



PREPARED BY

**Mead
& Hunt**

Road Safety Assessment

SC 48 (Assembly Street) from Elmwood Avenue to Rosewood Drive



May 2024



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1. Introduction

1.1 Background

SC 48 (Assembly Street) is in Richland County within the city limits of Columbia, South Carolina. It provides a direct north-south access to South Carolina's State House and the main campus for the University of South Carolina. It is a vital corridor that supports commerce, special events, commuters, tourism, retail, and recreation.

The corridor selected for this Road Safety Audit is from Mile Point 0.00, or Elmwood Avenue (US 21), to Mile Point 2.50, or Rosewood Drive (SC 16), for 2.5 miles. It can be divided into three general sections:

- Elmwood Avenue to Gervais Street – Business/Retail District
- Gervais Street to Heyward Street – Campus
- Heyward Street to Rosewood Avenue – Light Industrial

According to data provided by SCDOT, there have been 1,603 crashes recorded from January 2018 to December 2022. 34 of the crashes involved a pedestrian.

1.2 Objective

Road Safety Audits (RSA) are a formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team.

It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. During the audit the team identifies areas of concern based on crash data analysis and observations in the field. After the field visit, the team categorizes potential areas of improvement along the study corridor.

The RSA report along with the 'Conceptual Improvement Plans' for safety improvements, which include both corridor-wide and location-specific recommendations, are considered high level conceptual alternatives that include both short-term, mid-term, and long-term improvements and their estimated costs to implement. This document and the proposed improvements should be used as a planning level tool for all agencies and stakeholders for consideration if a project is to be programmed and funded in the future. Additionally, if future projects are programmed based on this document, as scoping, designs and budgets are proposed, the concepts depicted in this report may be revised, altered, removed, or delayed based on the scope, design, and budget of that potential project. The owner of this RSA report, SCDOT, also does not guarantee any future project nor any specific countermeasure as shown. Past, present, and future collaboration with all stakeholders is appreciated and will go a long way in helping make South Carolina roads safety for all users.

1.3 Road Safety Assessment Team Summary

The multidisciplinary team for the SC 48 (Assembly Street) road safety assessment consisted of engineers from the South Carolina Department of Transportation (SCDOT), Mead & Hunt, AMT, and the Federal Highway Administration (FHWA). The City of Columbia's Department of Traffic Safety Unit provided representation from traffic enforcement. The team and stakeholders met on Wednesday, April 5, 2023 and Thursday, April 6, 2023. Sign-in sheets for both meetings are in Appendix A.

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FIGURE 1: PRE-AUDIT MEETING

RSA Team

- | | |
|---|--|
| 1. Gene Taylor – SCDOT | 8. Josh Coulson – Mead & Hunt |
| 2. Robbie Amick - SCDOT | 9. Carol Jones – Mead & Hunt |
| 3. Shawn Sally – SCDOT | 10. Jennifer Satterthwaite – Mead & Hunt |
| 4. Evan Johnson – SCDOT – District 1 | 11. Chris Ulmer – AMT |
| 5. Carolyn Fisher – FHWA | 12. Nick Matthews - AMT |
| 6. Sergeant Robert Uhall – City of Columbia Police Department | |
| 7. Tony Fallaw – Mead & Hunt | |

The stakeholders consisted of additional representation from the City of Columbia, Richland County, and SCDOT.

- | | |
|----------------------------------|--|
| 13. Kaylon Meetze – SCDOT | 18. Lucinda Statler – City of Columbia |
| 14. Doug Giovanetti – SCDOT | 19. Leigh DeForth – City of Columbia |
| 15. Isaiah Bowman – SCDOT | 20. Amy Johnson Ely - PCC Executive Director |
| 16. Duncan Smith – SCDOT | 21. Emily Jones – USC Facilities |
| 17. Adam Hixon – Richland County | |

2. Relevant Data Review

2.1 Site Characteristics

Assembly Street is a part of the National Highway System and is classified as an Urban Principal Arterial from Elmwood Avenue to Blossom Street. It's classification changes to an Urban Minor Arterial from Blossom Street to Rosewood Avenue. A map of the Assembly Street study corridor is shown in Figure 2.

The road characteristics are as follows:

- **Elmwood Avenue to Calhoun Street:** 7-lane divided roadway with a raised landscaped median
- **Calhoun Street to Laurel Street:** 6-lane divided roadway with a raised landscaped median
- **Laurel Street to Taylor Street:** 7-lane divided roadway with a raised concrete median
- **Taylor Street to Pendleton Street:** 6-lane divided roadway with a combination raised concrete/landscaped median with on-street parking
- **Pendleton Street to Blossom Street:** 6-lane divided roadway with raised landscaped median
- **Blossom Street to Wheat Street:** 4-lane divided roadway with a raised concrete median
- **Wheat Street to Catawba Street:** 4-lane divided roadway with a two-way left turn lane
- **Catawba Street to Whaley Street:** 4-lane non-divided roadway
- **Whaley Street to Rosewood Drive:** 6-lane non-divided roadway

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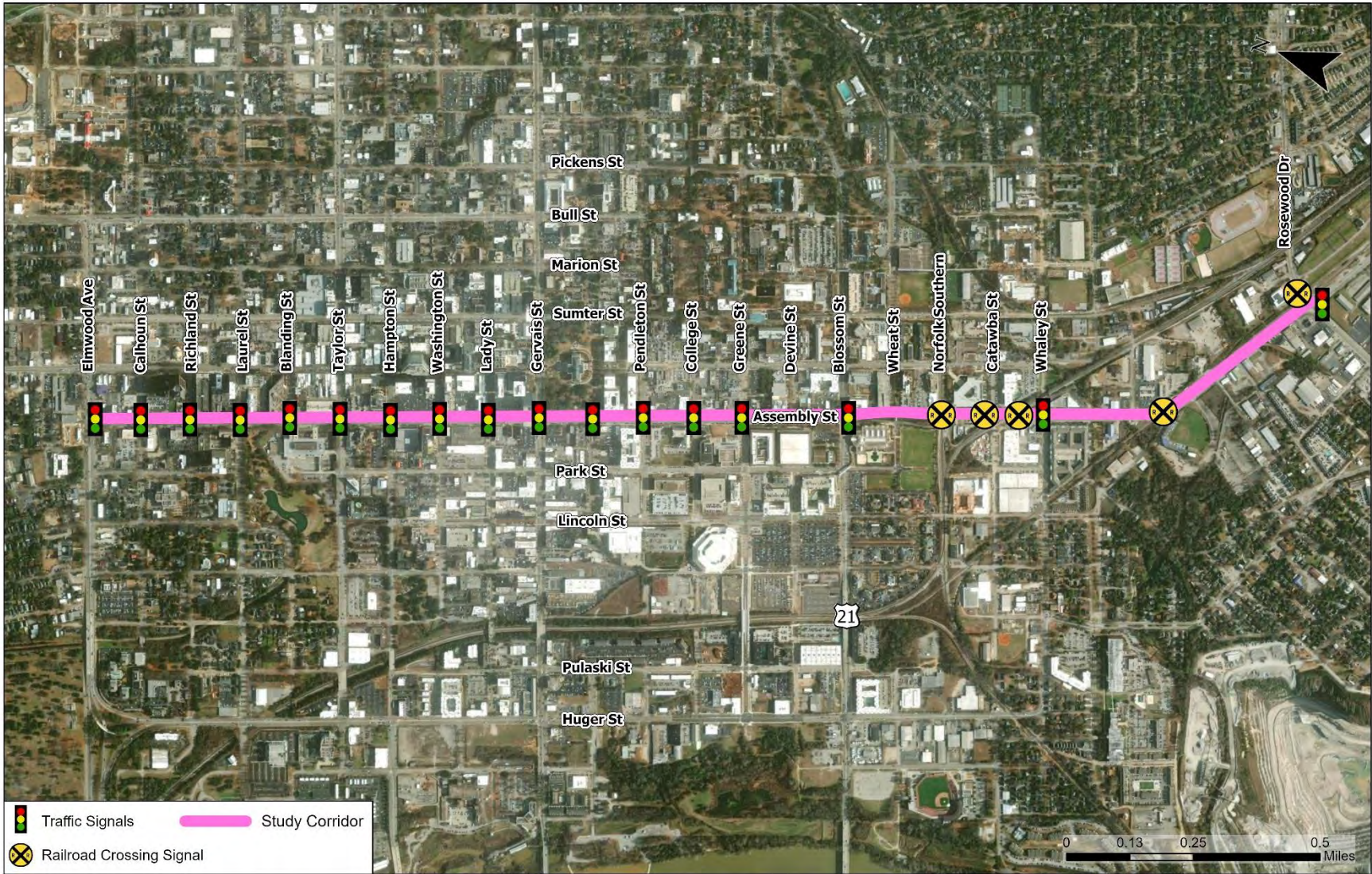


FIGURE 2: STUDY AREA MAP

2.2 Crash Data

Crash data for this section of roadway was obtained by SCDOT over a 5-year period from January 1, 2018 to December 31, 2022, with a full summary in Appendix B. There have been 1,603 crashes along this corridor during the 5-year period. Based on this data, the predominant type of crash was rear-end collisions accounting for 508 crashes, or 31.7% of all crashes. This was followed by left-turn crashes (336 crashes, 21%), angle crashes (296 crashes, 18.5%), sideswipe crashes (284 crashes, 17.7%), and head-on crashes (27, 1.7%). Of the 1,603 crashes, 16.9% involved some type of injury. There were 34 pedestrian crashes and 8 crashes involving bicycles.

There was 1 collision resulting in a fatality. The most prevalent crash type is non-injury or property damage only (PDO) at 83.1% of all crashes. This is followed by a possible injury at 13.0% of the crashes. The remaining crashes fall into the injury categories of non-incapacitating injury at 3.2%, incapacitating injury at 0.6%, and a fatality at <1%.

72.9% (1,169) of the crashes occurred during the day, with 27.1% (434) occurring at night. Crashes were more prevalent on weekdays with no observed major peaks from Monday through Friday. Crashes occurred most frequently between the hours of 12:00 PM through 5:00 PM. The RSA field review was conducted on Wednesday, April 5, 2023 and Thursday, April 6, 2023.

2.3 Speed Data

Speeding can be one of the most prevalent factors contributing to crashes. As part of this road safety assessment, a speed study was conducted on March 29, 2023 to evaluate observed speeds compared to posted speed limit. A total of 3 locations were evaluated along the corridor. Location 1 was between Laurel Street and Blanding Street. Location 2 was between Gervais Street and Pendleton Street. Location 3 was between Heyward Street and Dreyfuss Road. Over 200 samples were collected per study location. The study was conducted in the morning between 10:00 AM and 11:00 AM. The speed data gathered can be found in Appendix D. It was noted during Pre Audit Meeting that there was a significant detour in place during the time of the speed study and it was suggested the additional traffic could have influenced the results of the study.

Figure 3 shows the location for each study.

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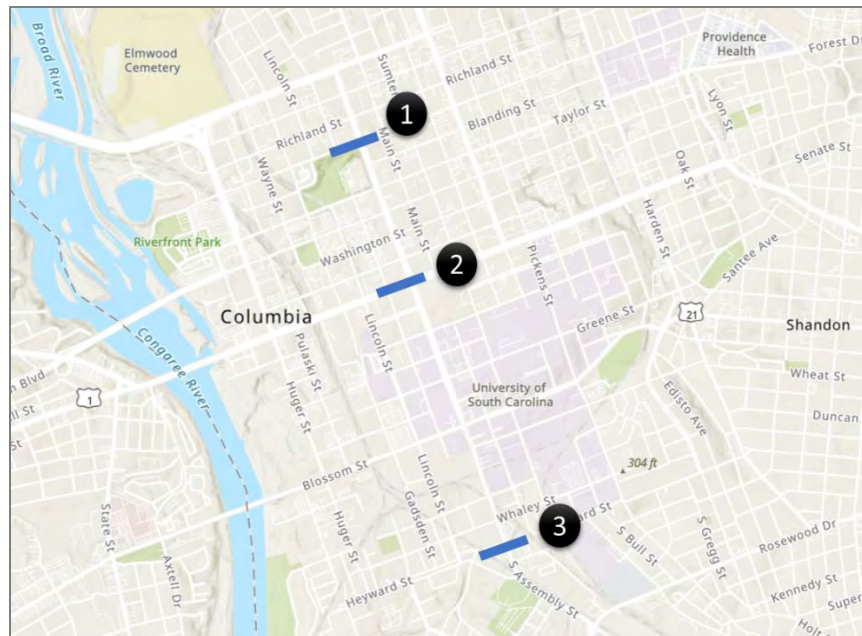


FIGURE 3: SPEED STUDY LOCATIONS

Figure 4, Figure 5, and Figure 6 show the distribution of speed compared to the posted speed limit for each location. The posted speed in the study area was 35 mph for the entire length of the corridor. For Locations 1 and 2, the study shows that the average speed and 85th percentile speeds of vehicles were less than the posted speed limit. Location 3 shows that the average speed and 85th percentile speeds were higher than the posted speed limit.

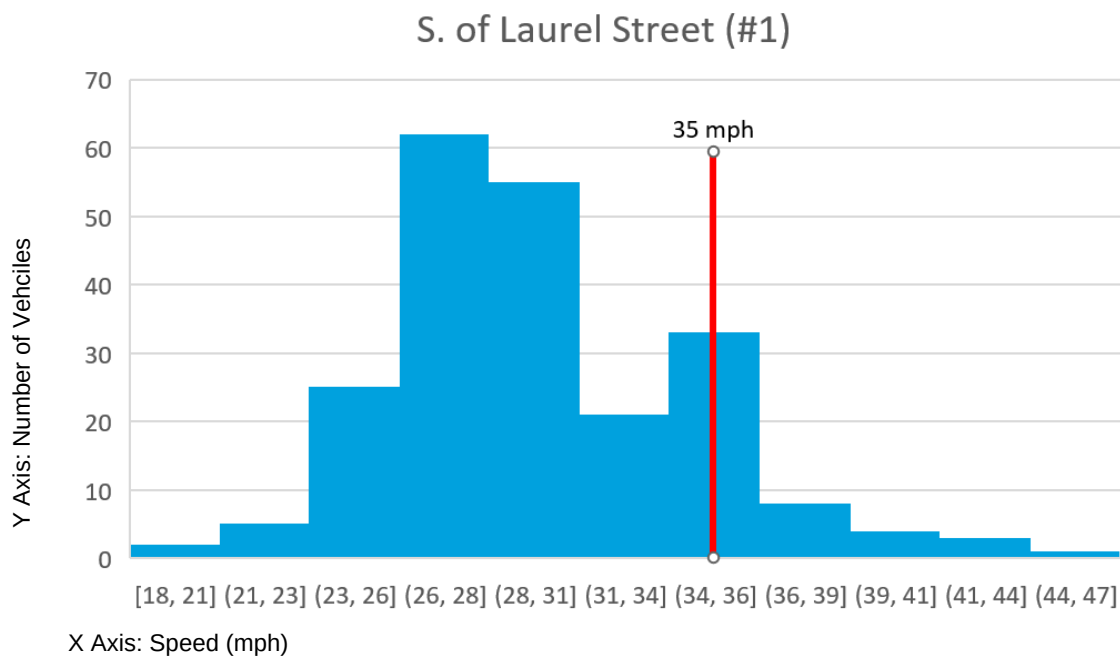


FIGURE 4: SPEED STUDY – LOCATION 1

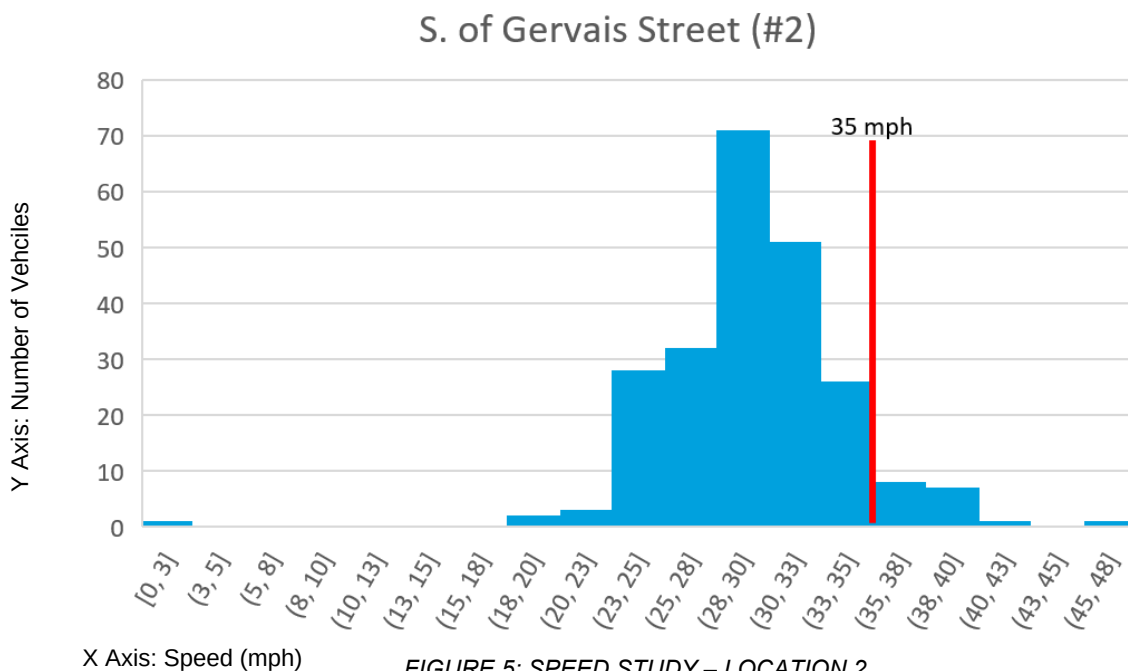


FIGURE 5: SPEED STUDY – LOCATION 2

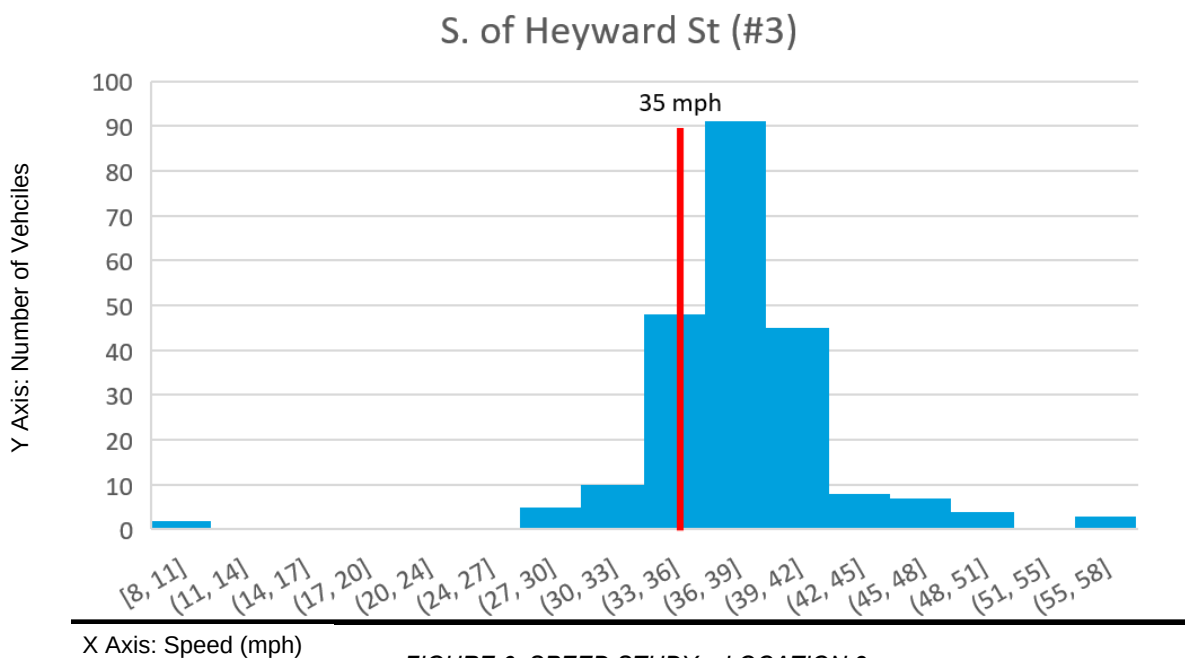


FIGURE 6: SPEED STUDY – LOCATION 3

In addition to the speed study, INRIX speed data from October 2022 was analyzed and compared to the results of the speed study. This data is used to gauge the average time it takes for motorists to travel through the corridor. Average speeds derived from INRIX data are influenced by congestion and signal coordination. Average speeds were evaluated during the AM Peak, PM Peak and Off-Peak hours. The INRIX data appeared to correlate with the results of the speed study. The INRIX data showed that the average travel speeds for the AM peak, PM peak and Off peak hours were lower than the posted speed

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limit from Elmwood Avenue to Blossom Street. The only location where average travel speeds approached the posted limit is in the southbound direction from Blossom Street to Rosewood Drive.

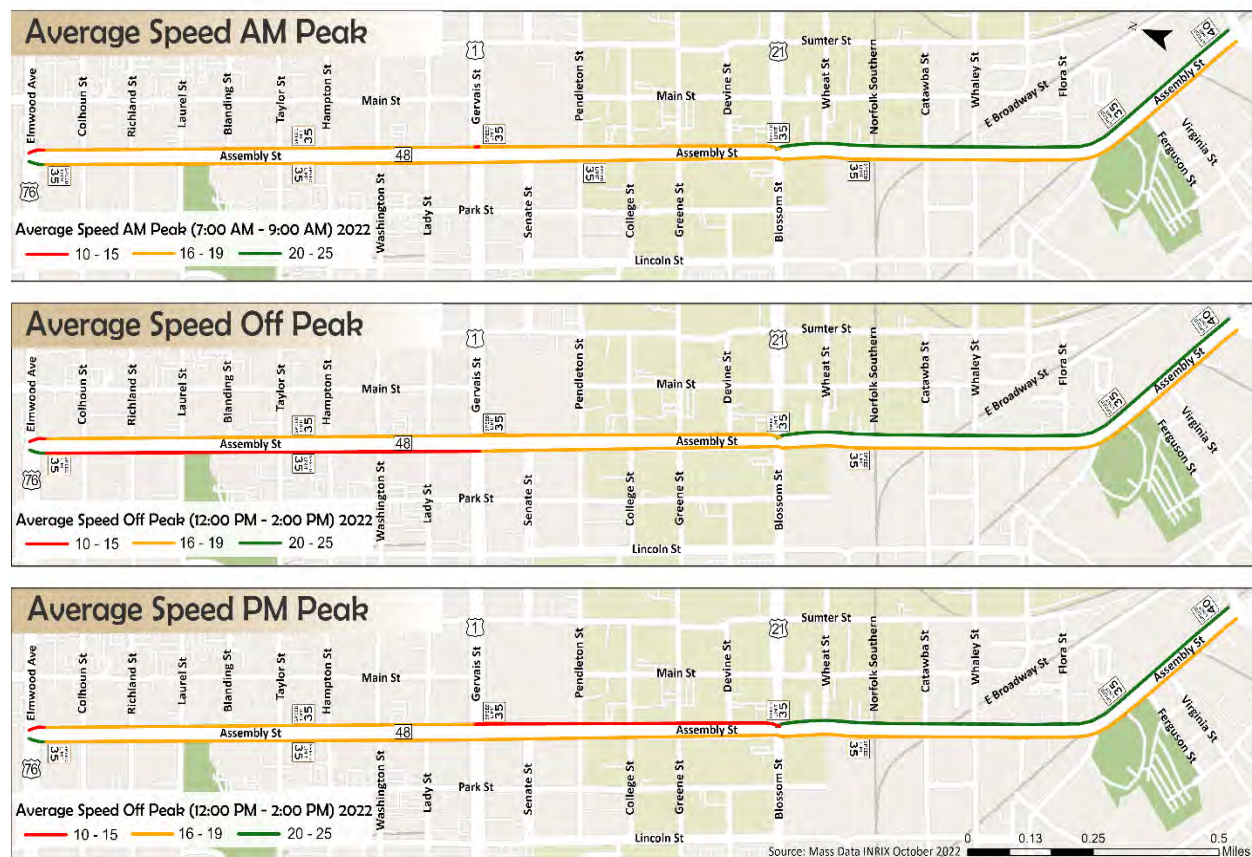


FIGURE 6.1: INRIX SPEED DATA

There are countermeasures that can be taken to deter speeding along this corridor. A more visible presence of law enforcement in the area may reduce the average speed. In addition, ensuring that speed limit signs are posted and visible at appropriate intervals along the roadway may also help control speed. Speeds should continue to be monitored along the corridor to determine if countermeasures are warranted.

2.4 Volume Data

Vehicle, bicycle and pedestrian counts were performed at several locations along the corridor. The locations of the counts are shown in Figure 7. Vehicle count locations are shown with a blue line and pedestrian/bicycle locations are shown with a red line.

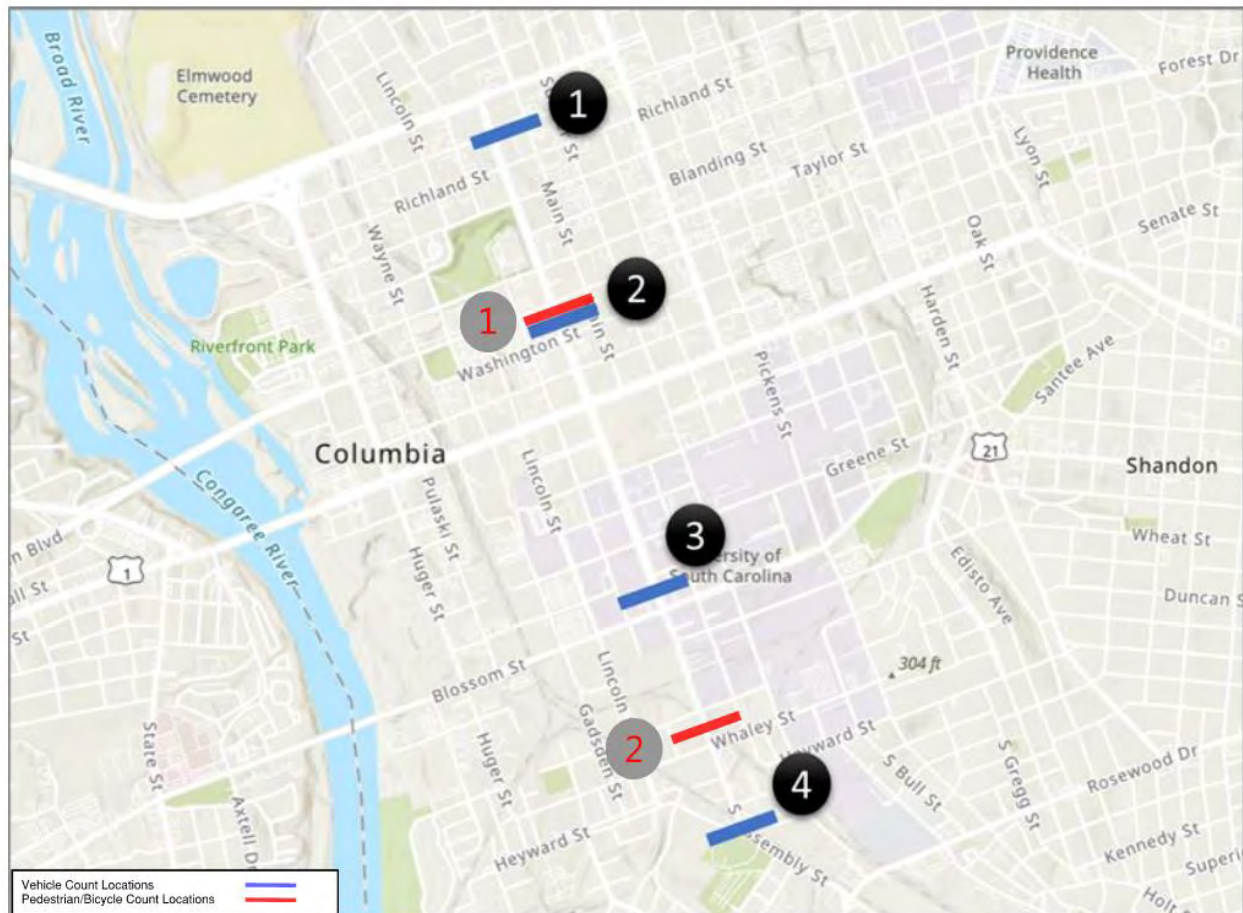


FIGURE 7: VEHICLE AND PEDESTRIAN / BICYCLE COUNT LOCATIONS

SCDOT has four count stations along Assembly Street between the following cross streets. The 2022 average daily traffic for each count station are as follows:

- Station 1 (Blue)** Calhoun Street and Richland Street: 20,500
- Station 2 (Blue)** Hampton Street and Washington Street: 20,800
- Station 3 (Blue)** Street and Blossom Street: 22,000
- Station 4 (Blue)** Dreyfuss Road and Ferguson Street: 21,900

The City of Columbia provided bike and pedestrian counts at two locations along Assembly Street. A map of the Pedestrian and Bicycle counts locations is shown in blue on Figure 7. In 2021 the City of Columbia provided an estimated daily average of 1,582 pedestrians and 23 bicycles between Washington Street and Hampton Street. The study noted that the number of pedestrians observed doubled on the weekends. Hourly counts at this location were provided on three separate dates.

Station 1 (Red)

- **Saturday, April 9, 2022:** 77 pedestrians and 1 bicyclist were recorded along the sidewalk between the hours of 10:00 am and 12:00 pm. 5 jaywalkers were recorded crossing Assembly Street.
- **Thursday, September 15, 2022:** 74 pedestrians and 4 bicyclists were recorded along the sidewalk between the hours of 7:40 am and 9:40 am. 59 jaywalkers were recorded crossing

Assembly Street.

- **Tuesday, April 4, 2023:** 68 pedestrians and 5 bicyclists were recorded along the sidewalk between the hours of 7:45 am and 9:45 am. 21 jaywalkers were recorded crossing Assembly Street.

The City of Columbia also provided hourly counts between Whaley Street and Catawba Street.

Station 2 (Red)

- **Saturday, September 24, 2022:** 67 pedestrians and 4 bicyclists were recorded along the sidewalk between the hours of 10:00 am and 12:00 pm. 6 jaywalkers were recorded crossing Assembly Street.

2.5 Planned Improvements & Recent Studies

There are several planned projects along the corridor.

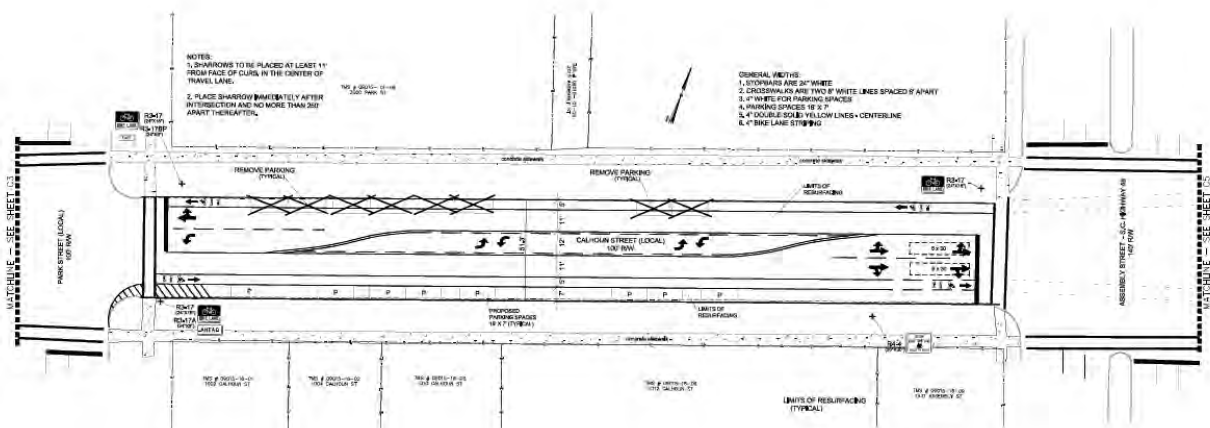
Whaley Street Resurfacing

Whaley Street is on SCDOT's 2025 resurfacing list. The City's plan calls for bike lanes along Whaley Street.

Calhoun Street Bike Facilities

The City of Columbia has installed the bicycle accommodations along Calhoun Street to include 5-foot bike lanes on both approaches to Assembly Street. Other improvements include resurfacing, new pavement markings, and related signage.

A portion of the plans within the are shown in Figure 8.



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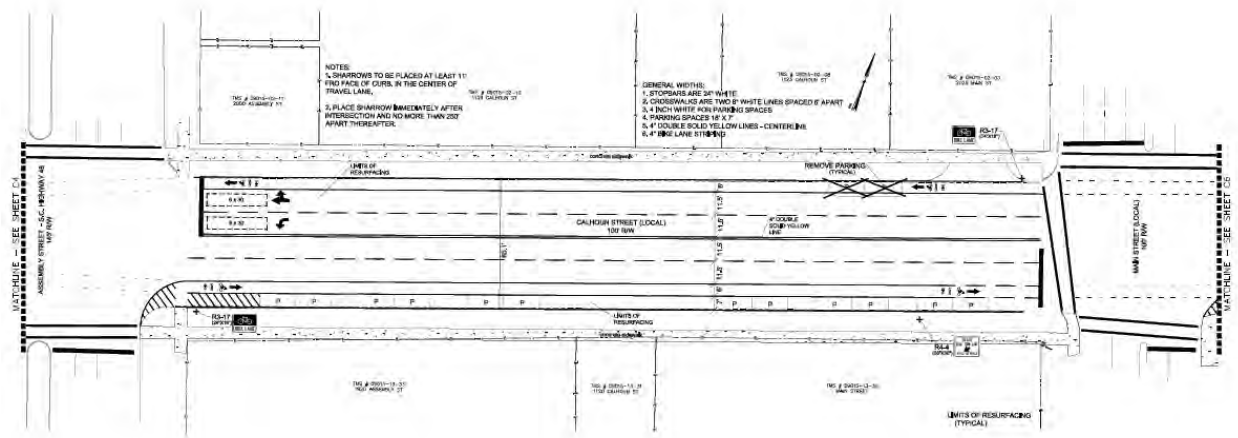


FIGURE 8: CALHOUN STREET BIKE LANE PROJECT

Rocky Branch Greenway

Richland County received assistance from EPA's Greening America's Communities program to visualize potential improvements to a city-owned parcel of land along the Rocky Branch, which runs east-west from the Five Points district in downtown to the Congaree River. This project fits into the larger vision for Columbia's Rocky Branch Greenway and is one of the last remaining stands of canopy trees and space for recreational use in the Capital City Mill District.

Richland County proposed Rocky Branch Greenway would enhance pedestrian and bicycle connectivity to the site from the Congaree River to north of the University of South Carolina's campus, while Assembly Street serves as the site's primary vehicular connection to downtown and beyond. Figure 9 shows potential improvements at the intersection of Dreyfus Road and Assembly Street.



FIGURE 9: DREYFUS ROAD AT ASSEMBLY STREET IMPROVEMENTS

Assembly Street Streetscape

The proximity of Assembly Street to both the government complex and the University has resulted in safety concerns that involve pedestrians, cyclists, and motor vehicles. Because the collision and incident rate are more frequent than other areas within the city, the City of Columbia is proposing to address these concerns with pedestrian lighting, revisions to the existing typical sections and parking locations, decreasing the longitudinal distance a pedestrian or cyclist is exposed to a vehicular travel lane, and installing traffic calming measures through the addition of landscaping and beautification elements. The City of Columbia proposes to improve pedestrian and cyclist safety along Assembly Street from Pendleton Street to Lady Street. The proposed project includes repairing/replacing existing sidewalks, removing median parking, creating a planted median, installing curb bump-outs and median shelters to reduce pedestrian crossing times, and installing lighting.

3. Findings and Recommendations

3.1 Positive Measures

- Roadway pavement markings are acceptable.
- Traffic signals spacing meet current Access and Roadway Manual Standards (ARMS).
- Based on average daily volumes and visual inspection, the corridor is under capacity.
- Most signals have standard crosswalk marking and pedestrian signal heads, and curb ramps.
- Grade-separated pedestrian crossings are present at Wheat Street and Greene Street.
- Green painted bike lanes through conflict areas are provided on the west leg of Greene Street.
- The corridor north of Blossom Street offers good connectivity between parcels and parallel routes with sidewalks present on both sides of the roadway.
- The completed streetscape project between Pendleton Street and Blossom Street has several safety features, including curb extensions, median pedestrian refuges, signal back plates, high contrast crosswalk treatments, and exclusive left turn lanes.

3.2 Corridor-Wide

Concerns:

- Long crossing distances at most intersections 100 feet to 120 feet result in increased pedestrian exposure.
- Although signals are timed to allow crossings within a single signal cycle, the long crossing distances result in pedestrians who fail to fully comply with traffic control devices being stranded in the median with no way to recall pedestrian phase in the subsequent cycle.
- Poor compliance with traffic signal control was observed with several near misses observed in the field.
- Sight distance for permissive left turn movements is limited by vertical curvature, median foliage, and offset left turn movements.
- The difficult nature of left turn gap identification and acceptance leads to poor yield compliance with pedestrian movements from left turning vehicles.
- Inconsistency with pedestrian recall.
- Lack of pedestrian infrastructure south of Blossom Street with clear pedestrian desire lines and elevated activity.
- 34 pedestrian crashes including 1 fatality.
- On-street parking

Corridor Wide Considerations

Short-Term:

- **Maintenance**
 - o Repair faulty push buttons at pedestrian crossings along Assembly St. (\$20,000)
- **Traffic Control**
 - o Install back plates on signal heads (\$73,000)
 - o Restripe all existing crosswalks with ladder style markings. Paint new crosswalks

per guidance in the following section (see section 3.3 for more details 3.3)
(\$12,000)

- o Remove pedestrian signal head obstructions or relocate signal heads when removal is not feasible (924,000)
- **Transit**
 - o Relocate bus stops closer to intersections to deter mid-block crossings (\$77,000)

Mid-Term:

- **Maintenance**
 - o Repair existing roadway lighting deficiencies (\$60,000)
 - o Update pedestrian crossings to meet ADA compliance standards (\$252,000)
- **Operations**
 - o Implement protected left turn phasing throughout the study area (\$280,000)
 - o Activate pedestrian recall and institute Leading Pedestrian Interval (LPI) phasing (\$140,000)
 - o Institute No Right Turn on Red (NRTOR) throughout study area (\$792,000)
 - o Adjust pedestrian clearance intervals (see section 3.3 for more details) (\$120,000)
 - o Provide a signal head for each lane (\$633,600)
 - o Standardize traffic signal operations (i.e., equipment placement, NEMA phasing) (\$660,000)
 - o Update traffic signal operations to meet MUTCD compliance standards (\$220,000)
- **Geometric Design**
 - o Construct median barrier (\$2,800,000)

Long-Term:

- **Geometric Design**
 - o Repurpose space along the corridor to improve pedestrian and bicycle infrastructure along the southern segment (\$1,056,000)
- **Operations**
 - o Install pedestrian push buttons in median refuges (\$46,000)
 - o Review future corridor lighting needs (\$4,680,000)
- **Traffic Control**
 - o Revise signal mounting and placement to improve signal conspicuity due to trees, grades, etc. (\$494,000)

3.3 Intersection-Specific Considerations

3.3.1 Assembly Street at Elmwood Avenue

Concerns:

- Major intersection with heavy traffic volumes and complex signal phasing
- Unsignalized commercial driveway ties into the signalized intersection
- Lack of pedestrian facilities on the west leg of the intersection
- Dual permissive turning movements across pedestrian crossings
- Unused pavement on the south leg expands pedestrian conflict zones
- Low utilization of the exclusive eastbound right turn lane observed during both the AM and PM peak hours



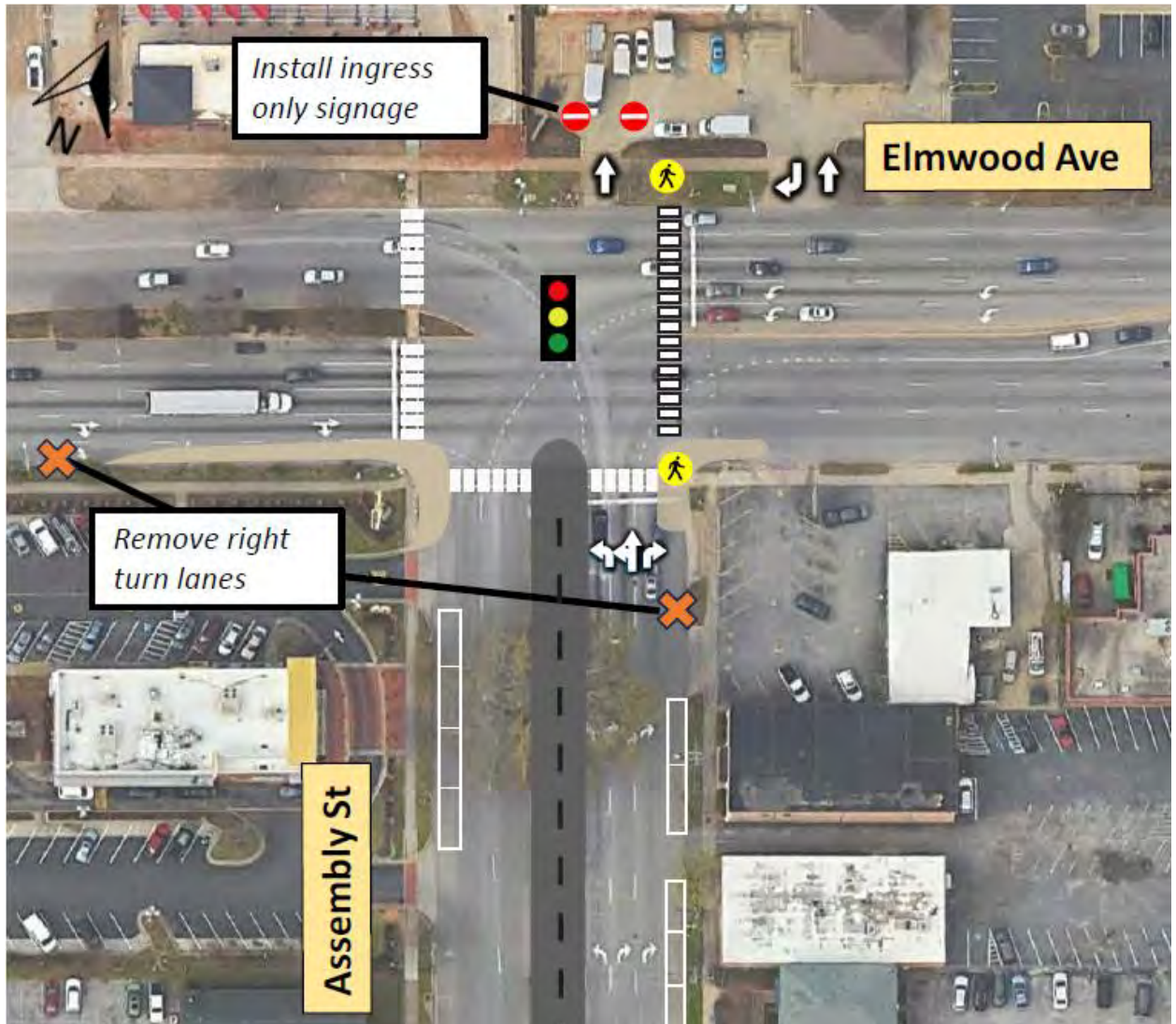
Considerations:

Short-Term:

- **Operations**
 - Incorporate all marked crossings into the existing pedestrian-only phase (\$16,000)
- **Traffic Control**
 - Sign western U-Haul driveway as ingress only (\$1,100)
- **Geometric Design**
 - Revise lane-assignments to eliminate dual right turning movements in conflict with pedestrian crossings. ((\$9,000)

Mid-Term:

- **Geometric Design**
 - Extend median on south leg to provide a pedestrian refuge (\$21,000)
 - Construct curb extensions to reduce pedestrian crossing distances (\$65,000)
- **Traffic Control**
 - Install a marked pedestrian crossing on eastern leg with push buttons and signals (\$14,000)



0

3.3.2 Assembly Street at Calhoun Street

Concerns:

- No curb ramps present on southeast corner of Assembly Street crosswalk.
- Curb ramps lack ADA detectable warning surfaces.
- Sight distance for mainline permissive left turn movements limited by median foliage. Vehicles observed accepting short gaps requiring opposing through vehicles to use breaks to avoid collision.
- Left turn movements in shared through left turn lanes result in lane changes by trailing through vehicles. This configuration is atypical along the corridor contributing to driver expectancy issues.



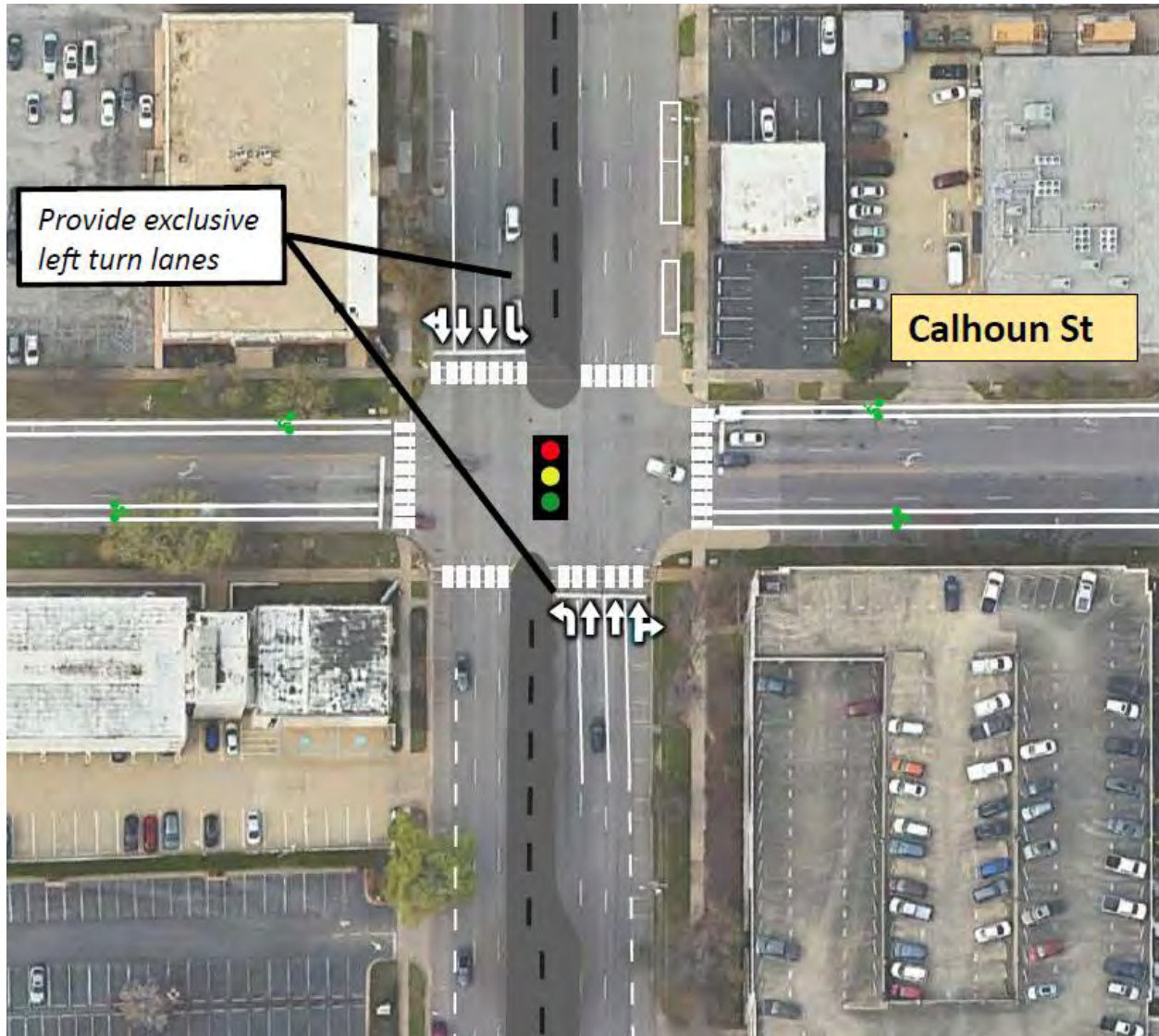
Considerations:

Short-Term:

- **Geometric Design**
 - Trim trees and shrubbery to improve intersection sight distance in the median between Calhoun Street and Richland Street (\$11,500)

Mid-Term:

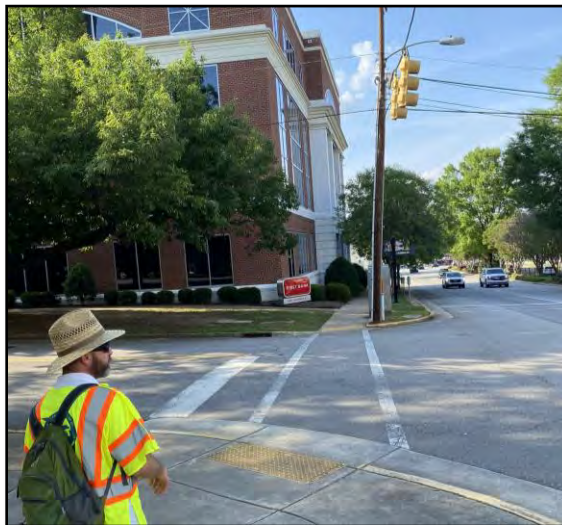
- **Geometric Design**
 - Construct curb extensions to reduce pedestrian crossing distances (\$35,000)
 - Extend median on north and south legs to provide a pedestrian refuge (\$31,000)
 - Provide exclusive left turn lanes on northbound and southbound approaches (\$27,000)
- **Operations**
 - Implement protected left turn phasing in both directions along Assembly (\$20,000)



3.3.3 Assembly Street at Richland Street

Concerns:

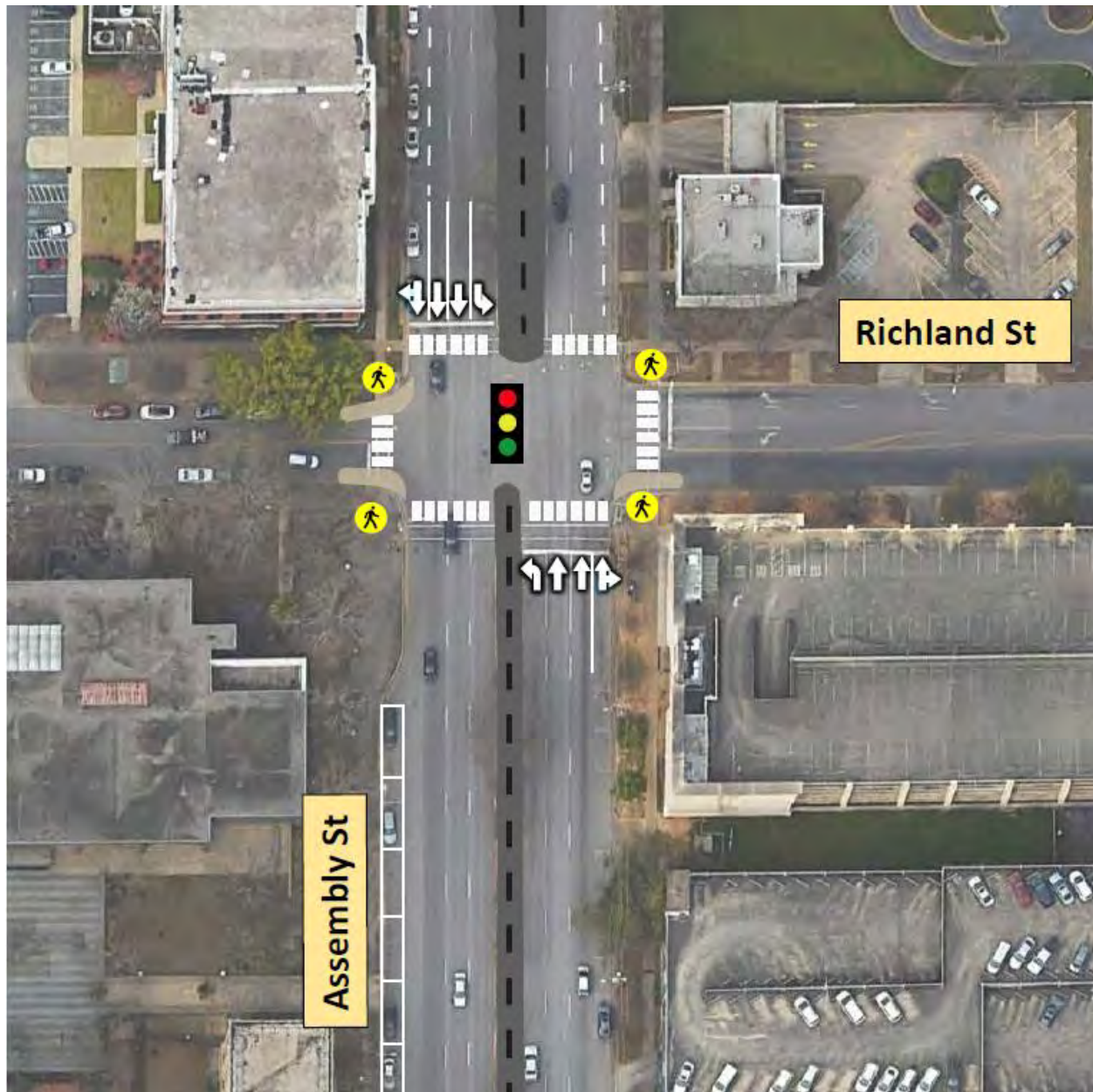
- Heavy pedestrian traffic and vehicle turning movements due to the parking garage for the federal building on Richland Street.
- No pedestrian signal heads present for east and west leg crossings.
- Near miss observed during field walk from northbound vehicle red light violation.
- Crest curve to the south limits sight distance for southbound left turns.
- Signal conspicuity reduced due to roadway grade and visual clutter from tree foliage.
- Sight distance for mainline permissive left turn movements limited by median foliage. Vehicles observed accepting short gaps requiring opposing through vehicles to use brakes to avoid collision.
- Left turn movements in shared through left turn lanes result in lane changes by trailing through vehicles. This configuration is atypical along the corridor contributing to driver expectancy issues.



Considerations:

Mid-Term:

- **Traffic Control**
 - Install pedestrian signal heads and push buttons for side-street crossings (\$14,000)
- **Geometric Design**
 - Construct curb extensions to reduce pedestrian crossing distances (\$52,000)
 - Provide exclusive left turn lanes on northbound and southbound approaches (\$27,000)
 - Extend median on north and south legs to provide a pedestrian refuge (\$39,200)
- **Operations**
 - Implement protected left turn phasing in both directions along Assembly Street. (\$20,000)



3.3.4 Assembly Street at Laurel Street

Concerns:

- Intersection located on a vertical crest curve limiting sight distance for permissive left turn movements.
- Near miss observed during field walk from northbound left vehicle accepting too short of a gap in southbound through traffic.
- Southbound left turn movement in shared through left turn lanes result in lane changes by trailing through vehicles. This configuration is atypical along the corridor contributing to driver expectancy issues.



Considerations:

Short-Term:

- **Traffic Control**

- Install signage and paint pavement markings to prohibit southbound left turn movements from Assembly Street (\$6,500)

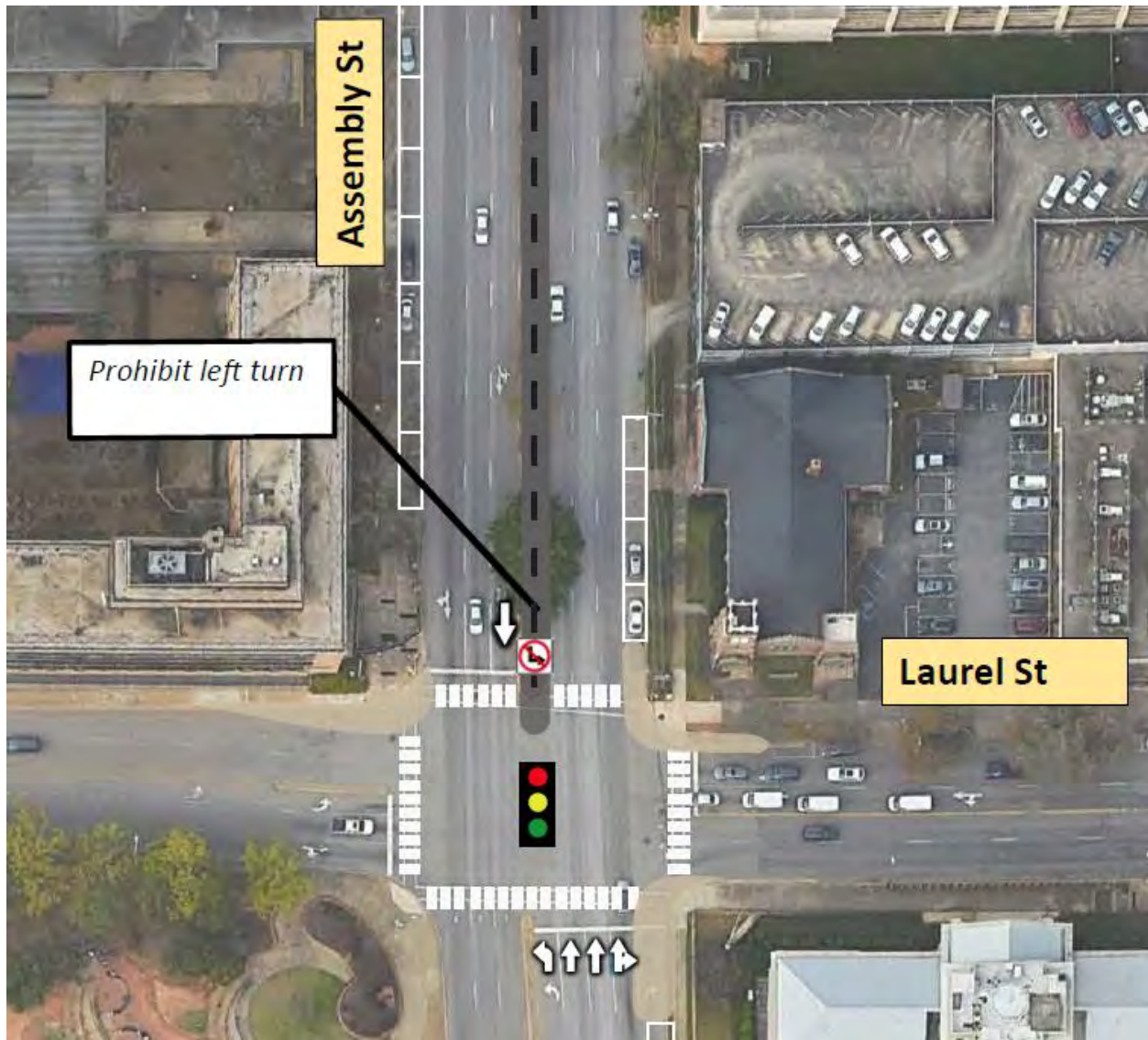
Mid-Term:

- **Geometric Design**

- Remove the northbound right turn lane (\$7,500)
- Construct curb extensions to reduce pedestrian crossing distances (\$65,000)
- Extend median on north leg to provide a pedestrian refuge (\$20,000)

- **Operations**

- Implement protected left turn phasing in the northbound direction along Assembly Street (\$20,000)



3.3.5 Assembly Street at Blanding Street

Concerns:

- Location of pedestrian fatality.
- Intersection located at the bottom of a steep slope in the southbound direction contributing to excessive vehicle speeds. Additionally, the angle of approach causes the signal to compete with visual clutter.
- Side street is low volume and signal actuation results in frequent skipped cycles contributing to a driver expectancy of always having a green indication.
- Issues with signal compliance were observed.
- Bus stop placement encourages mid-block crossings.



Considerations:

Mid-Term:

- **Transit**
 - o Relocate bus stops and shelters closer to the crosswalk (\$20,000)
 - o Implement a full median closure, prohibiting southbound lefts onto Blanding Street, and northbound lefts into the post-office entrance. Pedestrian refuges should be provided on the north and south leg crossings (\$128,000)



3.3.6 Assembly Street at Taylor Street

Concerns:

- Heavy pedestrian volume in this area due to Oliver Gospel Mission, parking garage, bus stop, park, and area businesses
- Queueing issues observed with the short storage distance provided in the exclusive left turn lane northbound.
- The sight distance for the westbound left turn is limited by a crest curve.
- Parking is provided in the median with no pedestrian actuation abilities from the median.



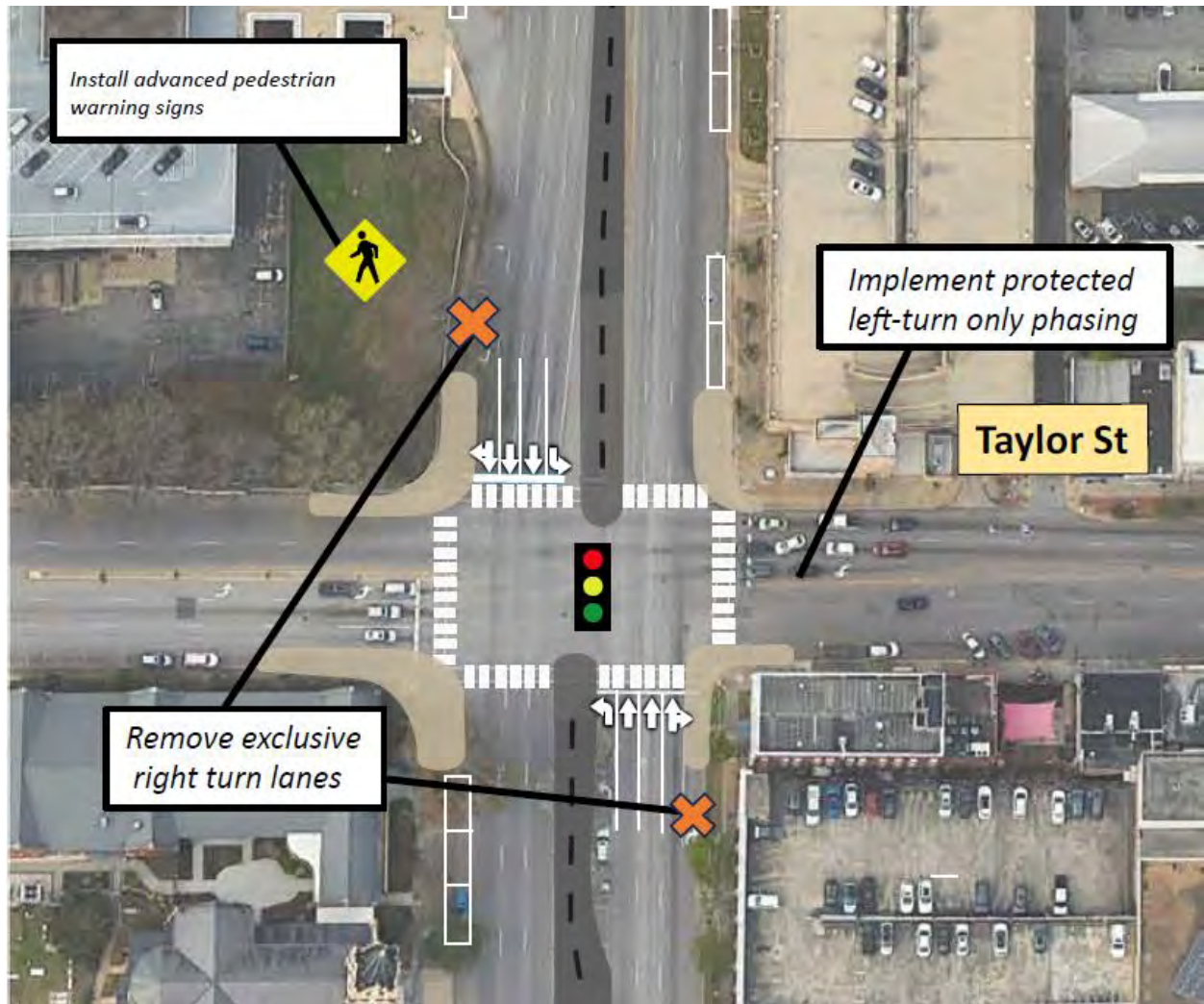
Considerations:

Short-Term:

- **Traffic Control**
 - o Provide pedestrian warning signage to increase awareness of pedestrians crossing the road (\$2,840)

Mid-Term:

- **Traffic Control**
 - o Implement protected-only turn phasing for the westbound left turn or side street split phasing (\$20,000)
 - o Remove exclusive right turn lanes (\$8,000)
 - o Extend left-turn storage lane on Assembly Street northbound (\$27,000)
 - o Extend median on north and south legs to provide pedestrian refuge (\$102,000)
 - o Construct curb extensions to reduce pedestrian crossing distances (\$75,000)



3.3.7 Assembly Street at Hampton Street

Concerns:

- Parking is provided in the median with no pedestrian actuation abilities from the median.
- Young school-age children observed using crosswalks.



Considerations:

Short-Term:

- **Traffic Control**
 - o Provide pedestrian warning signage to increase awareness of pedestrians crossing the road (\$2,840)

Mid-Term:

- **Geometric Design**
 - o Extend median on north and south legs to provide pedestrian refuge (\$32,000)
 - o Construct curb extensions to reduce pedestrian crossing distances (\$41,000)



3.3.8 Assembly Street at Washington Street

Concerns:

- Parking is provided in the median with no pedestrian actuation abilities from the median.
- 117 jaywalkers observed mid-block during latest city pedestrian count south of the intersection.

Considerations:

Mid-Term:

- **Geometric Design**
 - o Extend median on north and south legs to provide pedestrian refuge (\$40,000)
 - o Construct curb extensions to reduce pedestrian crossing distances (\$81,000)



3.3.9 Assembly Street at Lady Street

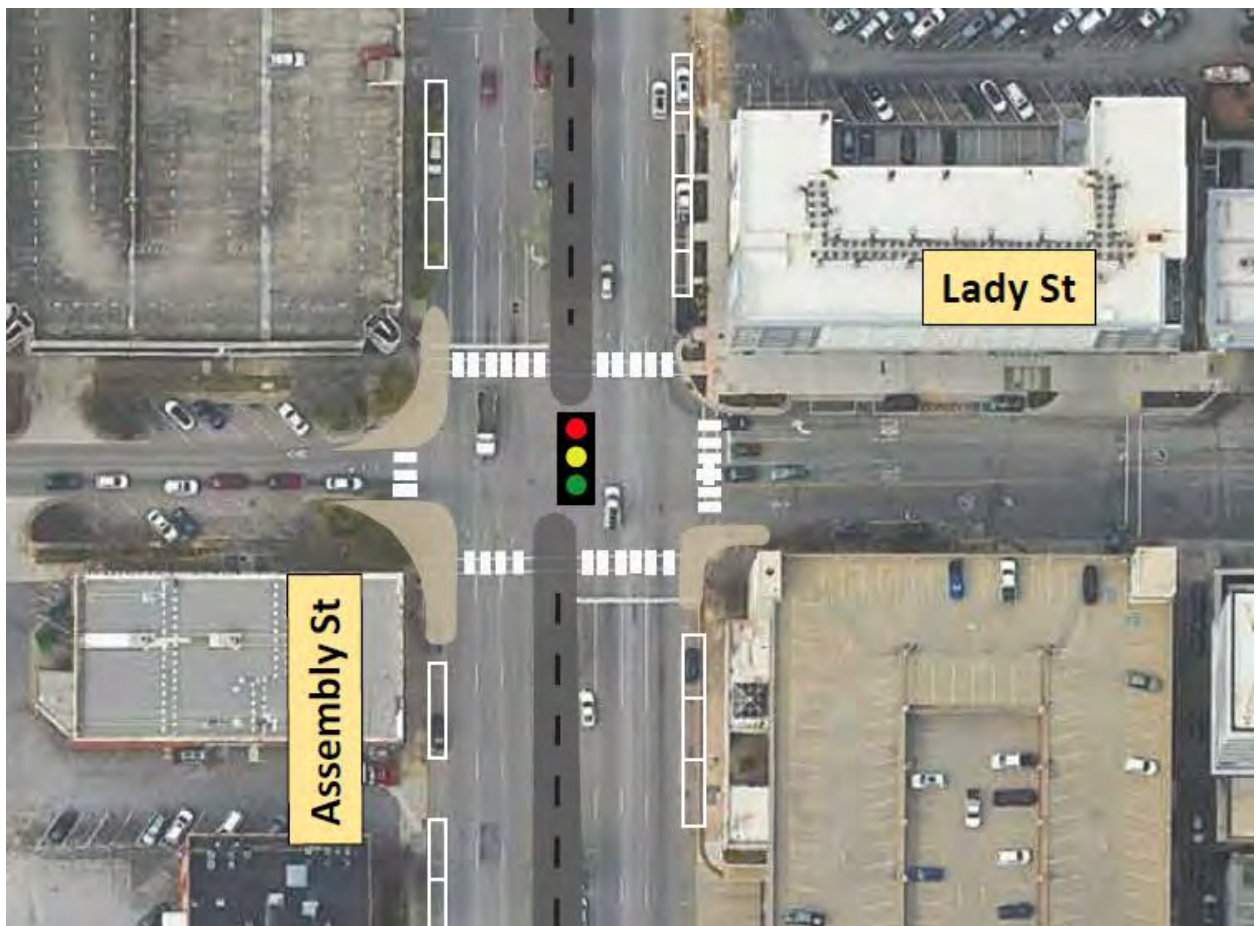
Concerns:

- Pedestrian signal heads not aligned with crossing on west leg.
- Parking is provided in the median with no pedestrian actuation abilities from the median.

Considerations:

Mid-Term:

- **Geometric Design**
 - o Construct curb extensions to reduce pedestrian crossing distances (\$57,000)
 - o Extend median on north and south legs to provide pedestrian refuge (\$40,000)



3.3.10 Assembly Street at Gervais Street

Concerns:

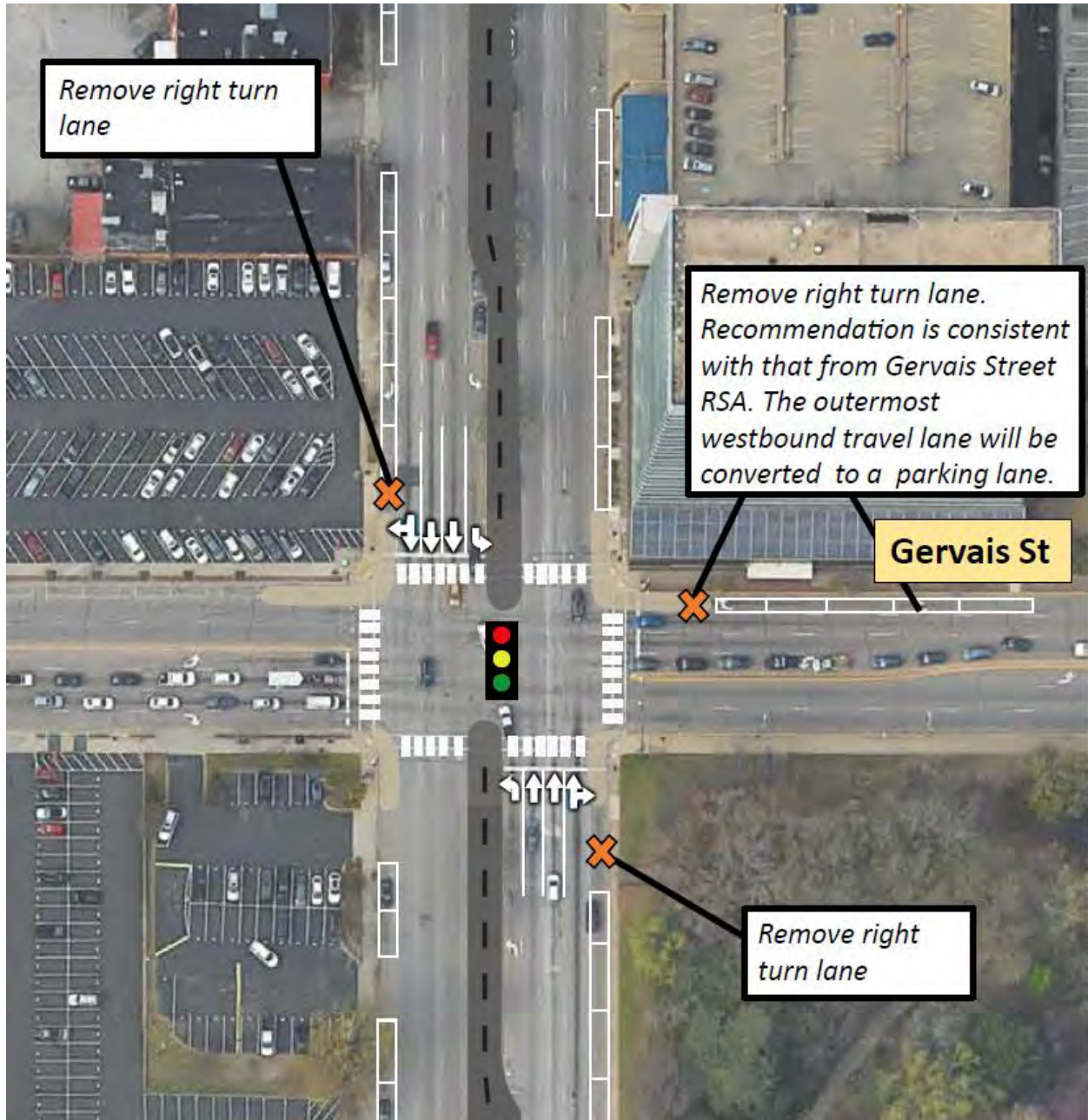
- The short setback from the building face on the northeast corner restricts sight distance of pedestrians approaching crosswalk from the north.
- Major intersection with wide crossing distances and heavy traffic volumes.
- Sidewalk is narrow along Assembly Street northbound side of the intersection.
- Parking is provided in the median with no pedestrian actuation abilities from the median.



Considerations:

Mid-Term:

- **Geometric Design**
 - o Remove the westbound, southbound, and northbound right-turn lanes. Removing the westbound right turn lane along Gervais Street is consistent with the recommendations provided in the Gervais Street RSA. (\$10,000)
 - o Construct curb extensions to reduce pedestrian crossing distances (\$66,000)
 - o Extend median on north and south legs to provide pedestrian refuge (\$43,000)



3.3.11 Assembly Street at Senate Street

Concerns:

- Diagonal crosswalks increase pedestrian exposure clearance time requirements.
- Light traffic observed utilizing the parking garage egress on the east leg. Note that the westbound left turn is currently restricted during the evening peak period.
- Signal currently uncoordinated with adjacent traffic signals.
- Pedestrian pushbutton on the south leg not ADA accessible.

Considerations:

Mid-Term:

- **Geometric Design**
 - o Provide two perpendicular crosswalks on the north and south side of the Senate Street intersection (\$11,200)
 - o Construct curb extensions to reduce pedestrian crossing distances (\$53,000)
 - o Add high visibility crosswalks and pedestrian warning signs to the parking garage entrance and exit. (\$5,300)

Long-Term:

- **Geometric Design**
 - o Full median closure along Assembly Street through the intersection to prohibit left turn movements and reduce conflicts between vehicles and pedestrians (\$72,000)



3.3.12 Assembly Street at Pendleton Street

Concerns:

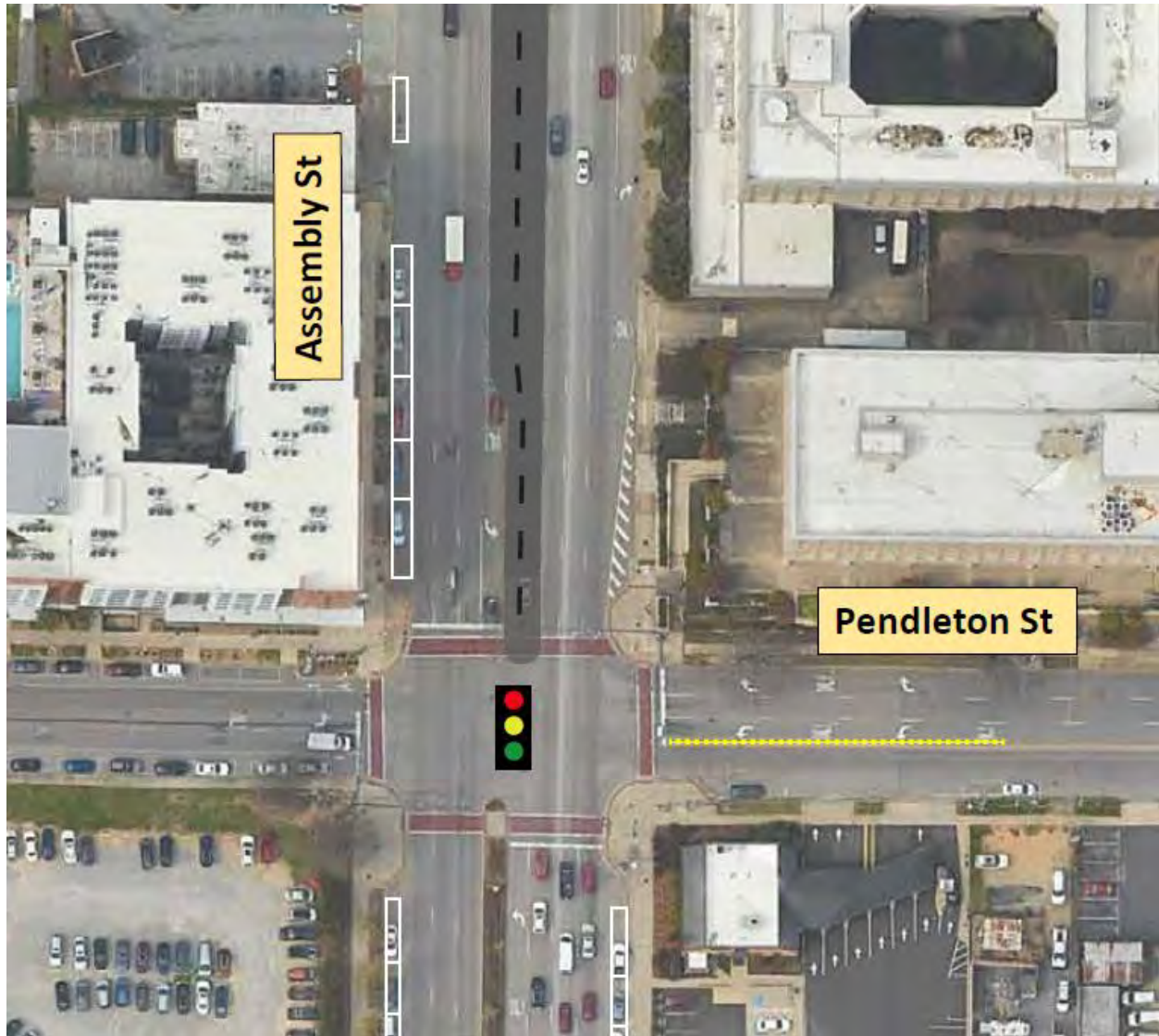
- Drivers unable to see signal indication when staging in intersection to make permissive left turn movements along Assembly Street.
- Parking is provided in the median with no pedestrian actuation abilities from the median.



Considerations:

Mid-Term:

- **Geometric Design**
 - o Extend north leg median to provide refuge for pedestrians (\$19,600)
- **Traffic Control**
 - o Install flexible delineator posts in the median on the east leg of Pendleton Street for access management (\$8,000)
 - o Implement protected left turn phasing in both directions along Assembly Street (\$20,000)



3.3.13 Assembly Street at College Street

Concerns:

- Multiple wide access points for business on southeast corner increase conflict zones.
- Drivers unable to see signal indication when staging in intersection to make permissive left turn movements along Assembly Street.



Considerations:

Mid-Term:

- **Traffic Control**
 - o Install flexible delineator posts in the median on the east leg of College Street for access management (\$8,000)
 - o Implement protected left turn phasing in both directions along Assembly Street (\$20,000)



3.3.14 Assembly Street at Greene Street

Concerns:

- The vertical crest curve alongside-street approaches limit sight distance to bike lanes on the far side of the intersection. Pavement markings are needed to better delineate side street vehicle bike travel through the intersection.



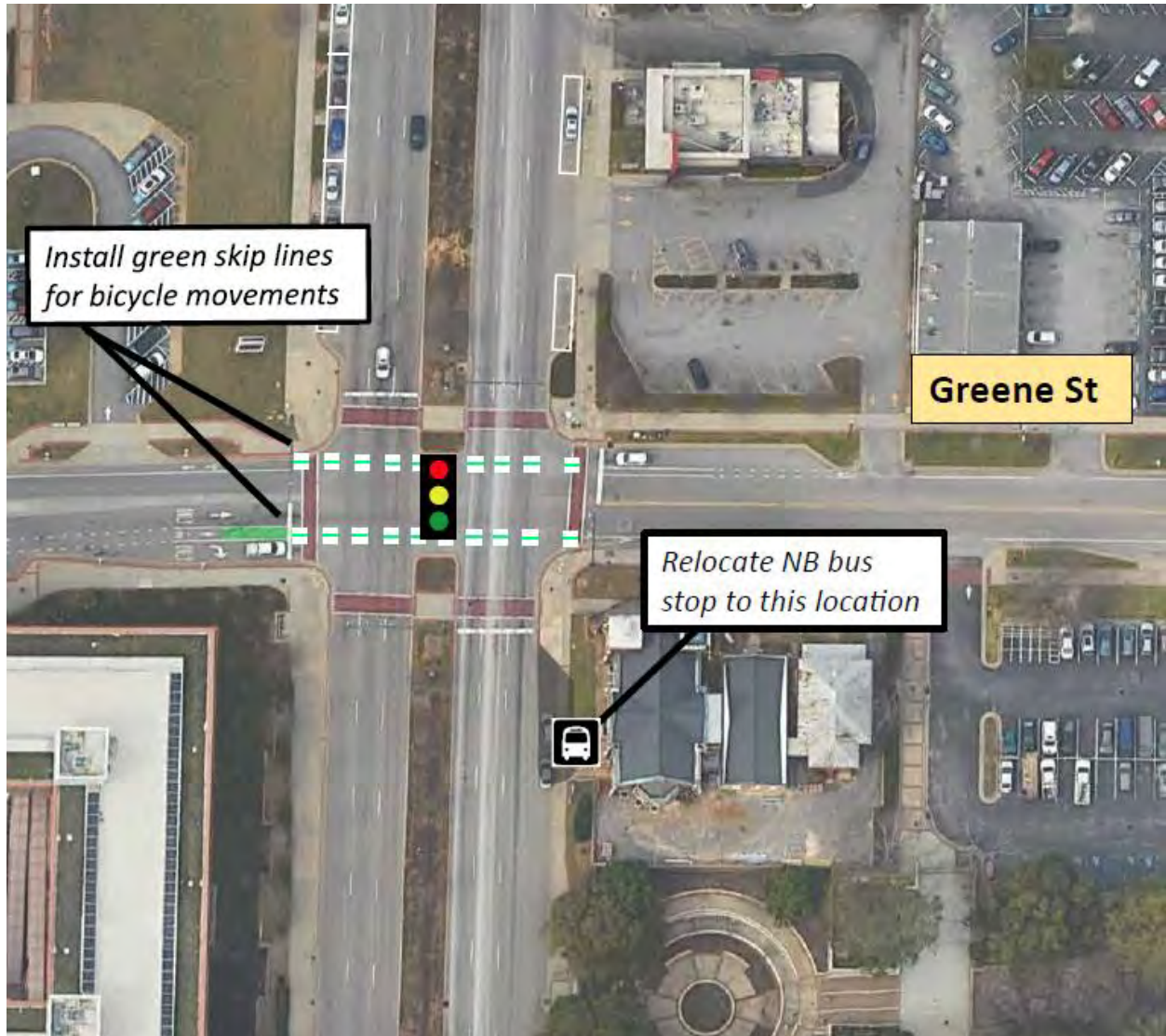
Considerations:

Short-Term:

- **Traffic Control**
 - o Install green skip lines through the intersection for bicycle movements (\$6,500)

Mid-Term:

- **Transit**
 - o Relocate northbound bus stop closer to intersection (\$23,000)



3.3.15 Assembly Street at Devine Street

Concerns:

- The presence of a pedestrian tunnel is not apparent to pedestrians. Improved way finding could improve tunnel utilization and reduce conflicts at adjacent intersections.



Considerations:

Short-Term:

- **Traffic Control**
 - Improve wayfinding for pedestrian tunnel (\$2,000)

Mid-Term:

- **Geometric Design**
 - Add high visibility crosswalk across Devine Street (\$7,800)

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3.3.16 Assembly Street at Blossom Street

Concerns:

- Pedestrians observed crossing Assembly Street outside of marked crossing to reach mid-block bus stops.
- Pavement markings are faded.
- Driver expectancy issues with northbound left turn lane. Some motorists observed mistaking the dual northbound left red signal indication as a dual left turn movement.
- Significant queuing observed for northbound turn movement. Friction observed with through movements at the back of queue affecting operations at signal.
- Pedestrian countdown timer not working on west leg crossing.



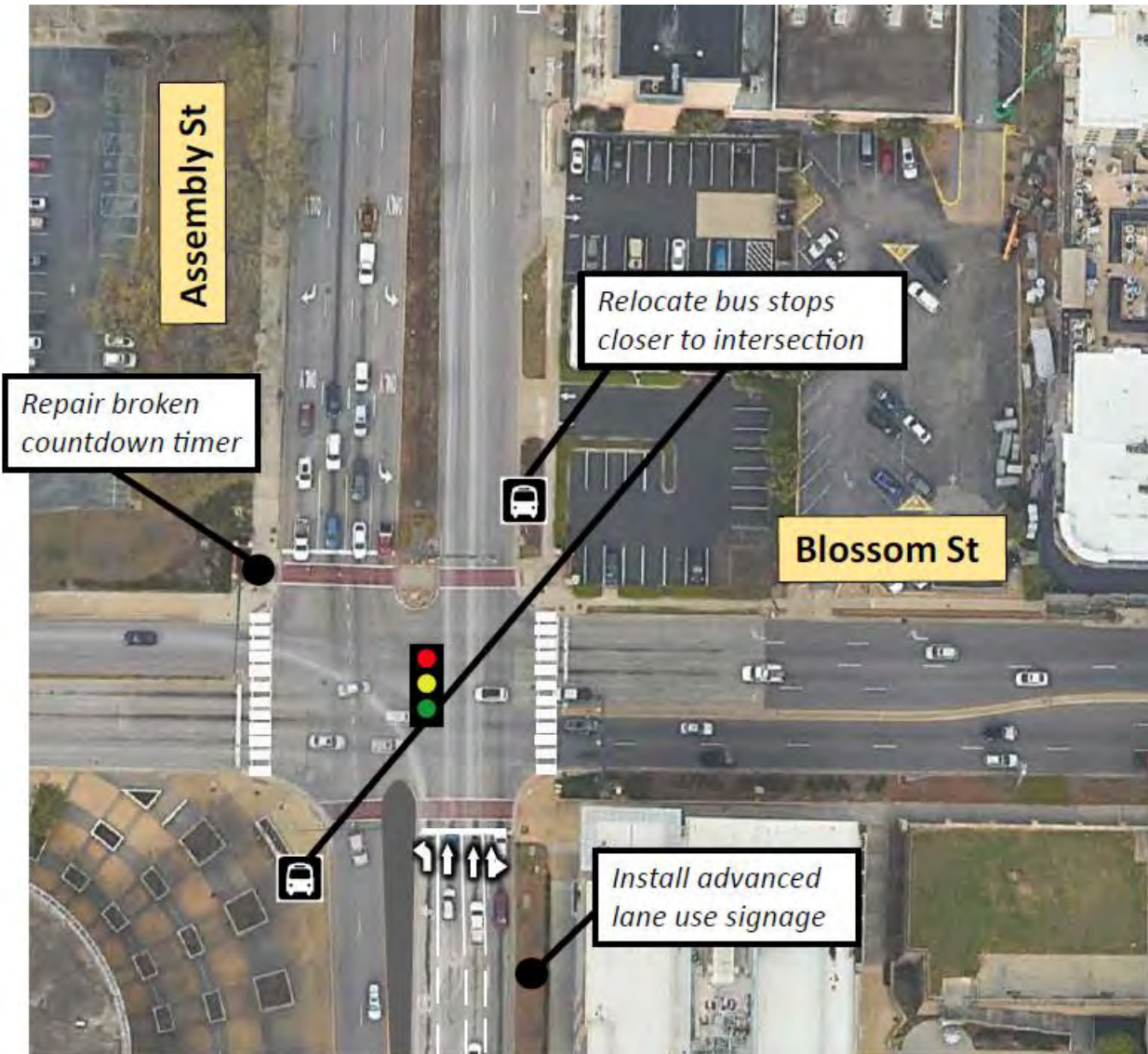
Considerations:

Short-Term:

- **Maintenance**
 - o Repair broken countdown timer for pedestrian signals along western leg (\$4,500)
 - o Update faded pavement markings (\$7,500)
- **Traffic Control**
 - o Install northbound through arrow pavement markings on the inner most through lane to reinforce lane assignments (\$3,250)
 - o Install advanced lane use signage on the northbound approach (\$9,000)

Mid-Term:

- **Transit**
 - o Relocate northbound and southbound bus stops closer to intersection (\$41,000)
- **Geometric Design**
 - o Modify median alignment to extend the length of the northbound left turn lane (\$112,000)



3.3.17 Assembly Street at Wheat Street

Concerns:

- Gap in sidewalk present on southeast curb due to a drainage issue.
- Pedestrian facilities lacking with discontinuous pedestrian infrastructure.
- Multiple pedestrians observed crossing mid-block.



Considerations:

Short-Term:

- **Maintenance**
 - o Repair gap in sidewalk on southeast corner (\$7,300)

Mid-Term:

- **Geometric Design**
 - o Construct continuous curb and gutter along Assembly Street south of the intersection (\$84,000)
 - o Add high visibility crosswalk across Wheat Street (\$7,800)



3.3.18 Assembly Street at Catawba Street

Concerns:

- Pedestrian activity observed with commercial and institutional uses on both sides of Assembly Street.
- Sidewalks absent or discontinuous.
- Pedestrian space and conflict zones not well defined with no marked pedestrian crossings.
- Open typical section contributes to low pedestrian comfort levels.
- Side-street intersection wide with skewed grade crossings intersecting.



Considerations:

Mid-Term:

- **Geometric Design**
 - o Construct appropriate median or channelization islands to restrict side street access to RIRO (\$45,000)
 - o Improve roadway with sidewalk connections along both directions of Assembly Street north, south, and through intersection (\$150,000)
- **Traffic Control**
 - o Alternate 1. Provide a signal-controlled pedestrian crossing at Catawba Street (\$243,000)



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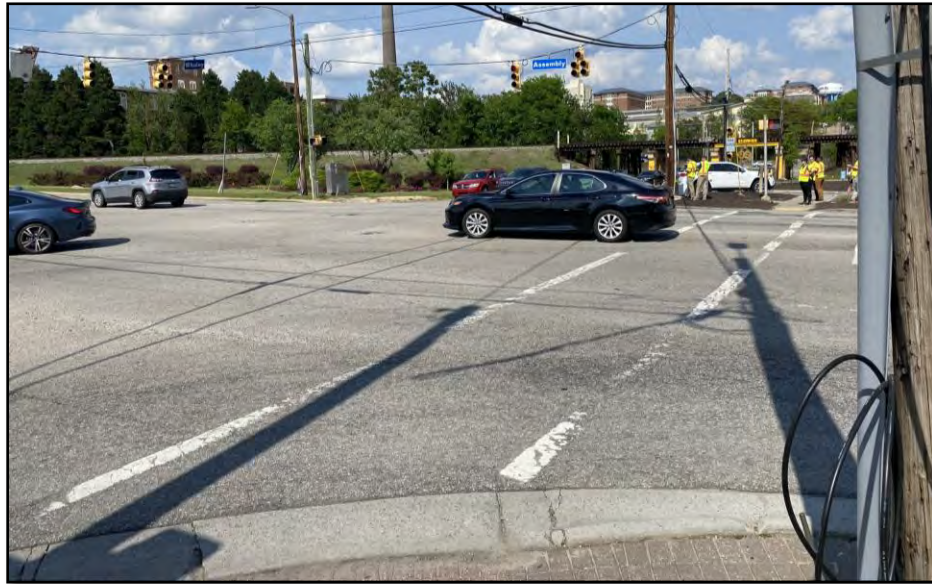
Alternate 2. Provide a mid-block to the north of Catawba Street (\$283,000)



3.3.19 Assembly Street at Whaley Street

Concerns:

- Motorists known to use commercial parking lot on the southeast quadrant to bypass queues and delays when trains crossing downstream.
- Pedestrian facilities discontinuous.
- Expansive curb cuts increase pedestrian and vehicular conflict zones.
- Pavement markings are faded.
- Pedestrian pushbuttons not provided on side-street crossings.



Considerations:

Short-Term:

- **Maintenance**
 - o Update faded pavement markings (\$6,500)

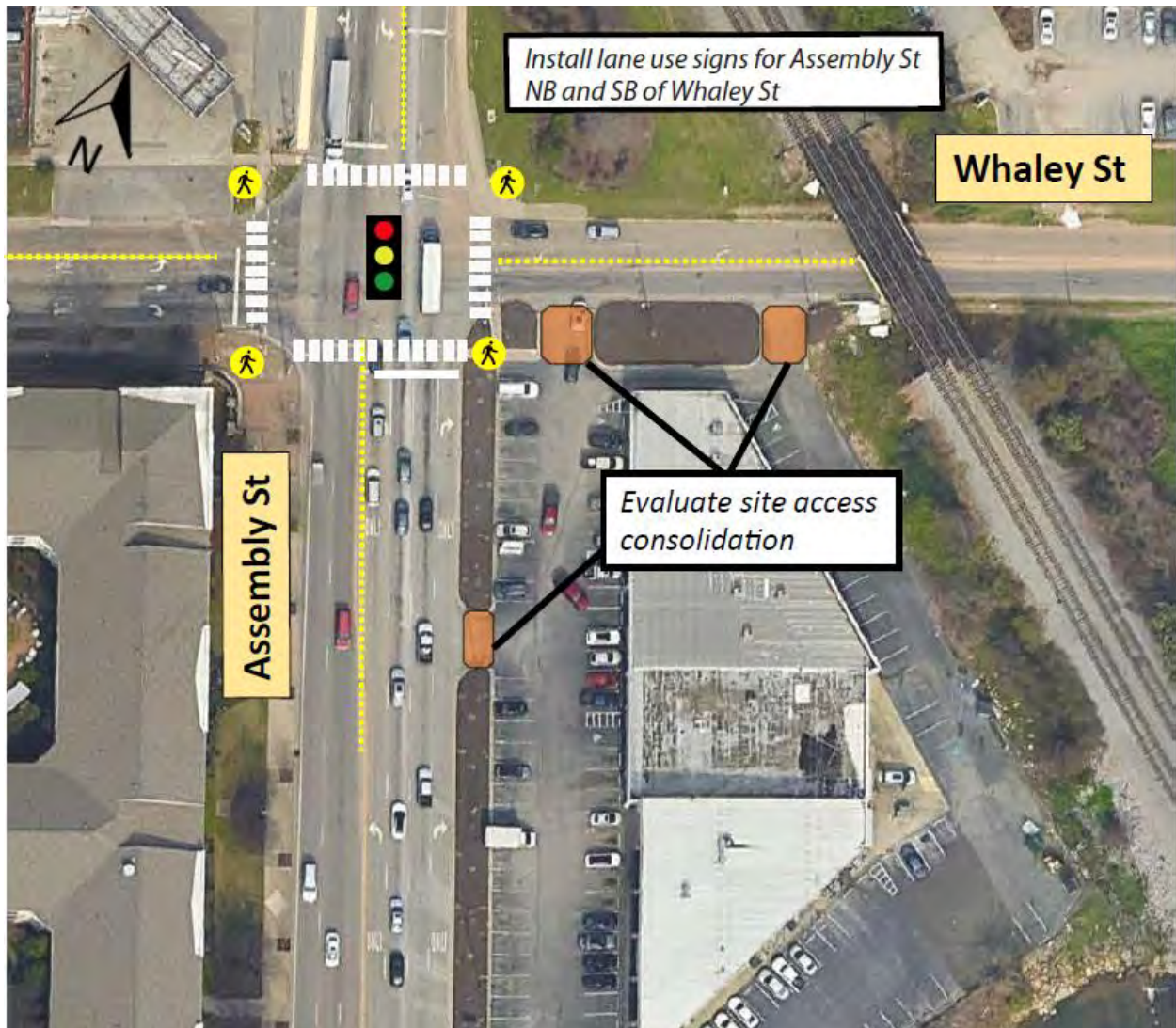
Mid-Term:

- **Traffic Control**
 - o Install flexible delineator posts in the median on all intersection approaches for access management (\$8,500)
 - o Install pushbuttons for side-street crossings (\$17,000)
 - o Implement split-phasing for the side-street approaches (\$20,000)
 - o Install lane use signs for Assembly Street northbound and southbound of Whaley Street (\$8,700)

Long-Term:

- **Operations**
 - o Access point consolidation in southeast quadrant of the intersection (\$30,000)
- **Geometric Design**
 - o Improve roadway with sidewalk connections along both directions of Assembly

Street north, south, and through intersection (\$88,000)



3.3.20 Assembly Street at Flora Street and Dreyfuss Road

Concerns:

- No pedestrian facilities available.
- Roadway appears to have excess capacity.
- Left turns from shared turn lanes.
- Increased vehicle speeds through this section.

Considerations:

Mid-Term:

- **Geometric Design**
 - o Construct a sidewalk along the west side of Assembly Street (\$259,000)
 - o Construct high visibility crosswalks at Flora Street and Dreyfuss Road (\$7,800)

Long-Term:

- **Geometric Design**
 - o Reduce the number of travel lanes from six lanes to five lanes and repurpose the excess pavement into a Two-Way Left-Turn Median. Pedestrian infrastructure improvements will also be implemented (\$181,000)



3.3.21 Assembly Street at Rosewood Drive

Concerns:

- Crosswalks provided at intersection, but sidewalks are absent on Assembly Street.
- Pedestrian heads present on south and northbound approaches with no crosswalk present.
- High speeds with poor yield compliance to pedestrian movements along channelized right turn movements.
- High potential for queuing through grade crossing with current traffic controls and signal phasing.



Considerations:

Short-Term:

- **Maintenance**
 - o Update faded pavement markings (\$9,000)

Mid-Term:

- **Geometric Design**
 - o Install crosswalk markings across all approaches and ADA ramps on all intersection legs (\$88,000)
 - o Construct a sidewalk along the south side of Assembly Street from Rosewood Drive to just past Flora Street (\$266,000)
- **Traffic Control**
 - o Eliminate the far-side stop bar for the southbound lefts, northbound rights, and eastbound throughs along Rosewood Drive. Also, implement protected-only phasing for southbound left-turns along Rosewood Drive to eliminate queueing on the railroad tracks (\$70,000)

Long-Term:

- **Geometric Design**

- o Remove channelized right-turns, tighten curb radii, and reduce turning speeds to improve yield compliance and safety for pedestrians (\$315,000)



4. Crash Reduction Analysis

Crash Modification Factors (CMF) are research-backed factors that indicate the proportional increase or decrease in expected crashes because of a specific countermeasure implementation. They help quantitatively estimate a proposed infrastructure treatment's effectiveness at improving safety. CMF are largely documented in FHWA's CMF Clearinghouse, which is continuously updated according to latest research findings. Each CMF value housed in the Clearinghouse is given a star rate according to the quality or reliability of the study. Star ratings are based on study design, sample size, statistical methodology, and statistical significance. They range from 1 to 5, with 5 being the highest/best rating. Mead & Hunt reviewed the list of countermeasures developed for Assembly Street against available CMF data. Recommended treatments with documented CMF research given a star rating of 3 or higher is summarized in Table 1.

Note, the treatments recommended for Assembly Street were largely focused on improving accommodations for pedestrians. Expanded median refuge islands and curb extensions were recommended corridor-wide, but unfortunately documented CMF data for pedestrian treatments is largely lacking. Although not included in the crash analysis section of this report, there is widespread research that suggests curb extensions and median refuge islands improve safety at intersections/corridors for the following reasons:

- Curb extensions reduce pedestrian crossing distance, thus reducing exposure time for pedestrian-vehicle interactions.
- Curb extensions increase pedestrian visibility.
- Curb extensions encourage slow turning movements for vehicles by decreasing the curb radii at an intersection.
- Median refuge islands give pedestrians a safe place to wait if they are only comfortable crossing one direction of traffic at a time.
- Median refuge islands encourage slower vehicular speeds by narrowing the usable roadway width.

TABLE 1: AVAILABLE CMF DATA FOR ASSEMBLY STREET

Potential Treatment	Timeframe	CMF	Standard Error	Crash Type	Crash Severity
Install backplates where absent	Short-Term	0.85	0.005	All	All
Institute Leading Pedestrian Intervals	Short-Term	0.81	0.07	Vehicle/ Pedestrian	All
Upgrade signalized left turn movements to Protected Only phasing	Mid-Term	0.01	0.03	Angle	All
Institute "No Turn on Red"	Mid-Term	0.98	-	All	All
Closure/consolidation of driveways at intersections	Mid-Term	0.82	0.08	All	All
Upgrade span wire signal design to mast arm	Long-Term	0.97	0.069	All	All
Remove right turn lane channelization, where present	Long-Term	0.56	0.089	All	All
Explore Road Diet*	Long-Term	0.62	0.13	All	All

*Note: to date, crash reduction research has only focused on 4-lane to 3-lane reductions

Most of the time, road safety audit projects propose several countermeasures be implemented simultaneously at one location. When estimating the combined effectiveness of multiple safety treatments at one location, CMF values may be multiplied together only if the crash types/severities to be addressed with each treatment are independent of one another. For example, backplate installation (CMF = 0.85) and mast arm conversion (CMF=0.97) both target increased signal visibility for drivers and decreased crash frequency and severity for all users and types. Instead of multiplying the two factors together, the CMF for backplate installation should be applied because it will show the greater crash reduction. Additionally, no more than 3 CMFs should be combined on any project regardless of crash type/severity. Following these guidelines ensures a project does not over-estimate expected crash reduction.

With the above information in mind, the following three CMFs were chosen to be applied to Assembly Street. These CMF values were chosen because they offer the highest crash reduction and have recommended widespread implementation across much of the corridor.

- Install Backplates where absent.
- Upgrade all signalized intersections to Protected Only Left Turn phasing.
- Institute Leading Pedestrian Interval phasing at all signalized intersections.

Crash reduction estimates are summarized in Table 2.

TABLE 2: EXPECTED CRASH REDUCTION ON ASSEMBLY STREET

Location	2018-2022 Crashes	Average Total Crashes Per Year	Expected Crashes Per Year After Implementation	Reduction of Crashes Per Year
Install Backplates : CMF = 0.85 (all crash types, severities)				
Assembly St - Elmwood to Rosewood*	665	166.25	141.31	24.94
Institute Leading Pedestrian Intervals : CMF = 0.81 (vehicle/pedestrian crashes only)				
Assembly St - Elmwood to Rosewood**	24	6.00	4.86	1.14
Upgrade left turn movements to Protected Only (left turn crashes only)				
Assembly St - Elmwood to Rosewood***	142	35.50	0.36	35.15

*excludes crashes at all unsignalized intersections and signalized intersections already equipped with backplates

**excludes pedestrian crashes at unsignalized locations

***excludes crashes at unsignalized intersections and signalized Blossom St, which already has protected only left turn movements

Installing backplates at all signalized intersections where not currently present can be expected to reduce the annual crash frequency by nearly 25 crashes per year. Instituting leading pedestrian interval at the signalized intersections can be expected to reduce the annual crash frequency by just over one pedestrian crash per year. Upgrading all signalized intersections to include protected left turn phasing can be expected to reduce the annual crash frequency by just over 35 crashes per year. Combined, these treatments can be expected to reduce the total annual crash frequency on Assembly Street to over 61 crashes per year.

5. Summary of Costs

This section provides planning-level cost estimates only for the recommended improvements. The cost estimates are for construction cost estimates only, and do not include any additional cost considerations for items such as additional engineering, design, r/w, utilities, construction inspection, etc.

Corridor Wide (Section 3.2)

Short-Term	=	\$1,105,000.00
Mid-term	=	\$5,957,600.00
Long-Term	=	\$6,276,000.00
Total	=	\$13,338,600.00

Assembly St at Elmwood Ave Improvements (Section 3.3.1)

Short-Term	=	\$26,100.00
Mid-term	=	\$96,000.00
Long-Term	=	\$0.00
Total	=	\$122,100.00

Assembly St at Calhoun St Improvements (Section 3.3.2)

Short-Term	=	\$11,500.00
Mid-term	=	\$113,000.00
Long-Term	=	\$0.00
Total	=	\$124,500.00

Assembly St at Richland St Improvements (Section 3.3.3)

Short-Term	=	\$0.00
Mid-term	=	\$152,200.00
Long-Term	=	\$0.00
Total	=	\$152,200.00

Assembly St at Laurel St Improvements (Section 3.3.4)

Short-Term	=	\$6,500.00
Mid-term	=	\$113,500.00
Long-Term	=	\$0.00
Total	=	\$120,000.00

Assembly St at Blanding St Improvements (Section 3.3.5)

Short-Term	=	\$0.00
Mid-term	=	\$148,000.00
Long-Term	=	\$0.00
Total	=	\$148,000.00

Assembly St at Taylor St Improvements (Section 3.3.6)

Short-Term	=	\$2,840.00
Mid-term	=	\$232,000.00
Long-Term	=	\$0.00
Total	=	\$234,840.00

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Assembly St at Hampton St Improvements (Section 3.3.7)

Short-Term	=	\$2,840.00
Mid-term	=	\$73,000.00
Long-Term	=	\$0.00
Total	=	\$75,840.00

Assembly St at Washington St Improvements (Section 3.3.8)

Short-Term	=	\$0.00
Mid-term	=	\$121,000.00
Long-Term	=	\$0.00
Total	=	\$121,000.00

Assembly St at Lady St Improvements (Section 3.3.9)

Short-Term	=	\$0.00
Mid-term	=	\$97,000.00
Long-Term	=	\$0.00
Total	=	\$97,000.00

Assembly St at Gervais St Improvements (Section 3.3.10)

Short-Term	=	\$0.00
Mid-term	=	\$119,000.00
Long-Term	=	\$0.00
Total	=	\$119,000.00

Assembly St at Senate St Improvements (Section 3.3.11)

Short-Term	=	\$0.00
Mid-term	=	\$69,500.00
Long-Term	=	\$72,000.00
Total	=	\$141,500.00

Assembly St at Pendleton St Improvements (Section 3.3.12)

Short-Term	=	\$0.00
Mid-term	=	\$47,600.00
Long-Term	=	\$0.00
Total	=	\$47,600.00

Assembly St at College St Improvements (Section 3.3.13)

Short-Term	=	\$0.00
Mid-term	=	\$28,000.00
Long-Term	=	\$0.00
Total	=	\$28,000.00

Assembly St at Greene St Improvements (Section 3.3.14)

Short-Term	=	\$6,500.00
Mid-term	=	\$23,000.00
Long-Term	=	\$0.00
Total	=	\$29,500.00

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Assembly St at Devine St Improvements (Section 3.3.15)

Short-Term	=	\$2,000.00
Mid-term	=	\$7,800.00
Long-Term	=	\$0.00
Total	=	\$9,800.00

Assembly St at Blossom St Improvements (Section 3.3.16)

Short-Term	=	\$24,250.00
Mid-term	=	\$153,000.00
Long-Term	=	\$0.00
Total	=	\$177,250.00

Assembly St South of Wheat St Improvements (Section 3.3.17)

Short-Term	=	\$7,300.00
Mid-term	=	\$91,800.00
Long-Term	=	\$0.00
Total	=	\$99,100.00

Assembly St South of Catawba St Improvements (Section 3.3.18)

Short-Term	=	\$0.00
Mid-term	=	\$438,000.00
Long-Term	=	\$0.00
Total	=	\$438,000.00

Assembly St at Whaley St Improvements (Section 3.3.19)

Short-Term	=	\$6,500.00
Mid-term	=	\$54,200.00
Long-Term	=	\$118,000.00
Total	=	\$178,700.00

Assembly St at Dreyfuss Rd Improvements (Section 3.3.20)

Short-Term	=	\$0.00
Mid-term	=	\$266,800.00
Long-Term	=	\$181,000.00
Total	=	\$447,800.00

Assembly St at Rosewood Dr Improvements (Section 3.3.21)

Short-Term	=	\$9,000.00
Mid-term	=	\$424,000.00
Long-Term	=	\$315,000.00
Total	=	\$748,000.00

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Short Term Improvements Costs

Location	Costs
Corridor Wide Short Term Improvements	\$1,105,000.00
Assembly St at Elmwood Ave Improvements	\$26,100.00
Assembly St at Calhoun St Improvements	\$11,500.00
Assembly St at Richland St Improvements	\$0.00
Assembly St at Laurel St Improvements	\$6,500.00
Assembly St at Blanding St Improvements	\$0.00
Assembly St at Taylor St Improvements	\$2,840.00
Assembly St at Hampton St Improvements	\$2,840.00
Assembly St at Washington St Improvements	\$0.00
Assembly St at Lady St Improvements	\$0.00
Assembly St at Gervais St Improvements	\$0.00
Assembly St at Senate St Improvements	\$0.00
Assembly St at Pendleton St Improvements	\$0.00
Assembly St at College St Improvements	\$0.00
Assembly St at Greene St Improvements	\$6,500.00
Assembly St at Devine St Improvements	\$2,000.00
Assembly St at Blossom St Improvements	\$24,250.00
Assembly St South of Wheat St Improvements	\$7,300.00
Assembly St South of Catawba St Improvements	\$0.00
Assembly St at Whaley St Improvements	\$6,500.00
Assembly St at Dreyfuss Rd Improvements	\$0.00
Assembly St at Rosewood Dr Improvements	\$9,000.00
Total	\$1,210,330.00

Planning level estimate for construction costs only: contingencies, design, CE&I and utilities are not included

Escalation due to inflation should be expected after 2024

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Mid Term Improvements Costs

Location	Costs
Corridor Wide Mid Term Improvements	\$5,957,600.00
Assembly St at Elmwood Ave Improvements	\$96,000.00
Assembly St at Calhoun St Improvements	\$113,000.00
Assembly St at Richland St Improvements	\$152,200.00
Assembly St at Laurel St Improvements	\$113,500.00
Assembly St at Blanding St Improvements	\$148,000.00
Assembly St at Taylor St Improvements	\$232,000.00
Assembly St at Hampton St Improvements	\$73,000.00
Assembly St at Washington St Improvements	\$121,000.00
Assembly St at Lady St Improvements	\$97,000.00
Assembly St at Gervais St Improvements	\$119,000.00
Assembly St at Senate St Improvements	\$69,500.00
Assembly St at Pendleton St Improvements	\$47,600.00
Assembly St at College St Improvements	\$28,000.00
Assembly St at Greene St Improvements	\$23,000.00
Assembly St at Devine St Improvements	\$7,800.00
Assembly St at Blossom St Improvements	\$153,000.00
Assembly St South of Wheat St Improvements	\$91,800.00
Assembly St South of Catawba St Improvements	\$438,000.00
Assembly St at Whaley St Improvements	\$54,200.00
Assembly St at Dreyfuss Rd Improvements	\$266,800.00
Assembly St at Rosewood Dr Improvements	\$424,000.00
Total	\$8,826,000.00

Planning level estimate for construction costs only: contingencies, design, CE&I and utilities are not included

Escalation due to inflation should be expected after 2024

Long Term Improvements Costs

Location	Costs
Corridor Wide Long Term Improvements	\$6,276,000.00
Assembly St at Elmwood Ave Improvements	\$0.00
Assembly St at Calhoun St Improvements	\$0.00
Assembly St at Richland St Improvements	\$0.00
Assembly St at Laurel St Improvements	\$0.00
Assembly St at Blanding St Improvements	\$0.00
Assembly St at Taylor St Improvements	\$0.00
Assembly St at Hampton St Improvements	\$0.00
Assembly St at Washington St Improvements	\$0.00
Assembly St at Lady St Improvements	\$0.00
Assembly St at Gervais St Improvements	\$0.00
Assembly St at Senate St Improvements	\$72,000.00
Assembly St at Pendleton St Improvements	\$0.00
Assembly St at College St Improvements	\$0.00
Assembly St at Greene St Improvements	\$0.00
Assembly St at Devine St Improvements	\$0.00
Assembly St at Blossom St Improvements	\$0.00
Assembly St South of Wheat St Improvements	\$0.00
Assembly St South of Catawba St Improvements	\$0.00
Assembly St at Whaley St Improvements	\$118,000.00
Assembly St at Dreyfuss Rd Improvements	\$181,000.00
Assembly St at Rosewood Dr Improvements	\$315,000.00
Total	\$6,962,000.00

Planning level estimate for construction costs only: contingencies, design, CE&I and utilities are not included

Escalation due to inflation should be expected after 2024

6. General Recommendations

6.1 Education and Enforcement

In addition to the engineering recommendations, education and enforcement also play a vital roles with improving safety. A road safety campaign followed by intermittent enforcement is recommended if traffic control devices continue to be ignored after physical improvements are implemented.

Appendix A – Audit Meeting Sign-in Sheets

Sign In Sheet
Pre-Audit Meeting - Assembly Street
 955 Park Street, Columbia SC
 4/5/2023

	Name	Email	Phone Number	Agency
1	Eune Taylor	TaylorEA@SCDOT.org	737-1103	SCDOT
2	Josh Coulson	Josh.Coulson@medhunt.com	(443) 781-3661	Med Hunt
3	Carol Jones	carol.jones@medhunt.com	803-530-3915	Med H
4	Kaylon Meeter	MeeterK@scdot.org	803-737-6713	SCDOT
5	Jennifer Satterthwaite	jennifer.satterthwaite@richlandcountysc.gov	803-520-2983	Mich
6	Adam H Men	Hixon.Adam@richlandcountysc.gov	803-281-1877	Richland County
7	Duncan Smith	SMITHD@SCDOT.ORG	737-1418	SCDOT
8	Edythe Amick	amickTE@SCDOT.org	737-1523	SCDOT
9	Douglas Giovanni	GIOVANNED@SCDOT.ORG	737-1868	SCDOT
10	Evan Johnson	johnsonev@scdot.org	737-6660	SCDOT
11	Lucinda Statten	lucinda.statten@columbia.sc.gov	545-0339	CoC
12	Leigh DeForn	Leigh.deforn@columbia.sc.gov	803-545-4804	CoC
13	Charles Umma	CUMMA@AMTENGINEERING.COM	803-760-4441	AMT
14	Nick Matthews	NMATTHEWS@AMTENGINEERING.COM	828-391-9443	AMT
15	Carolyn Fisher	carolyn.fisher@dot.gov	803-765-5444	FHwt

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Sign In Sheet
Pre-Audit Meeting - Assembly Street
955 Park Street, Columbia SC
4/5/2023

	Name	Email	Phone Number	Agency
16	Robert Ullman	Robert.Ullman@columbiasc.gov	8034297927	Columbia PD
17	Isiah Bowman	b Bowman ib@scdot.org	803-737-1947	SCDOT
18				
19				
20				
21				
22				
23				
24				
25				
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28				
29				
30				

Sign In Sheet
Post Audit Meeting - Assembly Street
 955 Park Street, Columbia SC
 4/6/2023

	Name	Email	Phone Number	Agency
1	Eugene Taylor	Taylor EA ESTOOT	777-1103	SCDOT
2	Emily Jones	efjones@fmc.sc.edu	803-665-7362	USC
3	Carolyn Finner	carolyn.finner@dot.gov	803-765-5444	FAWt
4	Kaylon Meetze	MeetzeKR@scdot.org	803-737-2638	SCDOT
5	Isiah Bowman	BowmanIB@scdot.org	803-737-1447	SCDOT
6	Shawn Smiley	smileyse@scdot.org	803-737-1447	SCDOT
7	Ruthie Amick	AmickRF@scdot.org	803-737-1523	SCDOT
8	Evan Johnson	johnsonev@scdot.org	803-737-6444	SCDOT
9	Leigh Defalk	leighdefalk@cedulmbc.org	803-545-4964	COC
10	Lucinda Statter	lucinda.statter@culmbcsc.gov	803-545-0029	COC
11	Chris Umer	CulmerC@AMTENGINEERING.COM	803-760-4441	AMT
12	Nick Matthews	NMATTHEWS@AMTENGINEERING.COM		
13	Adam Hixon	Hixon.Adam@richlandcounty.sc.gov	803-381-1877	Richland County
14	Carol Jones	Carol.Jones@medhond.com	803-530-2945	MCH
15	Josh Coulson	Josh.Coulson@medhond.com	803-530-2945	MCH

Douglas Giovanni

GIOVANNI@SCDOT.ORG

737-1868

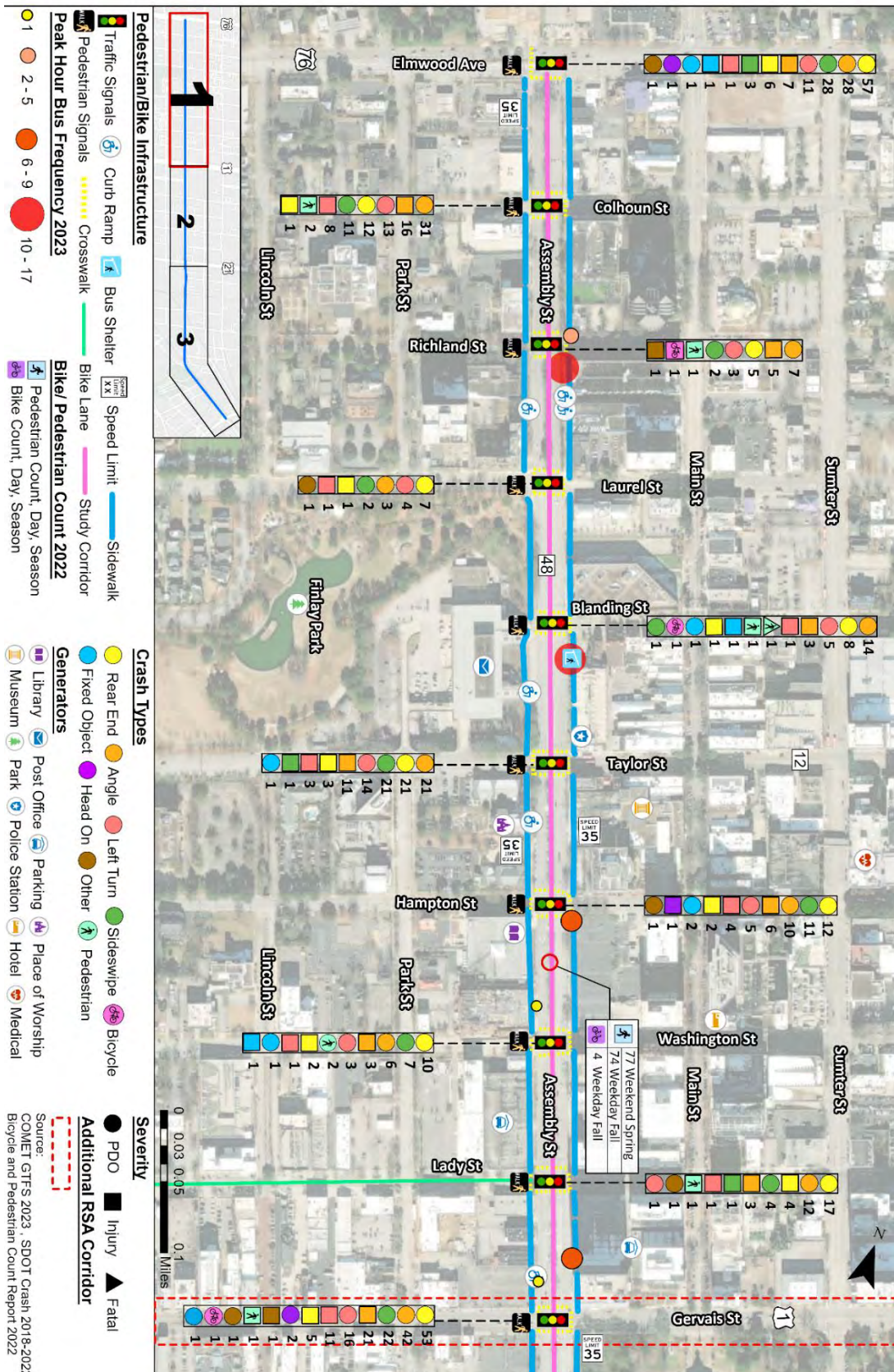
SCDOT

Appendix B – RSA Summary Package

Road Safety Audit Report

SC 48 (Assembly Street)

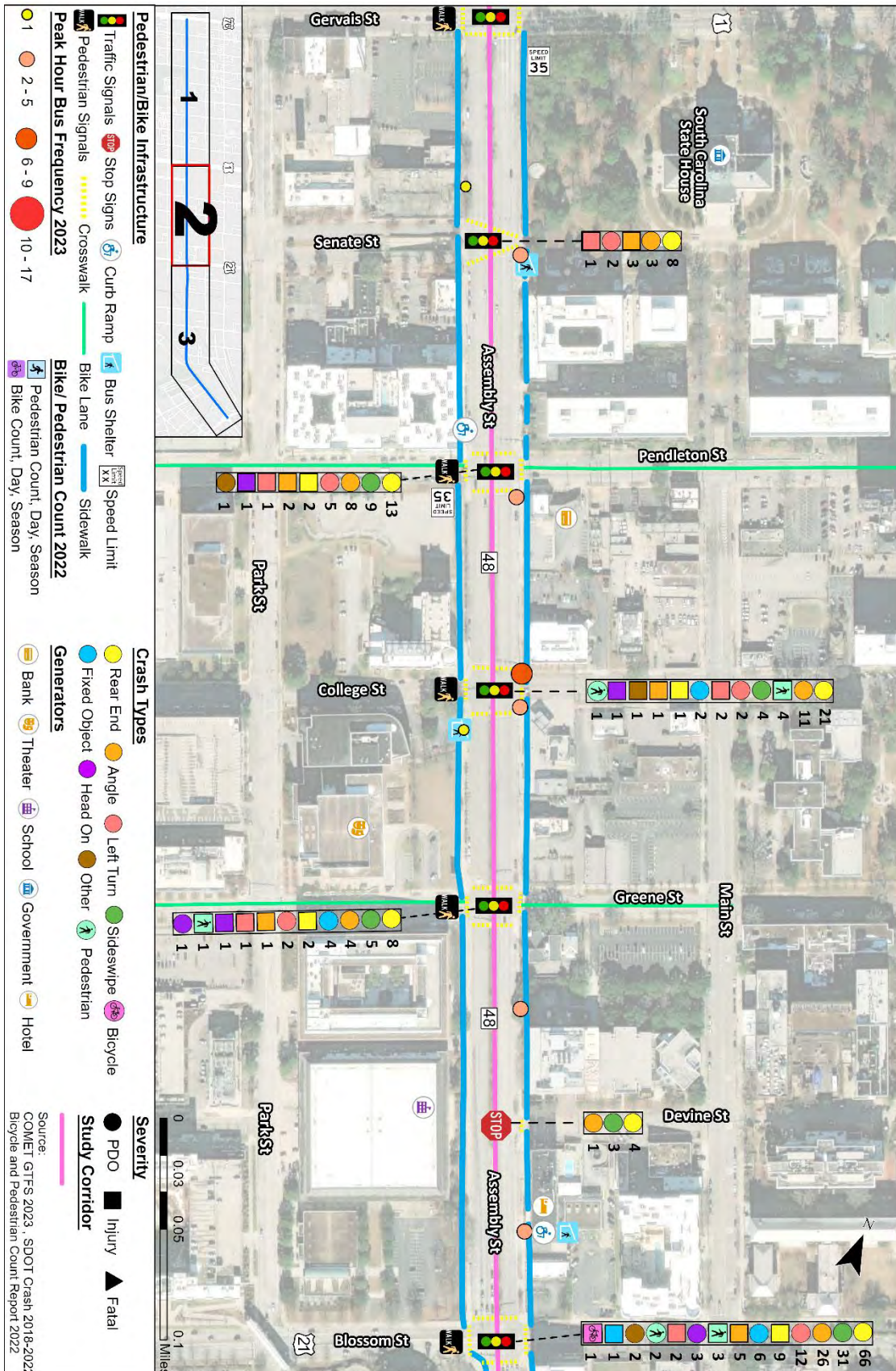
MP 0.00 – 2.50



Road Safety Audit Report

SC 48 (Assembly Street)

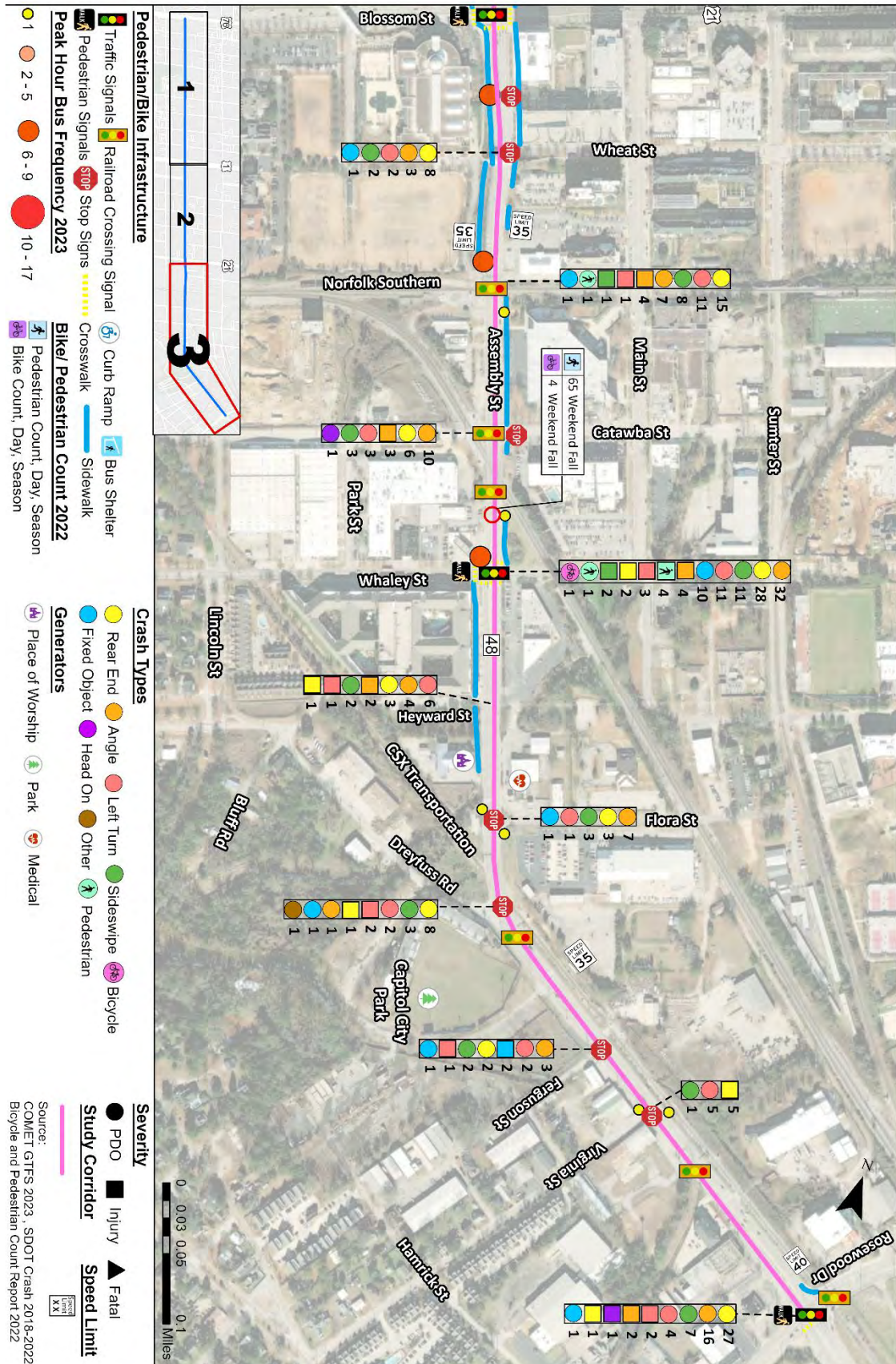
MP 0.00 – 2.50



Road Safety Audit Report

SC 48 (Assembly Street)

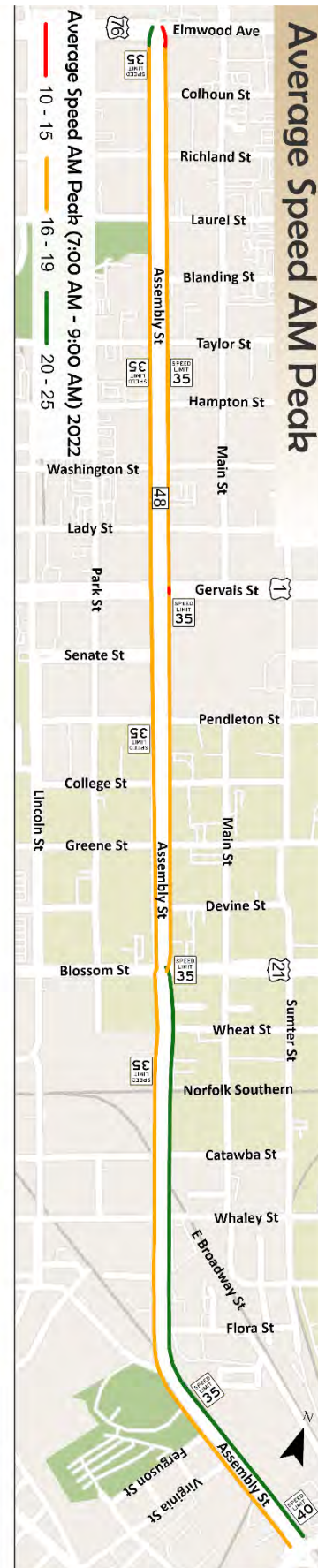
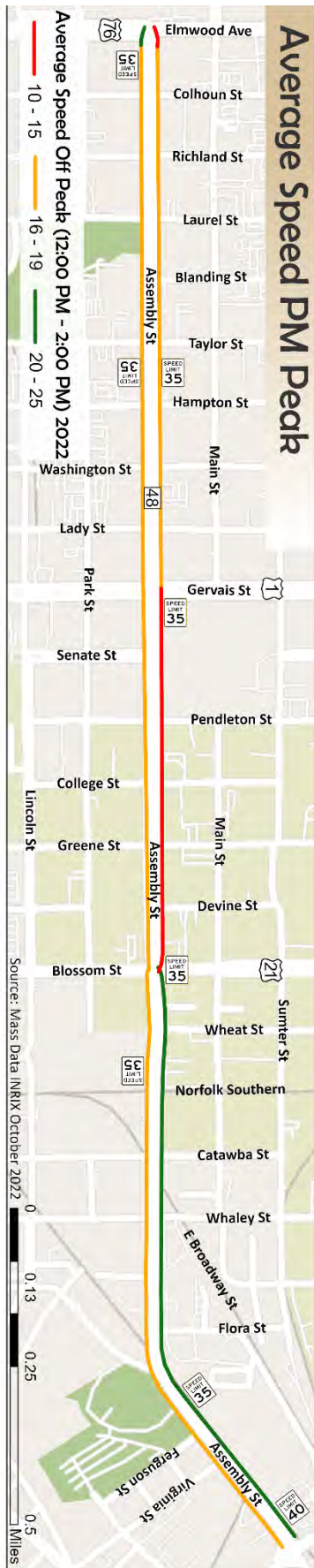
MP 0.00 – 2.50



Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50



Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50

Post-Construction Phase: Prompt List 6 – Existing Road Audit (Page 1 of 2)								
Road Function, Classification, Environment								
Road Alignment and Cross Section	Auxiliary Lanes	Intersections	Interchanges	Signs and Lighting	Marking and Delineation	Barriers and Clear Zones	Traffic Signals	Pedestrians and Bicyclists
Visibility, sight distance	Tapers	Location	Visibility, sight distance	Lighting	General issues	Clear zones	Operations	General issues
Design speed	Shoulders	Visibility, sight distance	Lanes, shoulders	General signs issues	Centerlines, edgelines, lane lines	Barriers	Visibility	Pedestrians
Speed limit/speed zoning	Signs and markings	Signing and marking	Signing, marking, delineation	Sign legibility	Guideposts and reflectors	End treatments /Crash cushions	Placement of signal heads	Bicyclists
Passing	Turning traffic	Layout and 'readability' (perception) by drivers	Pedestrians, bicyclists	Sign supports	Curve warning and delineation	Pedestrian railing		Public transport
'Readability' (perception) of the alignment by drivers		Pedestrians, bicyclists				Visibility of barriers and fence		
Human factors		Lighting						
Widths								
Shoulders								
Cross slopes								
Side slopes								
Drains								
Combinations of features								

Post-Construction Phase: Prompt List 6 – Existing Road Audit (Page 2 of 2)						
Road Function, Classification, Environment						
Older Drivers	Bridges and Culverts	Pavement	Parking	Provision For Heavy Vehicles	Hoodways and Causeways	Other Safety Issues
Turning operations (receiving lane widths, radii)	Design features	Pavement defects		Design issues	Ponding and flooding	Landscaping
Channelization, opposing left turn lanes	Barriers	Skid resistance		Pavement/shoulder quality	Safety of devices	Temporary works
Sight triangles	Pedestrian and recreational facilities, delineation	Ponding/icing/snow accumulation				Headlight glare
Signing, marking and delineation		Loose stones/material				Roadside activities
Traffic signals		Manholes				Signs of possible problems (pavement, roadside)
						Rest areas
						Environment
						Median curbing

Appendix C – Crash Data

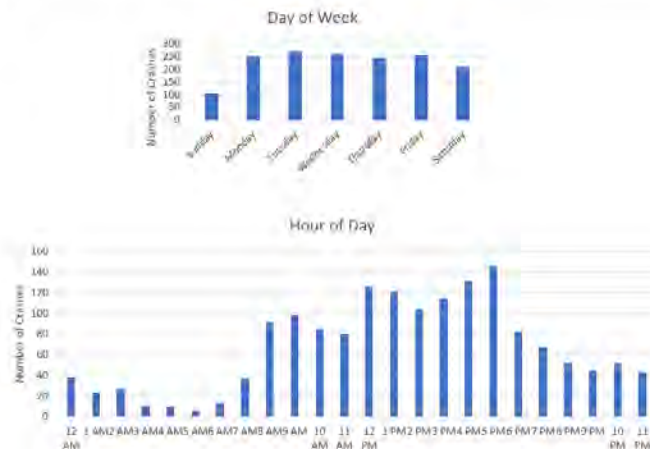
Assembly Street Collision Trends – Temporal Distribution

✓ Data represents 5 years from 2018 – 2022

✓ Collisions are more prevalent on weekdays

✓ No major peak on any weekday

✓ Collisions are most frequent during the hours between 12 PM – 5 PM



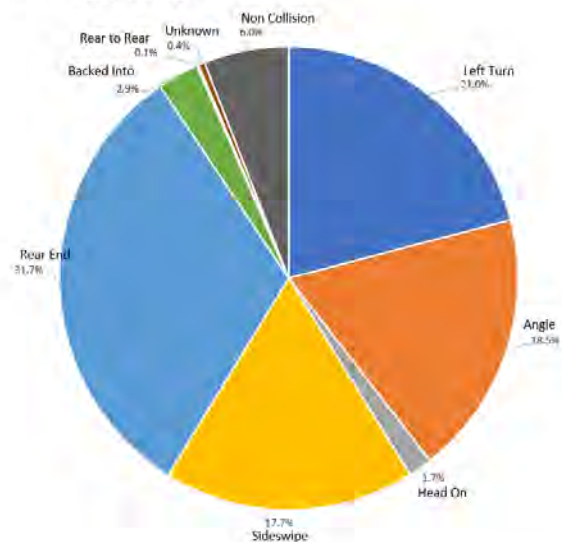
Assembly Street Collision Trends – Collision Type

High Frequency Collision Types:

- Rear end (32%)
- Left turn (21%)
- Angle crashes (19%)
- Sideswipe (18%)

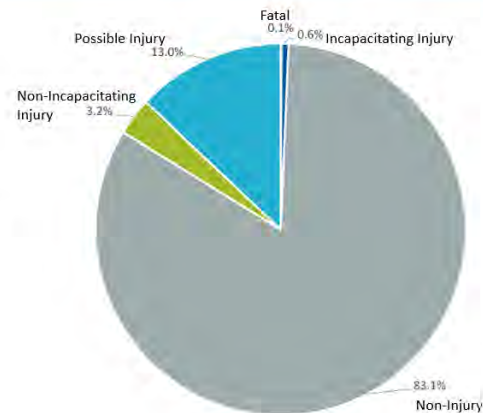
Non-collision Incidents (6%):

- Cargo/Equipment Loss or Shift
- Cross Median/Center
- Downhill Runaway
- Equipment Failure
- Fire/Explosion
- Immersion
- Jackknife
- Overturn/Rollover
- Ran off Road Left
- Ran off Road Right
- Separation of Units
- Spill (Two Wheeled Veh)
- Other Non-collision
- Unknown Non-collision

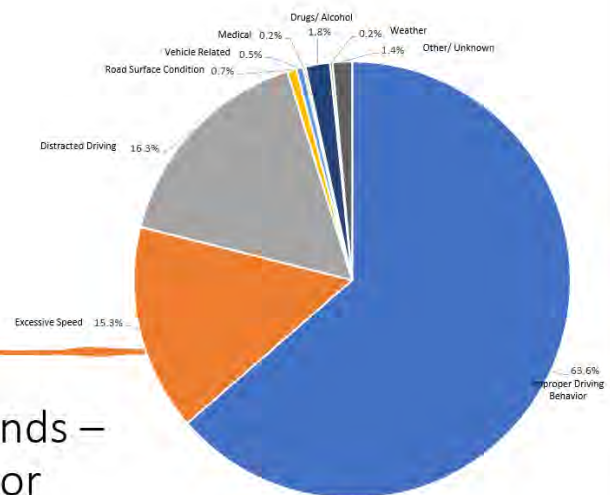


Assembly Street Collision Trends – Severity

- Non-injury crashes = 83%
- One (1) fatal collision occurred in the time period selected (2018 – 2022)
 - Pedestrian collision resulting in a fatality
 - Crash occurred on Assembly Street between Blanding and Taylor Streets

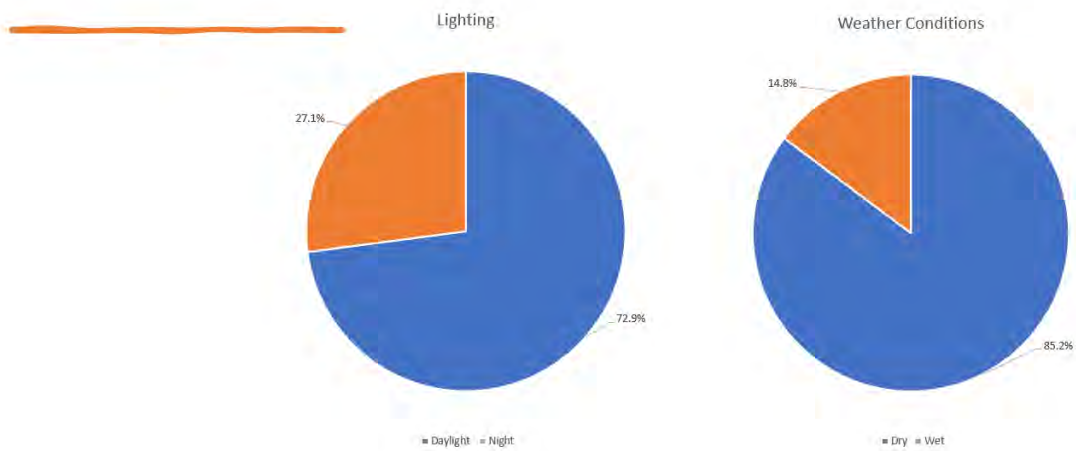


- Improper driving behavior was the highest primary contributing factor (64%)
 - This includes factors such as failing to yield ROW, following too closely, improper lane use, etc.
- Distracted driving (16%) and excessive speed (15%) were the next two highest primary contributing factors



Assembly Street Collision Trends – Primary Contributing Factor

Assembly Street Collision Trends – Additional Statistics

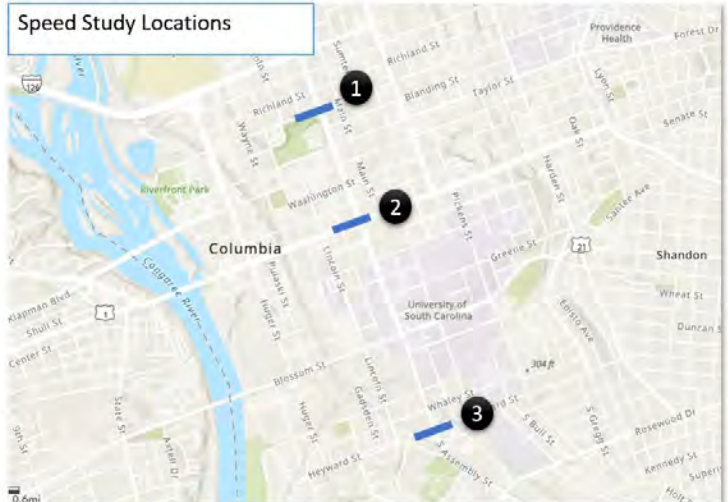


Appendix D – Speed Study Data

Assembly Street Speed Trends

85th percentile speeds are at or below posted speed limit of 35-mph, except between Heyward St and Dreyfuss Rd

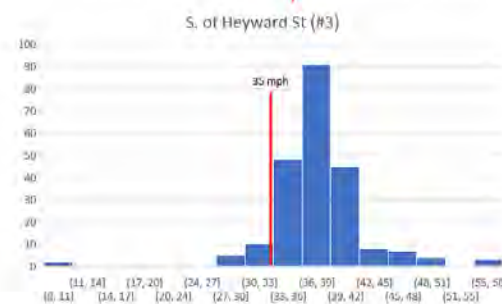
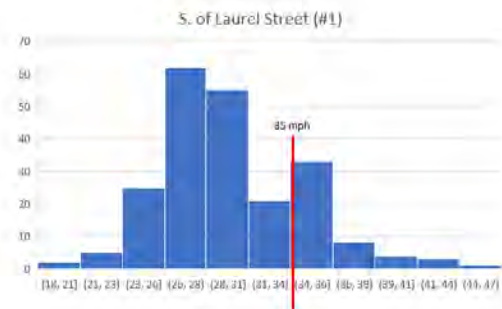
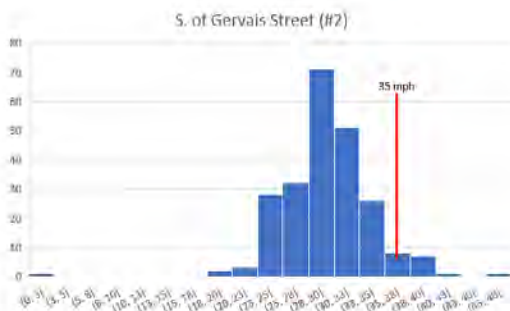
Speed Study Locations



LOCATION	MEAN	MEDIAN	MODE	STD. DEV.	85TH PERCENTILE
Assembly Street #1 S. of Laurel Street	30 MPH	29 MPH	28 MPH	4.40 MPH	35 MPH
Assembly Street #2 S. of Gervais Street	29 MPH	29 MPH	28 MPH	4.45 MPH	34 MPH
Assembly Street #3 S. of Heyward Street	38 MPH	38 MPH	38 MPH	5.38 MPH	42 MPH

Assembly Street Speed Trends

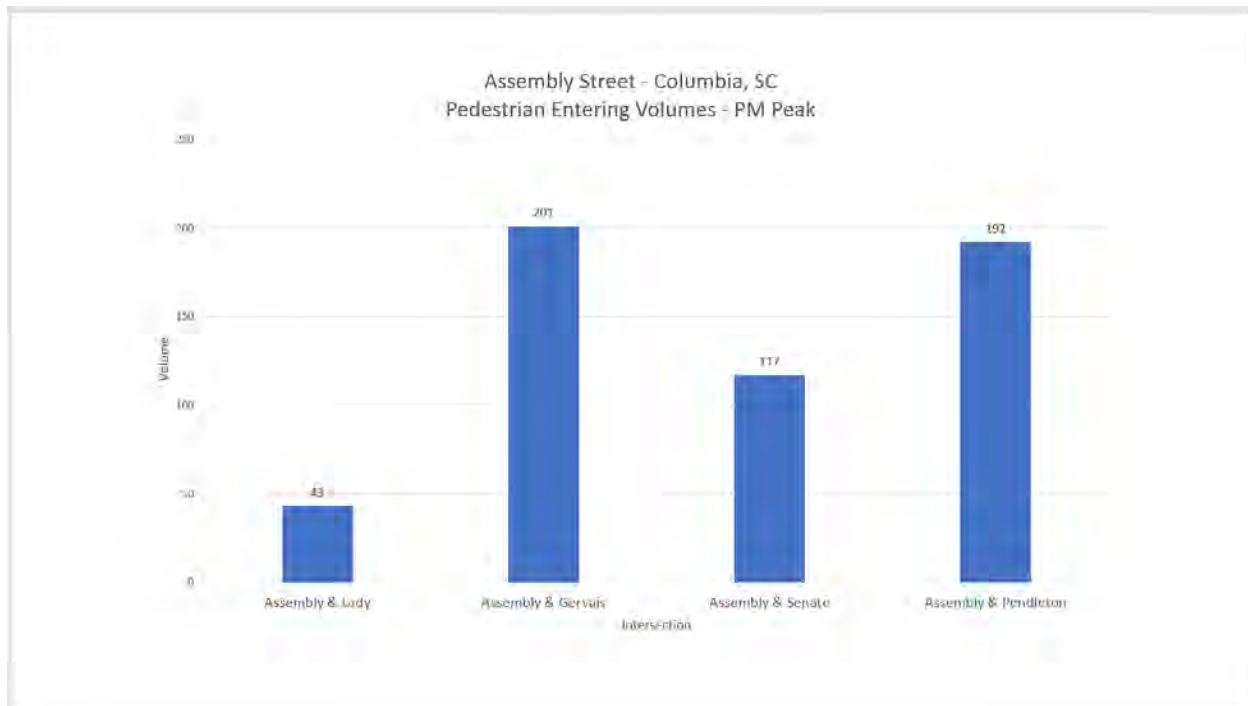
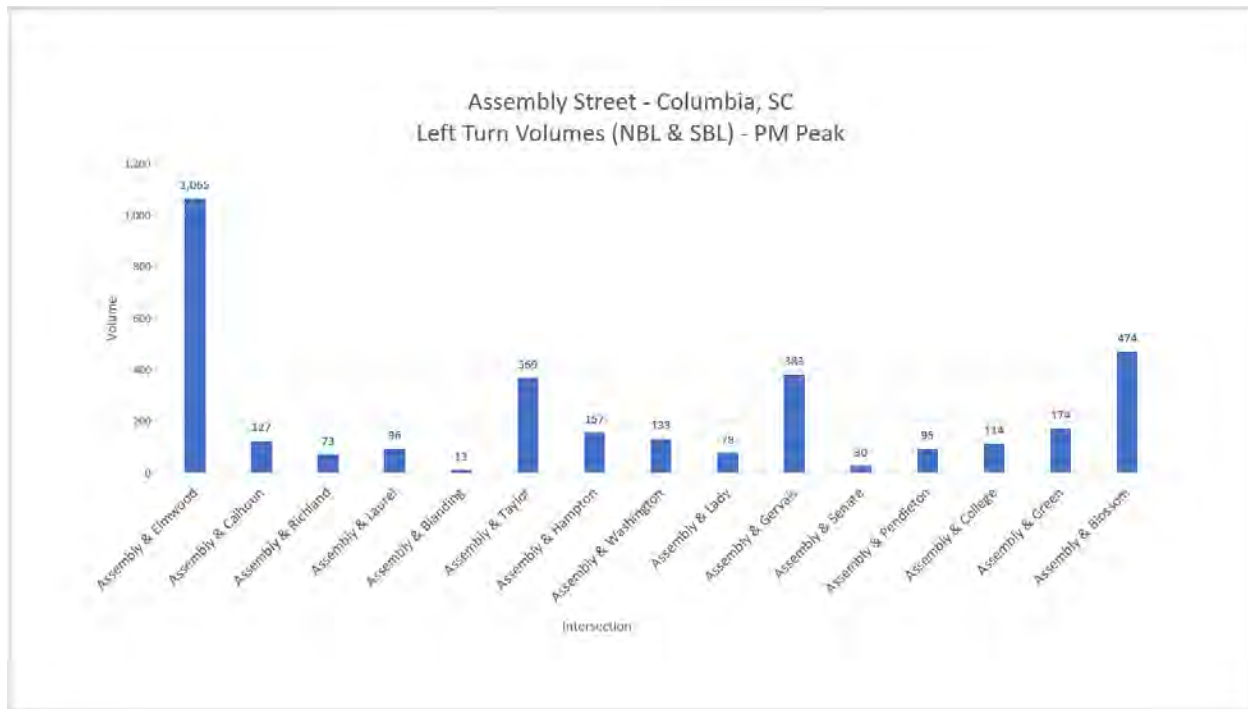
Assembly Street has the highest speed, and maximum observed speed, south of Heyward Street.



Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50



Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #2
Location: Between Service St and Pendleton St
GPS Coord: 33.99975, -81.03417
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:12
End Date/Time: Wednesday 3/29/23 at 10:42

Vehicle Count	Speed Data	Direction
87	14.0 MPH	N
88	17.0 MPH	N
89	18.0 MPH	N
90	18.0 MPH	N
91	16.0 MPH	N
92	16.0 MPH	N
93	15.0 MPH	N
94	18.0 MPH	N
95	24.0 MPH	N
96	15.0 MPH	N
97	14.0 MPH	N
98	19.0 MPH	N
99	28.0 MPH	N
100	20.0 MPH	N
101	19.0 MPH	N
102	18.0 MPH	N
103	28.0 MPH	N
104	11.0 MPH	N
105	18.0 MPH	N
106	18.0 MPH	N
107	11.0 MPH	N
108	11.0 MPH	N
109	19.0 MPH	N
110	11.0 MPH	N
111	11.0 MPH	N
112	14.0 MPH	N
113	19.0 MPH	N
114	11.0 MPH	N
115	11.0 MPH	N
116	17.0 MPH	N
117	16.0 MPH	N
118	16.0 MPH	N
119	18.0 MPH	N
120	20.0 MPH	N
121	19.0 MPH	N
122	19.0 MPH	N
123	18.0 MPH	N
124	18.0 MPH	N
125	11.0 MPH	N
126	11.0 MPH	N
127	11.0 MPH	N
128	12.0 MPH	N
129	11.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #2
Location: Between Howard St and Grayfox Rd
GPS Coord: 33.99977, -81.02904
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:50
End Date/Time: Wednesday 3/29/23 at 11:05

Vehicle Count	Speed Data	Direction
87	12.0 MPH	N
88	16.0 MPH	N
89	15.0 MPH	N
90	11.0 MPH	N
91	11.0 MPH	N
92	16.0 MPH	N
93	19.0 MPH	N
94	15.0 MPH	N
95	16.0 MPH	N
96	11.0 MPH	N
97	18.0 MPH	N
98	11.0 MPH	N
99	18.0 MPH	N
100	18.0 MPH	N
101	15.0 MPH	N
102	14.0 MPH	N
103	28.0 MPH	N
104	12.0 MPH	N
105	16.0 MPH	N
106	15.0 MPH	N
107	14.0 MPH	N
108	18.0 MPH	N
109	18.0 MPH	N
110	15.0 MPH	N
111	14.0 MPH	N
112	12.0 MPH	N
113	18.0 MPH	N
114	18.0 MPH	N
115	17.0 MPH	N
116	11.0 MPH	N
117	16.0 MPH	N
118	16.0 MPH	N
119	16.0 MPH	N
120	12.0 MPH	N
121	15.0 MPH	N
122	16.0 MPH	N
123	19.0 MPH	N
124	12.0 MPH	N
125	16.0 MPH	N
126	11.0 MPH	N
127	19.0 MPH	N
128	17.0 MPH	N
129	15.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #3
Location: Between Laurel St and Blending St
GPS Coord: 34.00020, -81.03828
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:10
End Date/Time: Wednesday 3/29/23 at 10:15

Vehicle Count	Speed Data	Direction
87	29.0 MPH	N
88	18.0 MPH	N
89	17.0 MPH	N
90	24.0 MPH	N
91	20.0 MPH	N
92	18.0 MPH	N
93	17.0 MPH	N
94	11.0 MPH	N
95	21.0 MPH	N
96	15.0 MPH	N
97	18.0 MPH	N
98	14.0 MPH	N
99	28.0 MPH	N
100	17.0 MPH	N
101	29.0 MPH	N
102	15.0 MPH	N
103	23.0 MPH	N
104	15.0 MPH	N
105	18.0 MPH	N
106	17.0 MPH	N
107	17.0 MPH	N
108	19.0 MPH	N
109	17.0 MPH	N
110	15.0 MPH	N
111	18.0 MPH	N
112	29.0 MPH	N
113	29.0 MPH	N
114	11.0 MPH	N
115	10.0 MPH	N
116	10.0 MPH	N
117	10.0 MPH	N
118	11.0 MPH	N
119	18.0 MPH	N
120	24.0 MPH	N
121	29.0 MPH	N
122	11.0 MPH	N
123	14.0 MPH	N
124	17.0 MPH	N
125	15.0 MPH	N
126	26.0 MPH	N
127	28.0 MPH	N
128	26.0 MPH	N
129	26.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #1
Location: Between Service St and Pendleton St
GPS Coord: 33.99975, -81.03417
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:22
End Date/Time: Wednesday 3/29/23 at 10:42

Vehicle Count	Speed Data	Direction
130	21.0 MPH	N
131	26.0 MPH	N
132	17.0 MPH	N
133	11.0 MPH	N
134	15.0 MPH	N
135	26.0 MPH	N
136	16.0 MPH	N
137	18.0 MPH	N
138	11.0 MPH	N
139	16.0 MPH	N
140	16.0 MPH	N
141	11.0 MPH	N
142	14.0 MPH	N
143	11.0 MPH	N
144	18.0 MPH	N
145	16.0 MPH	N
146	19.0 MPH	N
147	11.0 MPH	N
148	17.0 MPH	N
149	10.0 MPH	N
150	11.0 MPH	N
151	16.0 MPH	N
152	18.0 MPH	N
153	16.0 MPH	N
154	18.0 MPH	N
155	19.0 MPH	N
156	18.0 MPH	N
157	11.0 MPH	N
158	14.0 MPH	N
159	12.0 MPH	N
160	18.0 MPH	N
161	18.0 MPH	N
162	17.0 MPH	N
163	11.0 MPH	N
164	16.0 MPH	N
165	15.0 MPH	N
166	12.0 MPH	N
167	11.0 MPH	N
168	11.0 MPH	N
169	10.0 MPH	N
170	10.0 MPH	N
171	12.0 MPH	N
172	12.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #2
Location: Between Howard St and Grayfox Rd
GPS Coord: 33.99977, -81.02904
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:50
End Date/Time: Wednesday 3/29/23 at 11:05

Vehicle Count	Speed Data	Direction
130	16.0 MPH	N
131	11.0 MPH	N
132	18.0 MPH	N
133	10.0 MPH	N
134	14.0 MPH	N
135	16.0 MPH	N
136	16.0 MPH	N
137	16.0 MPH	N
138	17.0 MPH	N
139	15.0 MPH	N
140	11.0 MPH	N
141	11.0 MPH	N
142	12.0 MPH	N
143	12.0 MPH	N
144	15.0 MPH	N
145	11.0 MPH	N
146	19.0 MPH	N
147	11.0 MPH	N
148	12.0 MPH	N
149	11.0 MPH	N
150	12.0 MPH	N
151	12.0 MPH	N
152	19.0 MPH	N
153	14.0 MPH	N
154	18.0 MPH	N
155	16.0 MPH	N
156	11.0 MPH	N
157	12.0 MPH	N
158	19.0 MPH	N
159	12.0 MPH	N
160	15.0 MPH	N
161	16.0 MPH	N
162	11.0 MPH	N
163	11.0 MPH	N
164	15.0 MPH	N
165	17.0 MPH	N
166	18.0 MPH	N
167	16.0 MPH	N
168	19.0 MPH	N
169	11.0 MPH	N
170	19.0 MPH	N
171	19.0 MPH	N
172	15.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Study: Assembly Street #3
Location: Between Laurel St and Blending St
GPS Coord: 34.00020, -81.03828
Direction: Northbound/Southbound
Road Labels: I-96, I-96
County, State: Richmond, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:10
End Date/Time: Wednesday 3/29/23 at 10:15

Vehicle Count	Speed Data	Direction
130	14.0 MPH	N
131	18.0 MPH	N
132	18.0 MPH	N
133	15.0 MPH	N
134	18.0 MPH	N
135	18.0 MPH	N
136	16.0 MPH	N
137	19.0 MPH	N
138	17.0 MPH	N
139	17.0 MPH	N
140	16.0 MPH	N
141	18.0 MPH	N
142	17.0 MPH	N
143	15.0 MPH	N
144	11.0 MPH	N
145	17.0 MPH	N
146	11.0 MPH	N
147	14.0 MPH	N
148	18.0 MPH	N
149	18.0 MPH	N
150	17.0 MPH	N
151	10.0 MPH	N
152	16.0 MPH	N
153	16.0 MPH	N
154	16.0 MPH	N
155	16.0 MPH	N
156	14.0 MPH	N
157	18.0 MPH	N
158	19.0 MPH	N
159	11.0 MPH	N
160	18.0 MPH	N
161	10.0 MPH	N
162	10.0 MPH	N
163	19.0 MPH	N
164	15.0 MPH	N
165	11.0 MPH	N
166	11.0 MPH	N
167	19.0 MPH	N
168	15.0 MPH	N
169	14.0 MPH	N
170	15.0 MPH	N
171	13.0 MPH	N
172	15.0 MPH	N

Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #1
Location: Between Geneva St and Fendleton St
GPS Coord: 33.98875, -81.03417
Direction: Northbound/Southbound
of Lanes: 4 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:27
End Date/Time: Wednesday 3/29/23 at 10:42

Vehicle Count	Speed Data	Direction
130	25.0 MPH	N
131	26.0 MPH	N
132	27.0 MPH	N
133	28.0 MPH	N
134	25.0 MPH	N
135	26.0 MPH	N
136	28.0 MPH	N
137	28.0 MPH	N
138	33.0 MPH	N
139	26.0 MPH	N
140	28.0 MPH	N
141	27.0 MPH	N
142	28.0 MPH	N
143	31.0 MPH	N
144	28.0 MPH	N
145	28.0 MPH	N
146	29.0 MPH	N
147	31.0 MPH	N
148	27.0 MPH	N
149	29.0 MPH	N
150	31.0 MPH	N
151	38.0 MPH	N
152	29.0 MPH	N
153	27.0 MPH	N
154	29.0 MPH	N
155	27.0 MPH	N
156	28.0 MPH	N
157	29.0 MPH	N
158	38.0 MPH	N
159	36.0 MPH	N
160	29.0 MPH	N
161	28.0 MPH	N
162	29.0 MPH	N
163	30.0 MPH	N
164	38.0 MPH	N
165	33.0 MPH	N
166	32.0 MPH	N
167	31.0 MPH	N
168	30.0 MPH	N
169	30.0 MPH	N
170	30.0 MPH	N
171	32.0 MPH	N
172	32.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #2
Location: Between Heyward St and Dreyfus Rd
GPS Coord: 33.98517, -81.02884
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:50
End Date/Time: Wednesday 3/29/23 at 11:05

Vehicle Count	Speed Data	Direction
130	46.0 MPH	N
131	43.0 MPH	N
132	28.0 MPH	N
133	42.0 MPH	N
134	38.0 MPH	N
135	38.0 MPH	N
136	28.0 MPH	N
137	42.0 MPH	N
138	47.0 MPH	N
139	35.0 MPH	N
140	43.0 MPH	N
141	42.0 MPH	N
142	42.0 MPH	N
143	38.0 MPH	N
144	35.0 MPH	N
145	32.0 MPH	N
146	39.0 MPH	N
147	40.0 MPH	N
148	42.0 MPH	N
149	42.0 MPH	N
150	42.0 MPH	N
151	42.0 MPH	N
152	37.0 MPH	N
153	34.0 MPH	N
154	40.0 MPH	N
155	39.0 MPH	N
156	43.0 MPH	N
157	42.0 MPH	N
158	42.0 MPH	N
159	39.0 MPH	N
160	35.0 MPH	N
161	36.0 MPH	N
162	36.0 MPH	N
163	41.0 MPH	N
164	35.0 MPH	N
165	47.0 MPH	N
166	39.0 MPH	N
167	39.0 MPH	N
168	39.0 MPH	N
169	41.0 MPH	N
170	39.0 MPH	N
171	39.0 MPH	N
172	35.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #3
Location: Between Laurel St and Blanding St
GPS Coord: 34.08020, -81.03829
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:08
End Date/Time: Wednesday 3/29/23 at 10:25

Vehicle Count	Speed Data	Direction
130	24.0 MPH	N
131	24.0 MPH	N
132	28.0 MPH	N
133	23.0 MPH	N
134	29.0 MPH	N
135	24.0 MPH	N
136	26.0 MPH	N
137	24.0 MPH	N
138	23.0 MPH	N
139	25.0 MPH	N
140	26.0 MPH	N
141	24.0 MPH	N
142	27.0 MPH	N
143	26.0 MPH	N
144	31.0 MPH	N
145	32.0 MPH	N
146	31.0 MPH	N
147	34.0 MPH	N
148	33.0 MPH	N
149	28.0 MPH	N
150	27.0 MPH	N
151	26.0 MPH	N
152	26.0 MPH	N
153	29.0 MPH	N
154	30.0 MPH	N
155	32.0 MPH	N
156	34.0 MPH	N
157	34.0 MPH	N
158	29.0 MPH	N
159	31.0 MPH	N
160	29.0 MPH	N
161	30.0 MPH	N
162	30.0 MPH	N
163	28.0 MPH	N
164	27.0 MPH	N
165	31.0 MPH	N
166	31.0 MPH	N
167	20.0 MPH	N
168	28.0 MPH	N
169	34.0 MPH	N
170	31.0 MPH	N
171	19.0 MPH	N
172	25.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #1
Location: Between Geneva St and Fendleton St
GPS Coord: 33.98875, -81.03417
Direction: Northbound/Southbound
of Lanes: 4 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:27
End Date/Time: Wednesday 3/29/23 at 10:42

Vehicle Count	Speed Data	Direction
173	22.0 MPH	N
174	28.0 MPH	N
175	31.0 MPH	N
176	31.0 MPH	N
177	33.0 MPH	N
178	32.0 MPH	N
179	34.0 MPH	N
180	32.0 MPH	N
181	28.0 MPH	N
182	31.0 MPH	N
183	22.0 MPH	N
184	31.0 MPH	N
185	28.0 MPH	N
186	28.0 MPH	N
187	24.0 MPH	N
188	23.0 MPH	N
189	28.0 MPH	N
190	27.0 MPH	N
191	31.0 MPH	N
192	31.0 MPH	N
193	33.0 MPH	N
194	25.0 MPH	N
195	28.0 MPH	N
196	27.0 MPH	N
197	26.0 MPH	N
198	23.0 MPH	N
199	26.0 MPH	N
200	31.0 MPH	N
201	26.0 MPH	N
202	40.0 MPH	N
203	27.0 MPH	N
204	28.0 MPH	N
205	23.0 MPH	N
206	26.0 MPH	N
207	26.0 MPH	N
208	27.0 MPH	N
209	40.0 MPH	N
210	31.0 MPH	N
211	31.0 MPH	N
212	30.0 MPH	N
213	28.0 MPH	N
214	29.0 MPH	N
215	25.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #2
Location: Between Heyward St and Dreyfus Rd
GPS Coord: 33.98517, -81.02884
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:50
End Date/Time: Wednesday 3/29/23 at 11:05

Vehicle Count	Speed Data	Direction
173	21.0 MPH	N
174	34.0 MPH	N
175	34.0 MPH	N
176	32.0 MPH	N
177	36.0 MPH	N
178	36.0 MPH	N
179	36.0 MPH	N
180	37.0 MPH	N
181	33.0 MPH	N
182	41.0 MPH	N
183	42.0 MPH	N
184	42.0 MPH	N
185	38.0 MPH	N
186	31.0 MPH	N
187	32.0 MPH	N
188	36.0 MPH	N
189	40.0 MPH	N
190	42.0 MPH	N
191	42.0 MPH	N
192	43.0 MPH	N
193	41.0 MPH	N
194	39.0 MPH	N
195	34.0 MPH	N
196	36.0 MPH	N
197	39.0 MPH	N
198	41.0 MPH	N
199	42.0 MPH	N
200	38.0 MPH	N
201	38.0 MPH	N
202	36.0 MPH	N
203	37.0 MPH	N
204	35.0 MPH	N
205	41.0 MPH	N
206	41.0 MPH	N
207	42.0 MPH	N
208	43.0 MPH	N
209	35.0 MPH	N
210	32.0 MPH	N
211	38.0 MPH	N
212	40.0 MPH	N
213	42.0 MPH	N
214	43.0 MPH	N
215	42.0 MPH	N

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Road: Assembly Street #3
Location: Between Laurel St and Blanding St
GPS Coord: 34.08020, -81.03829
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:08
End Date/Time: Wednesday 3/29/23 at 10:25

Vehicle Count	Speed Data	Direction
173	25.0 MPH	N
174	42.0 MPH	N
175	34.0 MPH	N
176	31.0 MPH	N
177	28.0 MPH	N
178	29.0 MPH	N
179	31.0 MPH	N
180	33.0 MPH	N
181	30.0 MPH	N
182	33.0 MPH	N
183	22.0 MPH	N
184	28.0 MPH	N
185	34.0 MPH	N
186	29.0 MPH	N
187	33.0 MPH	N
188	34.0 MPH	N
189	33.0 MPH	N
190	33.0 MPH	N
191	35.0 MPH	N
192	34.0 MPH	N
193	36.0 MPH	N
194	35.0 MPH	N
195	28.0 MPH	N
196	31.0 MPH	N
197	32.0 MPH	N
198	32.0 MPH	N
199	31.0 MPH	N
200	34.0 MPH	N
201	28.0 MPH	N
202	27.0 MPH	N
203	33.0 MPH	N
204	31.0 MPH	N
205	30.0 MPH	N
206	32.0 MPH	N
207	32.0 MPH	N
208	33.0 MPH	N
209	29.0 MPH	N
210	30.0 MPH	N
211	30.0 MPH	N
212	31.0 MPH	N
213	34.0 MPH	N
214	32.0 MPH	N
215	33.0 MPH	N

Road Safety Audit Report

SC 48 (Assembly Street)

MP 0.00 – 2.50

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Roadway: Assembly Street #1
Location: Between Garvey St and Pendleton St
GPS Control: 33.99830, -81.03417
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:27
End Date/Time: Wednesday 3/29/23 at 10:42

Vehicle Count	Speed Data	Direction
216	27.0 MPH	SB
217	29.0 MPH	SB
218	28.0 MPH	SB
219	26.0 MPH	SB
220	31.0 MPH	SB
221	30.0 MPH	SB
222	31.0 MPH	SB
223	29.0 MPH	SB
224	23.0 MPH	SB
225	25.0 MPH	SB
226	26.0 MPH	SB
227	25.0 MPH	SB
228	24.0 MPH	SB
229	25.0 MPH	SB
230	26.0 MPH	SB
231	33.0 MPH	SB

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Roadway: Assembly Street #2
Location: Between Haywood St and Grayson St
GPS Control: 33.99627, -81.03364
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:50
End Date/Time: Wednesday 3/29/23 at 11:05

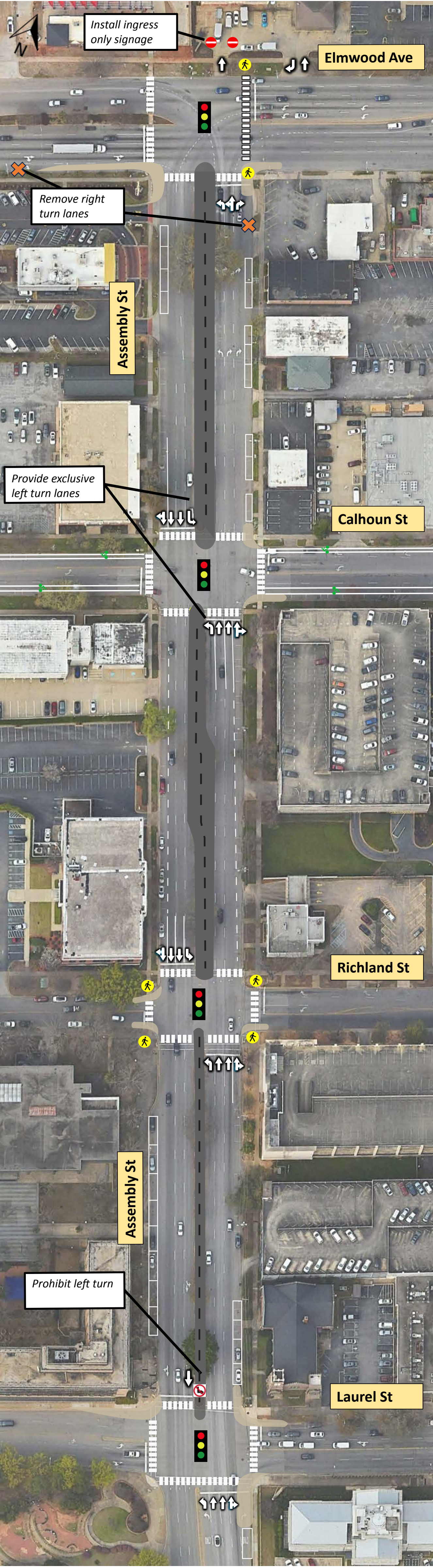
Vehicle Count	Speed Data	Direction
216	32.0 MPH	SB
217	30.0 MPH	SB
218	33.0 MPH	SB
219	36.0 MPH	SB
220	39.0 MPH	SB
221	41.0 MPH	SB
222	42.0 MPH	SB
223	38.0 MPH	SB

A. Morton Thomas & Associates, Inc. Radar Speed Study - Field Sheet

Roadway: Assembly Street #3
Location: Between Laurel St and Blanding St
GPS Control: 34.00620, -81.03628
Direction: Northbound/Southbound
of Lanes: 3 NB, 3 SB
County/State: Richland, South Carolina
Start Date/Time: Wednesday 3/29/23 at 10:00
End Date/Time: Wednesday 3/29/23 at 10:15

Vehicle Count	Speed Data	Direction
216	28.0 MPH	SB
217	27.0 MPH	SB
218	27.0 MPH	SB
219	28.0 MPH	SB

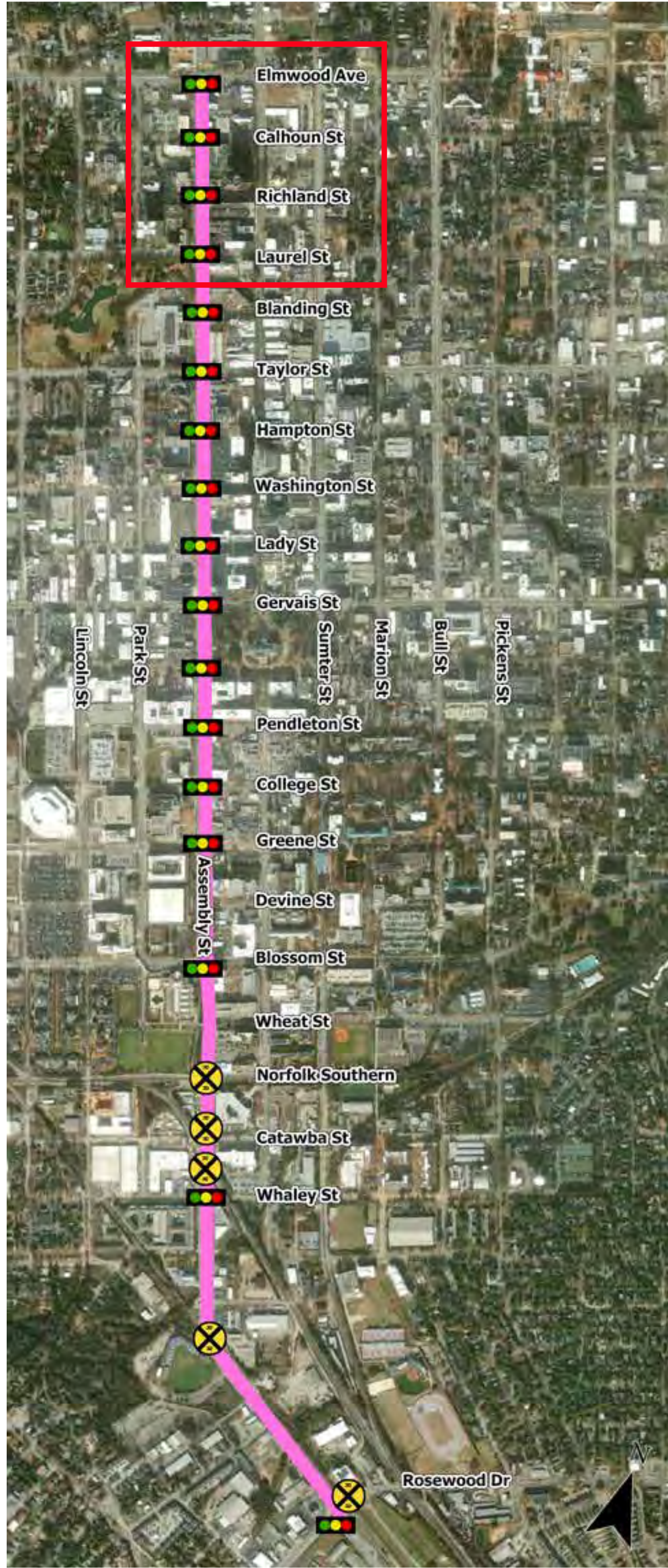
Appendix E – Concept Plan

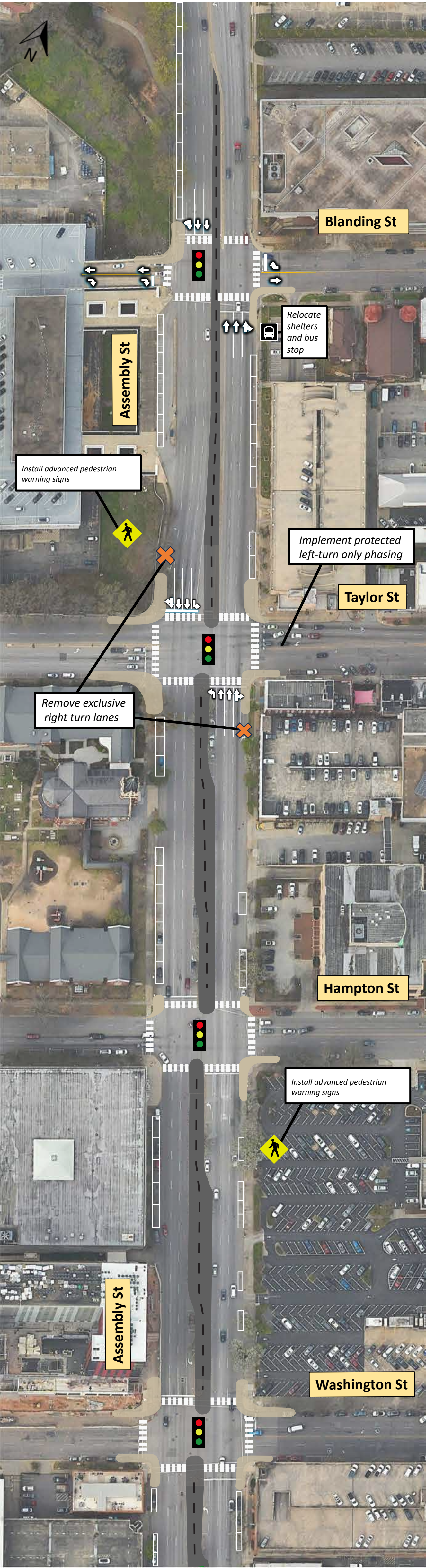


Assembly Street Improvements: Elmwood Avenue to Laurel Street

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

- Install 6 Pedestrian Push buttons
- Update 14 existing crosswalks
- Install one (1) new crosswalk
- Extend 12 curbs
- Extend three (3) medians
- Paint 26 new pavement markings
- Remove two (2) right- turn lanes
 - Add two (2) left-turn lanes
- Install four (4) new pedestrian signal heads
- Reduce pedestrian crossing distances by 215 feet



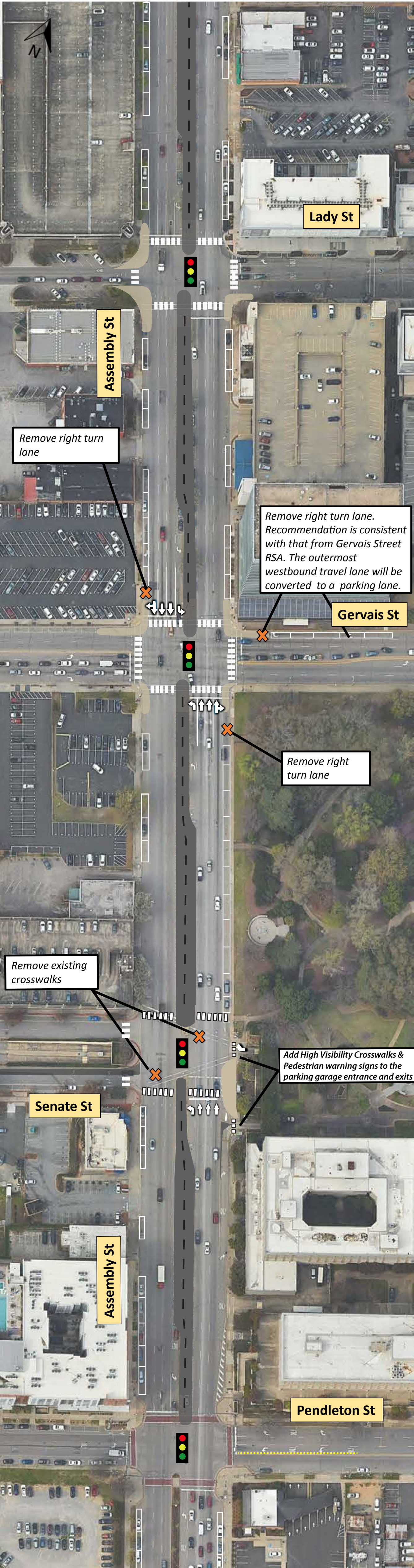


Assembly Street Improvements: Blanding Street to Washington Street

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

- Update 16 existing crosswalks
- Extend 13 curbs
- Extend four (4) medians
- Paint 14 new pavement markings
- Remove two (2) turn lanes
- Relocate one (1) bus stop and shelter
- Install advanced pedestrian warning signs
- Reduce pedestrian crossing distances by 330 feet

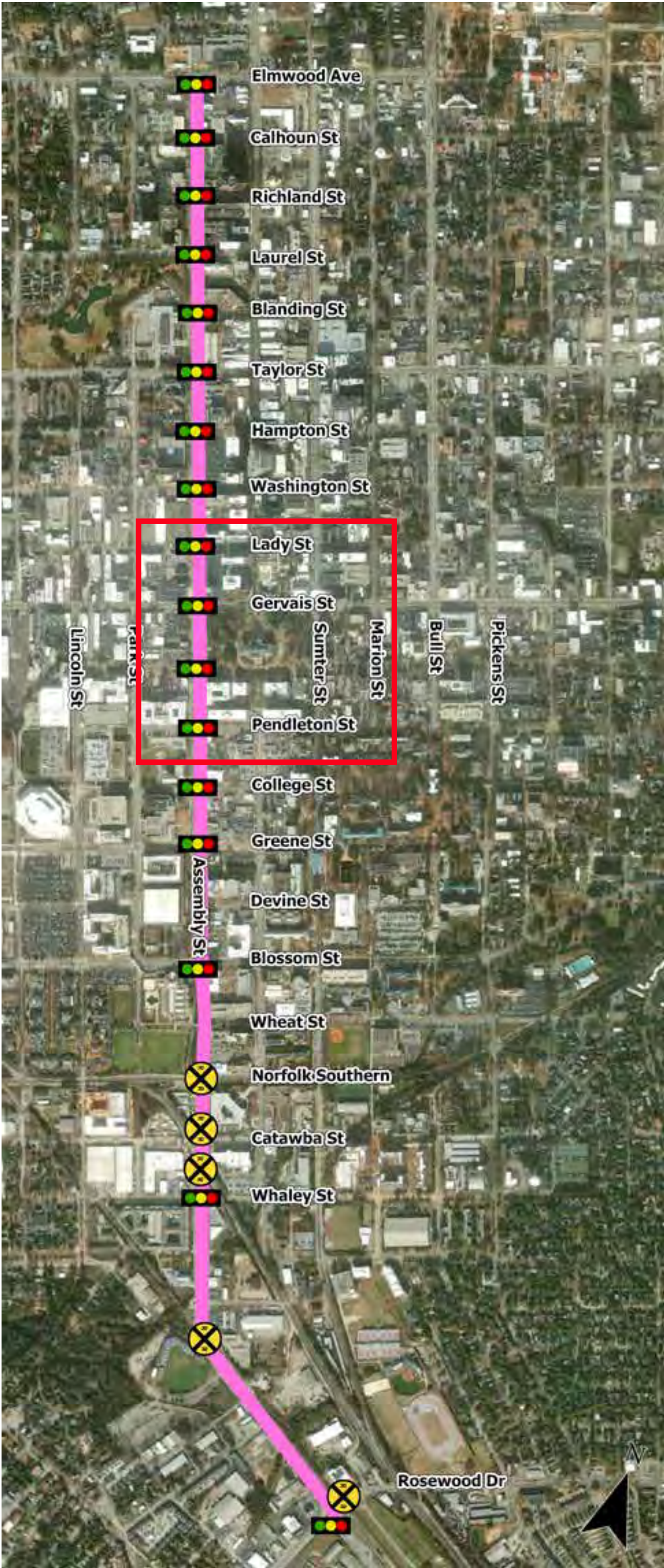




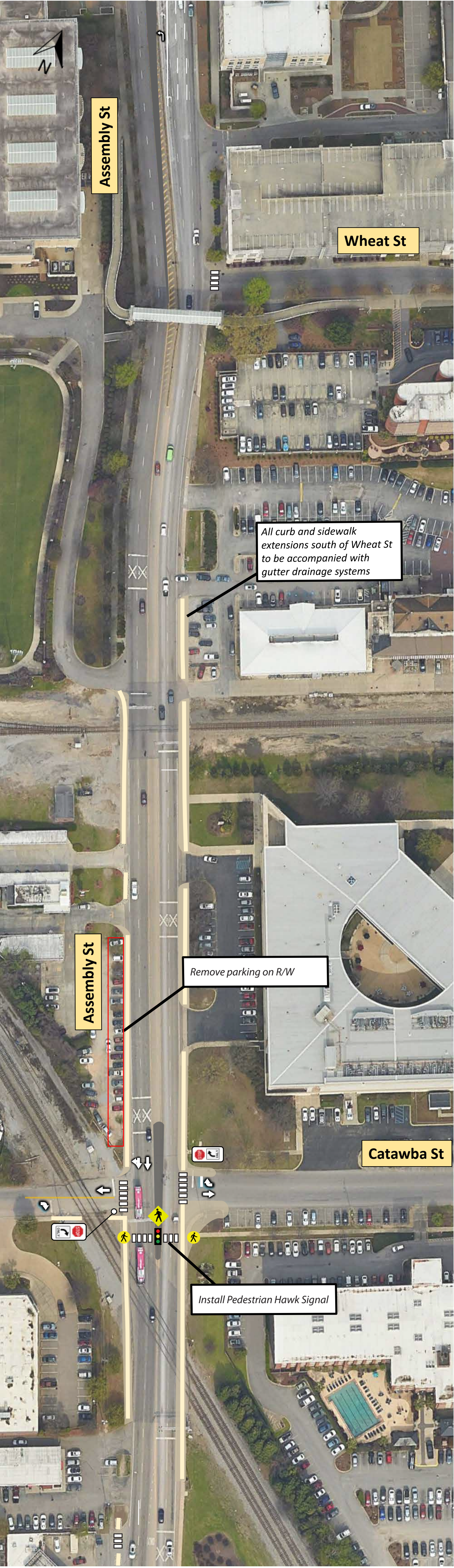
Assembly Street Improvements: Lady Street to Pendleton Street

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

- Update seven (8) existing crosswalks
- Install four (4) new crosswalks
- Extend eight (8) curbs
- Extend two (2) medians
- Paint three (3) new pavement markings
- Remove 2 existing crosswalks
- Remove 3 turn lanes
- Reduce pedestrian crossing distances by 245 feet
- Install flex posts



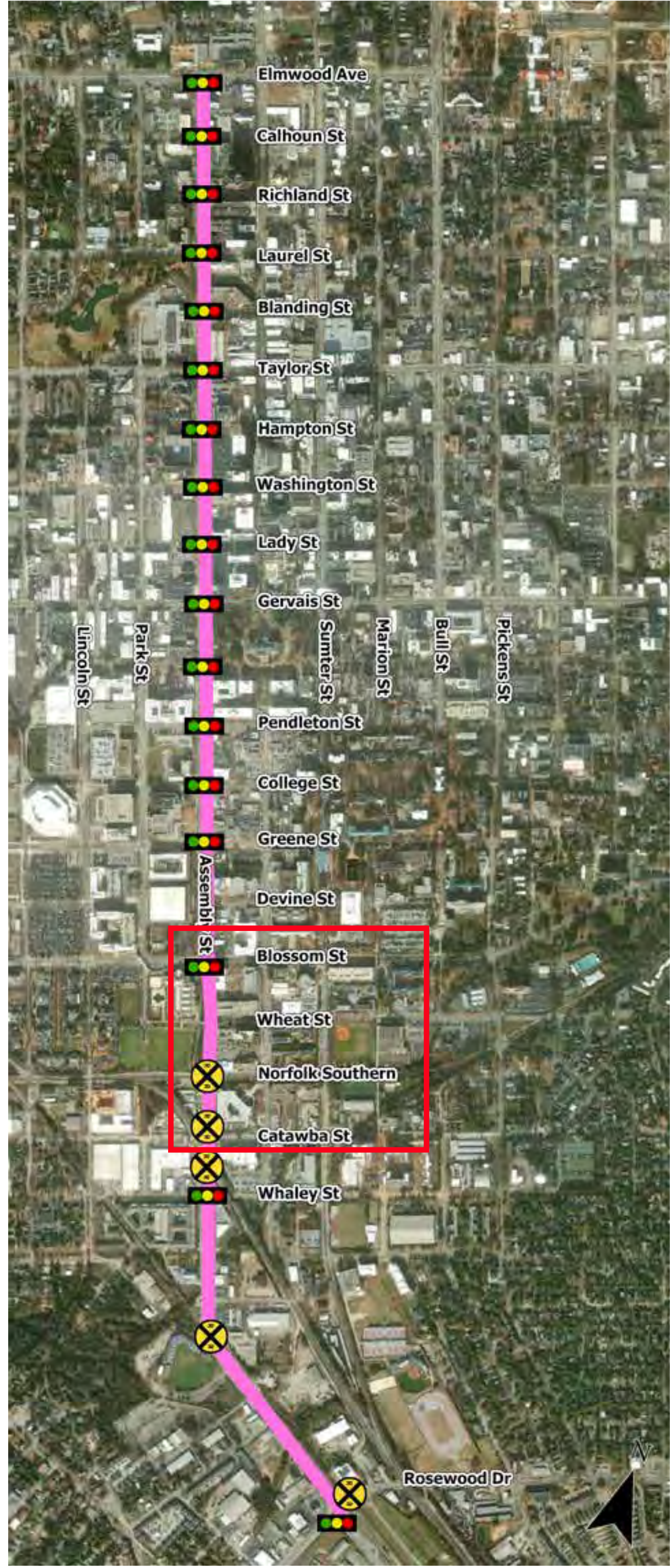
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Assembly Street Improvements: Wheat Street to Catawba Street

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

- Install two (2) Pedestrian Push buttons
- Install five (5) crosswalks
- Paint 10 new pavement markings
- Install one (1) median extensions
- Install 1,380 linear feat of sidewalk and curb
- Install gutter systems at all new sidewalk & curb locations
- Install a pedestrian HAWK s
- Install two (2) Stop / Right-turn only signs
- Reduce pedestrian crossing distances by 110 feet



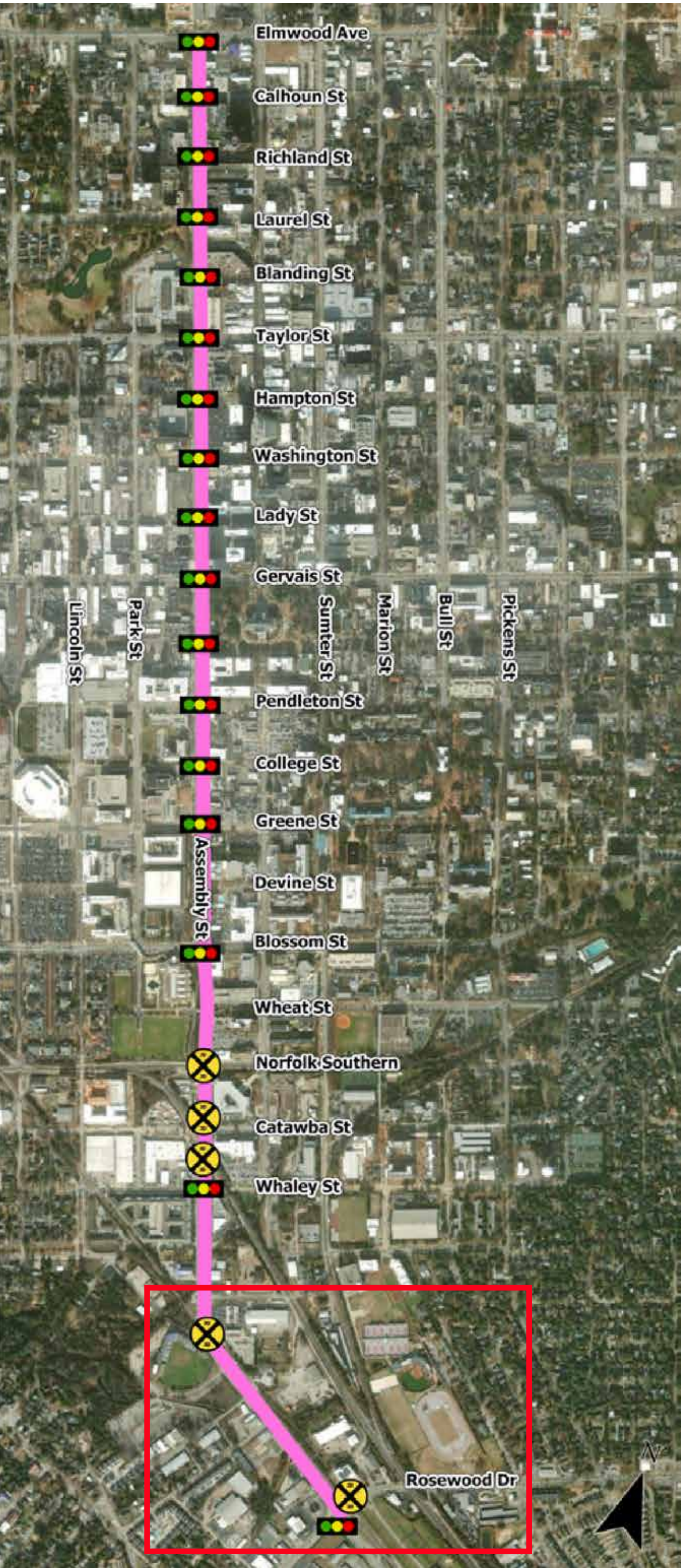




Assembly Street Improvements: Assembly Street & Rosewood Drive

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

- Install 1,800 linear feet of new sidewalk
- Install four (4) new crosswalks
- Extend one (1) median
- Reduce pedestrian crossing distances by 80 feet
- Install flex posts



Assembly Street Improvements: Wheat Street to Catawba Street - Alternative 2

- Install two (2) Pedestrian Push buttons
- Install four (4) crosswalks
- Paint 10 new pavement markings
- Install one (1) median extensions
- Install 1,380 linear feat of sidewalk and curb
- Install gutter systems at all new sidewalk & curb locations
- Install one (1) pedestrian hawk signal
- Install two (2) Stop / Right-turn only signs
- Reduce pedestrian exposure by 110 feet

	Pedestrian Push Button		New Median Barrier
	Signal Upgrades		Sidewalk Expansion
	Median Extension		New Crosswalk
	Curb Extension		Update to Existing Crosswalk
	New Pavement Marking / Lane Use		Curbside Parking
			New Flex Posts

