travel into a network’s and corridor’s performance evaluation.

Sports stadiums, local parks, shops, restaurants and employers are all traffic generators in the Lakeland area, drawing pedestrians, cyclists, and transit riders. Citrus Connection is a vital resource for the area, with many major routes throughout the study area, supported by a transfer station and a new park-n-ride facility within the study boundaries. Similarly, companies such as Publix generate high volumes of freight traffic within and through the study area whose needs must be balanced with those of other modes.

Previously, the study team coordinated with area stakeholders to understand their concerns for all transportation modes in the study area. Now FDOT continues that outreach and encourages, values, and appreciates the community’s participation in the next step of this process, the Roadway Safety Audits (RSA). For this corridor, the RSAs will be conducted in two segments:

- US 98/SR 35/N Florida: From US 92/Memorial Blvd to Lakeland Park Center Dr
- SR 37/S Florida: From Ariana St to railroad (just south of Pine St)

This preliminary safety assessment for US 98/SR 37/SR 35 (Florida Avenue) highlights the characteristics of the corridor. The N. Florida Avenue corridor is a four-lane divided highway designated as an urban principle arterial with a speed limit primarily between 40 and 45 mph. The Existing Conditions report examined the existing operational and capacity issues to identify the multi-modal transportation system deficiencies for pedestrians, bicyclists, vehicles, transit users, and freight transporters. This assessment includes the land use of the area. Lakeland’s future land use for the corridor includes a mix of uses, primarily residential and retail, but includes heavily frequented activity centers along the corridor – interstate, community, and regional. FDOT’s context classification for this corridor currently is C3C or suburban-commercial between Memorial Boulevard and I-4. Though roadway connectivity measures indicate an urban context, low building heights, large setbacks, and location of parking create a suburban

Munn Park draws many residents and visitors to community events throughout the year.

FDOT is working toward a complete transportation network not just for vehicles, but also for pedestrians, bicyclists, transit, and the movement of freight and goods.
commercial feel. However, most of this segment is within the Core Improvement Area with potential for infill development and the new focus on context sensitivity. With new focus on context sensitivity, the segment from Memorial Boulevard south to Antilla Street could be classified as C4 or urban general, acknowledging more mixed use and a well-connected roadway adjacent to residential areas.

Conversely, South Florida Avenue appears to meet the criteria for Urban General (C4) based on the street network and building form although further analysis is needed.

Further setting the context along the corridors, Publix field at Joker Marchant Stadium (Tiger Town) and Henley Field, along with other community events, draw residents and visitors into the area throughout the year. Freight and logistics are continuing to be a large part of the economy as Publix, GEICO, Amazon and other large distribution companies call Lakeland and surrounding areas home. According to the EDC, the largest employers in the area (Publix, Lakeland Regional Health, GEICO, City of Lakeland and Watson Clinic) are in industries that need various types of service providers, tradespeople, and professionals, some of which drive, walk, bike, use transit, or a combination of these modes, to reach their jobs as well as other work-play-live activities. As real-time traffic information becomes more readily available, travelers may change their daily commute pattern in terms of routes or mode. The LAAA considers all users in its quest to meet the transportation needs of the Lakeland area.

The largest employers in the area are in industries that need several types of service providers, tradespeople, and professionals, some of which drive, walk, bike, use transit, or a combination of these modes, to reach their jobs as well as other work-play-live activities.

Earlier in the study, stakeholders were provided an opportunity to weigh-in and provide the team with their concerns for all transportation modes in the study area. Some ideas stakeholders have suggested for
US 98/SR 37/SR 35 (Florida Avenue) include more transit and a possible road diet to improve the corridor. Ideas like this, and others, can come from the knowledge gained during a Roadway Safety Audit (RSA). The RSAs extend past the study’s boundaries to review issues related to connectivity between the study area communities and the downtown development area for all users.

Crash data is a valuable element to this safety assessment. Florida Avenue is a high crash corridor, with 179 crashes at intersection of Memorial Boulevard and US 98 and 251 crashes at intersection of Griffin Road and US 98 between 2011-2015. This report shows the high-number of crashes on the corridor and illustrates the lack of a connected network of sidewalks and bike lanes through the corridor and connecting to the surrounding community. The corridor maintains undesignated bike lanes south of Memorial Boulevard. During games at Bryant Stadium, temporary midblock pedestrian crossings are offered near 3rd Street, 5th Street and 7th Street. Sidewalks are lacking in many areas along the corridor, and although they may exist, they may not feel safe or inviting to use.

Numbers alone do not tell the whole story, and cannot provide solutions. The solutions to the national epidemic of crashes and their social impacts will be found by people gathering together, observing, and having conversations to work to implementable solutions. The study team is calling upon stakeholders and professionals to observe these areas firsthand as a group then share what are their concerns, and what they feel could be done differently. The RSAs are a “boots on the ground” approach that will allow the RSA team to view the functionality of the transportation infrastructure in real time and join to brainstorm workable solutions.
2.0 Existing Conditions

The preliminary safety assessment examined the existing operational, safety, freight, and capacity issues to identify the multi-modal transportation system deficiencies for automobiles, pedestrians, bicyclists, and transit users. Through this assessment, it was determined that the current roadway design of Florida Avenue does not meet the needs of the community. There is significant commuter and freight traffic that use this corridor. This four-lane divided highway is an urban principle arterial with a speed limit primarily between 40 and 45 mph. The segment of Florida Avenue from the Polk Parkway to I-4 consists of several areas where lanes join the mainline and then taper off, causing merging and diverging vehicles throughout the study limits. There is also an uneven number of northbound and southbound lanes. For example, from 3rd Street to Memorial Boulevard, N. Florida Avenue has two northbound lanes and three southbound lanes.

Considering these characteristics, Florida Avenue’s existing context classification is C3C, or suburban commercial. Under this classification improvements are planned assuming area uses are mostly non-residential with large building footprints and large parking lots built within large blocks with a disconnected or sparse roadway network. FDOT recognizes that the segment of US 98 from Memorial Boulevard south to Antilla Street does not meet the same context as the remainder of the corridor. The future context classification for this segment will be C4 or Urban General. This context classification describes the area as having a mix of uses set within small blocks with a well-connected roadway network that usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway. Knowledge of these traits will guide in planning improvements to the corridor.

It is the mix of adjacent land uses, which leads to meeting the City’s goal of a livable community where one can work, live, and play nearby, see Figure 2. However, this land use mix also leads to the layered transportation needs of the users by requiring safe access to walking, bicycling, transit and vehicular modes.
Sidewalks and bike facilities, both along the corridor and connecting from adjacent communities, are vital to a Complete Streets network. This connectivity is a cornerstone to a vibrant and sustainable community as well. As shown in Figure 3, most of the corridor possesses sidewalks on both sides of the roadway, but the width varies and buffers are not always provided. From south of George Jenkins Boulevard, bike lanes are not provided and riders are forced to either share the road or the sidewalk in areas with high levels of traffic stress. The corridor maintains undesignated bike lanes south of Memorial Boulevard. Closer to the downtown area, multiple locations lack marked crossings making the area inconvenient and uncomfortable for bikes and pedestrian traffic. During games at Bryant Stadium, temporary midblock pedestrian crossings are offered near 3rd Street, 5th Street and 7th Street. For a downtown area to thrive, sidewalks and crosswalks must be available for people as they work, play and stay.

Citrus Connection provides service along the entire corridor with Route 14, one of their highest ridership routes. Other small portions of the corridor are serviced by Routes 10, 14, 15, 45, 47, and 58. A transfer Terminal is located along N. Florida Avenue just south to E. Pine St. Numerous stops offer connections to routes serving locales east and west of the corridor. A new Park-n-Ride has opened on US 98 at I-4, near Pyramid Parkway.

Within the study area, Interstate 4 (I-4) Kathleen Road, SR 35 (Florida Avenue) and Memorial Boulevard are designated Polk County truck routes. Although SR 37/S. Florida Avenue is not considered a major truck route, it does provide connectivity to other designated truck routes and acts as a connector to I-4, which is also one of Florida’s Strategic Intermodal System Corridors. The corridor’s proximity to these truck routes promotes truck overflow onto US 98/SR 37/SR 35, which should be considered when evaluating for improvements. Finally, as shown in Table 1, there are substantially higher numbers of vehicles at each end of the corridor, leaving the center segment of the corridor near Main Street inviting for more bicycle and pedestrian traffic and possibly for a more walkable area.
Figure 2: Future Land Use
Figure 3: Existing Sidewalks and Bike Lanes
Table 1:

<table>
<thead>
<tr>
<th>Description</th>
<th>AADT</th>
<th>AM Peak Volume</th>
<th>PM Peak Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(North/South)</td>
<td>(North/South)</td>
</tr>
<tr>
<td>US 98/SR 35, north of I-4</td>
<td>46,500</td>
<td>1,099/1,925</td>
<td>1,930/1,557</td>
</tr>
<tr>
<td>US 98/SR 35, south of I-4</td>
<td>47,200</td>
<td>1,248/1,652</td>
<td>1,898/1,577</td>
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<tr>
<td>US 98/SR 35, north of 10th Street</td>
<td>42,400</td>
<td>1,133/1389</td>
<td>1,977/1,510</td>
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<tr>
<td>US 98/SR 35, north of Memorial Blvd</td>
<td>41,400</td>
<td>1,230/1,272</td>
<td>1,602/1,600</td>
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<tr>
<td>SR 37, north of Bartow Road</td>
<td>31,000</td>
<td>874/998</td>
<td>1,255/998</td>
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<td>24,200</td>
<td>752/864</td>
<td>965/971</td>
</tr>
<tr>
<td>SR 37, south of Main Street</td>
<td>22,800</td>
<td>760/784</td>
<td>825/914</td>
</tr>
<tr>
<td>SR 37, north of McDonald Street</td>
<td>28,300</td>
<td>1,155/852</td>
<td>1,078/1,206</td>
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<tr>
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<td>1,158/1,473</td>
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<td>1,194/1,195</td>
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<td>1,347/1,013</td>
<td>1,335/1,499</td>
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<td>37,200</td>
<td>1,578/1,017</td>
<td>1,388/1,693</td>
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For frame of reference and comparison purposes, FDOT’s Generalized Annual Average Daily Volumes.

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<th>Lanes</th>
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<th>LOS C</th>
<th>LOS D</th>
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<td>4</td>
<td>Divided</td>
<td>*</td>
<td>37,900</td>
<td>39,800</td>
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FDOT Generalized Annual Average Daily Volumes for Florida’s Urbanized Areas, 12-28-2012
3.0 Crash Analysis

Safety is the number one criteria for transportation improvements, yet the crash epidemic continues in the United States. According to the National Highway Traffic Safety Administration (NHTSA), the toll from highway crashes remains an important health and economic issue in this country. Each year nearly 32,000 individuals are killed and more than six million police-reported motor vehicle crashes occurred in the US. The estimated cost of these highway crashes is more than $871 billion annually. According to Florida Highway Safety and Motor Vehicles Annual Report for 2015, Polk County had nearly 10,000 total crashes of which 112 resulted in fatalities, nearly 7,300 in injuries, 245 pedestrian crashes, and 161 bicycle crashes that year. The report also stated that the City of Lakeland had nearly 2,900 crashes in 2015. According to the Polk TPO, there were 194 fatalities resulting from pedestrian and bicycle crashes between 2006 and 2016.

Collision reports were obtained from the District One Safety Office for January 2011 through December 2015. The collision data is summarized in Table 2. US 98/SR 37/SR 35 is a high crash corridor, with 179 crashes at intersection of Memorial Boulevard and 294 crashes at intersection of Griffin Road between 2011-2015. A total of 2638 collisions were reported within the segment during this time. Of these, 1,361 (52%) of the crashes were rear end collisions, 294 (11%) were left turn collisions, 222 (8.4%) were angle collisions, and 303 (11.5%) were sideswipe collisions. Rear-end crashes dominate the history. US 98/SR 37/SR 35 from Lakeland Park Center Drive to Polk Parkway is 6.75 miles long with 29 signals within the study limits. Other crashes such as angle and left-turn, can be attributed to the vehicles turning from the side-streets onto US 98/SR 37/SR 35. The highest average number of crashes occurred at the intersection of Griffin Road and US 98/SR 35. There were 294 collisions at this intersection, 193 (65%) were rear ends, 29 (10%) were sideswipe collisions, and 17 (6%) were left turn collisions. There were 179 collisions at the intersection of Memorial Boulevard, of which 99 (55%) were rear ends and 37 (21%) were sideswipe collisions. SeeFigure 6 through Figure 9 for more collision details at these intersections.

According to the Polk TPO, there were 194 fatalities resulting from pedestrian and bicycle crashes between 2006 and 2016.
As shown in Table 3, most of the crashes have occurred during daylight hours, possibly leading to the assumption that lighting on the corridor is sufficient. Table 4 illustrates the severity of crashes in this segment, showing 865 involving injuries, 1,767 involving property damage, and six total fatalities, four of which were pedestrian-involved crashes.

As reference, Table 5 and Table 6 shows all collisions by type and intersection for January 2011 through December 2015 for the US 98/SR 35 section and SR 37 section respectively. Figure 4 through Figure 6 illustrate the vehicle movements when crashes occurred at the four intersections with the highest crash counts along the corridor for the US 98/SR 35 section; while Figure 7 through Figure 9 depicts the SR 37 corridor.
Table 2:
Summary of Collision Data

2011-2015 CRASH ANALYSIS

US 98/SR 37/SR 35 FROM S LOOP DR TO LAKELAND PARK CENTER DR

- Unknown
- Sideswipe
- Rollover
- Right Turn
- Rear End
- Pedestrian
- Other
- Off Road
- Left Turn
- Head On
- Bicycle
- Animal
- Angle
Table 3:
Lighting Conditions at the time of the Crash

Table 4:
Severity of Crash
### Table 5:
SR 35 crash history of the study limits from 2010-2015: from Memorial Blvd to Lakeland Park Center Dr

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Angle</th>
<th>Animal</th>
<th>Bicycle</th>
<th>Head On</th>
<th>Left Turn</th>
<th>Off Road</th>
<th>Other</th>
<th>Pedestrian</th>
<th>Rear End</th>
<th>Right Turn</th>
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### Table 6:
SR 37 crash history of the study limits from 2010-2015: from Ariana Street to Pine Street

<table>
<thead>
<tr>
<th>Roadway</th>
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Figure 4:
Crashes at US 98 and Memorial Boulevard (number of crashes, % of total)

US 98 at Memorial Blvd (2011-2015)

- Angle: 37, 21%
- Bicycle: 5, 3%
- Head On: 1, 1%
- Left Turn: 8, 4% (2%)
- Off Road: 2, 1%
- Pedestrian: 1, 1%
- Rear End: 1, 1%
- Right Turn: 10, 6%
- Rollover: 1, 0%
- Sideswipe: 16, 9%
- Unknown: 1, 1%
- Other: 99, 55%
Figure 5:
Crashes at US 98 at Griffin Road (number of crashes, % of total)

US 98 at Griffin Road (2011-2015)

- Angle: 193, 65%
- Bicycle: 1, 0%
- Head On: 29, 10%
- Left Turn: 11, 4%
- Off Road: 6, 2%
- Pedestrian: 6, 2%
- Right Turn: 3, 1%
- Rollover: 20, 7%
- Sideswipe: 2, 1%
- Other: 5, 2%
- Unknown: 1, 0%
Figure 6:
Crashes at US 98 at 10th Street (number of crashes, % of total)
Figure 7:
Crashes at SR 37 at Lime Street (number of crashes, % of total)

SR 37 at Lime Street (2011-2015)

- 12, 30%
- 9, 23%
- 5, 13%
- 7, 18%
- 4, 10%
- 1, 2%
- 1, 2%

Legend:
- Angle
- Bicycle
- Head On
- Left Turn
- Off Road
- Other
- Pedestrian
- Rear End
- Right Turn
- Roll Over
- Sideswipe
Figure 8:
Crashes at SR 37 at Main Street (number of crashes, % of total)
Figure 9:  
Crashes at SR 37 at Lemon Street (number of crashes, % of total)
In summary, these tables and figures help to illustrate the condition of the corridor. Of the 2,638 collisions reported, most crashes are daytime, rear-end collisions. Although 1,767 of the crashes only resulted in property damage, 865 involved injuries and six were fatalities. FDOT believes these numbers can be reduced and through this study, that goal can become more attainable, by finding viable alternatives that would improve safety, stimulate the economy and aid in achieving the community’s quality of life goals. With work accomplished in the Lakeland Area Alternatives Analysis, FDOT is determining projects that would improve safety, stimulate the economy and enhance the quality of life for all residents, workers, and visitors to the Lakeland area.

**FDOT is determining projects that would improve safety, stimulate the economy and enhance the quality of life for all residents, workers, and visitors to the Lakeland area.**