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Introduction

In 2016, Hillsborough County, its three Cities, the Planning Commission and the School District all adopted resolutions supporting the long-range vision of achieving zero traffic deaths. Known as Vision Zero, this initiative spurred the Hillsborough Metropolitan Planning Organization (MPO) to collaborate with its partners to create the Vision Zero Action Plan, followed by the Speed Management Action Plan.

Since then, our communities have continued to work together and make great strides towards reducing traffic injuries and deaths. Safety enhancements have been funded or built on dozens of roadways. But there is much more to be done. We are still plagued with heartbreaking stories of lives lost, and our crash rates continue to be among the highest in the country.

As a commitment to Vision Zero, the Board of County Commissioners allocated $500,000 to the MPO to study eight of the top 20 high-injury corridors under the County’s jurisdiction. Working with the County Engineering and Operations Department, the MPO was tasked with analyzing crashes, and with consideration of funding challenges, recommending short-term, immediately implementable engineering countermeasures to reduce serious injuries and fatalities.

The MPO studied the following corridors, shared ideas, and considered input from the communities living and working in the areas around the roadways:

- 78th Street (Causeway Blvd to Palm River Rd)
- Gibsonton Drive (I-75 to Balm Riverview Road)
- 15th Street (Fowler Avenue to Fletcher Avenue)
- CR579 /Mango Rd (MLK Boulevard to US 92)
- Sheldon Road (Hillsborough Ave to Waters Ave)
- Lynn Turner (Gunn Highway to Ehrlich Road)
- W. Fletcher Ave (Armenia Ave to Nebraska Ave)
- Bruce B. Downs (Fowler Ave to Bearss Ave)

The resulting recommendations will require further data, evaluation, and refinement prior to implementation, but represent a great start that, when coupled with the County’s
proposed context classification, updated Comprehensive Plan and transportation technical manual (The Future will not Be Like the Past), will result in roadways designed for all users and vehicles traveling at safer speeds.

The eight reports focus on low-cost engineering countermeasures (Paint Saves Lives), These will go a long way towards causing drivers to slow down, provide additional and safer crosswalks, and in some cases give cyclists their own lane or side path.

To truly reach our vision of zero fatalities, these recommendations must be accompanied by education (One Message, Many Voices) and enforcement programs (Consistent and Fair). The MPO is working with the County’s Communications Office to engage the public to emphasize that speeding won’t get a driver to their destination much sooner and greatly increases the risk of a serious crash. Another key message is that walking and activating a nearby pedestrian crossing signal is the safest way to cross a busy road. And the MPO continues to coordinate with the Sheriff’s Office to use crash data to target enforcement and to support technology like red-light-running cameras. These strategies have proven benefits in reducing crashes that result in life-altering injuries and death.

Close collaboration between transportation planning, engineering and law enforcement agencies is essential in turning the tide on serious injuries and fatalities on these most dangerous corridors. The MPO wishes to thank Hillsborough County for funding the Vision Zero Corridor Studies. We appreciate the County’s continuing commitment and willingness to take these steps.
Corridor Description

CR-581 (Bruce B Downs Boulevard) from SR-582 (E Fowler Avenue) to E Bearss Avenue is approximately 1.77 miles in length and maintained by Hillsborough County. The corridor has six through lanes with a posted speed limit of 45 miles per hour (MPH). It is a high-volume roadway with an average traffic volume of 52,277 vehicles per day between SR-582 (E Fowler Avenue) and CR-582A (E Fletcher Avenue) and 42,851 vehicles per day between CR-582A (E Fletcher Avenue) and E Bearss Avenue. There are multiple Hillsborough Area Regional Transit (HART) routes along the corridor (HART routes 5, 9, 42, 275), and crossing the corridor (USF Bull Runner route D). The segment has two functional classifications: C3C – Suburban Commercial and C4 – Urban General. Figure 1 illustrates the limits of the study segment.

*Figure 1: Project Limits Map*
Crash Analysis

Crash data extracted from the State’s Crash Analysis Reporting System (CARS) ranging from January 2014 through December 2018 was evaluated. A total of 1,587 crashes were identified during the study period including six fatal and 22 incapacitating injury crashes. Additionally, there were 21 pedestrian and 23 bicycle related crashes identified within the study limits.

Table 1 lists the annual distribution of crashes along the study segment by their injury severity.

<table>
<thead>
<tr>
<th>Highest Injury</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Five Year Total</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0.4%</td>
</tr>
<tr>
<td>Incapacitating</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>22</td>
<td>1.4%</td>
</tr>
<tr>
<td>Non-incapacitating</td>
<td>22</td>
<td>25</td>
<td>20</td>
<td>18</td>
<td>19</td>
<td>104</td>
<td>6.6%</td>
</tr>
<tr>
<td>Possible</td>
<td>65</td>
<td>71</td>
<td>81</td>
<td>74</td>
<td>66</td>
<td>357</td>
<td>22.5%</td>
</tr>
<tr>
<td>No Reported Injuries</td>
<td>160</td>
<td>206</td>
<td>199</td>
<td>232</td>
<td>301</td>
<td>1,098</td>
<td>69.2%</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>311</td>
<td>306</td>
<td>327</td>
<td>393</td>
<td>1,587</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Figure 2 illustrates the location of crashes by their injury along the study segment, note that signalized intersections are labeled in green text. The high crash locations are SR-582 (E Fowler Avenue) and CR-582A (E Fletcher Avenue).
Figure 3 illustrates the location of fatal and severe injury crashes along the study segment. Fatal and severe injury crashes are concentrated at E 131st Avenue / USF Holly Drive and USF Pine Drive / University Square Drive.

While the overall crashes along the corridor have been steadily increasing the number of fatal and incapacitating injury crashes have been fairly steady with an average of six fatal and incapacitating injury crashes per year. Figure 4 illustrates the annual distribution of fatal and severe injury crashes.
Nighttime (non-daylight) crashes account for 25.6 percent of the reviewed crashes, this is 5.4 percent below the statewide average of 31 percent. Figure 5 illustrates the percentage distribution of reported lighting condition for each crash.

The following tables and figures illustrate the crash data attributes along the study segment. Table 2 lists the crash type distribution along the study segment. Rear-end and sideswipe crashes are the predominant crash type accounting for 72.5 percent of the crashes along the study segment. Angle and left-turn crashes account for 16.9 percent of the reviewed crashes.

A detailed review of the 11 crashes coded as “head-on” identified a single “wrong way” driving crash at the SR-582 (E Fowler Avenue) intersection in December 2017. The remaining crashes involved loss of control/cross-over at a signal (three crashes), opposing left-turns at a median opening/minor street (two crashes), medical emergencies (two crashes), rear-ends (one crash), lost control/making a wide-turn (one crash), and one undefined crash.
Table 2: Crash Type Distribution

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Five Year Total</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear End</td>
<td>167</td>
<td>185</td>
<td>174</td>
<td>194</td>
<td>232</td>
<td>952</td>
<td>60.0%</td>
</tr>
<tr>
<td>Sideswipe</td>
<td>22</td>
<td>32</td>
<td>36</td>
<td>45</td>
<td>64</td>
<td>199</td>
<td>12.5%</td>
</tr>
<tr>
<td>Angle</td>
<td>20</td>
<td>32</td>
<td>29</td>
<td>36</td>
<td>39</td>
<td>156</td>
<td>9.8%</td>
</tr>
<tr>
<td>Left Turn</td>
<td>15</td>
<td>28</td>
<td>31</td>
<td>17</td>
<td>22</td>
<td>113</td>
<td>7.1%</td>
</tr>
<tr>
<td>Right Turn</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>13</td>
<td>6</td>
<td>38</td>
<td>2.4%</td>
</tr>
<tr>
<td>Hit Fixed Object</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>28</td>
<td>1.8%</td>
</tr>
<tr>
<td>U-Turn</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>22</td>
<td>1.4%</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>21</td>
<td>1.3%</td>
</tr>
<tr>
<td>Bike</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>23</td>
<td>1.4%</td>
</tr>
<tr>
<td>Single Vehicle</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>0.6%</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>12</td>
<td>0.8%</td>
</tr>
<tr>
<td>Head On</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>11</td>
<td>0.7%</td>
</tr>
<tr>
<td>Hit Non-fixed Object</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Run Off Road</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>250</strong></td>
<td><strong>311</strong></td>
<td><strong>306</strong></td>
<td><strong>327</strong></td>
<td><strong>393</strong></td>
<td><strong>1,587</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Figure 6** illustrates the location of pedestrian and bicycle crashes along the study segment, note that signalized intersections are labeled in green text. The high pedestrian and bicycle crash locations are SR-582 (E Fowler Avenue), CR-582A (E Fletcher Avenue), and E 138th Avenue / Azalea Circle.
Figure 7 illustrates the annual distribution of pedestrian and bicycle related crashes. Both bicycle and pedestrian related crashes have a slight increasing crash trend year over year averaging 4.4 crashes per year.

Figure 8 illustrates the percentage injury severity distribution of reviewed bicycle and pedestrian injury crashes. Although bicycle and pedestrian crashes account for 2.8 percent of the overall crashes, they account for 28.6 percent of all fatal and incapacitating injury crashes. Overall 96.4 percent of bicycle and pedestrian crashes result in a fatality, injury, or possible injury.
**Figure 9** illustrates the location of rear-end crashes along the study segment, note that signalized intersections are labeled in green text. Rear-end crashes are concentrated at the signalized intersections. The high rear-end crash location is SR-582 (E Fowler Avenue).

![Figure 9: Rear-end Crashes Along the Study Segment](image)

**Figure 10** illustrates the location of sideswipe crashes along the study segment, note that signalized intersections are labeled in green text. Sideswipe crashes are concentrated at the signalized intersections.

![Figure 10: Sideswipe Crashes Along the Study Segment](image)
Figure 11 illustrates the location of angle crashes along the study segment, note that signalized intersections are labeled in green text. Although angle crashes predominantly occurred at signalized intersections, there are unsignalized intersections along the study segment that experience as many angle crashes as their signalized counterparts. Unsignalized intersections with high numbers of angle crashes include Campus Hill Drive, E 132nd Avenue / USF Banyan Circle, and Grand Pavilion Drive.

![Angle Crashes](image)

**Figure 11: Angle Crashes Along the Study Segment**

Figure 12 illustrates the location of left-turn crashes along the study segment, note that signalized intersections are labeled in green text. The high left-turn crash location is E 131st Avenue / USF Holly Drive. Unsignalized intersections with high numbers of left-turn crashes include E 132nd Avenue / USF Banyan Circle and Grand Pavilion Drive.

![Left Turn Crashes](image)

**Figure 12: Left-turn Crashes Along the Study Segment**
Upcoming Projects in the Area

<table>
<thead>
<tr>
<th>CIP project number 69679014</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR-581 (Bruce B Downs Boulevard) at Campus Hill Drive will be improved under Hillsborough County Capital Improvement Plan (CIP) project number 69679014. This project includes construction of a traffic signal and pedestrian crossings across all three legs of the intersection.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CIP project number 69679024</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR-581 (Bruce B Downs Boulevard) at Richard Silver Way will be improved under Hillsborough County CIP project number 69679024. This project includes construction of a traffic signal and pedestrian crossings across all four legs of the intersection.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CIP project number 69638030</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR-581 (Bruce B Downs Boulevard) from USF Pine Drive / University Square Drive to E 131st Street / USF Holly Drive will be improved under Hillsborough County CIP project number 69638030. This project includes resurfacing along the entire segment, the construction of a new 10-foot wide sidewalk along the east side of CR-581 (Bruce B Downs Boulevard), and widening the existing sidewalk on the west side of CR-581 (Bruce B Downs Boulevard) to eight feet. As a part of the resurfacing this segment of CR-581 (Bruce B Downs Boulevard) will be restriped to include 11-foot travel lanes and a seven foot physically buffered bike lane along both sides of the roadway.</td>
</tr>
</tbody>
</table>

It is the intent of Hillsborough County to combine the three projects above into one project for construction. The County is currently in the process of finalizing the design of the three projects and is preparing bid packages. It is anticipated that this project will be ready for bid in the next few months.

Hillsborough County is in the process of updating the Transportation Technical Manual (TTM) and as a part of this update context sensitive typical sections are being developed. Future design efforts should follow the updated guidance when available.
## Corridorwide Recommendations

### Speed Management

**Short-term Recommendations**
- Identify a target speed of 35 MPH on CR-581 (Bruce B Downs Boulevard) from SR-582 (E Fowler Avenue) to CR-582A (E Fletcher Avenue)
  - Maximize pedestrian access
  - Add physically buffered bicycle lanes
  - Reduce vehicular travel lanes to 11 feet
- Identify a target speed of 40 MPH on CR-581 (Bruce B Downs Boulevard) from SR-582A (E Fletcher Avenue) to Bearss Avenue
  - Channelize pedestrians to protected crossings
  - Add a shared use path on the east side of CR-581 (Bruce B Downs Boulevard)
  - Reduce vehicular travel lanes to 11 feet

### ADA Concerns

**Short-term Recommendations Outside of the Upcoming Projects**
- Add detectable warnings on minor streets and major driveways
- Replace worn / missing detectable warnings

### Signing / Pavement Markings

**Short-term Recommendations Outside of the Upcoming Projects**
- Upgrade all R10-15 signs to R10-15 MOD “Turning Vehicles Stop for Pedestrians” signs and add them where they are not currently in place
- Add high emphasis crosswalk markings to all intersection approaches consistent with markings along upcoming projects
- Provide green pavement markings in bicycle lane conflict areas south of CR-582A (E Fletcher Avenue) to be consistent with markings included in upcoming projects on CR-581 (Bruce B Downs Boulevard) south of E 131st Street / USF Holly Drive
- Use sign-post reflectors on the speed limit signs to increase their visibility
- Install stop lines on minor street approaches and driveways
Corridorwide Recommendations

Roadway & Drainage

*Short-term Recommendations Outside of the Upcoming Projects*
- Evaluate ponding in the pedestrian and bicycle space, especially north of CR-582A (E Fletcher Avenue)
- Consider modifying unsignalized median openings along the corridor based on crash history

*Mid-term Recommendations Outside of the Upcoming Projects*
- Provide positive offset for left-turn lanes at permissive left-turn locations

*Long-term Recommendations Outside of the Upcoming Projects*
- Plan future project on CR-581 (Bruce B Downs Boulevard) between SR-582 (E Fowler Avenue) and USF Pine Drive / University Square Drive and between E 131st Avenue / USF Holly Drive to CR-582A (E Fletcher Avenue) to match the cross section of the existing project (Hillsborough County CIP project number 69638030). This new cross section would include eleven-foot travel lanes and a combination of physically buffered and striping buffered seven-foot bicycle lanes.
- Plan a future project on CR-581 (Bruce B Downs Boulevard) between CR-582A (E Fletcher Avenue) and E Bearss Avenue to remove the on-street bicycle lanes, construct a 10-foot shared use path to accommodate pedestrians and bicyclists on the east side of the roadway, reduce travel lane widths to 11 feet and add curb and gutter. The new roadway cross-section would generally match the existing cross-section north of E Bearss Avenue.

Lighting

*Short-term*
- Continue current effort to add light emitting diode (LED) luminaires to any available existing utility poles.

*Long-term*
- Evaluate potential to upgrade corridor and intersection lighting to meet current standards including appropriate illumination of the sidewalk area.
Corridorwide Recommendations

**Signalized Intersections**

*Short-term*

- Add flexible yellow retroreflective backplates to all signal heads where they don’t exist; signalized intersections where retroreflective backplates are needed include: E 131st Avenue / USF Holly Drive, CR-582A (E Fletcher Avenue), and E 138th Avenue / Azalea Circle.

- Evaluate feasibility of time of day protected only left turns using flashing yellow arrow (FYA) at USF Pine Drive / University Square Drive, E 131st Avenue / USF Holly Drive, the future Campus Hill Drive signal, the future Richard Silver Way signal, and E 138th Avenue / Azalea Circle.

- Evaluate feasibility of implementing leading pedestrian intervals (LPI) at all signalized intersections

- Evaluate feasibility of pedestrian pushbutton actuated right turn on red restrictions with blank-out signs at all signalized intersections

- Consider implementing signal coordination on desired travel speed
**Spot Recommendations**

**SR-582 (E Fowler Avenue) FDOT Maintained Intersection**

**Short-term**
- Refurbish crosswalk pavement markings
- Ensure crosswalk lines are parallel with vehicle tires
- Remove debris from pedestrian islands as there is an accumulation of pebbles especially at the pedestrian island in the northeast corner and prioritize as a continuing maintenance item after initial clean
- Evaluate the geometry of the right turning movements where there is evidence of vehicle off-tracking

**Mid-term**
- Consider implementing the Department’s recommendations in the Fowler Avenue Multimodal Study to reconstruct the channelized right turn lanes to improve visibility, reduce turning speed and utilize truck aprons to change the feel of the movement
- Consider relocating controller cabinet and utilities on the northwest quadrant that impede the line of sight of right-turning vehicles. Coordinate with the County Utility Coordinator to evaluate potential relocation of other sight obstructions on the northwest quadrant.
Spot Recommendations

North of SR-582 (E Fowler Avenue)

Short-term
- Coordinate with County Utility Coordinator to evaluate whether obstructions can be mounted on the opposite side of the pole to avoid interference with the clear sidewalk width

USF Pine Drive / University Square Drive

Short-term
- Install “turning vehicles stop for pedestrians” signs on each approach
- Evaluate feasibility of pedestrian pushbutton actuated right turn on red restrictions with blank-out signs

Mid-Term
- Evaluate and adjust pushbutton placement to meet current placement requirements and enhance accessibility.
- Evaluate drainage to correct the observed silt collecting in drainage features
- Mitigate observed sidewalk cracking at USF Pine Drive / University Square Drive to provide a uniform walking path

Long-term
- Evaluate opportunities to extend the new typical section south to SR-582 (E Fowler Avenue), which includes curb and gutter, eleven-foot travel lanes, seven-foot buffered bike lanes, and wider sidewalk on both sides of the road.
Spot Recommendations

USF Pine Drive / University Square Drive

**Long-term**
- Provide wider approach to pedestrian ramp on the northwest corner to eliminate existing pinch point that may force users into the roadway

Campus Hill Drive

**New Signal Project**

**Planned Improvements**
- New traffic signal and pedestrian features. This signal will provide a protected pedestrian crossing to access the transit stop on the east side of the corridor.
- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard)
- Reconstruction of existing sidewalk to eight-foot width on west side of CR-581 (Bruce B Downs Boulevard)

**Additional Long-term Recommendation**
- Consider modifying the connection to reduce the turning radii and include only one inbound lane to shorten the pedestrian crossing length. The second inbound lane merges just west of the intersection.
Spot Recommendations

North of Campus Hill Dr
Within Sidewalk Project

Planned Improvements
- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard)
- Reconstruction of existing sidewalk to eight-foot width on west side of CR-581 (Bruce B Downs Boulevard)

Additional Short-term Recommendation
- Mitigate sidewalk edge drop-off through maintenance

Northside Mental Health Center
Within Sidewalk Project

Planned Improvements
- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard)
- Reconstruction of existing sidewalk to eight-foot width on west side of CR-581 (Bruce B Downs Boulevard)

Additional Short-term Recommendation
- Replace missing stop sign on the eastbound approach to CR-581 (Bruce B Downs Boulevard)

Additional Mid-term Recommendation
- Consider creating median refuge area to allow for a two-stage pedestrian crossing by extending the median nose further east
Spot Recommendations

IQ Apartments Entrance

Within Sidewalk Project

Planned Improvements

- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard)
- Reconstruction of existing sidewalk to eight-foot width on west side of CR-581 (Bruce B Downs Boulevard)

Additional Short-term Recommendation

- Coordinate with IQ Apartment to remove existing leasing sign that blocks pedestrian crossing

Richard Silver Way

New Signal Project

Planned Improvements

- New traffic signal and pedestrian features
- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard)
- Reconstruction of existing sidewalk to eight-foot width on west side of CR-581 (Bruce B Downs Boulevard)
**Spot Recommendations**

**E 131st Avenue / USF Holly Drive**

*Within Sidewalk Project*

**Planned Improvements**
- New 10-foot sidewalk on east side of CR-581 (Bruce B Downs Boulevard) that terminates at E 131st Avenue / USF Holly Drive

**Additional Long-term Recommendations**
- Improve E 131st Avenue west of Bruce B Downs Boulevard to incorporate the recommended typical section from the E 131st Avenue PLAT Study which includes 10-foot wide sidewalks, five-foot bike lanes, and 11-foot travel lanes

**E 132nd Avenue / USF Banyan Circle**

*Short-term*
- Evaluate mitigation strategies to prevent silt buildup from water draining across the sidewalk

**Wells Fargo Bank Driveway**

*Short-term*
- Provide detectable warning surface pads

*Long-term*
- As part of the overall typical section modifications, provide wider sidewalk and reconstruct the driveway apron
<table>
<thead>
<tr>
<th><strong>Spot Recommendations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CR-582A (E Fletcher Avenue)</strong></td>
</tr>
<tr>
<td><strong>Short-term</strong></td>
</tr>
<tr>
<td>- Refurbish worn crosswalk markings</td>
</tr>
<tr>
<td>- Install detectable warnings on northeast and southeast corners</td>
</tr>
<tr>
<td>- Install separate pedestrian pushbuttons and the required flat-landing areas for Americans with Disabilities Act (ADA) compliance</td>
</tr>
<tr>
<td>- Install flexible backplates on signal heads</td>
</tr>
<tr>
<td><strong>Mid-term</strong></td>
</tr>
<tr>
<td>- Bulb-out intersection on southwest corner to reduce crossing distance and to formalize the southbound right-turn lane into the convenience store</td>
</tr>
<tr>
<td>- Develop a project to mitigate and upgrade general ADA, pushbutton, and pedestrian issues observed at the intersection</td>
</tr>
<tr>
<td><strong>North of CR-582A (E Fletcher Avenue)</strong></td>
</tr>
<tr>
<td><strong>Short-term</strong></td>
</tr>
<tr>
<td>- Provide post mounted signs along the median directing pedestrians to cross at the signalized intersection and consider use of sidewalk pavement markings to direct users to controlled crossing locations.</td>
</tr>
</tbody>
</table>
Spot Recommendations

Medical Park Drive / Mission BBQ

**Short-term**
- Trim vegetation encroaching on the sidewalk
- Pave a one-foot bulb out on the opposite side of the sidewalk from the utility pole to provide a wider usable sidewalk

E 138th Avenue / Azalea Circle

**Short-term**
- Upgrade standard crosswalk markings to special emphasis markings

**Mid-term**
- Provide crosswalk and pedestrian features on the south leg of the intersection
- Mitigate identified drainage issues on the southwest corner
Spot Recommendations

E 138th Avenue / Azalea Circle to E Bearss Avenue

Long-term
- Section of sidewalk offset from travel lanes offers buffer for users from traffic; this is a trade-off that offers less visibility of bicyclists and pedestrians for drivers leaving businesses especially with landscaping. Evaluate opportunities to shift the sidewalk closer to the travel lanes at the crossing locations.

Barnhard Drive to University Woods Place

Long-term
- Pending the results of the ongoing midblock crossing evaluation, schedule a project to construct a protected pedestrian crossing near the two existing bus stops.

Grand Pavilion Drive

Mid-term
- Evaluate strategies to mitigate observed water ponding at the curb ramp.
Spot Recommendations

South of E Bearss Avenue

Short-term

- Repair uneven sidewalk on the west side of CR-581 (Bruce B Downs Boulevard) to provide a uniform walking surface
- Provide handrail at drainage inlet drop-off location on the west side of CR-581 (Bruce B Downs Boulevard). Note that the Google Street View indicates that the inlet had a handrail prior to the field review.
E Bearss Avenue

Short-term
- Repair the pushbutton in northwest corner
- Due to the speed of the eastbound and southbound right-turns, consider installing push-button actuated pedestrian crossing ahead warning signs with flashing beacons at or in advance of the crosswalk
- Provide connection from the sidewalk to the pedestrian crossing in the northwest corner of the intersection

Long-term
- Consider modifying the geometry of the eastbound and southbound right turn movements to reduce the turning speed, improve the visibility of the yield movement and to reduce the number of “weaves” at this point