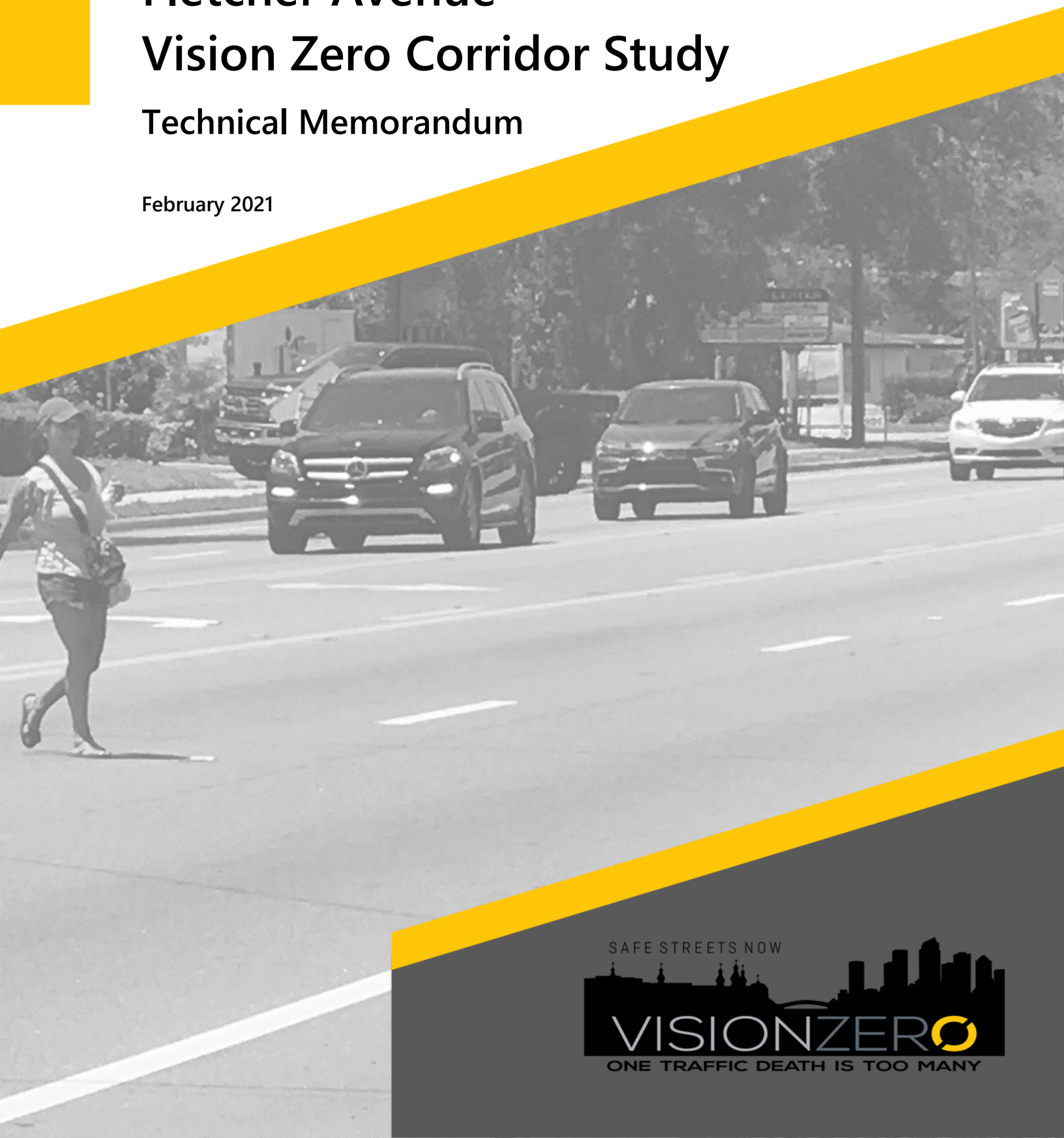
Hillsborough MPO | Hillsborough County

# Fletcher Avenue Vision Zero Corridor Study

## Technical Memorandum

February 2021



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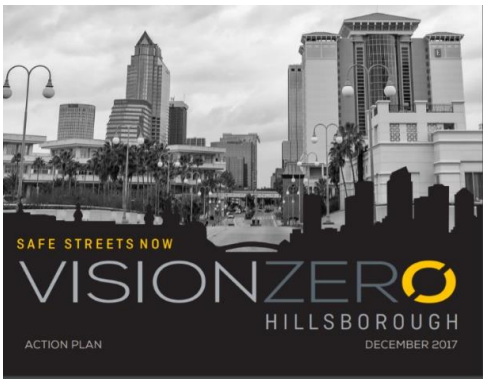
# Introduction

Vision Zero is a strategy to eliminate all traffic fatalities and serious injuries, while increasing safe, healthy, equitable mobility for all. The core concept of Vision Zero is that even one serious injury or death is too many; under Vision Zero there are no "accidents" – all crashes are preventable and are a result of poor behavior combined with unforgiving roadway designs.




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

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.

The Hillsborough County Metropolitan Planning Organization's (MPO) collaboratively developed Vision Zero Action Plan was adopted in 2017 and established the goal of reducing traffic deaths and severe injuries in Hillsborough County to zero. The Action Plan identified the Top 20 Severe Crash Corridors throughout the County based on the roadways with the most severe crashes per mile. While crashes occur throughout the County, focusing resources and efforts along these corridors provides an opportunity to make the greatest strides towards eliminating traffic-related deaths and severe injuries.

Lynn/Turner Road between Ehrlich Road and Gunn Highway was identified as part of one of the most dangerous roadways in Hillsborough County. Together the Hillsborough MPO and Hillsborough County are working to identify why people are being killed and injured along Lynn/Turner Road and what action must be taken to end this loss of life and injury.

# Study Corridor

The Fletcher Avenue Vision Zero Corridor includes the portion of Fletcher Avenue from Armenia Avenue to Nebraska Avenue (Figure 1). This approximately 2.1-mile-long corridor is located within and maintained by Hillsborough County.

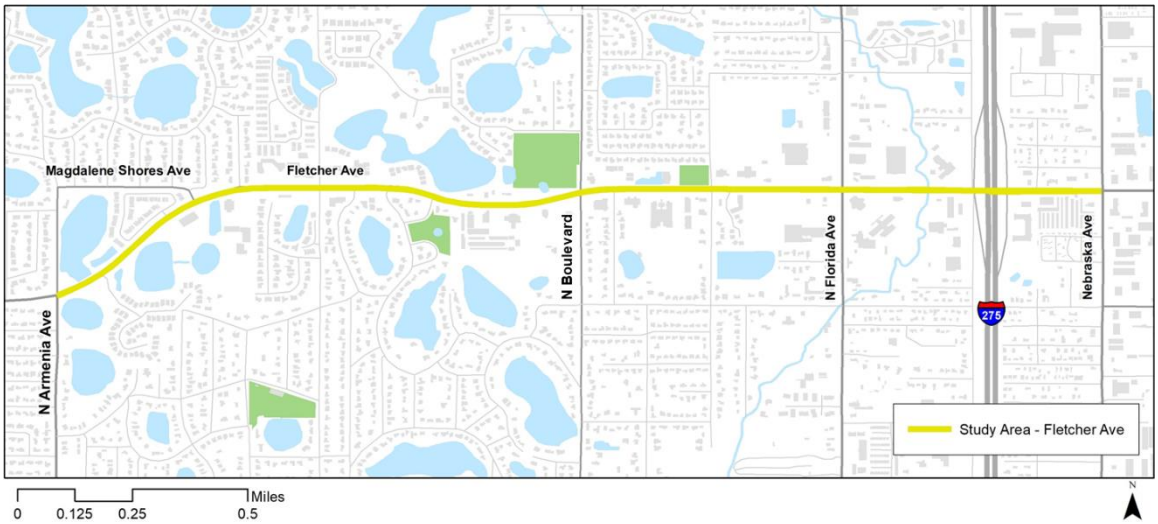



**Figure 1: Fletcher Avenue Study Corridor**


*Fletcher Avenue, west of Florida Avenue*

*Fletcher Avenue, east of North Boulevard*

# Existing Conditions

The following provides an overview of the current conditions along Fletcher Avenue from Armenia Avenue to Nebraska Avenue.

## Typical Cross-Section

Fletcher Avenue is a 4-lane roadway divided by a center turn lane. Right-of-way along the corridor varies between 80′ and 130′; although the predominant width ranges between 80′ and 90′. A bi-directional center turn lane serves as the predominate median type with some raised median and additional left turn lanes at the signalized intersection. Figure 2 depict the typical cross-sections found along the study corridor.

The typical section between Armenia Avenue and North Boulevard generally consists of a 5′ sidewalk along the south side of the roadway with a 5′ landscape buffer, four 11′ travel lanes, a 16′ center bi-directional left turn lane, and an 8′ sidewalk and 4′ buffer along the north side of the roadway. Fletcher Avenue, between North Boulevard and Florida Avenue, generally consists of four 10′ travel lanes, a 14′ center bi-directional left turn lane, 4′ bicycle lanes in each direction, and a 5′ sidewalk with 4′ buffer on the south side and an 8′ sidewalk with 4′ buffer on the north side of the roadway. A similar cross-section, but without the bicycle lanes continues east of Florida Avenue on the approach to the I-275 interchange.

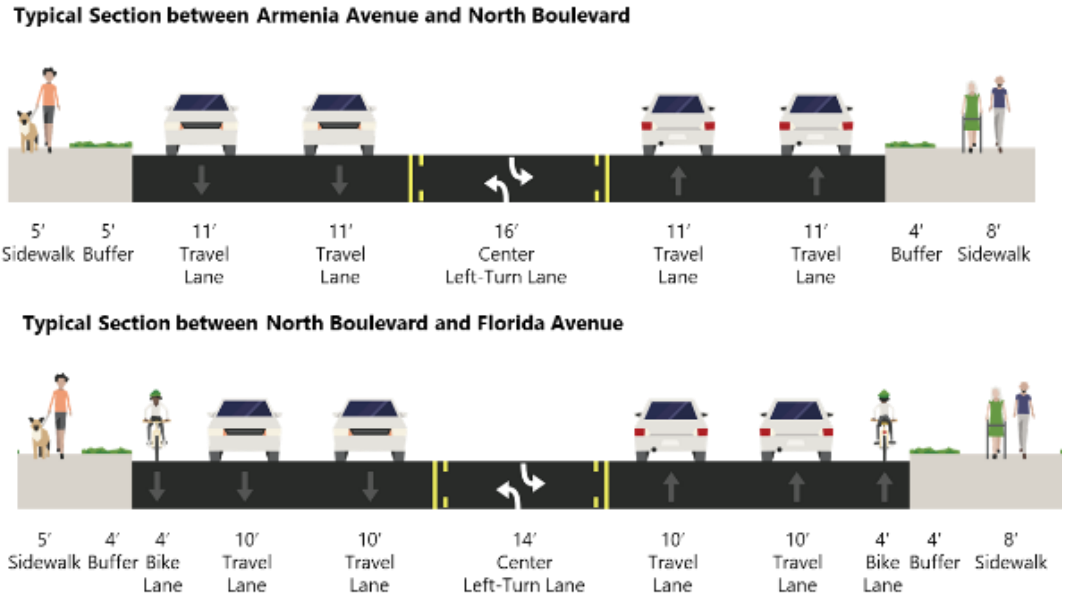



**Figure 2: Typical Corridor Cross-Sections**

## Non-Motorized Facilities

There is a 5′ marked, on-street bicycle lane between North Boulevard and Florida Avenue (Figure 3). Sidewalks are present along both sides of Fletcher Avenue throughout the study corridor (Figure 4); the sidewalk along the north side of Fletcher Avenue is generally 8′ in width while the sidewalk along the south side is generally 5′ wide. There are periodic obstructions within the sidewalk, including transit stops and light and utility poles that impact the effective width of the sidewalk in some instances. Generally, the sidewalks along Fletcher Avenue are well maintained, however there are some locations where tree roots have caused heaving and cracking and there are locations where vegetation is encroaching into the walking path. Opportunities to cross Fletcher Avenue occur at the signalized intersections, which are spaced a half-mile apart on the west of Florida Avenue.


**Figure 3: Existing Bicycle Facilities**

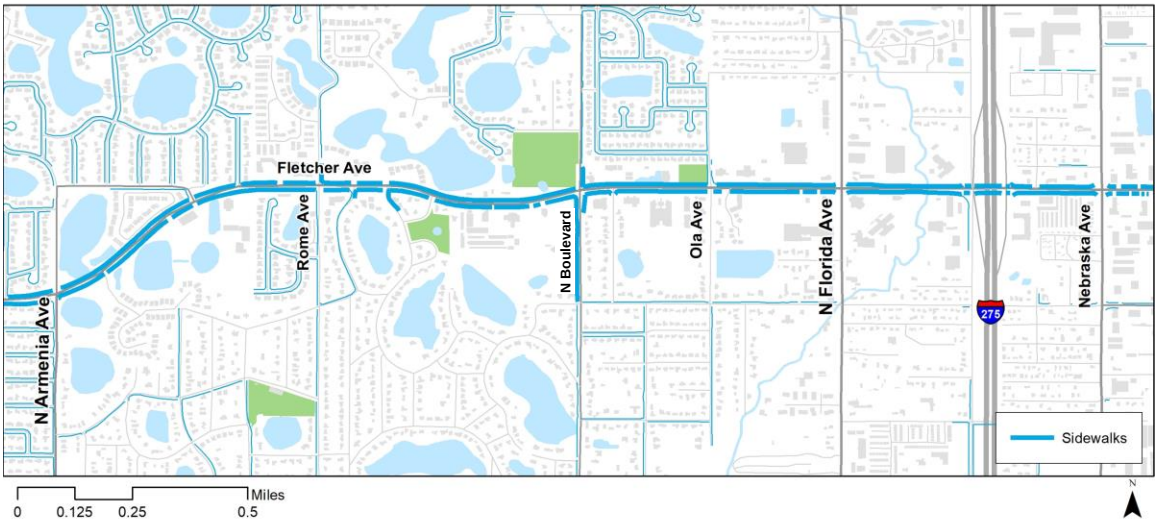



**Figure 4: Existing Sidewalks**

*Sidewalk and Bike Lane along the south side of Fletcher Avenue, east of North Boulevard*


*Bike Lane and Sidewalk Approaching North Boulevard*

*Cracked Sidewalk along the north side of Fletcher Avenue*

## Context Classification

Context classification is a method for describing how a roadway fits into its built environment and is used to inform decisions and ensure that roadways are supportive of safe and comfortable travel for their expected users. Identifying the context of a roadway influences the planning and design process, as different classifications have different design criteria and standards and provide clues to the types of uses and users that will likely use the roadway.

Hillsborough County is currently in the process of defining a context classification system, so for this effort the Florida Department of Transportation's (FDOT) context classification system was applied to the corridor as a tool to evaluate potential enhancements. Evaluating context along the corridor results in two different classifications for Fletcher Avenue with North Boulevard serving as a de facto dividing line. The section of Fletcher Avenue between Armenia Avenue and North Boulevard would be best categorized as a C3R-Suburban Residential roadway, while the section between North Boulevard and Nebraska Avenue would be best categorized as a C3C-Suburban Commercial roadway.

## Roadway Conditions

The following highlights the other existing roadway conditions including speed limit, traffic volumes, lighting, and transit service.

### Existing Speed Limit

The posted speed limit along Fletcher Avenue between Armenia Avenue and Florida Avenue is 45 mph, between Florida Avenue and Nebraska Avenue the existing posted speed limit is 40 mph (Figure 5). Recently the Hillsborough MPO obtained access to real-time traffic data via the Iteris Transportation Analytics Platform, ClearGuide. According to speed data captured along the corridor in February 2020 and as shown in Table 1, the average speed and free flow speed at various points along the corridor indicate that many vehicles are traveling below the posted speed limits.

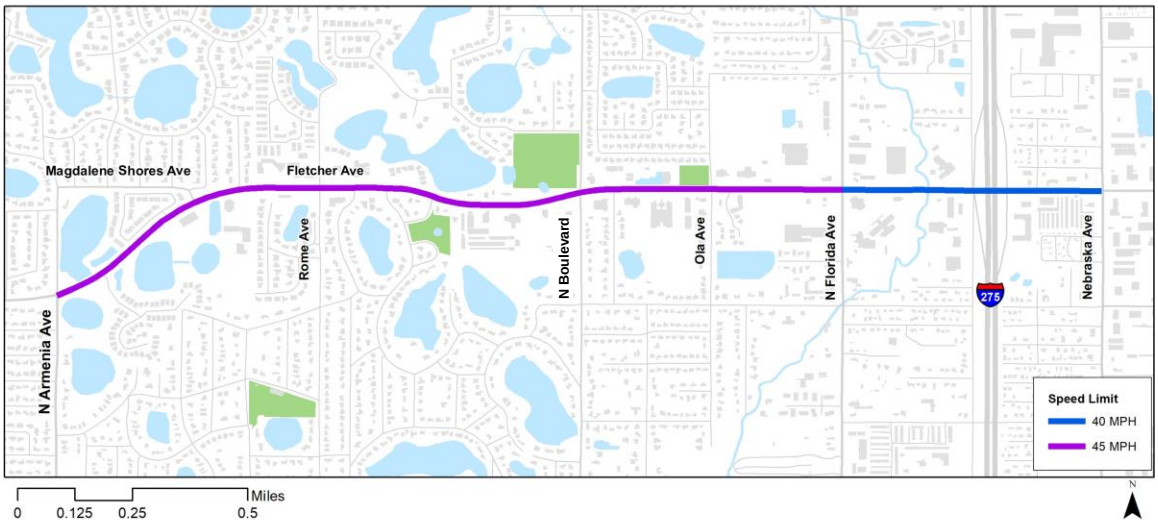



**Figure 5: Existing Posted Speed Limit**

**Table 1: ClearGuide Travel Speed Data**

| Location | Direction | Average Speed | Free Flow Speed |
|---|---|---|---|
| E. of Rome Ave | EB | 33.5 mph | 39.9 mph |
| E. of Rome Ave | WB | 36.5 mph | 41.1 mph |
| W. of Central Ave | EB | 12.2 mph | 28.0 mph |
| W. of Central Ave | WB | 17.5 mph | 25.1 mph |
| W. of Nebraska Ave | EB | 17.8 mph | 25.4 mph |
| W. of Nebraska Ave | WB | 16.0 mph | 25.0 mph |

*Data captured from 2/19/2020 at 12:00 PM*

## Traffic Volumes

Average Annual Daily Traffic (AADT) data, as depicted by Figure 6, shows that traffic volumes along the corridor generally range between 35,000 and 45,000 vehicles per day. 2018 traffic data shows that AADT for the segment of Fletcher Avenue between Armenia Avenue and Rome Avenue is 38,000 and increases to 42,500 east of I-275.

A review of historical traffic counts was conducted and showed that traffic volumes along the corridor have remained relatively flat over that past five years. According to the Tampa Bay Regional Planning Model (TBRPM), the average expected growth rate along the corridor through 2040 is estimated to be 23%.

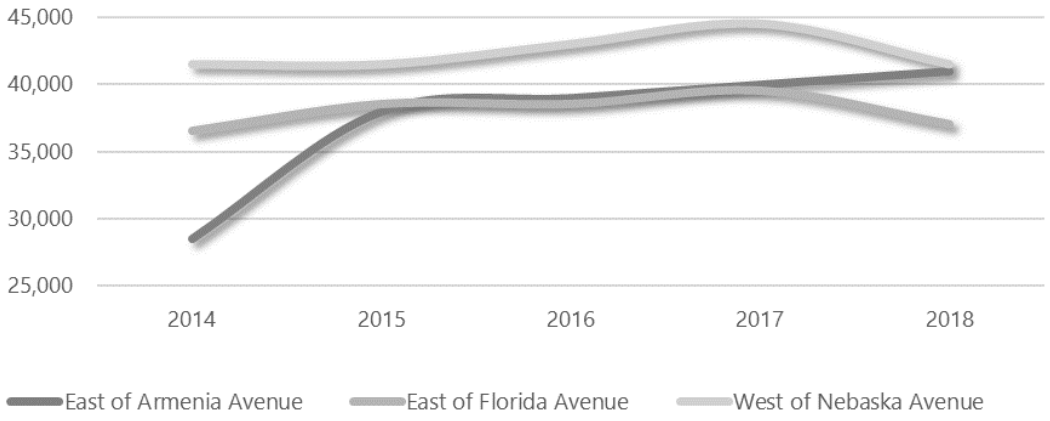



**Figure 6: Historical Traffic Volumes**

## Signalized Intersections

There are seven signal controlled intersections, generally spaced about a half-mile apart, along the study corridor, these intersections are shown in Figure 7 and include:

- Fletcher Avenue at Armenia Avenue
- Fletcher Avenue at Rome Avenue
- Fletcher Avenue at North Boulevard
- Fletcher Avenue at Florida Avenue
- Fletcher Avenue at the Southbound I-275 Ramps
- Fletcher Avenue at the Northbound I-275 Ramps
- Fletcher Avenue at Nebraska Avenue


**Figure 7: Corridor Intersections**

## Existing Lighting

Roadway lighting is present at most of the major intersections along the corridor, with an exception at North Boulevard and Ola Avenue. There is existing lighting spaced along the corridor (Figure 8), while a formal lighting analysis was not conducted it does appear that there could be opportunities to further enhance roadway lighting along Fletcher Avenue utilizing existing utility poles.


**Figure 8: Existing Roadway Lighting**

## Transit

Fixed-route transit is provided along Fletcher Avenue and adjacent roadways by Hillsborough Area Regional Transit (HART) Routes 1, 33, 42, and 400 (MetroRapid). There are a range of transit stop amenities provided along the corridor ranging from stops with just a sign to full transit shelters, many of which are located within the sidewalk area. Table 2 provides the weekday transit service span and frequency for the routes within the study area, Table 3 provides the weekend transit service details. Figure 9 shows the existing transit routes along with stop-level ridership based on boardings and alightings.

**Table 2: Weekday Transit Service**

| Route | Description | Span (Hours) | Peak Frequency (Minutes) |
|---|---|---|---|
| 1 | Florida Avenue<br>Downtown to University Area | 19 | 15 |
| 33 | Fletcher Avenue<br>Carrollwood to University Area | 17.5 | 30 |
| 42 | University Area Connection<br>Yukon Transfer Center to University Area | 17 | 30 |
| 400 | Nebraska Avenue/Fletcher Avenue (MetroRapid)<br>Downtown to University Area | 19 | 15 |

**Table 3: Weekend Transit Service**

| Route | Description | Span (Hours) | Peak Frequency (Minutes) |
|---|---|---|---|
| 1 | Florida Avenue<br>Downtown to University Area | 16 | 30 |
| 33 | Fletcher Avenue<br>Carrollwood to University Area | 16 | 30 |
| 42 | University Area Connection<br>Yukon Transfer Center to University Area | 16 | 60 |
| 400 | Nebraska Avenue/Fletcher Avenue (MetroRapid)<br>Downtown to University Area | 18 | 30 |

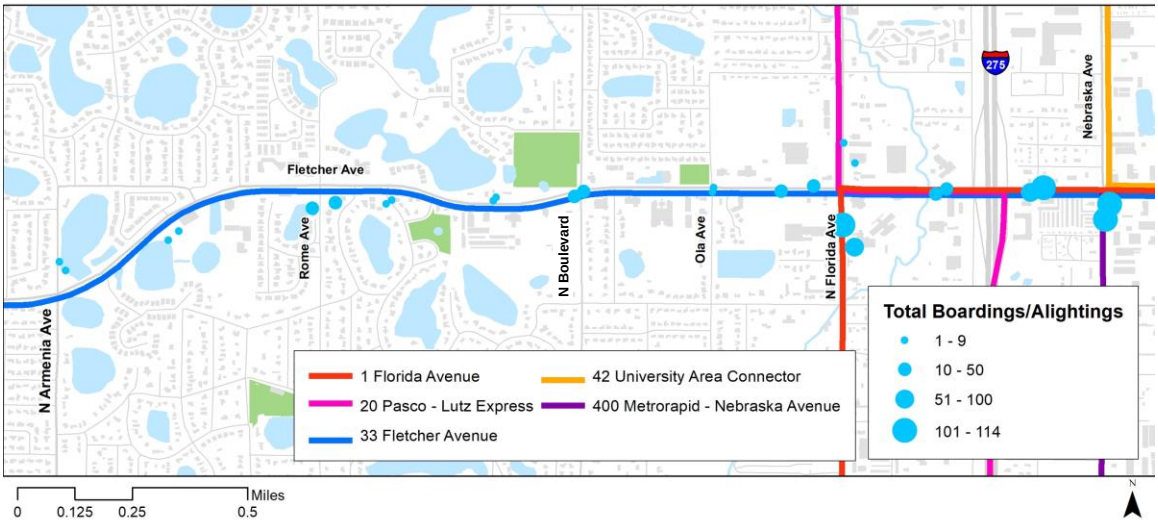



**Figure 9: Existing Transit Service and Stop-Ridership**

## Land Use Factors

In addition to evaluating the existing roadway conditions, an evaluation of various land use factors was conducted to better understand the uses and potential users that may be generated by those land uses.

### Existing Land Use

Existing land use, shown in Figure 10, shows that the directly along the corridor the predominate land use is non-residential with mainly commercial uses that range from traditional suburban shopping centers on the eastern end of the corridor to more smaller service-oriented commercial uses such as medial offices and smaller professional suites towards the western end of the corridor. Behind the commercial frontage are residential uses that are primarily single family residential with some multi-family residential uses along and close to Fletcher Avenue


**Figure 10: Generalized Existing Land Use**

## Residential and Employment Densities

An evaluation of existing and projected population and employment figures along the corridor was conducted using traffic analysis zone (TAZ) data retrieved from the Hillsborough MPO. This data indicate that population and housing density are expected to remain stable through 2040, experiencing only minor growth.

## Existing Master Plans

The Fletcher Avenue corridor is addressed in both the Greater Carrollwood-Northdale Communities Plan and the University Area Community Plan. Both plans were adopted through the Hillsborough County Comprehensive Plan.

The University Area Community Plan incorporates the study area east of I-275. This plan calls for the redevelopment of the area into a pedestrian-friendly, mixed-use community. While the plan does not propose specific improvements to Fletcher Avenue, it does call for mixed-use development to support multimodal, non-motorized transportation as well as improved transit service.

The Greater Carrollwood-Northdale Communities Plan, which includes the study area between Armenia Avenue and I-275, calls for the intersection of Fletcher and Florida Avenues to be redeveloped with transit-oriented development (TOD) techniques. The plan also calls for livable roadways that include active uses, safe, continuous sidewalks on both sides of the street, street furnishings and pavement textures as appropriate, and direct routes that reduce conflict between pedestrians and automobiles. In particular, the plan calls for special consideration to be paid regarding enhanced traffic safety features for bicyclists and pedestrians at the intersections along Florida Avenue, including with Fletcher Avenue.

## Community Factors

An analysis of community and socioeconomic factors including age, poverty, English proficiency, minority population, commute mode, and access to vehicles was conducted along the corridor. Additionally, areas that are recognized by the Hillsborough MPO as communities of concern were identified.

### Age

Using U.S. Census Block Group data, an evaluation of population living adjacent to the corridor over the age of 65 and under the age of 5 was performed. The analysis showed that the highest concentrations of persons over the age of 65 are located primarily west of Florida Avenue, as shown in Figure 11. Figure 12 shows the concentrations of persons under the age of 5, and as illustrated they are more evenly distributed throughout the study corridor.


**Figure 11; Population Over 65**

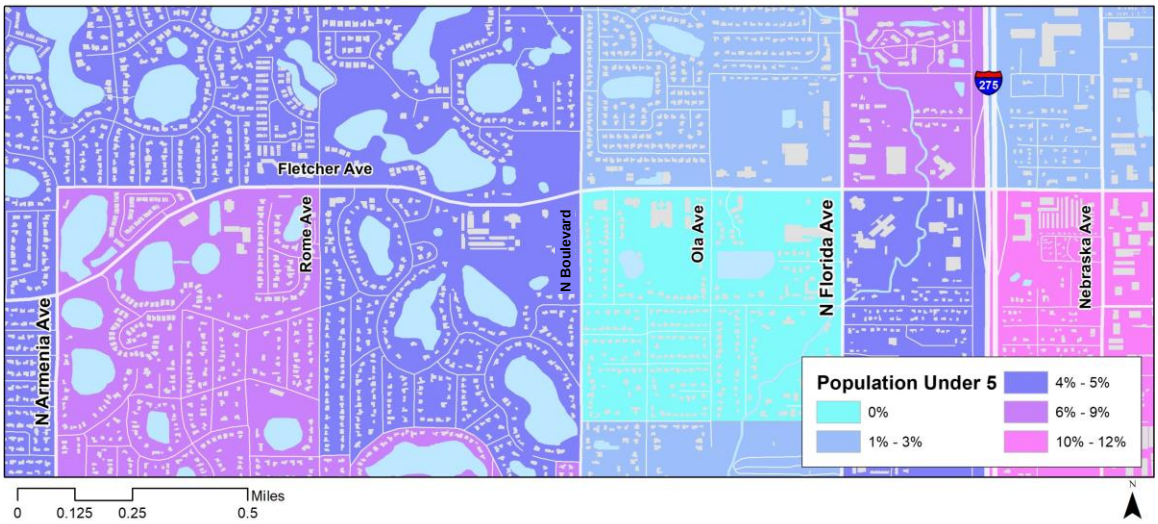



**Figure 12: Population Under 5**

## Poverty Levels

As shown in Figure 13, North Boulevard serves as a dividing line with those residing in block groups east of North Boulevard being more likely to live below the poverty line.

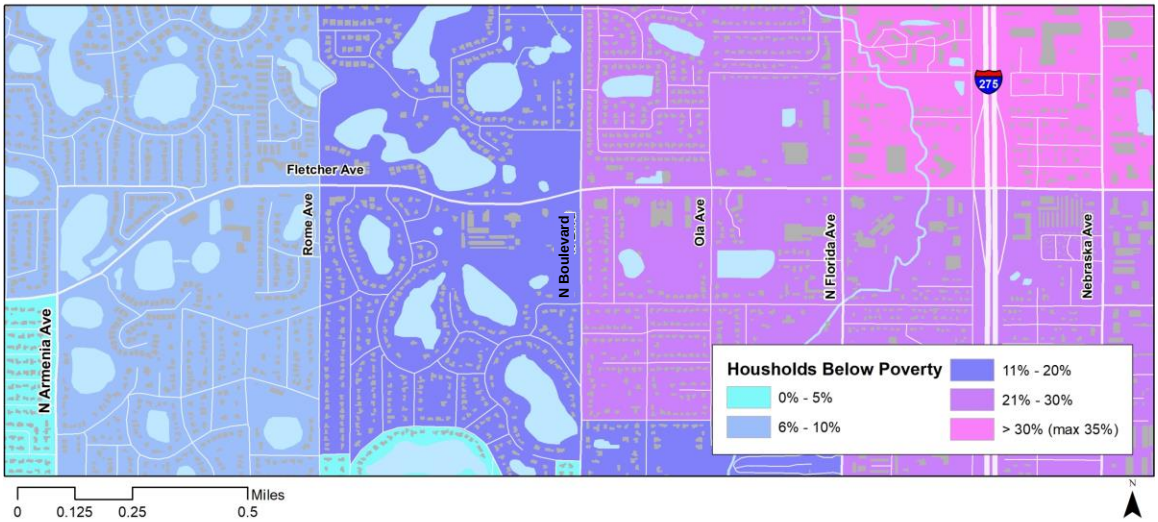



**Figure 13: Households below Poverty**

## English Proficiency

An analysis of Census data related to English proficiency was completed, and as shown in Figure 14, there are some clusters of populations of persons who do not speak English well adjacent to the I-275 interchange.


**Figure 14: English Proficiency, Not Well**

## Minority Population

As depicted by Figure 15, Florida Avenue generally serves as an east/west racial dividing line within the study area, although there are some block groups with higher percentages of minority populations (non-white) along the north side of Fletcher Avenue.

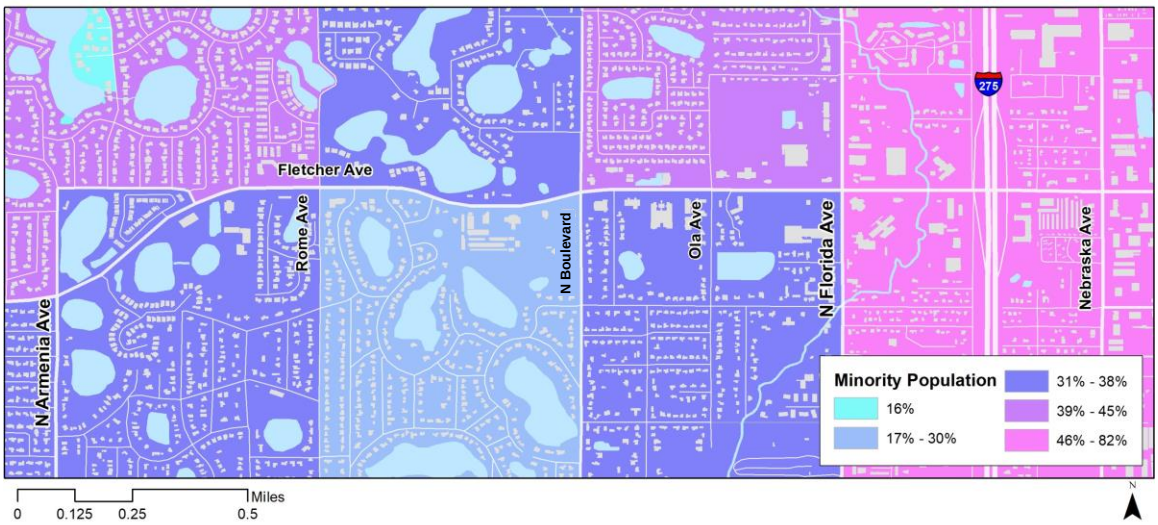



**Figure 15: Minority Population**

## Commute Mode

An evaluation of the Census data was conducted to better understand how people along the corridor typically commute to work. As shown in Figure 16, a high reliance on a personal vehicle as a primary commute mode is prevalent throughout the study area, especially north of Fletcher Avenue. Households utilizing transit as their primary commute mode are more prevalent north of Fletcher Avenue and east of I-275 and south of Fletcher Avenue east of North Boulevard (Figure 17). Finally, an evaluation of people who primarily walk or bike to work was performed and showed that walking and biking are more prevalent in the area southeast of Fletcher Avenue and Florida Avenue (Figure 18).

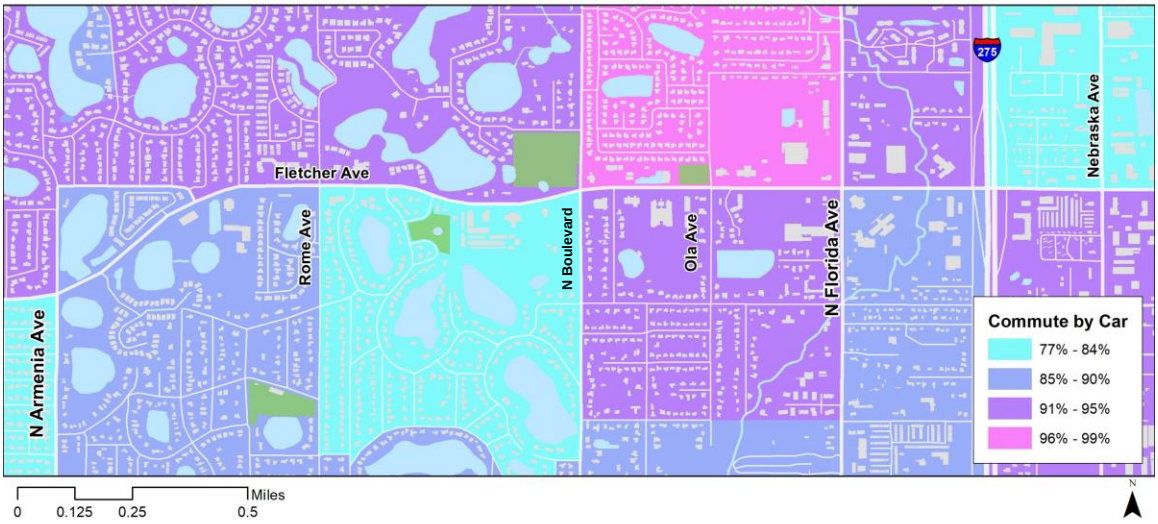



**Figure 16: Commute Mode – Car**


**Figure 17: Commute Mode – Transit**


**Figure 18: Commute Mode – Walk/Bike**

## Zero-Vehicle Households

The location of zero-vehicle households (Figure 19) closely follows that of households that primarily walk, bike, or use transit as their primary commute mode. These areas are located closer to the I-275 interchange and between North Boulevard and Florida Avenue.


**Figure 19: Zero-Vehicle Households**

## MPO Communities of Concern

The Hillsborough MPO has identified communities of concern as being a Census block group that has a high proportion of two or more protected classes of population, such as racial minorities, low-income groups, persons with disabilities, and those with limited English proficiency. There are three block groups located along the north side of Fletcher Avenue between North Boulevard and Nebraska Avenue that have been identified as communities of concern (Figure 20).

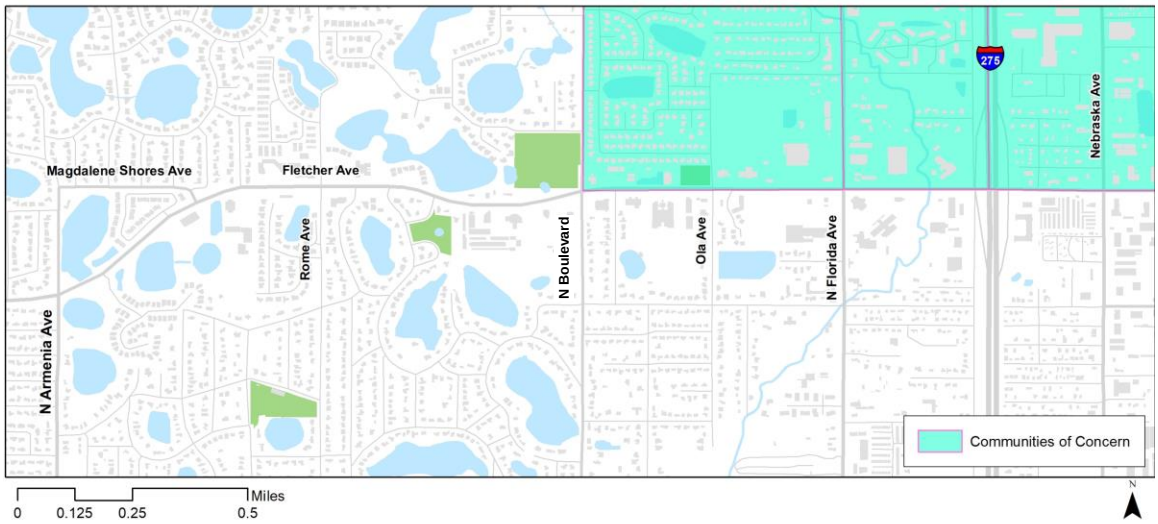



**Figure 20: MPO Communities of Concern**

# Crash History

Crash data for the five-year period between 2014 and 2018 was obtained and evaluated. During the five-year period there were 929 total crashes, of which, two crashes resulted in a fatality (2 deaths) and 24 crashes in an incapacitating injury (26 incapacitating injuries) for a total of 26 serious injury crashes (28 serious injuries) or approximately 2.8% of the total crashes along the corridor. While Vision Zero is focused on eliminating all fatal and incapacitating injury crashes, it is know that vulnerable users like pedestrians and bicyclists are often at a higher risk of serious injury or death when involved in a crash, during the reviewed crash period there were a total of 8 pedestrian and 23 bicycle crashes along the Fletcher Avenue corridor, 2 of the pedestrian crashes and 1 of the bicycle crashes resulted in incapacitating injuries, fortunately there were no pedestrian or bicycle deaths along Fletcher Avenue during the 5-year review period.

## Total Crashes

The annual trend in total crashes along the Fletcher Avenue corridor during the five-year analysis period (2014 – 2018) shows that crashes have been on an upward trend (Figure 21), with approximately 45% more crashes occurring in 2018 compared to 2014.

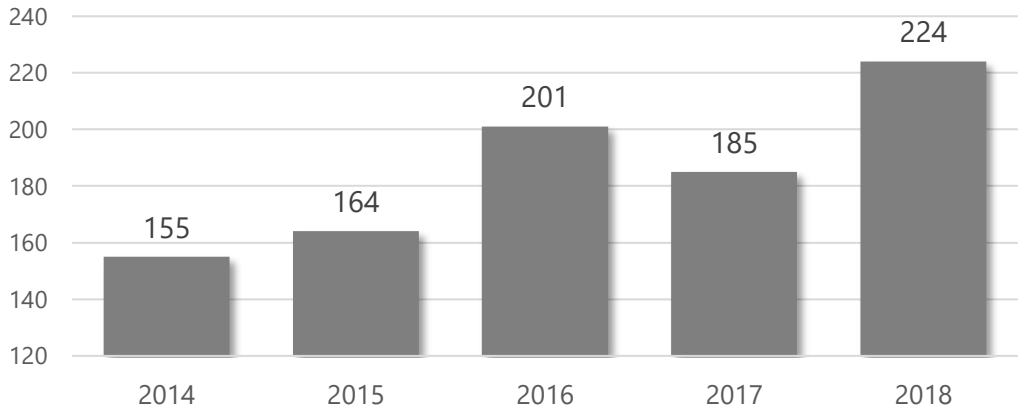



**Figure 21: Total Crash Annual Distribution**

Figure 22 shows the frequency of where crashes occurred by using a crash cluster analysis that groups crashes that occurred within 200' of each other to create frequency clusters. As evident from the map, crashes along Fletcher Avenue are primarily concentrated around the signalized intersection and that there is a higher frequency of crashes occurring at and near the Nebraska Avenue and Florida Avenue intersections; the map also shows that the crash cluster near Florida Avenue extends west towards Ola Avenue and that there is also a higher frequency of crashes occurring at and near the North Boulevard intersection.


**Figure 22: Total Crash Frequency**

## Total Crash Contributing Factors

Contributing crash factors, such as month and day of occurrence along with time of day were analyzed to identify potential trends in the crash data. The crash data shows that the late summer and early fall months have a slightly higher occurrence of crashes with September being the month with the highest number of recorded crashes at 92 (Figure 23). Looking at crashes by the day of occurrence (Figure 24) showed that the day with the highest frequency of total crashes was Friday, with 180 crashes or about 19.4% of the total crashes. The analysis of crashes by time of day (Figure 25), showed that the late afternoon and early evening hours that coincide with the evening rush hour have the highest frequency of crashes, a little over 34% of the total crashes occurred within the 4-hour period between 2:00 PM and 6:00 PM.

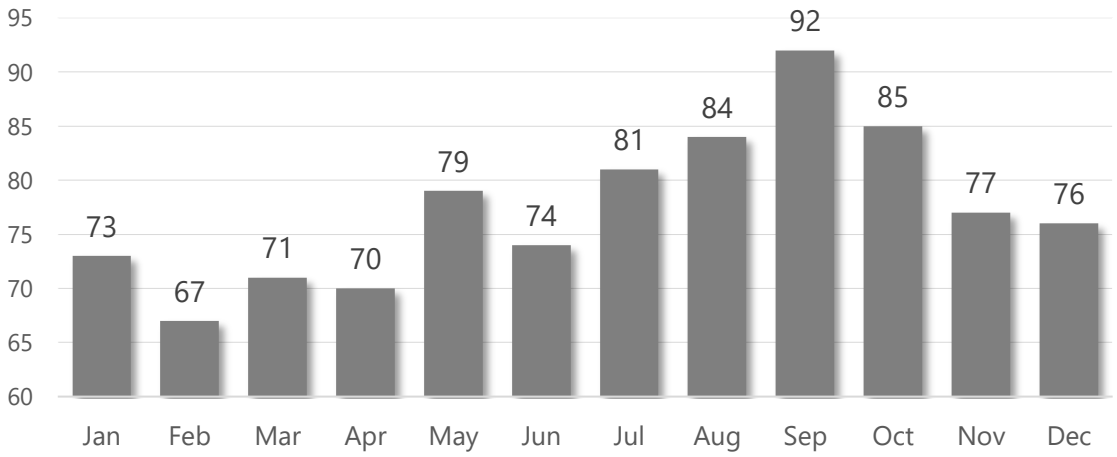



**Figure 23: Total Crashes by Month**

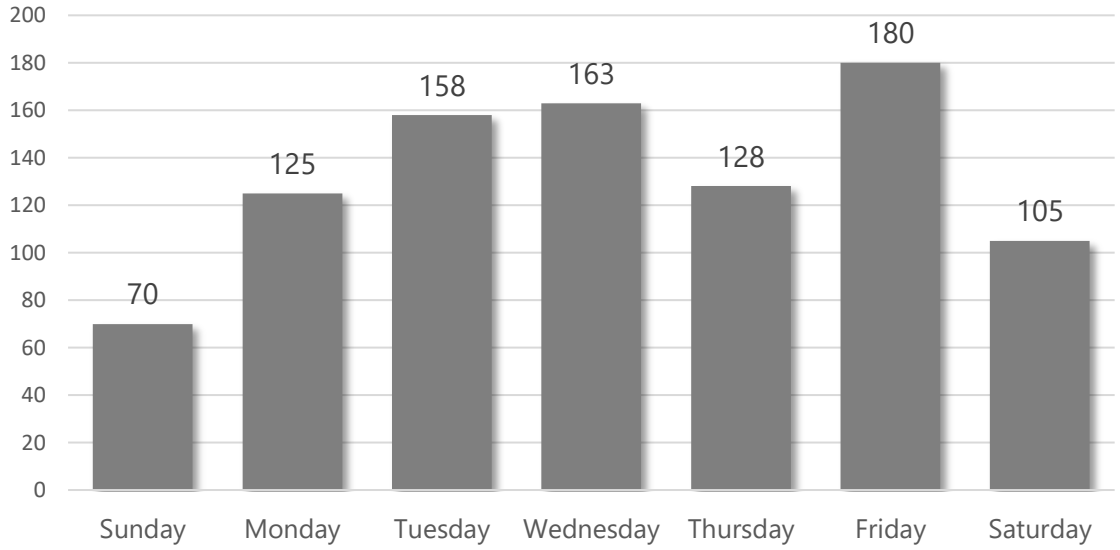



**Figure 24: Total Crashes by Day of the Week**

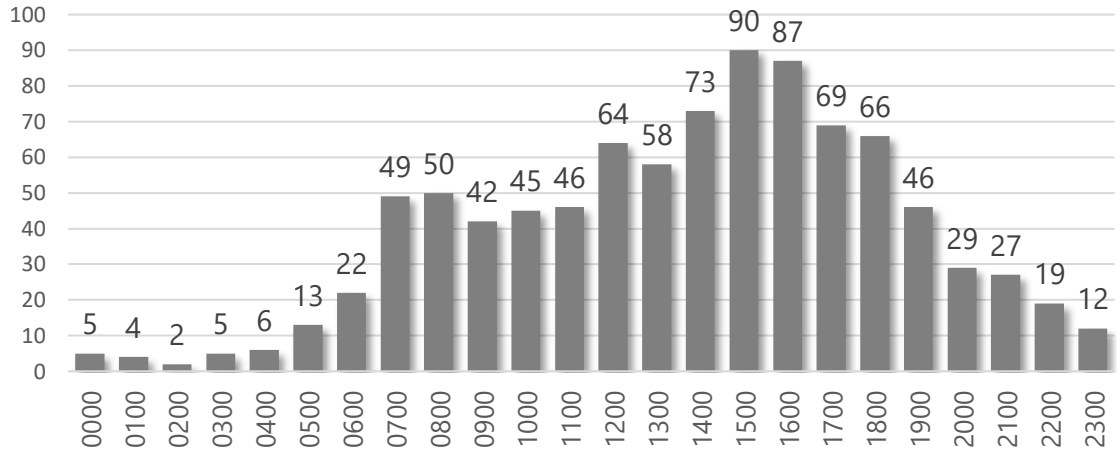



**Figure 25: Total Crashes by Time of Day**

### Total Crash Types

Crashes along Fletcher Avenue were grouped into 13 crash types. Figure 26 summarizes the distribution of crashes by type for all crashes that occurred along the corridor. Of the analyzed crashes, Rear End crashes were the most frequent crash type with 47.3% of the total crashes, followed by Angle and Left Turn crashes representing 15% and 12.1% of the crashes.

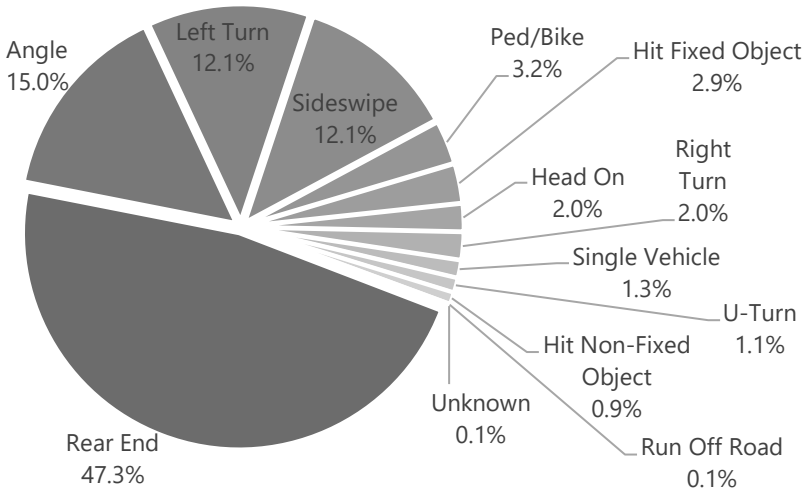



**Figure 26: Total Crashes by Crash Type**

## Serious Injury Crashes

While the evaluation of total crashes provides a sense of the overall safety issues along the corridor, the fundamental principle of Vision Zero is the elimination of fatal and serious injury crashes. During the five-year analysis period there were a total of 26 serious injury crashes along Fletcher Avenue or 2.8% of the total crashes. Two of the serious injury crashes resulted in a fatality with 24 resulting in an incapacitating injury. Figure 27 shows the annual distribution of the serious injury crashes along Fletcher Avenue. As shown, 2015 experienced the highest number of serious injury crashes, including the two fatal crashes. Figure 28 shows the location and frequency of the serious injury crashes. 11 (42%) of the serious injury crashes occurred at or near the intersection of Fletcher Avenue and Nebraska Avenue, with the other serious injury crashes mostly located at the signalized intersections along the corridor. The fatal crashes occurred at Armenia Avenue and west of Florida Avenue.

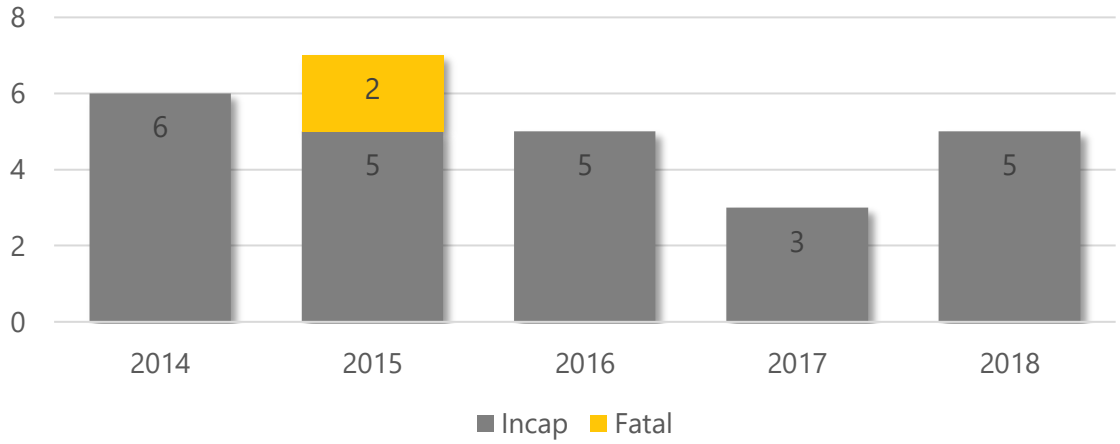



**Figure 27: Serious Injury Crash Annual Distribution**


**Figure 28: Serious Injury Crash Frequency**

## Serious Injury Crash Contributing Factors

As with the total crashes, contributing crash factors were analyzed to better understand the trends and causes of the corridor's serious injury crashes. Figure 29 shows the serious injury crashes by month of occurrence, as shown the months with the most serious injury crashes were March and June, each with 4 – both fatal crashes occurred during the month of June. Between 2014 and 2018 there were no serious injury crashes in the months of January and September (September was the month with the highest frequency of total crashes). Figure 30 shows the frequency of serious injury crashes by day of the week, Sunday, Monday, and Tuesday all had the most crashes with each having five. The 4:00 PM hour (Figure 31) had the most serious injury crashes with 4, followed by the 12:00 PM, 6:00 PM, and 10:00 PM hours each with 3 crashes. Additionally, serious injury crashes by lighting condition were evaluated (Figure 32), the data showed that 61.5% of the serious injury crashes occurred during daylight conditions, 3.8% during dusk conditions, and 36.4% during dark conditions with lighting. Considering that 77.1% of the total crashes occurred during daylight conditions, this evaluation shows that fewer serious injury crashes are occurring during the day and that lighting conditions in the darker hours may be a factor in causing serious injury crashes.

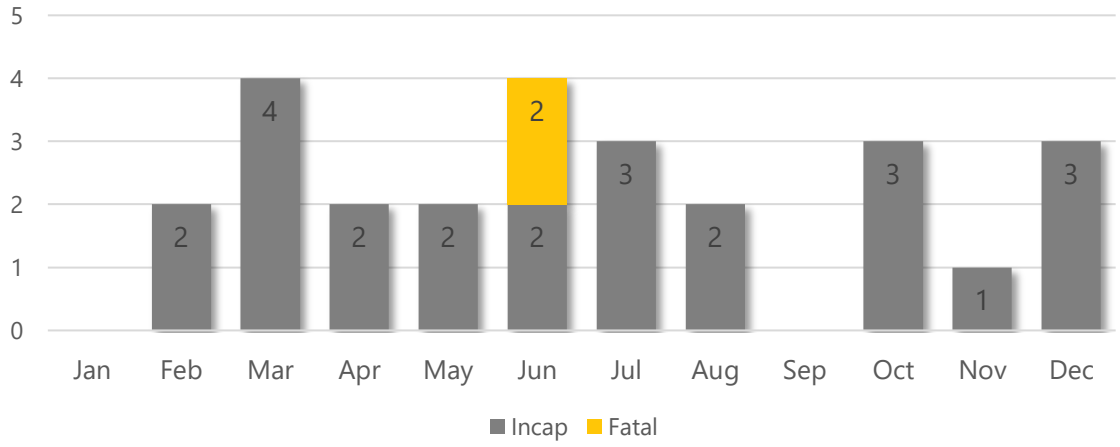



**Figure 29: Serious Injury Crashes by Month**

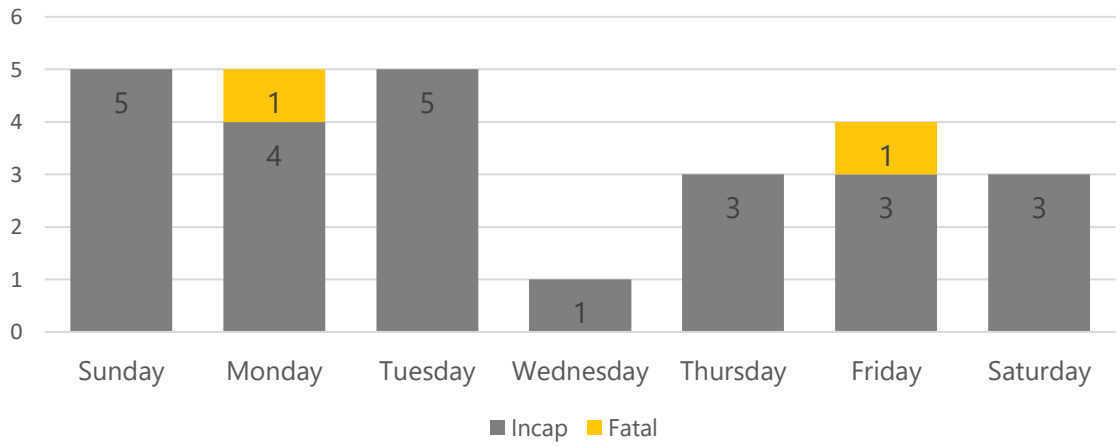



**Figure 30: Serious Injury Crashes by Day of the Week**

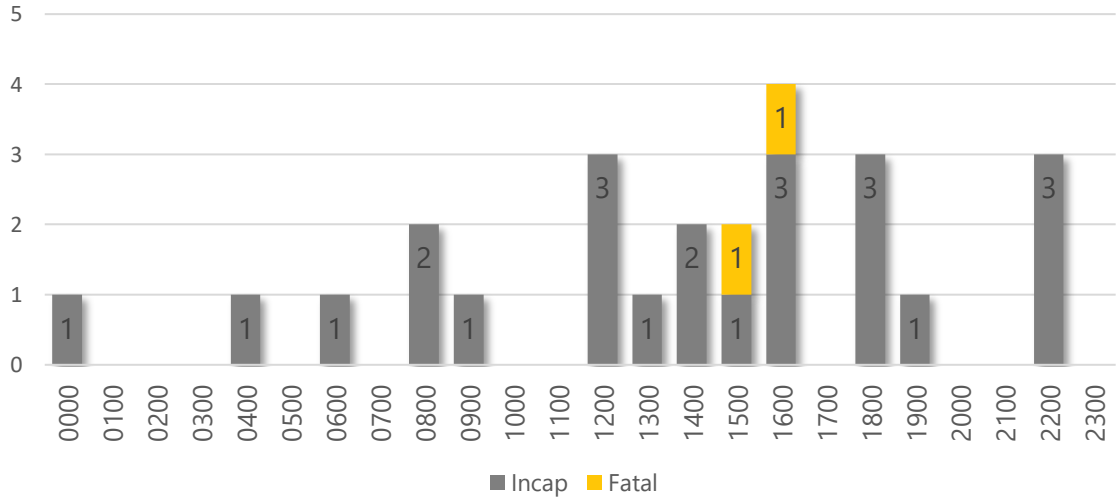



**Figure 31: Serious Injury Crashes by Time of Day**

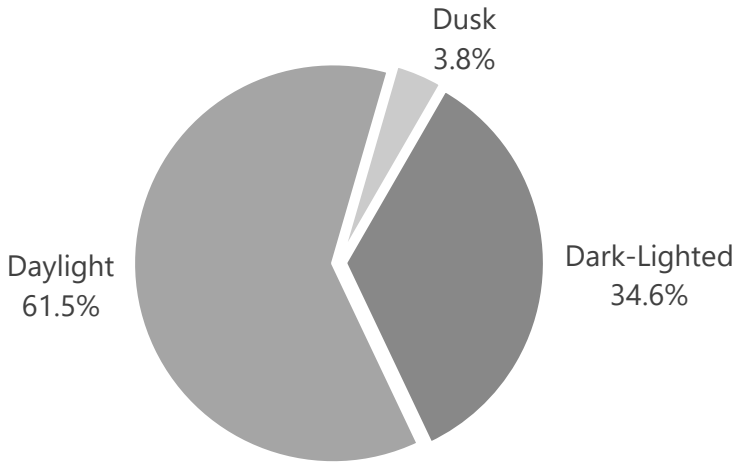



**Figure 32: Serious Injury Crashes by Lighting Conditions**

### Serious Injury Crash Types

Seven of the 13 total crash types were attributed to serious injury crashes along Fletcher Avenue. Figure 33 provides a summary of the distribution of serious injury crashes by crash type. Left Turns were responsible for 42.3% of the serious injury crashes along the corridor with Rear End crashes (30.8%) and Pedestrian and Bicycle crashes (11.5%) being the next most frequent serious injury crash types. When looking at total crashes Left Turns were responsible for 15% of the crashes, much lower than their percentage of serious injury crashes. The two fatal crashes that occurred along Fletcher Avenue were from a Left Turn crash and an Angle crash.

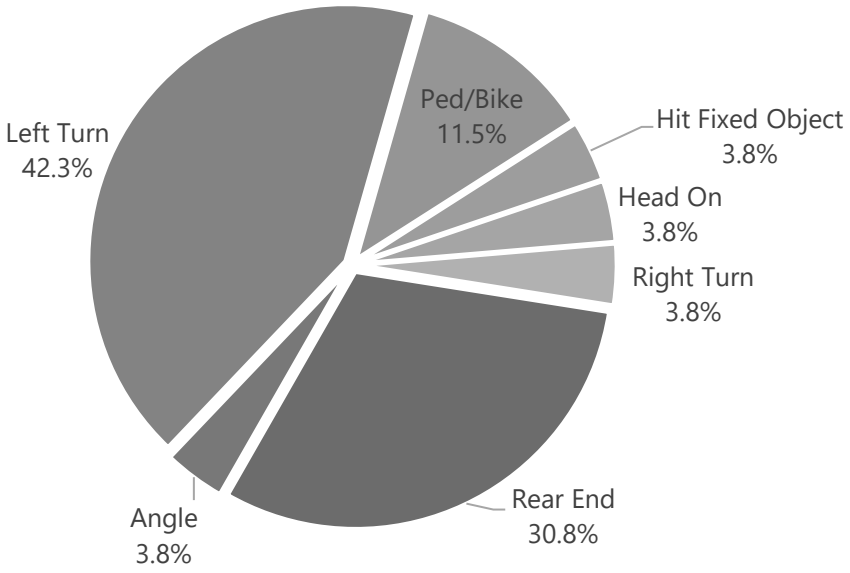



**Figure 33: Serious Injury Crash Types**

## Detailed Serious Injury Crash Review

Given that the core tenant of Vision Zero is the elimination of fatal and serious injury crashes an additional detailed review, including the review of crash reports, was conducted. Table 4 and Figures 34 – 37 provide a summary of this review, the "ID" field in Table 4 corresponds to the collision diagrams that are shown in Figures 34 – 37.

**Table 4: Serious Injury Crash Diagram Summary**

| ID | Date | Day | Time | Crash Type | Contributing Cause |
|---|---|---|---|---|---|
| 1 | 2/8/14 | Saturday | 2215 | Left Turn | Ran Red Light |
| 2 | 3/2/14 | Sunday | 1440 | Left Turn | Failed to Yield Right-of-Way |
| 3 | 3/29/14 | Saturday | 2235 | Left Turn | Not Coded |
| 4 | 5/15/14 | Thursday | 0805 | Rear End | Operated MC in Careless or Negligent Manner |
| 5 | 10/15/14 | Wednesday | 1258 | Hit Fixed Object | Operated MC in Careless or Negligent Manner |
| 6 | 12/30/14 | Tuesday | 1309 | Rear End | Operated MC in Careless or Negligent Manner |
| 7 | 2/8/15 | Sunday | 1539 | Left Turn | Failed to Yield Right-of-Way |
| 8 | 6/8/15 | Monday | 1617 | Angle | Failed to Yield Right-of-Way |
| 9 | 6/12/15 | Friday | 1540 | Left Turn | Failed to Yield Right-of-Way |
| 10 | 6/21/15 | Sunday | 1211 | Left Turn | Failed to Yield Right-of-Way |
| 11 | 7/31/15 | Friday | 0635 | Pedestrian | No Contributing Action |
| 12 | 10/23/15 | Friday | 0457 | Left Turn | Failed to Yield Right-of-Way |
| 13 | 11/17/15 | Tuesday | 1210 | Rear End | Operated MC in Careless or Negligent Manner |
| 14 | 4/21/16 | Thursday | 2238 | Left Turn | Failed to Yield Right-of-Way |
| 15 | 7/31/16 | Sunday | 0006 | Left Turn | Not Coded |
| 16 | 8/6/16 | Saturday | 2035 | Pedestrian | Other Contributing Actions |
| 17 | 12/2/16 | Friday | 1907 | Rear End | Operated MC in Careless or Negligent Manner |
| 18 | 12/26/16 | Monday | 0914 | Left Turn | Improper Passing |
| 19 | 4/13/17 | Thursday | 0835 | Rear End | Operated MC in Careless or Negligent Manner |
| 20 | 5/1/17 | Monday | 1445 | Rear End | Followed too Closely |
| 21 | 6/26/17 | Monday | 1640 | Left Turn | Failed to Yield Right-of-Way |
| 22 | 3/4/18 | Sunday | 1935 | Bike | No Contributing Action |
| 23 | 3/13/18 | Tuesday | 1908 | Rear End | Operated MC in Careless or Negligent Manner |
| 24 | 7/23/18 | Monday | 1642 | Rear End | Operated MC in Careless or Negligent Manner |
| 25 | 8/7/18 | Tuesday | 1825 | Head On | Wrong Side of Wrong Way |
| 26 | 10/9/18 | Tuesday | 1637 | Right Turn | Failed to Yield Right-of-Way |

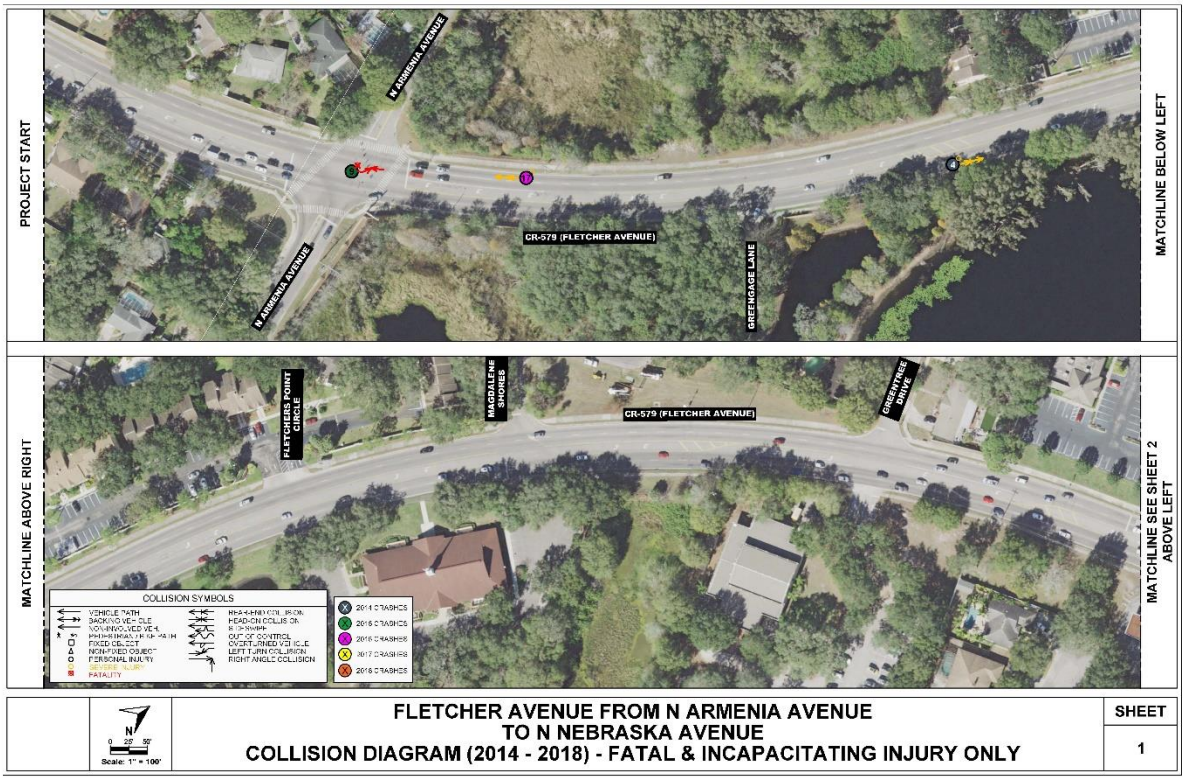



**Figure 34: Serious Injury Crash Collision Diagram – Sheet 1**

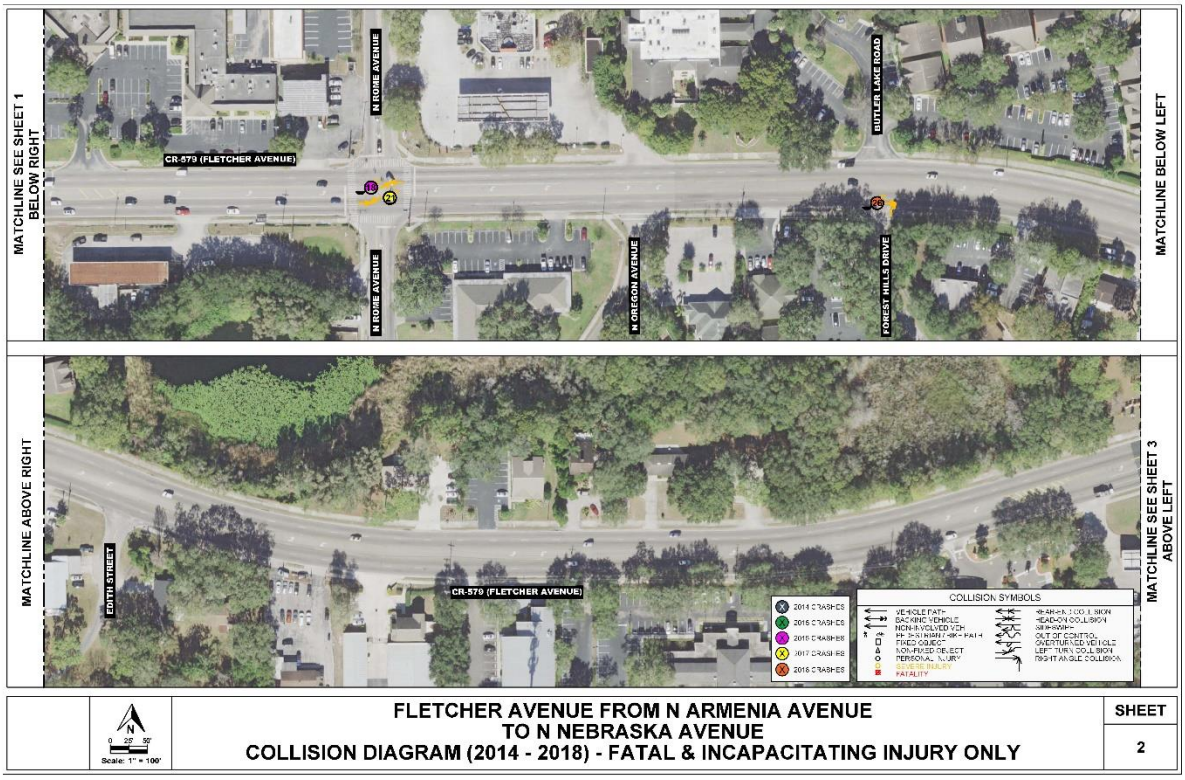



**Figure 35: Serious Injury Crash Collision Diagram – Sheet 2**

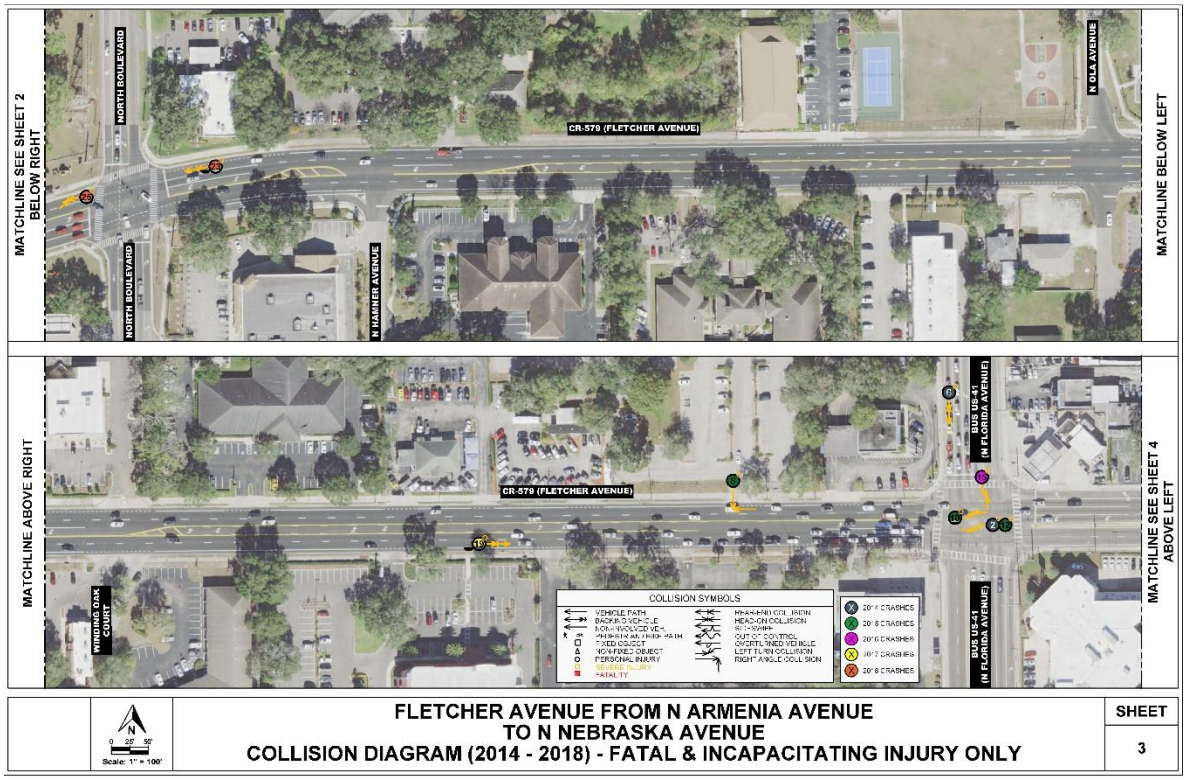



**Figure 36: Serious Injury Crash Collision Diagram – Sheet 3**

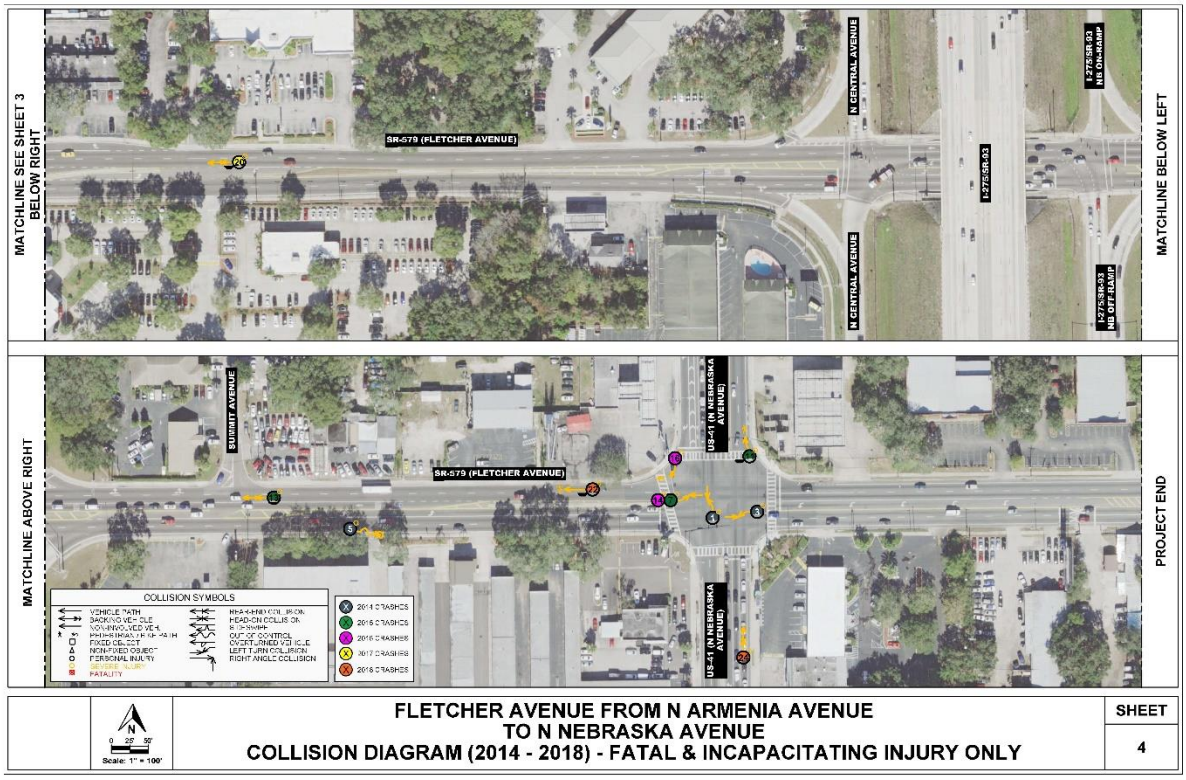
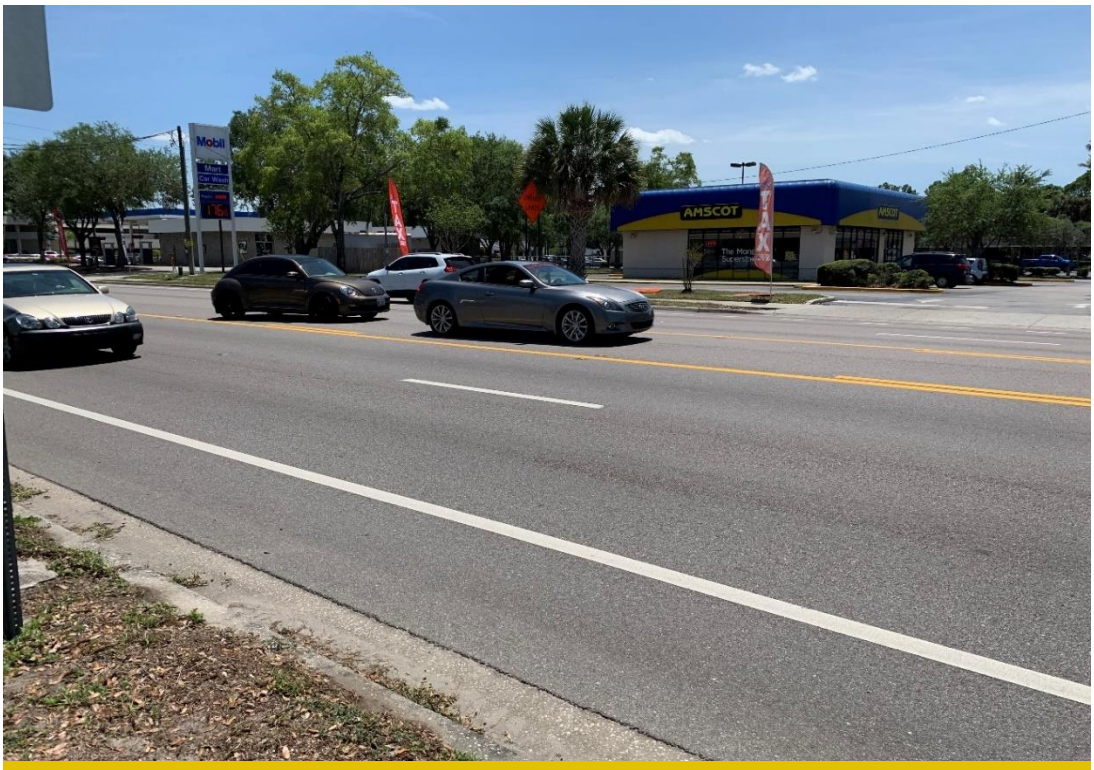



**Figure 37: Serious Injury Crash Collision Diagram – Sheet 4**

## Field Review and Observations

Field reviews to observe, confirm, and document existing conditions along Fletcher Avenue were completed by conducting a walking audit on April 21, 2020 and a driving/windshield review on July 14, 2020. These reviews primarily focused on the condition of existing infrastructure and on features that may influence mobility and safety within the corridor. While traffic conditions were observed, it is noted that the observed conditions were not representative of typical conditions as the reviews were conducted during the initial COVID-19 outbreak period. The following provides an overview of the observations from the reviews:

- ***Street Lighting*** – overhead roadway lighting is mainly concentrated at the intersections and near the I-275 interchange area. There appears to be opportunities to enhance lighting along Fletcher Avenue utilizing existing utility poles.
- ***Sidewalks*** – are present along both sides of the roadway and are in fairly good condition with a few noticeable maintenance needs, largely related to tree root heaving and cracking. The sidewalk along the north side of Fletcher Avenue between Florida Avenue and Armenia Avenue appears to be a consistent 8' wide sidewalk; while not meeting the design standards of a shared use path, this sidewalk width can more comfortably accommodated both pedestrians and bicyclists compared to a typical 5' sidewalk.
- ***Pedestrian Crossings*** – marked crossings are present throughout the corridor, however they type of crosswalk marking varies, most of the side street crossings along Fletcher Avenue are not marked. The existing pedestrian curb ramps along the north side of Fletcher Avenue are sized for a standard 5' sidewalk, consideration for widening the curb ramps to match the 8' sidewalk width could help in providing a consistent functional width of the sidewalk.
- ***Bicycle Facilities*** – there is a marked 5' bicycle lane along both sides of Fletcher Avenue between Florida Avenue and North Boulevard, the remainder of the corridor does not have any dedicated bicycle facilities.
- ***Traffic Conditions*** – the COVID-19 pandemic and the fact that schools and many business were closed during the times of the field reviews did not provide a typical traffic scenario, the reviews witnessed moderate traffic volumes and no real noticeable concerns from an operational standpoint. The center two-way left turn lanes closer to Florida Avenue were busier than other parts of the corridor.
- ***Transit Amenities*** – many of the existing bus stops along the corridor, especially towards the western end of the corridor are equipped with shelters. It was noted that the placement of the shelters on the sidewalk could contribute to crowding if there were higher volumes of pedestrians and bicyclists using the sidewalk; relocating the shelters to the back of sidewalk (where right-of-way is available) could help to create a clear and unobstructed sidewalk condition.




*Fletcher Avenue, west of Florida Avenue, looking south*


*Fletcher Avenue, east of North Boulevard, looking west*


*Fletcher Avenue, west of Magdalene Shores Avenue, looking southwest*

*Fletcher Avenue, east of Armenia Avenue, looking east*

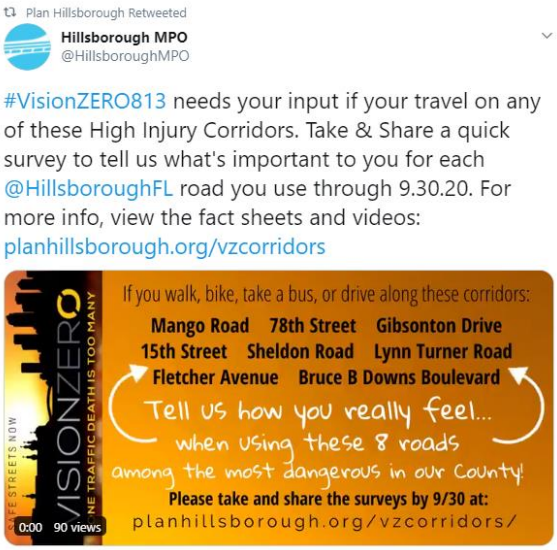
VISIONZERO

# FLETCHER AVENUE


*Fletcher Avenue, at Florida Avenue, looking east*

# Public Engagement

Soliciting and receiving input from the public is a crucial component of any transportation planning effort and especially so within the framework of Vision Zero. Traditional, in-person engagement was not possible due to the safety concerns by the COVID-19 pandemic. For this reason, a digital survey was distributed and welcomed participation from anyone who moved along the corridors.




For Fletcher Avenue, a total of 19 responses were received. The survey results should be construed as advisory and, while not necessarily representative of all roadway users, still valuable information for consideration.

About half of the respondents (53%) claim to neither work nor live along the corridor, while about a quarter live (26%) or work (21%) along the corridor. Of zip codes provided, communities represented stretched as far west as Largo and Safety Harbor, as far east as Lakeland, and as far south as Ballast Point in addition to zip codes along the corridor. 69% of respondents indicated that they use the corridor at least daily or weekly, with smaller numbers indicating that they use the corridor monthly (11%) or sometimes (21%). This information speaks to the corridor's regional significance as a connector to I-295, USF to the east, and several major north/south arterials.

When asked about trip purpose, respondents primarily indicated their trips consisted of work (47%), shopping (42%), or for personal appointments (42%). A trip for the purpose of accessing recreation or entertainment (37%) also made up a large portion of trips.

Respondents were also asked about their feelings of what detracts from safety along the corridor. A large portion of respondents indicated that high traffic volumes (28%), high vehicle speeds (17%), and turning (17%) detracted from their feeling of safety when using the corridor. Several respondents also indicated that witnessing others participate in potentially dangerous behaviors like crossing outside of a marked crosswalk reduced their own feeling of safety. Access management was also raised as a major safety concern, as many driveways complicate safe access to businesses along the corridor.

Unsurprisingly, solutions to the safety issues posed by respondents included lower speeds, better access management, more traffic signals, and better pedestrian crosswalks.

# Potential Countermeasures

The focus of Vision Zero is to eliminate all traffic-related deaths and serious injuries. While the following countermeasures are designed to move the County closer to this, several of the countermeasures should also improve overall safety, mobility, and comfort along the corridor. The countermeasures for Fletcher Avenue are divided into two categories, corridor-wide and site-specific. Where applicable, Crash Modification Factor (CMF) ratings are provided, these ratings indicate the potential impact, based on research, that specific countermeasures can have on crash rates.

While an attempt to identify fatal flaws that would make a countermeasure unfeasible was taken, it is important to note that the countermeasures identified in this section represent potential opportunities and are not necessarily recommendations; rather, they are suggestions for further consideration and evaluation. In many instances, the identified countermeasures will require additional evaluation, analysis, and/or engineering design to determine the full feasibility of each potential countermeasure. Additionally, Hillsborough County is in the process of updating their Transportation Technical Manual (TTM), consistency with the updated TTM should be verified during any future planning or design phase of the suggested countermeasures.

## Corridor-Wide Countermeasures

### Speed Management

Consider conducting a speed management study with the goal of establishing a target reduction in the posted speed limit from 45 MPH to of 35 MPH for the corridor.

### Signal Timing and Phasing

Consider conducting a traffic signal timing study to evaluate the progression of traffic through the corridor at the desired 35 MPH target speed. Consider installation of educational signage (ex. “Traffic Signals Timed for 35 MPH”) to encourage driver education and compliance.

### Flashing Yellow Left Turn Arrows

Consider introducing a flashing yellow arrow treatment by replacing the existing 5-section left/thru signal heads with a 3-section thru and a 4-section flashing yellow arrow (FYA or FYLTA) signal. This treatment should be considered at Armenia Avenue, Rome Avenue, and North Boulevard. This countermeasure has an average CMF of .843.

### Traffic Signal Backplates

Consider applying high-visibility, retroreflective backplates to the existing signal heads to increase visibility in low-light conditions and for older or colorblind drivers. This treatment should be considered corridor-wide, but especially at the east-west approaches along Fletcher Avenue. In relation to concern regarding load requirements

on existing span wires and mast arms, consider low-weight materials such as polycarbonate. This treatment has a CMF of 0.85.

### Roadway Lighting

Consider conducting a roadway lighting study to establish existing roadway, intersection, and sidewalk lighting levels. Also consider enhancing roadway, intersection, and sidewalk lighting by evaluating opportunities to use existing utility poles for new overhead luminaires.

### Crosswalk Markings

Consider consistently treating pedestrian crossings at all signalized intersections with high-emphasis crosswalk markings. Existing pavement markings at unsignalized side streets and driveways should also be evaluated for consistency throughout the corridor.

### Pedestrian Curb Ramps

Consider widening the pedestrian curb ramps along the north side of Fletcher Avenue so that the ramps better match the width of the sidewalk. Wider pedestrian curb ramps would create a more consistent functional width for the existing 8’ sidewalk along the north side of Fletcher Avenue.

### Sidewalk and Pavement Marking Maintenance

An audit of existing sidewalk condition should be conducted to assist in identifying, programming, and completing crucial maintenance needs such as heaved, cracked, or obstructed sidewalks. A review of existing pavement markings should also be performed to increase visibility of items such as stop bars or lane markings.

### Pedestrian Signal Actuation

Consider applying an automatic recall walk phase along the main roadway approaches corridor-wide and on all approaches at Florida Avenue and Nebraska Avenue. While this treatment is provided at some intersections, it is not applied corridor-wide.

### Bus Stops

Consider coordinating with HART to relocate bus shelters to the back of sidewalk to create a clear, unobstructed pathway along the sidewalk. Where relocation is not feasible, consider providing additional concrete around the back of transit shelters to maintain the sidewalk clear path.

### Streetscape

Consider providing landscaping and landscaped raised medians where feasible. Landscaping and raised medians help reinforce compliance with the target speed of a roadway while enhancing aesthetics and comfort. This countermeasure also promotes safer turning behaviors, reducing angle and turning crashes.

Good Idea

**Red Light Running Cameras**

- Effective and affordable safety tool
- Consistent and fair enforcement
- Reduces speeding and serious injury crashes
- Raises funds for good causes

## Site-Specific Countermeasures

A comprehensive set of site-specific countermeasures were identified to address specific crash trends and related issues throughout the corridor. Generally, these countermeasures include channelized turn lanes, new and extended raised medians, midblock crossings, relocated transit stops, new high-emphasis crosswalks, additional traffic signals, and reduced turning radii. Proposed Concept Drawings of each are depicted in the following figures and tables. While care was taken to identify and evaluate countermeasures that are feasible and constructable, additional engineering, design, and potential public engagement efforts are recommended.

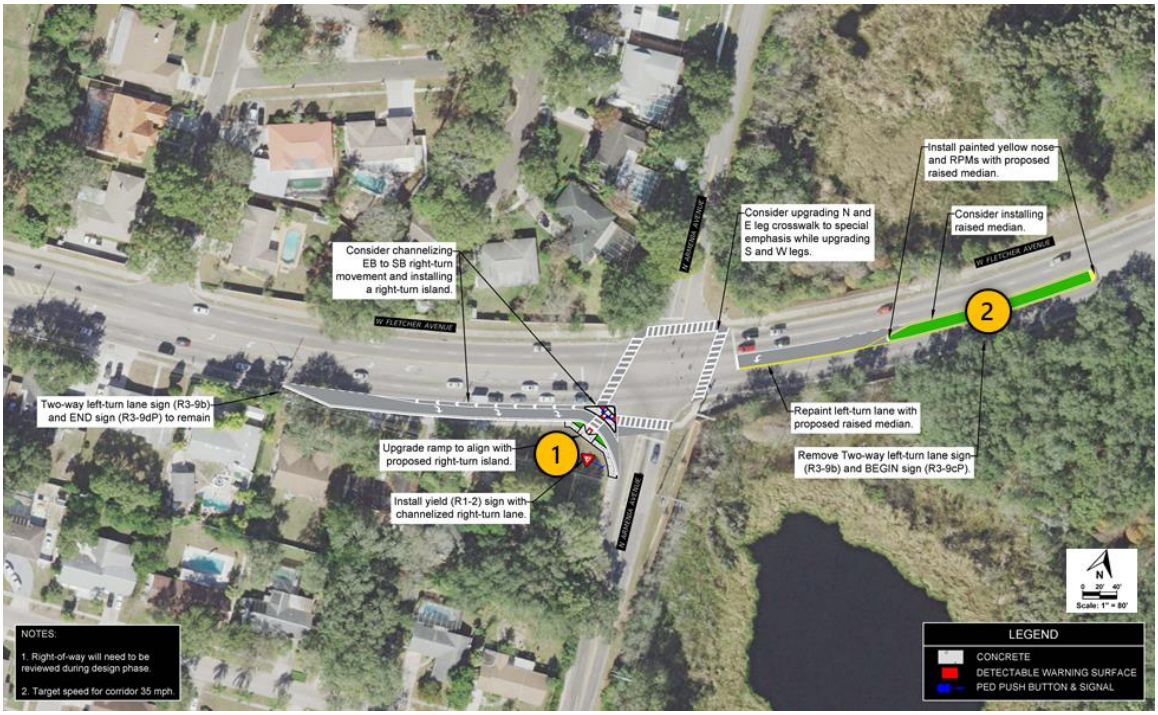



**Figure 38: Site-Specific Opportunities – Sheet 1**

**Table 5: Site-Specific Opportunities – Sheet 1**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 1 | Fletcher Ave at Armenia Ave | Consider channelizing the eastbound-to-southbound right-turn movement and installing a raised right-turn island. Consider realigning the crosswalk along the west leg of the intersection to align with the new raised island. | Mid-Term |
| 2 | Fletcher Ave, Approximately 300’ east of Armenia Ave to Greengage Ln | Consider constructing a raised median island. | Mid-Term |

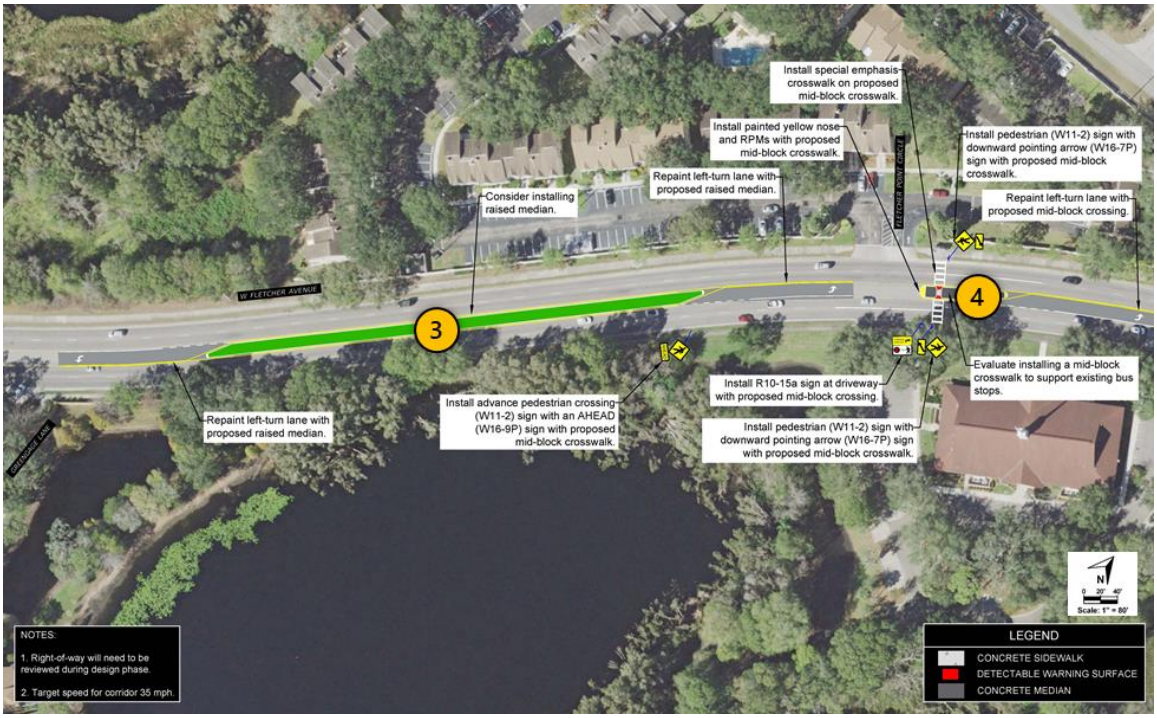



**Figure 39: Site-Specific Opportunities – Sheet 2**

**Table 6: Site-Specific Opportunities – Sheet 2**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 3 | Fletcher Ave, approximately 250' east of Greengage Ln to approximately 250' west of Fletcher Point Cir | Consider constructing a raised median island. | Mid-Term |
| 4 | Fletcher Ave, Fletcher Point Cir to 200' west of Magdalene Shores Ave | Consider constructing a raised median island. Additionally, consider conducting a pedestrian crossing study to determine the feasibility of installing a mid-block crosswalk that could support crossings near the existing bus stops. | Mid-Term |

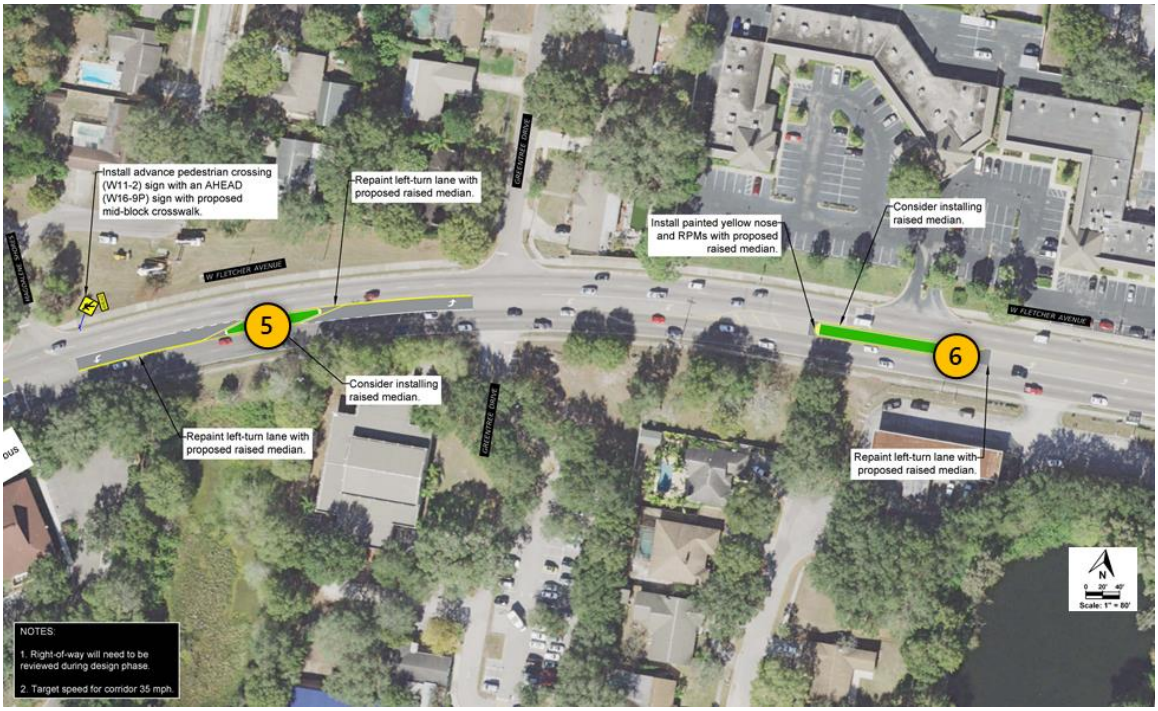



**Figure 40: Site-Specific Opportunities – Sheet 3**

**Table 7: Site-Specific Opportunities – Sheet 3**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 5 | Fletcher Ave, halfway between Magdalene Shores Ave and Greentree Dr | Consider constructing a raised median island. | Mid-Term |
| 6 | Fletcher Ave, approximately 250' west of Rome Ave | Consider constructing a raised median island. | Mid-Term |

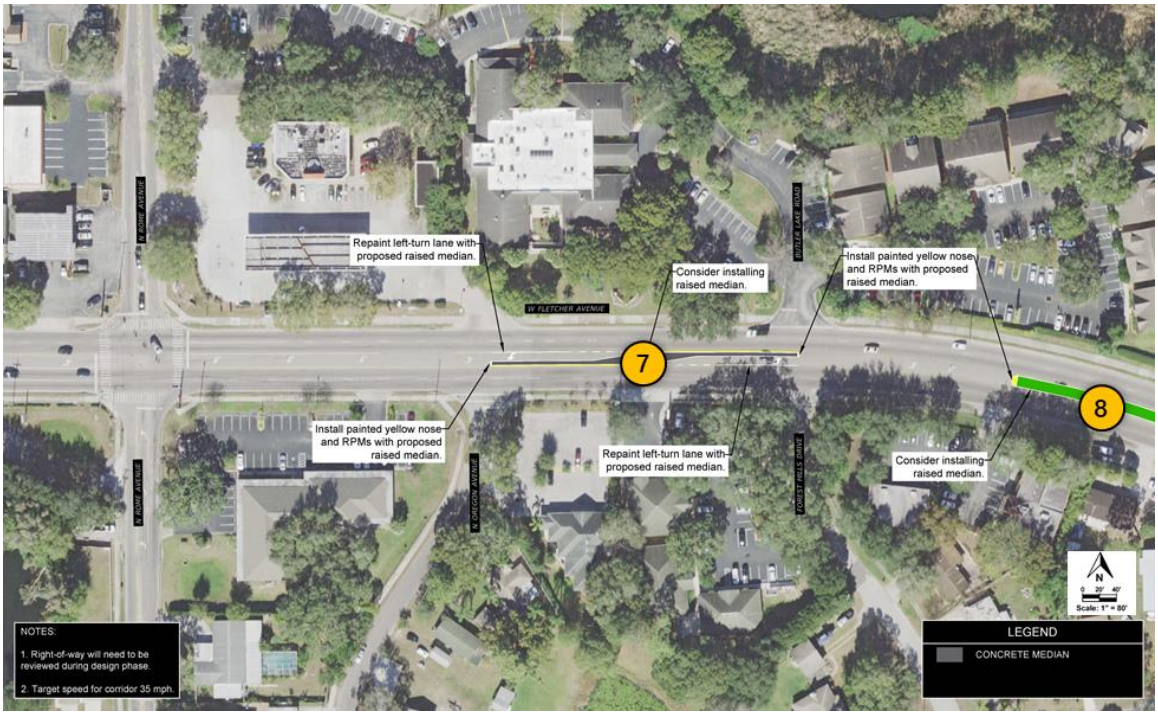



**Figure 41: Site-Specific Opportunities – Sheet 4**

**Table 8: Site-Specific Opportunities – Sheet 4**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 7 | Fletcher Ave, halfway between Oregon Ave and Forest Hills Dr | Consider constructing a raised median island. | Mid-Term |
| 8 | Fletcher Ave, approximately 300’ to 600’ east of Forest Hills Dr | Consider constructing a raised median island. | Mid-Term |


**Figure 42: Site-Specific Opportunities – Sheet 5**

**Table 9: Site-Specific Opportunities – Sheet 5**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 8 | Fletcher Ave, approximately 300’ to 600’ east of Forest Hills Dr | Consider constructing a raised median island. | Mid-Term |

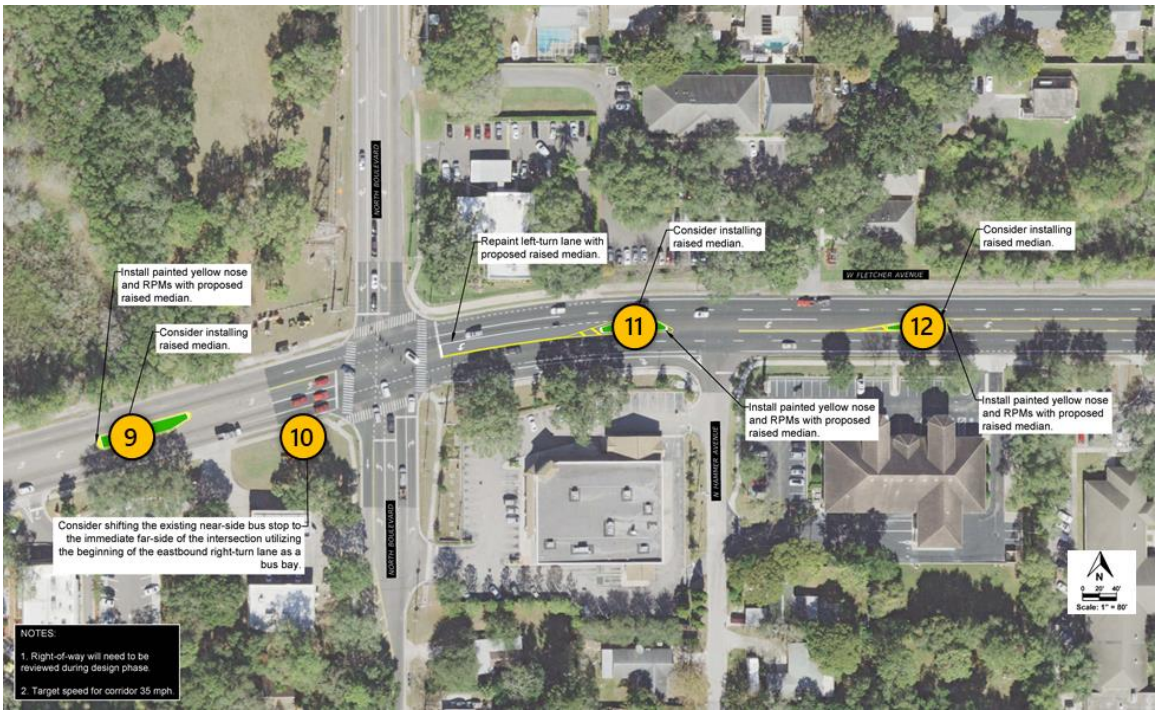



**Figure 43: Site-Specific Opportunities – Sheet 6**

**Table 10: Site-Specific Opportunities – Sheet 6**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 9 | Fletcher Ave, approximately 425′ west of N Boulevard to approximately 300′ west of N Boulevard | Consider constructing a raised median island. | Mid-Term |
| 10 | Fletcher Ave at N Boulevard | Consider coordinating with HART to evaluate relocating the existing eastbound near-side bus stop to the immediate far-side of the intersection utilizing the beginning of the eastbound right-turn lane onto Hamner Ave as a bus bay. | Mid-Term |
| 11 | Fletcher Ave, from approximately 170′ to 225′ east of N Boulevard | Consider constructing a raised median island. | Mid-Term |
| 12 | Fletcher Ave, from approximately 160′ to 220′ east of Hamner Ave | Consider constructing a raised median island. | Mid-Term |

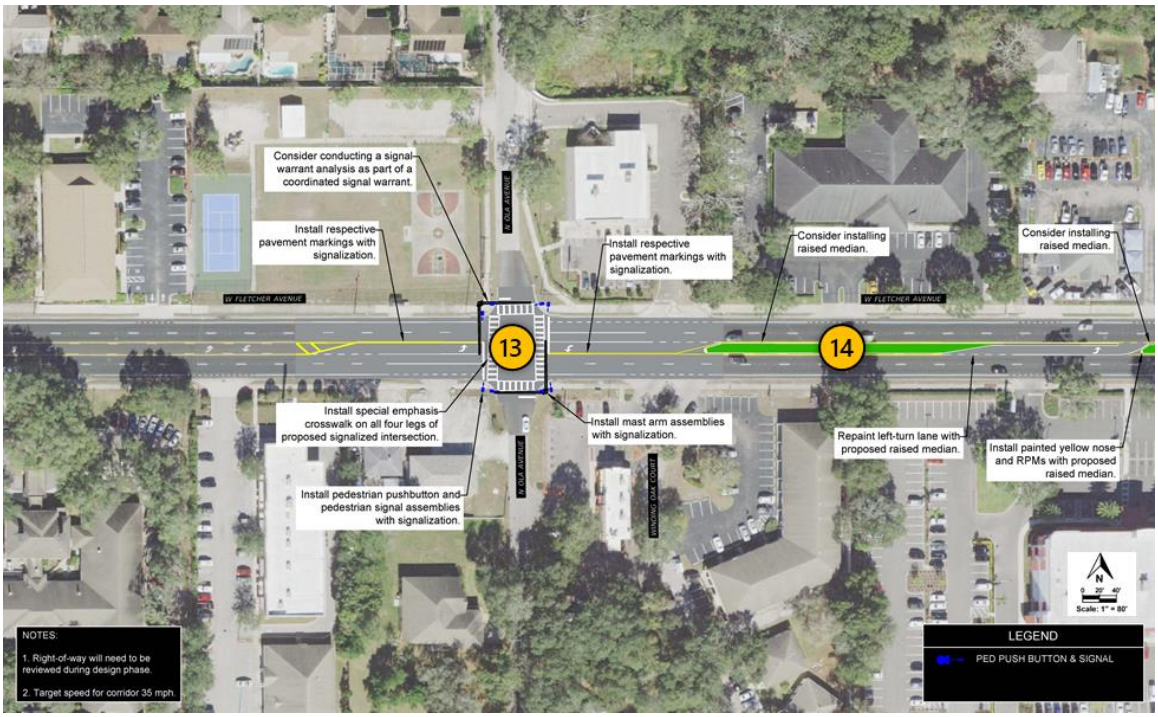



**Figure 44: Site-Specific Opportunities – Sheet 7**

**Table 11: Site-Specific Opportunities – Sheet 7**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 13 | Fletcher Ave at Ola Ave | Consider conducting a traffic signal warrant analysis as part of a coordinated signal warrant. | Long-Term |
| 14 | Fletcher Ave, from approximately 300' to 450' east of Ola Ave | Consider constructing a raised median island. | Mid-Term |

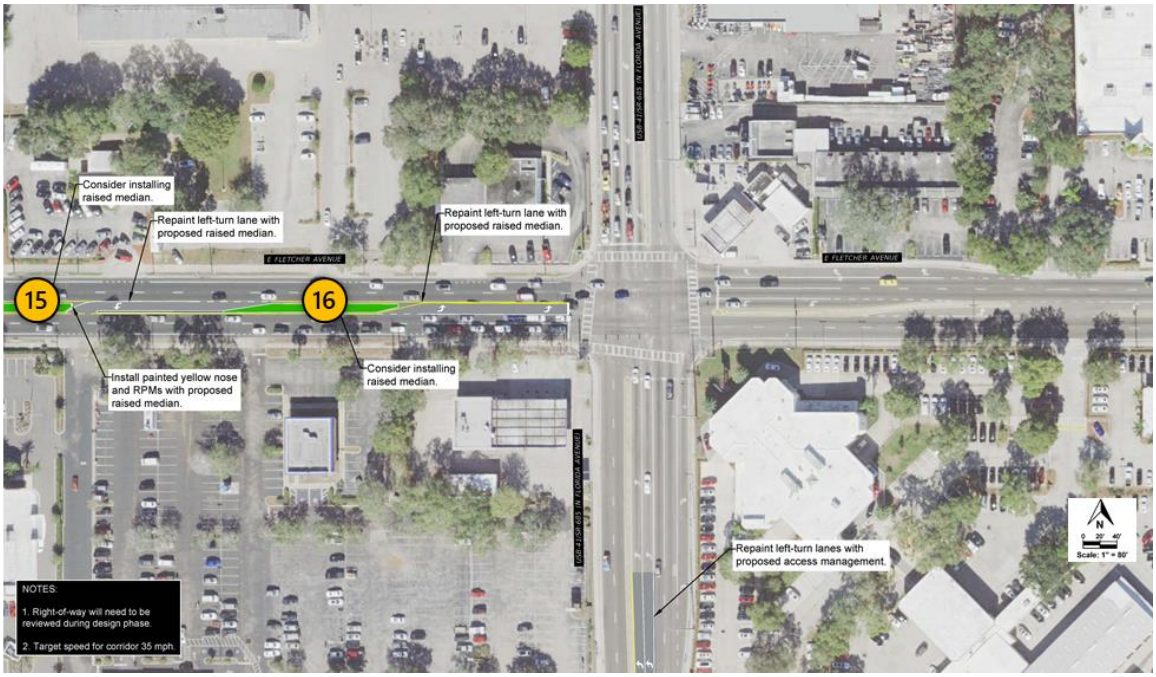



**Figure 45: Site-Specific Opportunities – Sheet 8**

**Table 12: Site-Specific Opportunities – Sheet 8**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 15 | Fletcher Ave, from approximately 630' to 540' west of Florida Ave | Consider constructing a raised median island. | Mid-Term |
| 16 | Fletcher Ave, from approximately 325' to 400' west of Florida Ave | Consider constructing a raised median island. | Mid-Term |


**Figure 46: Site-Specific Opportunities – Sheet 9**

**Table 13: Site-Specific Opportunities – Sheet 9**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 17 | Florida Ave, south of Fletcher Ave | Consider coordinating with FDOT to evaluate allowing northbound left turns from Florida Ave into the commercial shopping center (approximately 200' north of Prince St) in the southwest quadrant of the intersection; this could help to reduce the number of northbound to westbound left turns onto Fletcher Ave and reduce the number of vehicles making an immediate left turn into the shopping center after turning onto Fletcher Ave. | Mid-Term |

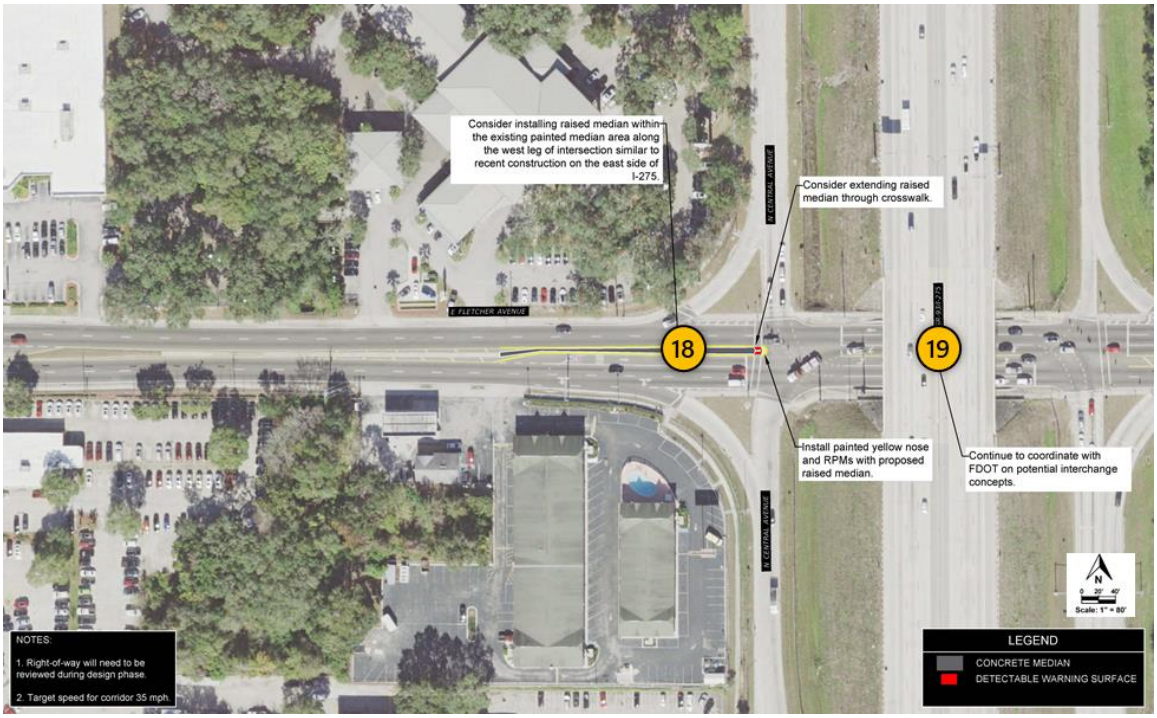



**Figure 47: Site-Specific Opportunities – Sheet 10**

**Table 14: Site-Specific Opportunities – Sheet 10**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 18 | Fletcher Ave at Central Ave | Consider constructing a raised median within the existing painted median area along the west leg of the intersection; consider extending the median nose through the crosswalk, similar to what was recently constructed at the ramps on the east side of the I-275 interchange. | Mid-Term |
| 19 | Fletcher Ave at I-275 | Continue to coordinate with FDOT on potential interchange concepts that could result from the TBNext program. | Long-Term |

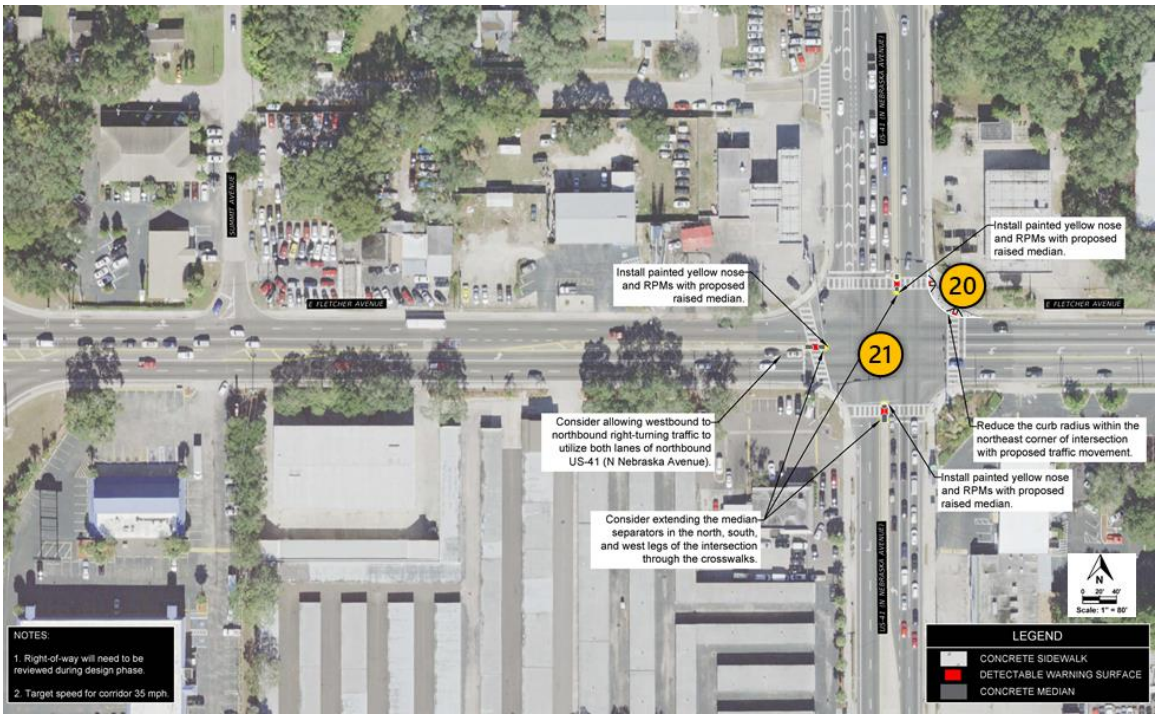



**Figure 48: Site-Specific Opportunities – Sheet 11**

**Table 15: Site-Specific Opportunities – Sheet 11**

| ID | Location | Suggestion for Consideration | Timeframe |
|---|---|---|---|
| 20 | Fletcher Ave at Nebraska Ave | Consider coordinating with FDOT to evaluation allowing westbound to northbound right turning traffic to utilize both lanes of northbound Nebraska Ave and reduce the curb radius within the northeast corner of the intersection to reduce turning speeds, shorten pedestrian crossing distances, and improve pedestrian visibility. | Mid-Term |
| 21 | Fletcher Ave at Nebraska Ave | Consider coordinating with FDOT to evaluate extending the median separators in the north, south, and west legs of the intersection so that the median nose extends beyond the crosswalk with an opening for the crosswalk. | Mid-Term |

# Implementation

As previously mentioned, the countermeasures identified in this document represent potential opportunities and are not necessarily definitive recommendations, rather they are suggestions for further consideration and evaluation. While care was taken to identify and evaluate countermeasures that are feasible and constructable, in many cases additional engineering, design, and potential public engagement efforts are recommended. Additionally, countermeasures will need to be evaluated against the currently being updated Hillsborough County Transportation Technical Manual (TTM) to ensure consistency with the County's design standards before advancement into the design and construction phase.

## Cost Estimates

Planning-level cost estimates for the identified countermeasures were developed to provide general guidance on the expected financial investment for implementing the countermeasures. Using a combination of generic cost estimates and pay-item unit costs from FDOT's historic cost estimates, a cost assumption for the identified corridor countermeasures was developed. For the most part these cost assumptions include the costs associated with materials and base construction expenses along with assumed cost percentages to cover maintenance of traffic (MOT), mobilization, and project unknowns. As with determining feasibility and design, additional evaluation and design work is required to determine the actual costs associated with the suggested countermeasures. Also, of note is that the cost estimates do not include any costs associated with the attainment of right-of-way; if right-of-way is needed, there could be significant cost increases associated with implementing the countermeasures. If the countermeasures identified in this document were implemented, the potential associated costs are estimated to be between $1.3 million and $1.5 million.

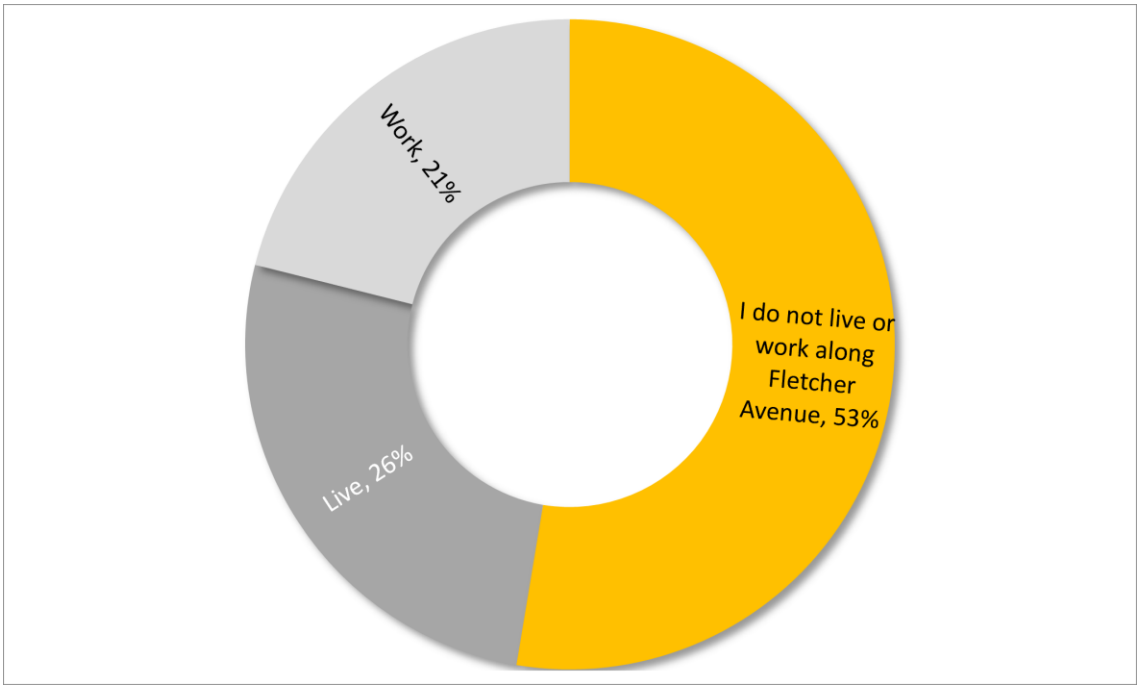
## Next Steps

The key to implementing the countermeasures in this document is continued coordination among the various involved agencies, including Hillsborough County, FDOT, and the Hillsborough MPO. This continued coordination with help to ensure that the identified improvements are realized.

Additionally, whereas a feasibility review for this study was conducted and cost estimates were developed, they were done at the planning level and focused primarily on identifying fatal flaws and high-level challenges. Funding for additional project evaluation and engineering design should be allocated prior to implementing the identified countermeasures. The design effort will identify any additional challenges, further review the feasibility of the countermeasures, develop more accurate cost estimates that could be used in programming funding, and may result in some changes to the countermeasures identified in this document.

# Appendix A: Full Survey Responses

**Q1: Do you live or work along Fletcher Avenue? (select all that apply)**

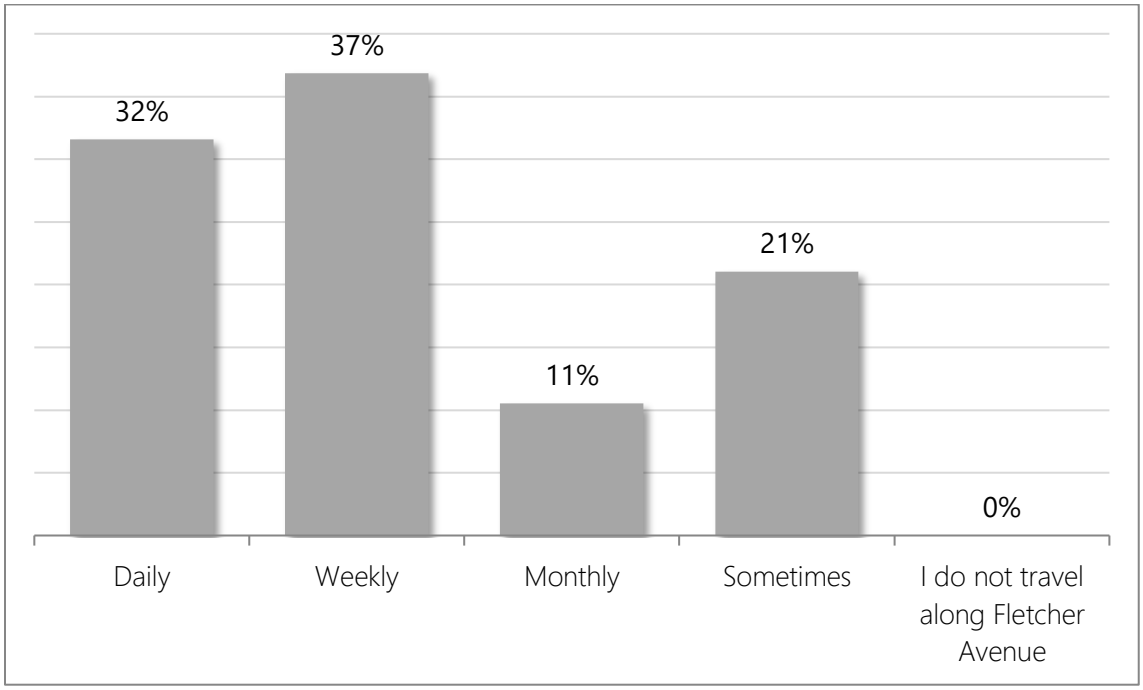


**Q2: Please share your home zip code.**

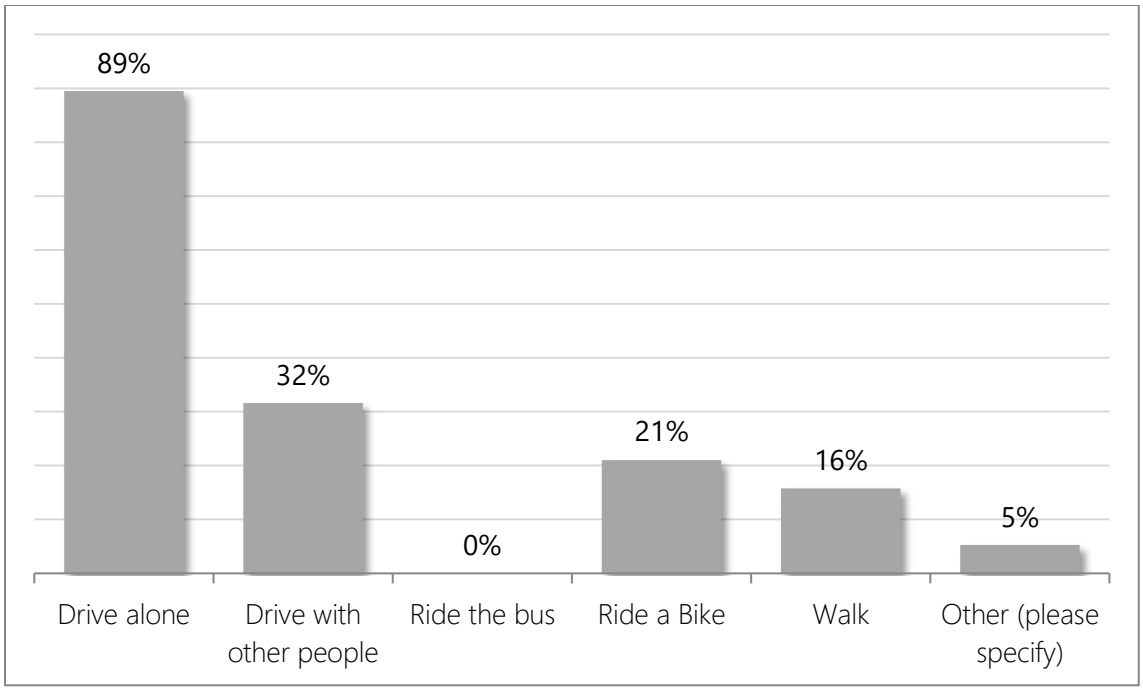
| Zip Code | Number of Responses |
|---|---|
| 3398 | 1 |
| 33558 | 1 |
| 33602 | 2 |
| 33611 | 1 |
| 33612 | 1 |
| 33613 | 2 |
| 33614 | 3 |
| 33618 | 1 |
| 33624 | 1 |
| 33629 | 2 |
| 33778 | 1 |
| 33803 | 1 |
| 34695 | 1 |

Note: 1 respondent skipped this question.

**Q3: How often do you use Fletcher Avenue?**

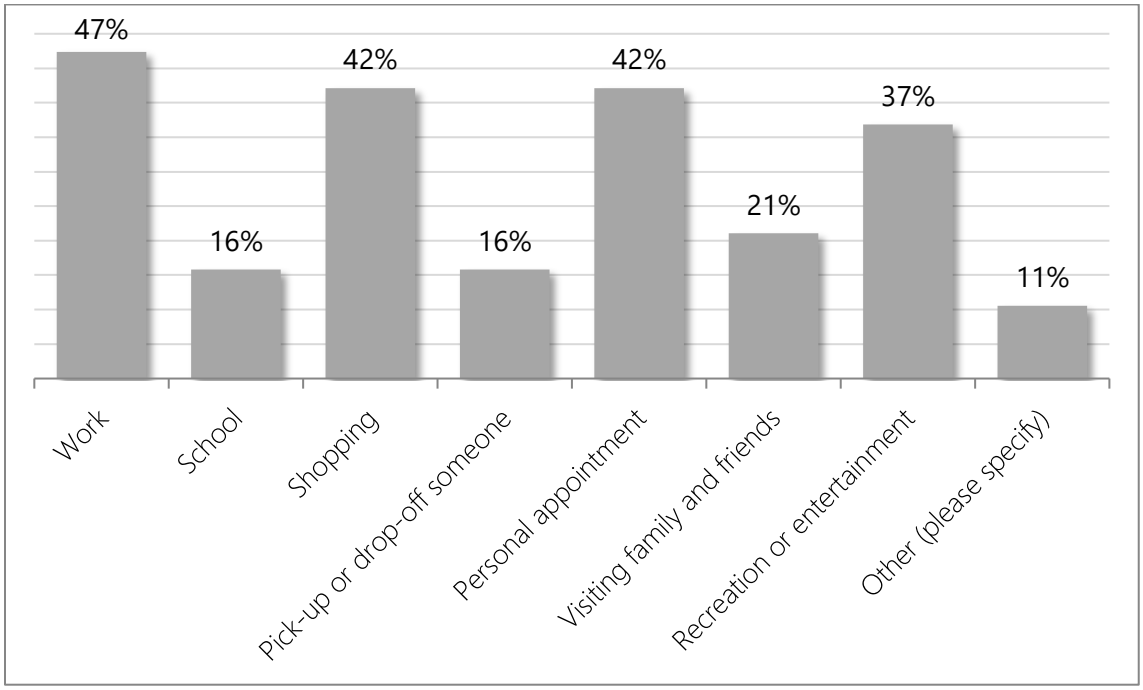



**Q4: How do you typically use Fletcher Avenue?**

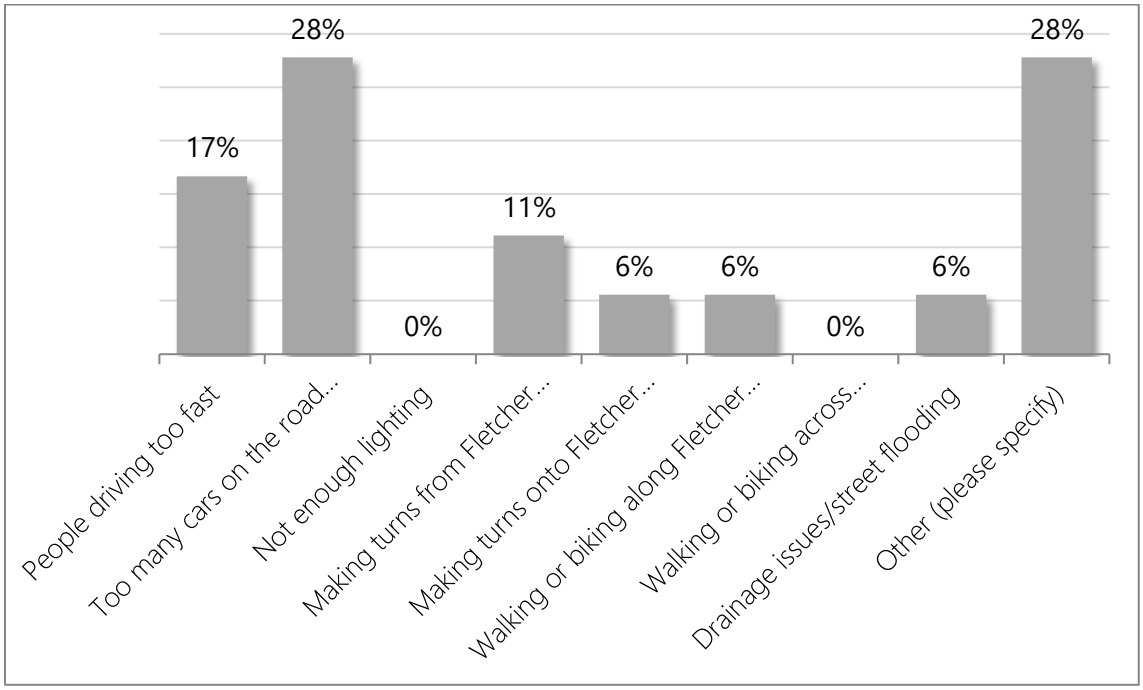



| Respondents | Response Date | Other (please specify) |
|---|---|---|
| 1 | Sep 12 2020 | Jog |

**Q5: Which are the most typical purposes of your trip on Fletcher Avenue?**



**Q6: Does any of the following make you feel unsafe when you travel along Fletcher Avenue?**




| Respondents | Response Date | Other (please specify) |
|---|---|---|
| 1 | Oct 03 2020 | People jaywalking |
| 2 | Sep 29 2020 | Watching others trying to walk or bike across Fletcher. |
| 3 | Sep 21 2020 | Walkers, runners, bike riders not crossing properly or in the street |
| 4 | Sep 21 2020 | Too many high traffic businesses with blind entrances |
| 5 | Sep 12 2020 | Slow Traffic Signal Timing |

Note: 1 respondent skipped this question.

**Q7: Please tell us why any of these things make you feel unsafe or if you have any other safety concerns?**

| Respondents | Response Date | Responses |
|---|---|---|
| 1 | Oct 03 2020 | Every time I drive along Fletcher Avenue I see people crossing it within spitting distance of a marked corner or pedestrian crosswalk, but not using them. What's the point of spending money on these crosswalks when people don't use them? |
| 2 | Sep 30 2020 | Traffic moves very fast, and because of the speed it can be difficult to make turns. I would not walk or bike there due to the traffic. |
| 3 | Sep 29 2020 | Too many cars speed through the crosswalks. |
| 4 | Sep 25 2020 | Heavy rains turn Fletcher into a lake. Also too many cars driving too fast and turning on and off Fletcher is dangerous. |
| 5 | Sep 23 2020 | I could answer more than one of the above. Too much traffic, people driving too fast, cars darting from lane to lane, people not using turning signals, cars not stopping at pedestrian walkways, pedestrians jaywalking, pedestrians crossing against the light... It's a long list. |
| 6 | Sep 21 2020 | I think drivers are too comfortable driving and take for granted the rules |
| 7 | Sep 21 2020 | Cars cannot figure out where the entrance is and change lanes quickly and stop suddenly. |
| 8 | Sep 16 2020 | most of the items above are true, allow more responses |
| 9 | Sep 14 2020 | Fast drivers, people on bikes,  many pedestrian crossings where people don't pay attention on how to use. |
| 10 | Sep 12 2020 | Drivers are jockeying to get into the correct lane to enter the I275, the lane to go south on I75 from heading west is crammed with cars, middle lane as well.  Same as heading east coming from Florida Ave.  Not enough designated lanes for entry onto I275 and exit lanes on Fletcher need help as well.  Just not enough lanes to handle the heavy traffic. |
| 11 | Sep 12 2020 | Cars are moving very fast. Lights are poorly timed to encourage speed. |
| 12 | Sep 11 2020 | lack of turn lanes to the side streets or numerous drives with small widths causing slow movements of the vehilcles into the businesses (stay in travel lanes) |
| 13 | Sep 09 2020 | Poor design and planning. Speed limit should be reduced, and Sharrows used. |

Note: 6 respondents skipped this question.

**Q8: Can you think of anything that would make you feel safer traveling along Fletcher Avenue**

| Respondents | Response Date | Responses |
|---|---|---|
| 1 | Oct 03 2020 | Yeah, people understanding that they can have the "right-of-way" all the way to the Pearly Gates, but they'll still be dead. Stay out of where big, heavy vehicles are driving, wear bright clothes or carry a light (make yourself visible), and use the crosswalks appropriately. |
| 2 | Sep 29 2020 | More traffic lights. |
| 3 | Sep 25 2020 | Traffic calming and streetscaping to break up the suburban blight of strip retail and fast food islands |
| 4 | Sep 23 2020 | Less traffic, or more traffic lights, wider lanes, another lane or two, pedestrian overpasses better-timed traffic lights, greater police presence |
| 5 | Sep 21 2020 | I like the blinking pedestrian walk ways |
| 6 | Sep 21 2020 | A service road. Or better business signage. |
| 7 | Sep 16 2020 | slow down cars, excessive speeds and too many lanes |
| 8 | Sep 14 2020 | While the speeds don't necessarily make me feel unsafe as a motorist, lower speeds would certainly be more conducive to those biking and walking. |
| 9 | Sep 12 2020 | More room, perhaps reducing speed limit and perhaps patrolling the area. |
| 10 | Sep 12 2020 | Correct traffic light timing to slow down traffic and allow side streets to enter/exit Fletcher rather than sit for minutes while traffic speeds by unimpeded. |
| 11 | Sep 11 2020 | intersection improvements for better movements |
| 12 | Sep 09 2020 | Better access control. Having 8-10 connections per block, in a commercial area, is a recipe for accidents. |

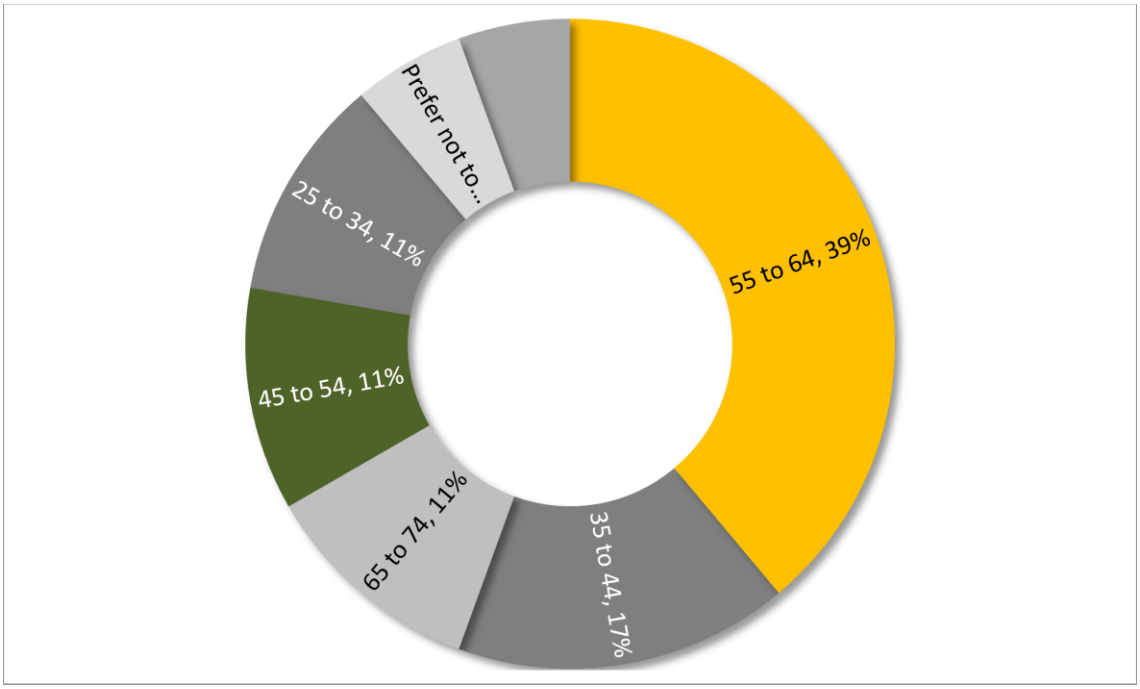
Note: 7 respondents skipped this question.

**Q9: Is there anything else you would like to tell us about your experiences along Fletcher Avenue?**

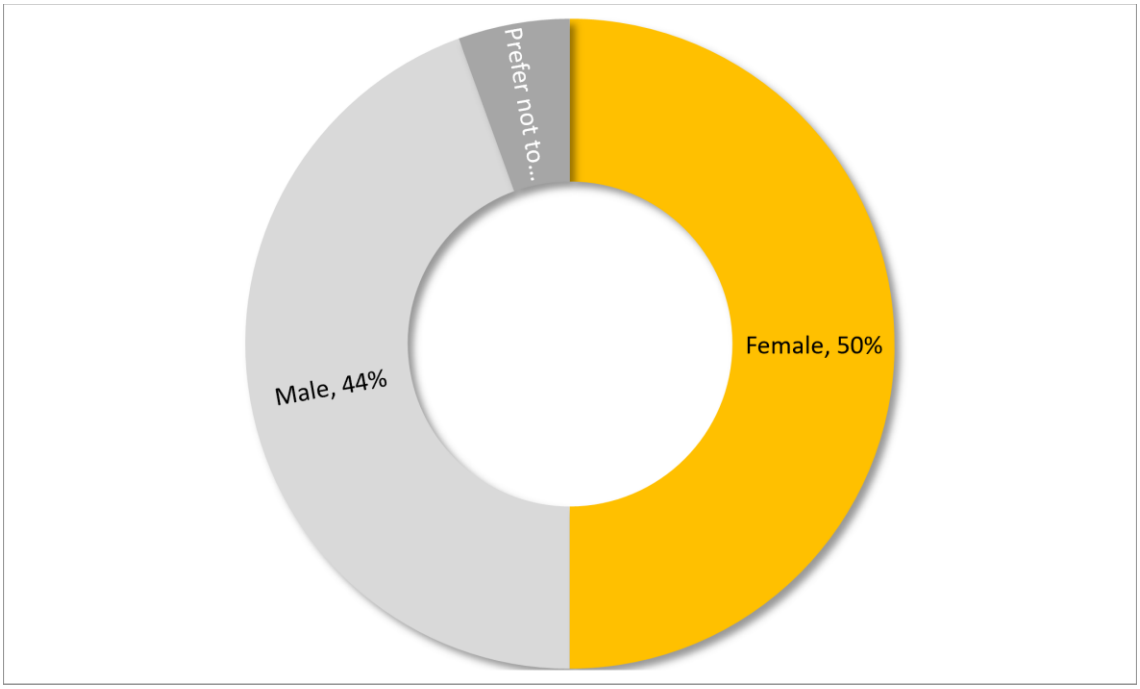
| Respondents | Response Date | Responses |
|---|---|---|
| 1 | Oct 03 2020 | Love Bagels Plus and Beijing House :) |
| 2 | Sep 25 2020 | Pedestrians do not cross at corners |
| 3 | Sep 23 2020 | It feels very congested, because everything seems so close together, crowded. And with so many pedestrians and cyclists, it's nerve racking to drive there. There need to be more options for walkers and riders. |
| 4 | Sep 21 2020 | Better Lighting |
| 5 | Sep 16 2020 | stop catering to cars, people that walk, ride a bus, ride a bike are people too. their lives matter. |
| 6 | Sep 14 2020 | The timing of the lights as you approach 275 , Florida ave, and Nebraska avenue |
| 7 | Sep 14 2020 | I did take the bus (Route 33) along this section of Fletcher once (pick up at Rome and drop off at N Blvd) and had a generally positive experience. |
| 8 | Sep 12 2020 | A lot of foot traffic east and west of Nebraska on Fletcher along with those vehicles trying to get into position to get onto I275 causes confusion. Perhaps more clearly designated drive, crossing areas, I'm not so sure the flashing pedestrian lights are sufficient. |
| 9 | Sep 11 2020 | Since Fletcher provides Interstate access, the signals between Florida and Nebraska are heavily utilized and at total capacity. Improved movements through here would be great as it takes multiple light phases to get through the intersections. Always backed up. |
| 10 | Sep 09 2020 | Don't let Flick do the design. His design didn't work just East of there. He also ignored AASHTO guidelines and recommendations. |

Note: 9 respondents skipped this question.

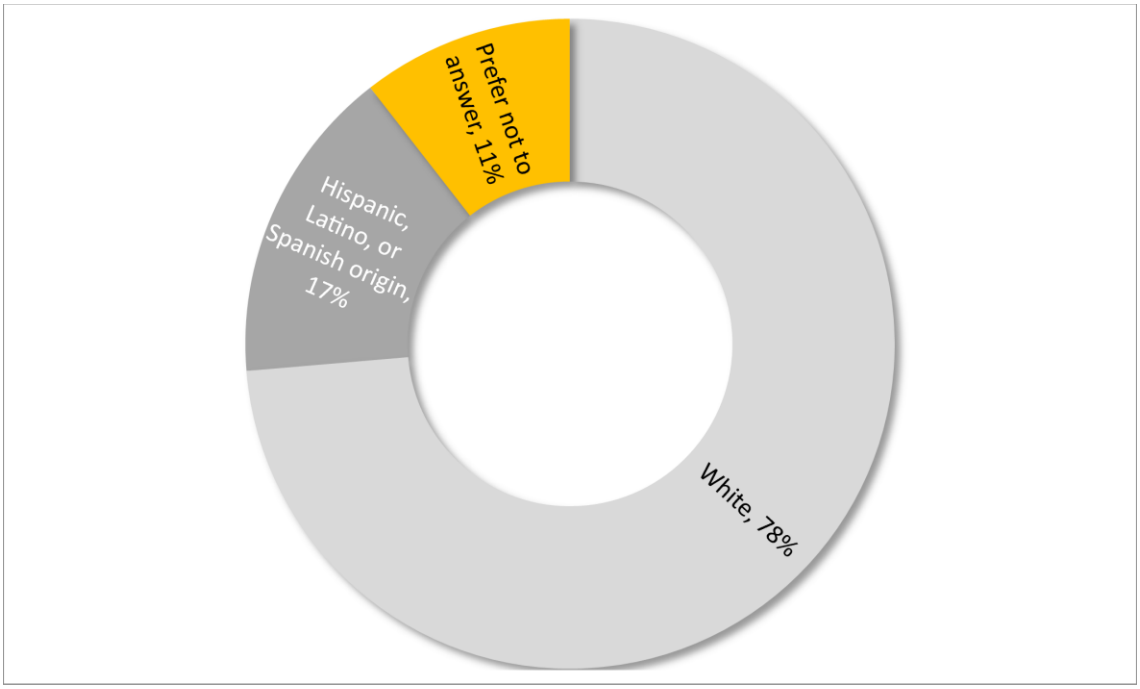
**Q10: What is your age?**



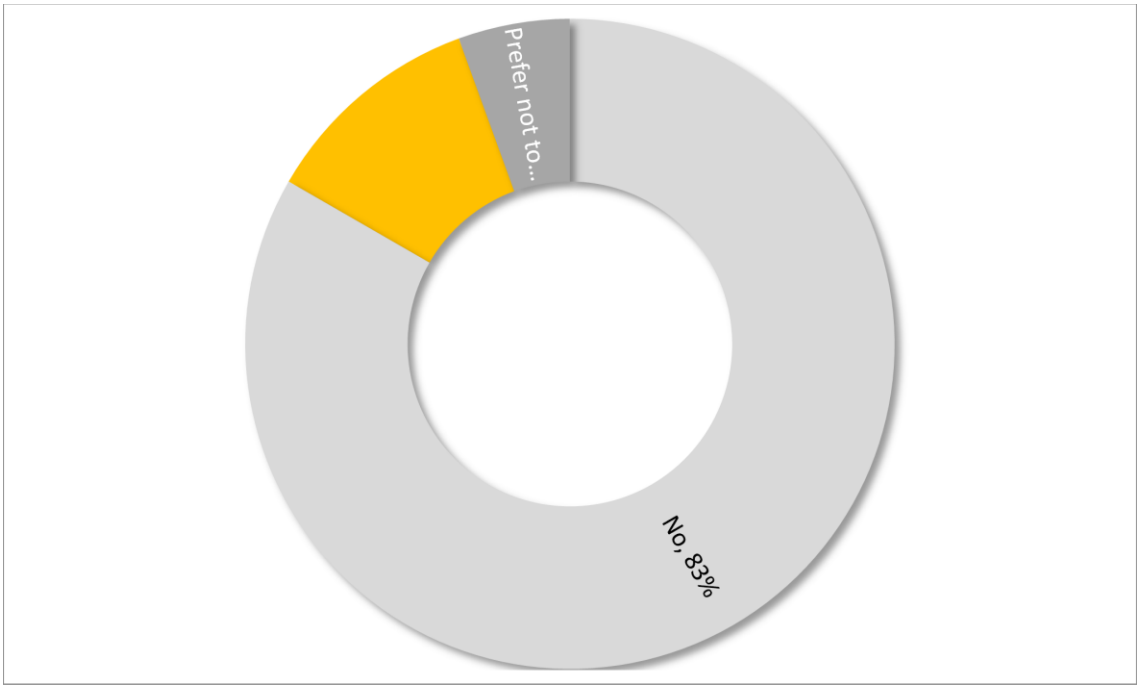

**Q11: How do you describe your gender?**



**Q12: What is your race?**



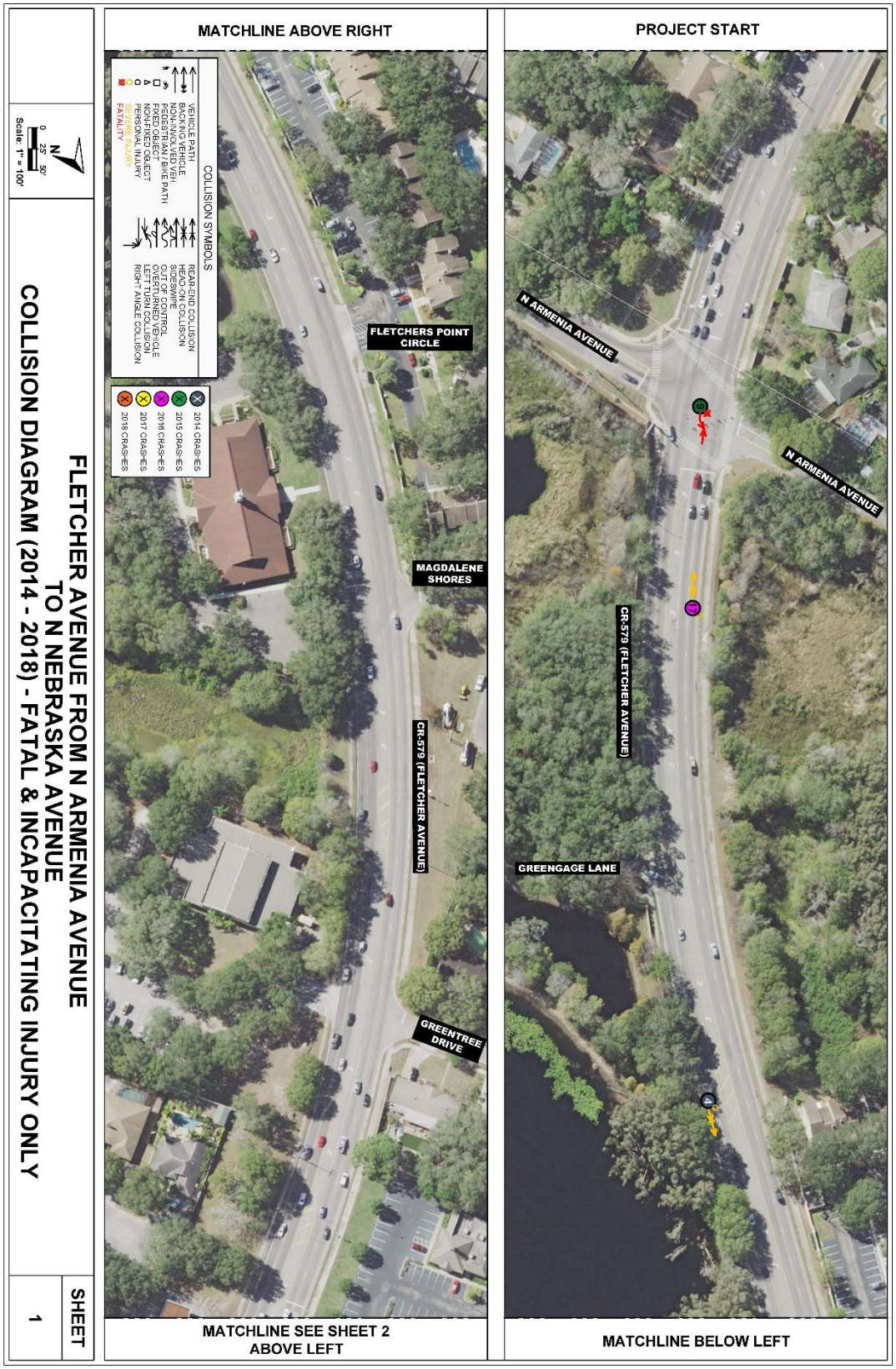

**Q13: Do you speak a language other than English at home?**



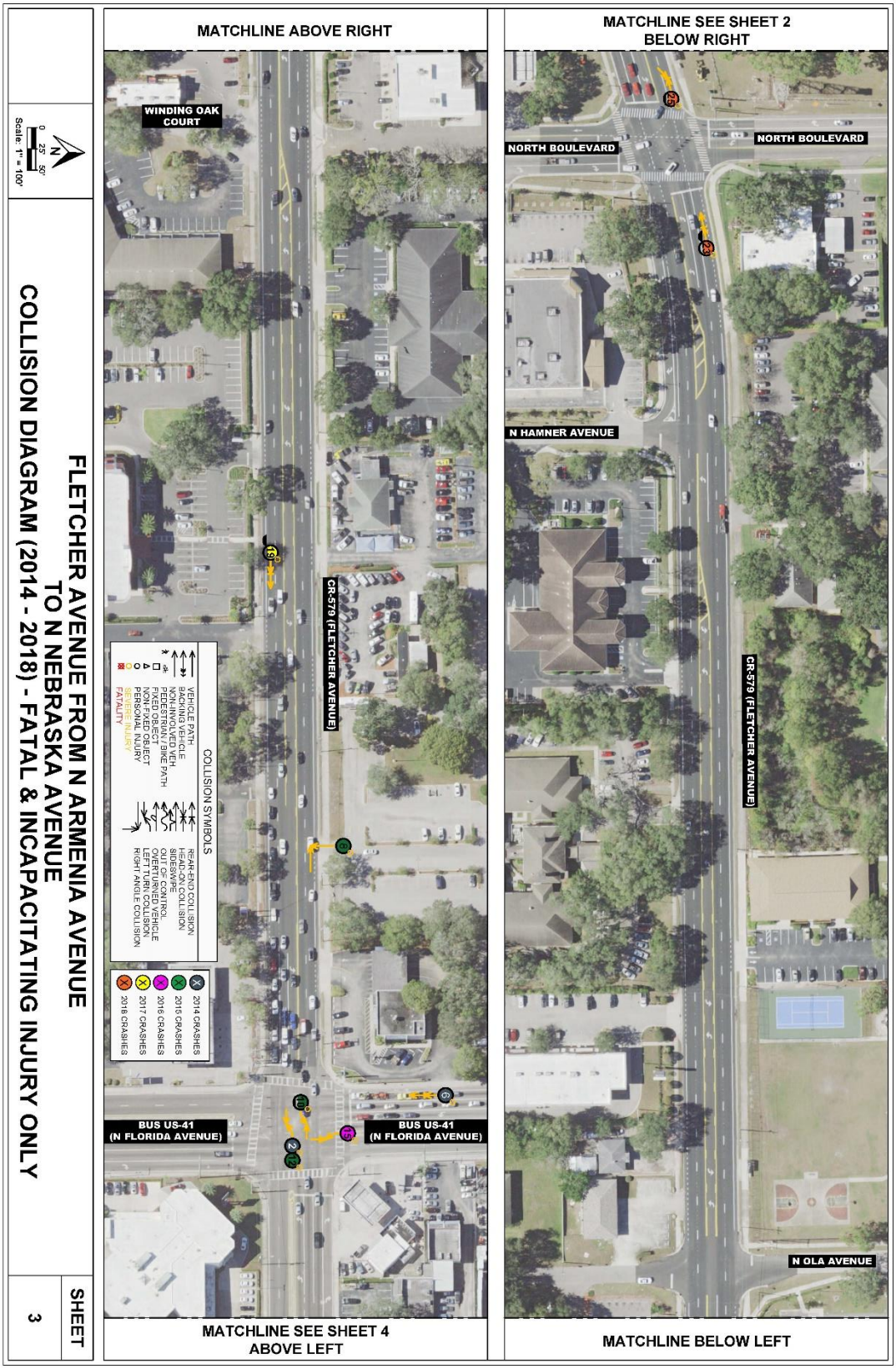
# Appendix B: Severe Injury Crash Collision Diagrams

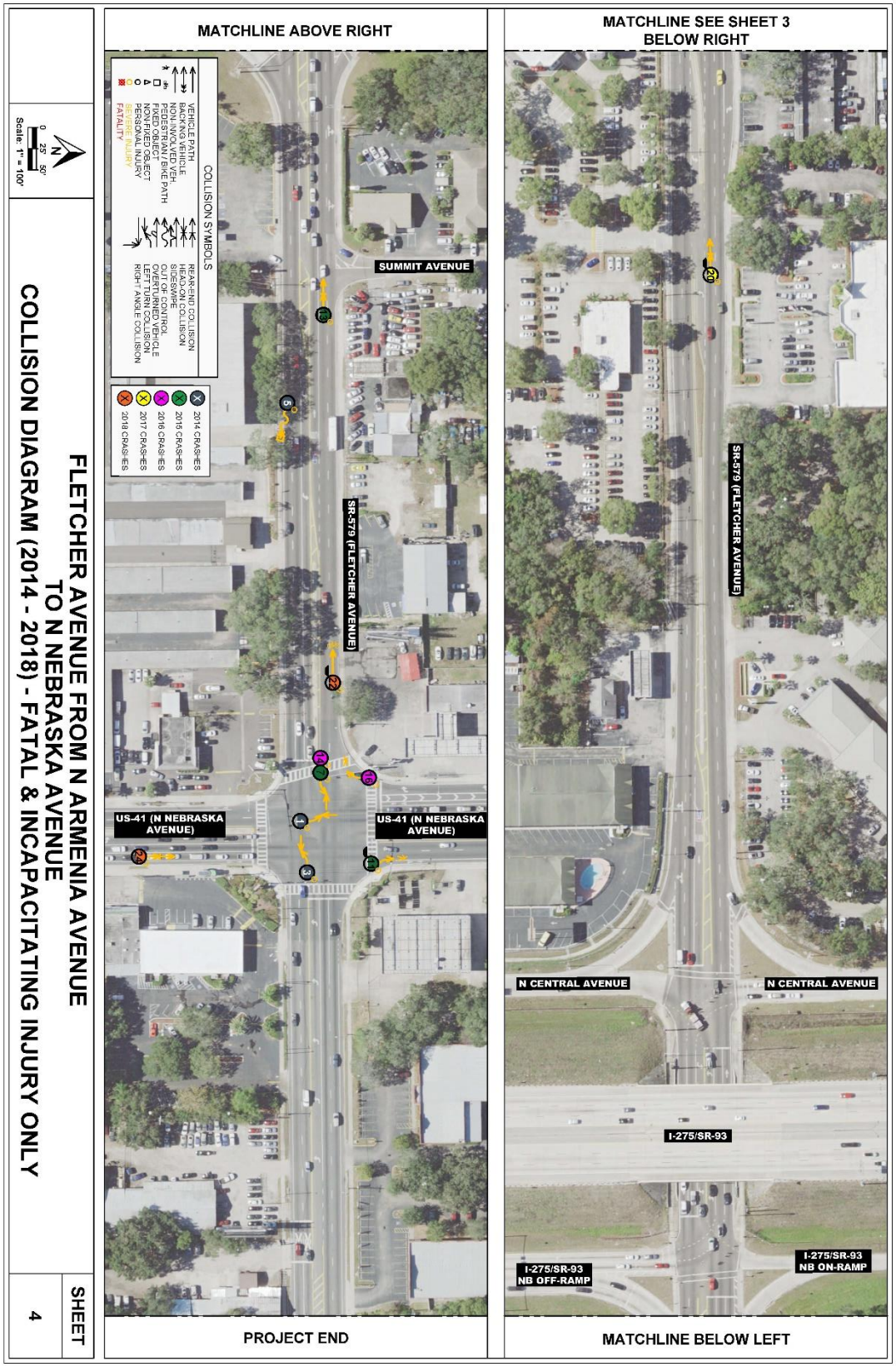
**Crash Diagram Summary Table**

| ID | Date | Day | Time | Crash Type | Contributing Cause |
|---|---|---|---|---|---|
| 1 | 2/8/14 | Saturday | 2215 | Left Turn | Ran Red Light |
| 2 | 3/2/14 | Sunday | 1440 | Left Turn | Failed to Yield Right-of-Way |
| 3 | 3/29/14 | Saturday | 2235 | Left Turn | Not Coded |
| 4 | 5/15/14 | Thursday | 0805 | Rear End | Operated MC in Careless or Negligent Manner |
| 5 | 10/15/14 | Wednesday | 1258 | Hit Fixed Object | Operated MC in Careless or Negligent Manner |
| 6 | 12/30/14 | Tuesday | 1309 | Rear End | Operated MC in Careless or Negligent Manner |
| 7 | 2/8/15 | Sunday | 1539 | Left Turn | Failed to Yield Right-of-Way |
| 8 | 6/8/15 | Monday | 1617 | Angle | Failed to Yield Right-of-Way |
| 9 | 6/12/15 | Friday | 1540 | Left Turn | Failed to Yield Right-of-Way |
| 10 | 6/21/15 | Sunday | 1211 | Left Turn | Failed to Yield Right-of-Way |
| 11 | 7/31/15 | Friday | 0635 | Pedestrian | No Contributing Action |
| 12 | 10/23/15 | Friday | 0457 | Left Turn | Failed to Yield Right-of-Way |
| 13 | 11/17/15 | Tuesday | 1210 | Rear End | Operated MC in Careless or Negligent Manner |
| 14 | 4/21/16 | Thursday | 2238 | Left Turn | Failed to Yield Right-of-Way |
| 15 | 7/31/16 | Sunday | 0006 | Left Turn | Not Coded |
| 16 | 8/6/16 | Saturday | 2035 | Pedestrian | Other Contributing Actions |
| 17 | 12/2/16 | Friday | 1907 | Rear End | Operated MC in Careless or Negligent Manner |
| 18 | 12/26/16 | Monday | 0914 | Left Turn | Improper Passing |
| 19 | 4/13/17 | Thursday | 0835 | Rear End | Operated MC in Careless or Negligent Manner |
| 20 | 5/1/17 | Monday | 1445 | Rear End | Followed too Closely |
| 21 | 6/26/17 | Monday | 1640 | Left Turn | Failed to Yield Right-of-Way |
| 22 | 3/4/18 | Sunday | 1935 | Bike | No Contributing Action |
| 23 | 3/13/18 | Tuesday | 1908 | Rear End | Operated MC in Careless or Negligent Manner |
| 24 | 7/23/18 | Monday | 1642 | Rear End | Operated MC in Careless or Negligent Manner |
| 25 | 8/7/18 | Tuesday | 1825 | Head On | Wrong Side of Wrong Way |
| 26 | 10/9/18 | Tuesday | 1637 | Right Turn | Failed to Yield Right-of-Way |


PROJECT START
MATCHLINE ABOVE RIGHT
N ARMENIA AVENUE
N ARMENIA AVENUE
CR-579 (FLETCHER AVENUE)
GREENGAGE LANE
FLETCHERS POINT CIRCLE
MAGDALENE SHORES
CR-579 (FLETCHER AVENUE)
GREENTREE DRIVE
COLLISION SYMBOLS
VEHICLE PATH
BACKING VEHICLE
BICYCLE/PEDESTRIAN PATH
PEDESTRIAN/BIKE PATH
FIXED OBJECT
NON-FIXED OBJECT
PERSONAL INJURY
FATALITY
REAR-END COLLISION
HEAD-ON COLLISION
SIDESWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
2014 CRASHES
2015 CRASHES
2016 CRASHES
2017 CRASHES
2018 CRASHES
MATCHLINE SEE SHEET 2
ABOVE LEFT
MATCHLINE BELOW LEFT
N
0 25 50'
Scale: 1" = 100'
FLETCHER AVENUE FROM N ARMENIA AVENUE
TO N NEBRASKA AVENUE
COLLISION DIAGRAM (2014 - 2018) - FATAL & INCAPACITATING INJURY ONLY
SHEET
1


MATCHLINE ABOVE RIGHT
MATCHLINE SEE SHEET 1
BELOW RIGHT
EDITH STREET
CR-579 (FLETCHER AVENUE)
N ROME AVENUE
N ROME AVENUE
N OREGON AVENUE
FOREST HILLS DRIVE
BUTLER LAKE ROAD
2014 CRASHES
2015 CRASHES
2016 CRASHES
2017 CRASHES
2018 CRASHES
COLLISION SYMBOLS
VEHICLE PATH
PEDALCYCLE
MOTOR VEHICLE
NON-MOTOR VEHICLE
PEDESTRIAN / BIKE PATH
FIXED OBJECT
PARKED OBJECT
FATALITY
SERIOUS INJURY
REAR-END COLLISION
HEAD-ON COLLISION
SIDESWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
MATCHLINE SEE SHEET 3
ABOVE LEFT
MATCHLINE BELOW LEFT
Scale: 1" = 100'
FLETCHER AVENUE FROM N ARMENIA AVENUE
TO N NEBRASKA AVENUE
COLLISION DIAGRAM (2014 - 2018) - FATAL & INCAPACITATING INJURY ONLY
SHEET
2


MATCHLINE ABOVE RIGHT
MATCHLINE SEE SHEET 2
BELOW RIGHT
WINDING OAK COURT
NORTH BOULEVARD
NORTH BOULEVARD
N HAMNER AVENUE
CR-579 (FLETCHER AVENUE)
CR-579 (FLETCHER AVENUE)
N OLA AVENUE
BUS US-41
(N FLORIDA AVENUE)
BUS US-41
(N FLORIDA AVENUE)
COLLISION SYMBOLS
VEHICLE PATH
BACKING VEHICLE
BICYCLE/PEDESTRIAN PATH
PEDESTRIAN/BIKE PATH
FIXED OBJECT
NON-FIXED OBJECT
PERSONAL INJURY
FATALITY
REAR-END COLLISION
HEAD-ON COLLISION
SIDESWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
2014 CRASHES
2015 CRASHES
2016 CRASHES
2017 CRASHES
2016 CRASHES
MATCHLINE SEE SHEET 4
ABOVE LEFT
MATCHLINE BELOW LEFT
Scale: 1" = 100'
0 25 50'
N
FLETCHER AVENUE FROM N ARMENIA AVENUE
TO N NEBRASKA AVENUE
COLLISION DIAGRAM (2014 - 2018) - FATAL & INCAPACITATING INJURY ONLY
SHEET
3


MATCHLINE ABOVE RIGHT
MATCHLINE SEE SHEET 3
BELOW RIGHT
COLLISION SYMBOLS
VEHICLE PATH
PARKED VEHICLE
MOVING VEHICLE
PEDESTRIAN/BIKE PATH
FIXED OBJECT
NON-FIXED OBJECT
SEVERE/SERIOUS INJURY
FATALITY
REAR-END COLLISION
HEAD-ON COLLISION
SIDESWIPE
CUT OR CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
2014 CRASHES
2015 CRASHES
2016 CRASHES
2017 CRASHES
2018 CRASHES
SUMMIT AVENUE
SR-579 (FLETCHER AVENUE)
US-41 (N NEBRASKA AVENUE)
US-41 (N NEBRASKA AVENUE)
SR-579 (FLETCHER AVENUE)
N CENTRAL AVENUE
N CENTRAL AVENUE
I-275/SR-93
I-275/SR-93 NB OFF-RAMP
I-275/SR-93 NB ON-RAMP
PROJECT END
MATCHLINE BELOW LEFT
N
0
25
50
Scale: 1" = 100'
FLETCHER AVENUE FROM N ARMENIA AVENUE
TO N NEBRASKA AVENUE
COLLISION DIAGRAM (2014 - 2018) - FATAL & INCAPACITATING INJURY ONLY
SHEET
4

# Appendix C: Countermeasure Planning Cost Estimates

## Vision Zero Corridors – Fletcher Avenue

### Planning Level Cost Estimate Assumptions

| Countermeasure | Planning-Level Cost Estimate |
|---|---|
| Sidewalk Maintenance (various locations) | $20,000 |
| Curb ramp reconstruction (various locations, primarily along the north side of Fletcher Ave) | $20,000 |
| 4-Section FYA Left Turn Signals | $10,000 |
| 3-Section Traffic Signals | $10,000 |
| Polycarbonate Signal Backplates | $15,000 |
| Mid-Block Crosswalk | $125,000 - $200,000 |
| New Traffic Signal (Mast-Arm Assembly) | $275,000 - $300,000 |
| Raised Median Islands | $600,000 - $700,000 |
| Traffic Signal Timing Study | $100,000 |
| Traffic Signal Warrant Study | $100,000 |
| Nebraska Ave Intersection Improvements | $25,000 |
| | |
| **TOTAL COST ESTIMATE** | **$1,300,000 - $1,500,000** |