Summary

This segment was identified in a network screening as a top-ranked corridor for bicycle and pedestrian crash frequency at both the regional and local levels. The majority of crashes were caused by drivers' failure to yield to pedestrians in a crosswalk or to cyclists in a bike lane. No fatalities have occurred on the corridor. The intersection of Baxter Street and South Lumpkin Street already includes green painted bike lanes for cyclists, both as turn lanes and main travel lanes, curb extensions, and diagonal crosswalks with walk signals and audible beaconing for pedestrians. The intersections of smaller roads west of Lumpkin within the study segment all already include crosswalks, however these smaller intersections (Finley Street, South Newton Street/East Cloverhurst Avenue, and South Hull Street) all lack green painted bike lanes. It is recommended that these intersections be modified to include green painted bike lanes (B/C ratio of 25.38) and protection added to the existing bike lanes using flex posts, zippers, or another type of bicycle lane barrier device (B/C ratio of 84.6). It is also recommended that intersections be modified to include high visibility crosswalks (B/C ratio of 17.45).

Project Location and Existing Locations

This segment consists of Baxter street from Finley Street to South Lumpkin Street, including the intersections of Baxter Street and the following streets: Finley Street, South Newton Street/East Cloverhurst Avenue, South Hull Street, and South Lumpkin Street. Baxter Street has two travel lanes with left turn lanes at each intersection. The intersection of Baxter Street and South Lumpkin Street also includes a dedicated right turn lane. Crosswalks exist at each intersection, including a pedestrian scramble at South Lumpkin Street. Bike lanes exist on Baxter Street in both directions, and green painted bike lanes exist at the intersection of Baxter Street and South Lumpkin Street. Traffic lights exist at all intersections along the corridor except at Hull Street. The intersection of Baxter Street and South Lumpkin Street is at the bottom of a downhill from all directions, which should be considered in the screening. The steep downhill gradient of Baxter Street can promote higher speeds for both cars and bicyclists as they approach the intersections of Baxter with Finley Street, South Newton Street/East Cloverhurst Avenue, and South Hull Street. The majority of the corridor has pedestrian scale lighting, but there is a gap in lighting along the north side of Baxter between S. Newton Street and Finley Street. The right turn from Lumpkin onto Baxter is restricted, and the right turn from Baxter onto Lumpkin is restricted when the light is flashing. No reflective backplates exist at the intersections on the corridor.

Figure 1: Aerial imagery

Other Projects in Area

- Existing bike lanes may be improved during the next repaving; the timeline for this project is to be determined.

- A separated bike facility along Baxter Street from Milledge Avenue to S. Lumpkin Street is included in the Athens in Motion Bicycle Pedestrian Master Plan. The timeline and funding for this project is to be determined.

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Analysis Origin

Using the sliding window tool in Numetric, applied filters captured both pedestrian and bicycle crashes and the polygon tool was used to reduce the corridor length, excluding the section of Baxter Street west of Finley Street where no crashes occurred. This segment was selected as a hotspot for bicycle and pedestrian crashes in Athens-Clarke County and served as a pilot corridor for Georgia Bikes' "Enhanced Crash Screening" process, completed with funding from AARP's Community Challenge Grant. This segment was analyzed using GDOT's crash screening methodology, paired with a community engagement period, including in-person and online input opportunities for local residents. This project will provide a transferable methodology for including local knowledge and experience alongside the technical data provided by GDOT's crash screening process.
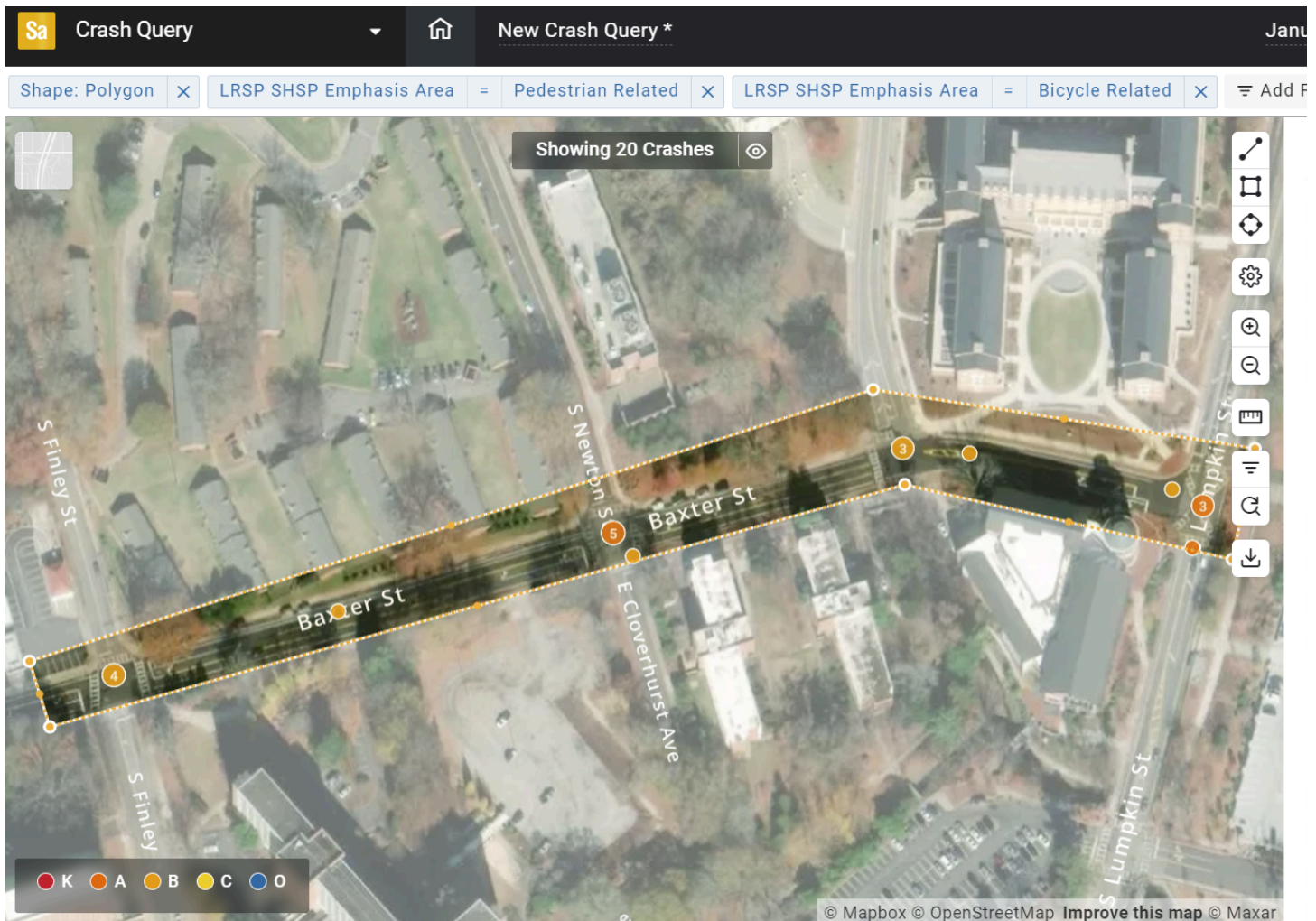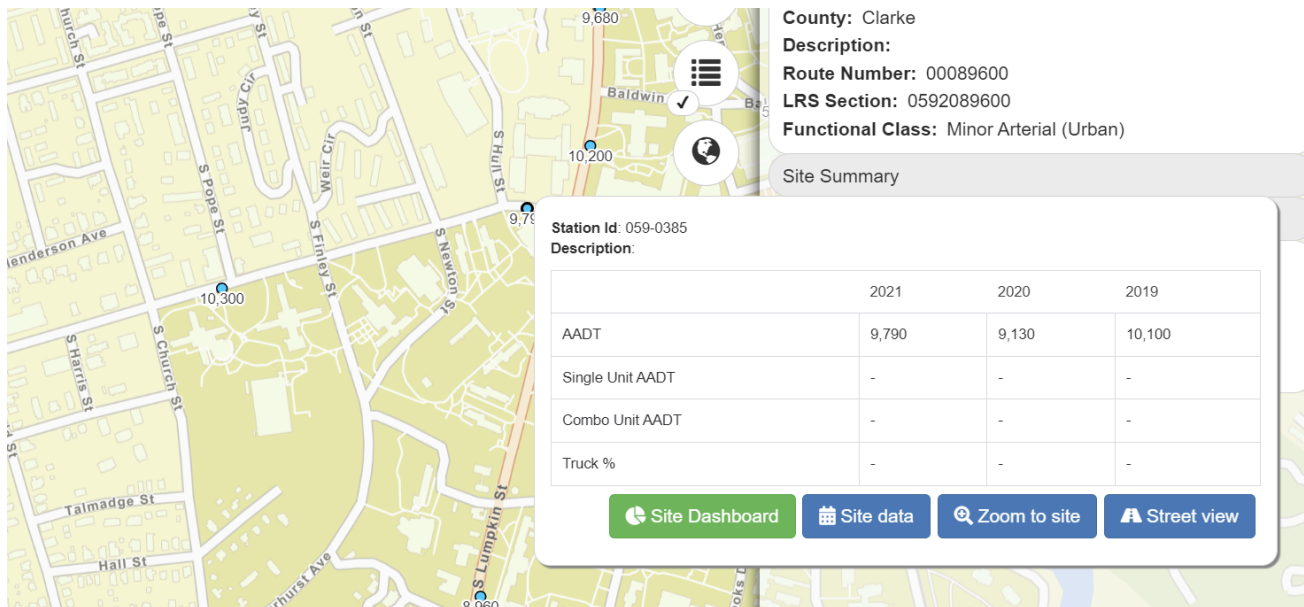

Figure 2: Sliding Window Analysis

County: Clarke
Description:
Route Number: 00089600
LRS Section: 0592089600
Functional Class: Minor Arterial (Urban)

Site Summary

Station Id: 059-0385
Description:

	2021	2020	2019
AADT	9,790	9,130	10,100
Single Unit AADT	-	-	-
Combo Unit AADT	-	-	-
Truck %	-	-	-

Site Dashboard   Site data   Zoom to site   Street view

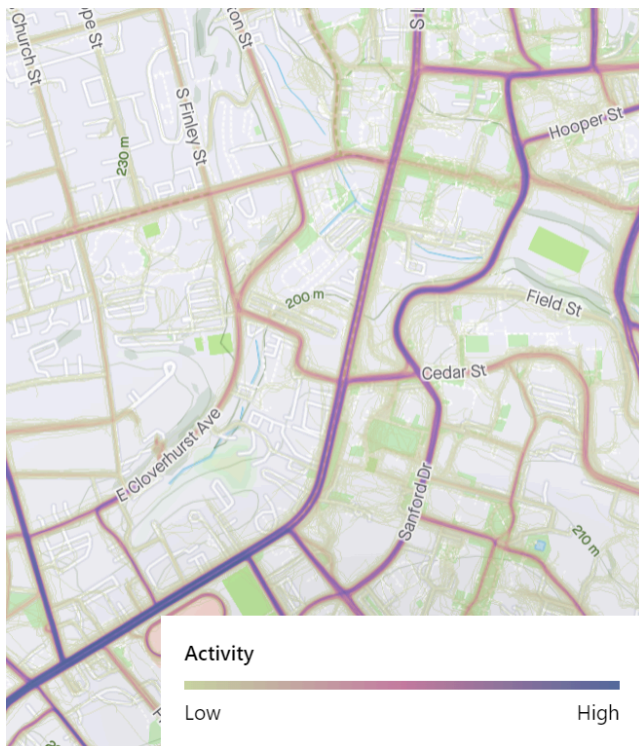Soure: Figure 3: GDOT Traffic Analysis & Data Allocation (TADA)

Figure 4: Bicycle Activity (Strava Metro)

Figure 5: Pedestrian Activity (Strava Metro)

According to Strava Metro, there was moderate bicycle activity and moderate-to-high pedestrian activity along this corridor from May 2022-April 2023. Significant pedestrian traffic is noted at the intersection of Baxter St. and S. Lumpkin St. as a result of University of Georgia class changes.

Sight Distance

- No known sight distance concerns exist along the corridor.

Traffic Volume

- Segment AADTs
  - In 2021, the average daily traffic was 9,790 vehicles per day, decreased from 10,100 ADT in 2019.

Crash History

This segment is one of the top-ranked corridors for pedestrian and bicyclist crash frequency in Athens-Clarke County, with 9 crashes involving bicyclists and 11 crashes involving pedestrians between 2012-2022. There have been 2 serious injuries, 11 minor injuries, and 4 possible injuries resulting from these collisions. Three crashes occurred in 2022-2034, which are not shown in Numetric. These recent crashes resulted in 2 additional minor injuries.

Ranking

Using both pedestrian and bicyclist crashes in our dataset, the following rankings occurred. It is clear that this is a dangerous corridor for bicyclists and pedestrians, with high rankings for crash frequency at the local and regional levels, and moderately high ePDO rankings at the local level:

Geographical Bounds	Ped and Bike Crash Frequency Ranking	Ped and Bike ePDO Ranking
City	4	41
County	4	41
Regional Commission	4	N/A
GDOT District	4	N/A
State of Georgia	51	N/A

Georgia Department of Transportation

Collision Diagram

The collision diagrams below show that the majority of pedestrians were crossing lawfully at a crosswalk and bicyclists were utilizing the dedicated bicycle lanes. Nearly all collisions appear to be caused by drivers' failure to yield to these vulnerable road users.
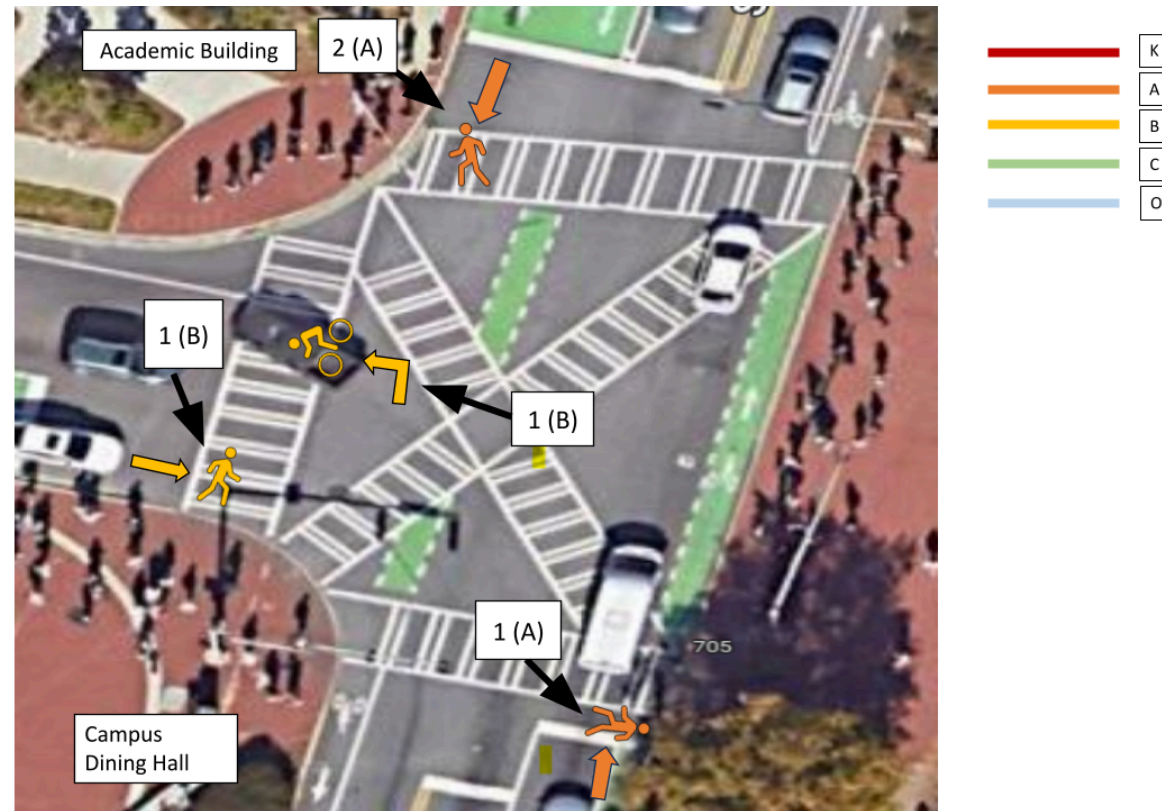
Three pedestrians and two bicyclists were involved in collisions at Baxter Street and South Lumpkin Street. The majority of these collisions resulted from drivers' failure to yield to a pedestrian in the crosswalk and a bicyclist going straight through the intersection using the bike lane. Driving under the influence was a factor in at least one serious injury pedestrian collision.

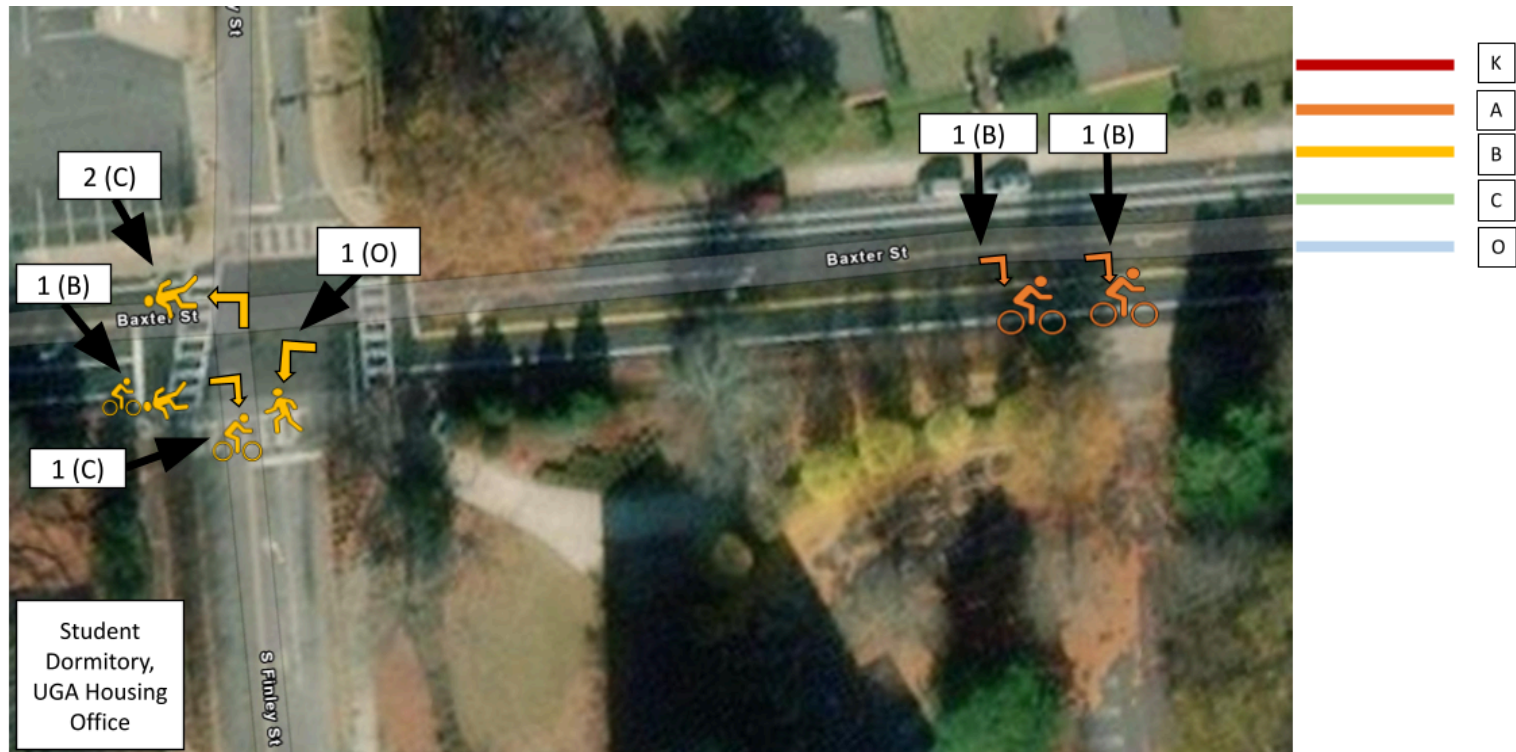|	
(red)	K
(orange)	A
(yellow)	B
(green)	C
(light blue)	O
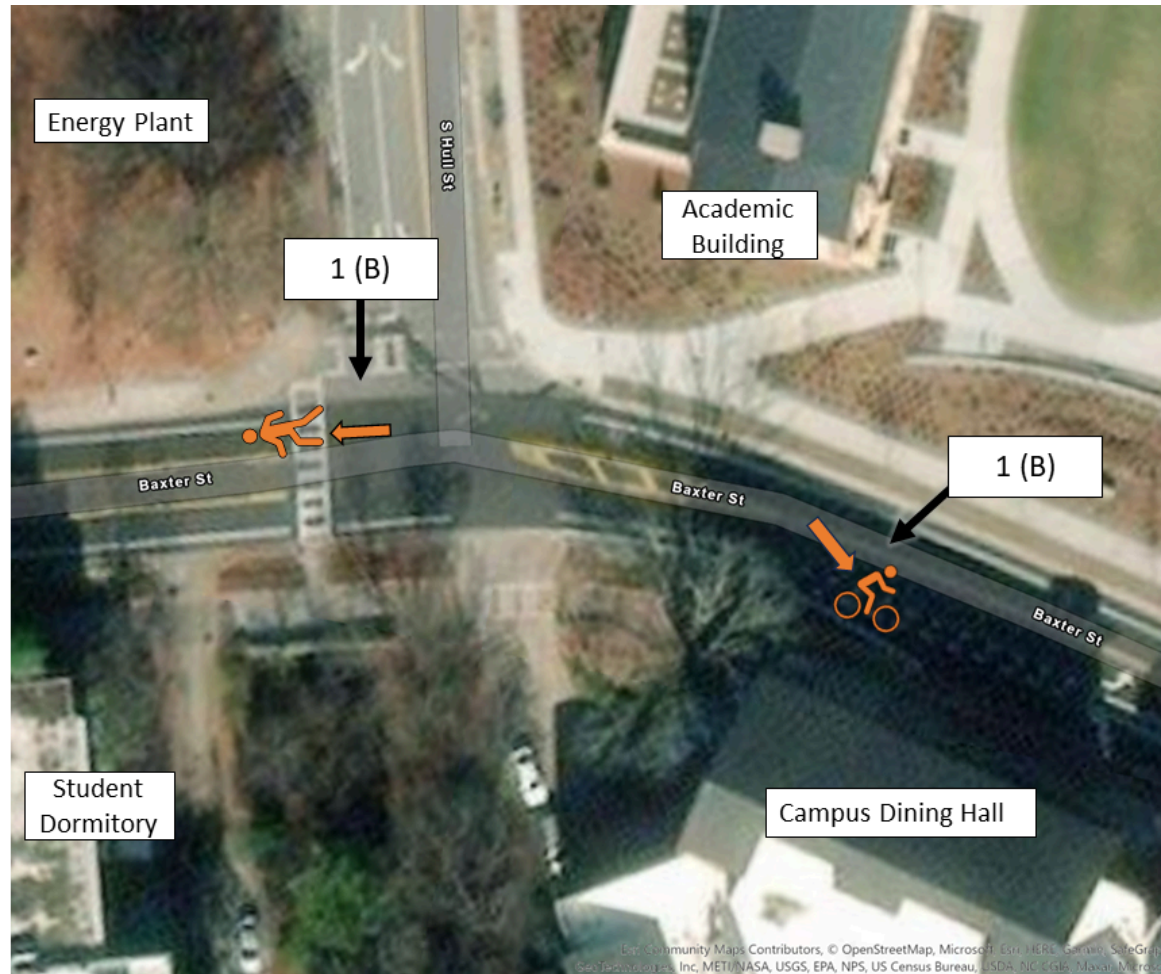
Two collisions occurred at or near the intersection of Baxter Street and South Hull Street. Both collisions occurred from drivers' failure to yield to a pedestrian in the crosswalk or a bicyclist in the bicycle lane.
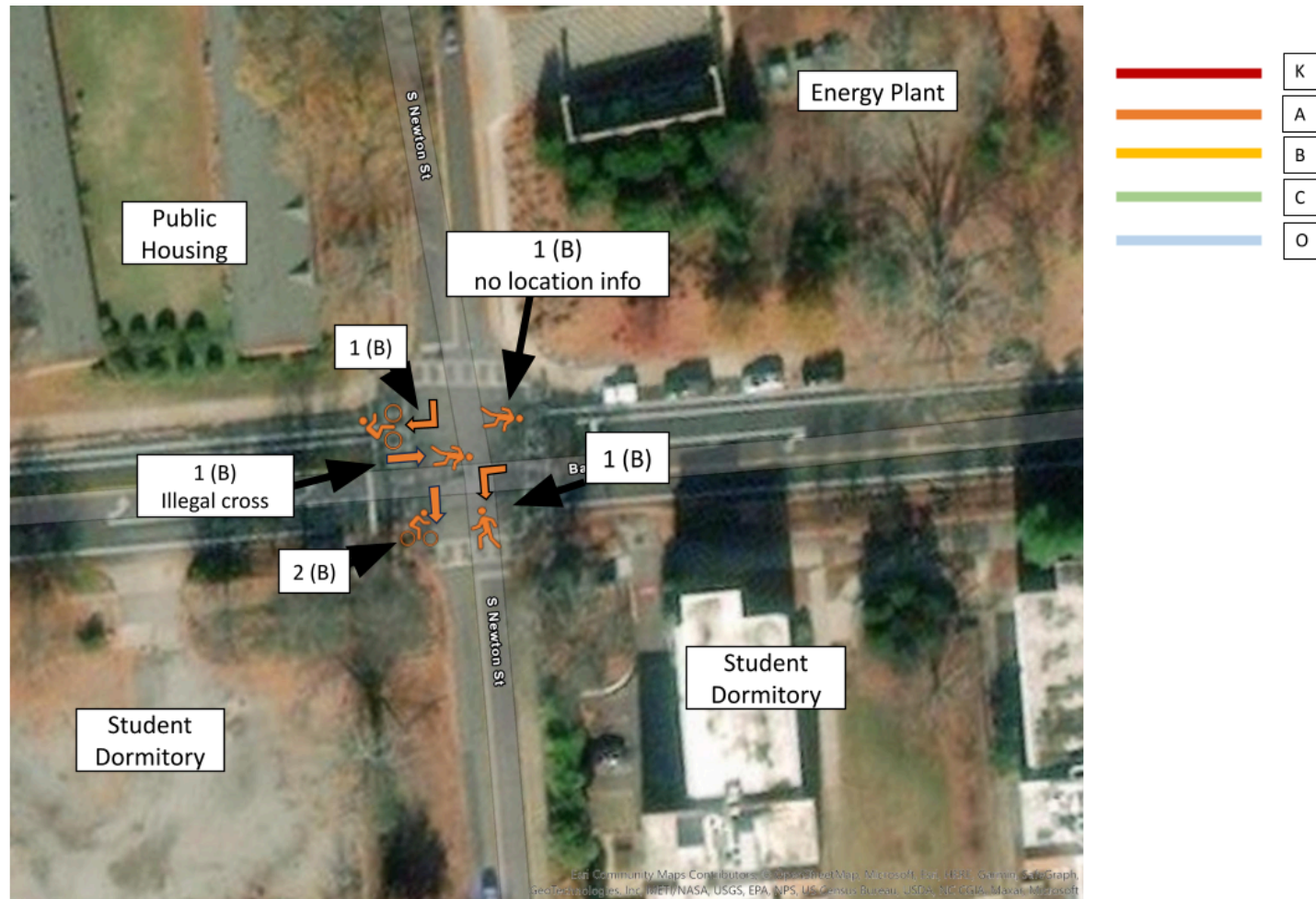
Four bike/ped crashes occurred at the intersection of Baxter St. and S. Newton St/Cloverhurst St. While the majority of crashes were due to drivers' failure to yield to a pedestrian or a bicyclist, this diagram shows one illegal pedestrian crossing and one crash with minimal info available.

Six collisions occurred at or near the intersection of Baxter Street and Finley Street. All six crashes resulted from drivers' failure to yield to a pedestrian in the crosswalk or bicyclist in the bicycle lane. Three of these crashes occurred between 2022 and 2023, and are not shown in Numetric nor reflected in the following data analysis sections.

Pedestrian Safety Analysis Metrics

Except for questions that are relevant only to pedestrian crashes, these charts and graphs in this section were created using data filtered by both "bicycle-related" and "pedestrian-related" filters on Numetric.

    a. Is the population in this area low income?

Social Vulnerability Index Group (Economic)	Collisions Dataset	
0.8 to 0.9	20	100.00%
Show all (9 more)	0	0%

    b. Does the population of this area have a high percentage of minorities?

Social Vulnerability Index Group (Minority)	Collisions Dataset	
0.3 to 0.4	11	55.00%
0.5 to 0.6	9	45.00%
Show all (8 more)	0	0%

    c. Does the population of this area have minimal access to a variety of transportation

Social Vulnerability Index Group (Transportation)	Collisions Dataset	
0.7 to 0.8	11	55.00%
0.8 to 0.9	9	45.00%
Show all (8 more)	0	0%

    d. What is the overall social vulnerability of the population in this segment/intersection?

| Social Vulnerability Index Group (Overall)	Collisions Dataset	
0.4 to 0.5	11	55.00%
0.7 to 0.8	9	45.00%
Show all (8 more)	0	0%

    e. What schools are in the area and what types of schools are they?
Clarke central high school (approximately ¾ mile away), Clark middle school (approximately 1.5 miles away) and Alps Road Elementary (approximately 1.5 miles away).

f. Were drivers impaired in these pedestrian crashes?
    Drivers were impaired in 15% of crashes on the corridor.

Impaired Driving Related (Confirmed)	Collisions Dataset	
False	17	85.00%
True	3	15.00%

g. Were pedestrian and bicycle crashes or severe pedestrian and bicycle crashes at night?
    The majority of pedestrian crashes took place during the day time, however, two out of the three serious pedestrian crashes occurred at night.

Pedestrian and Bicycle Crashes by Light Conditions

Pedestrian and Bicycle Crashes by Time of Day
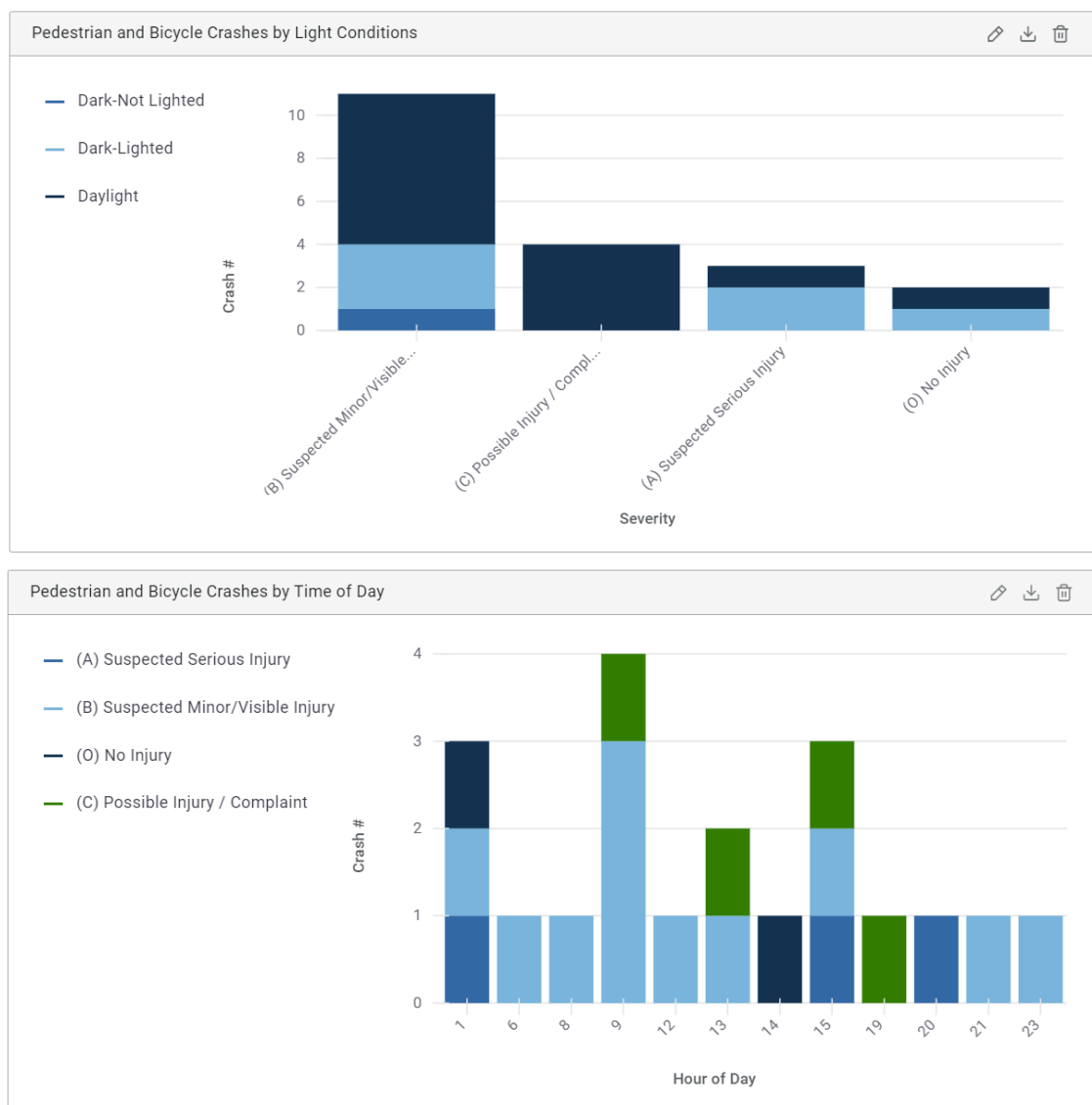
h. In the majority of pedestrian crashes, the pedestrian was crossing at a crosswalk.

| Person Maneuver	Collisions Dataset	
Crossing at Crosswalk	8	72.73%
Crossing, Not At Crosswalk	2	18.18%
Moving With Traffic on Roadway	1	9.09%
Darting into Traffic	0	0.00%

i. What kinds of movements caused these pedestrian and bicycle crashes and the severe
pedestrian and bicycle crashes
Various angle movements were responsible for the majority of these bicycle-pedestrian
crashes, including the severe bicycle and pedestrian crashes.

Manner of Collision by KABCO Severity
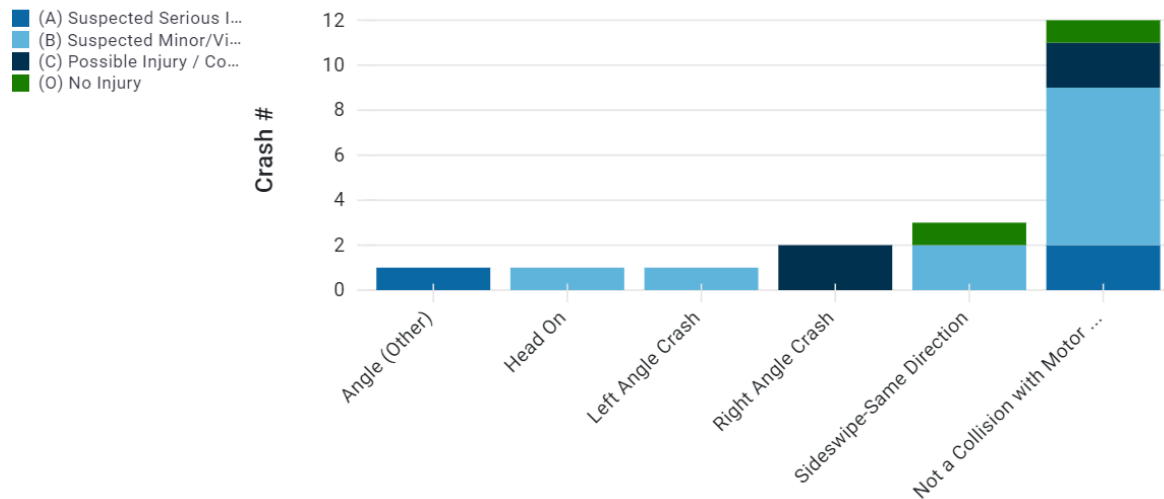
All Crash Types Safety Analysis

a. What time of day were most of your crashes happening at
 i. Crashes (including all crashes, not just bicycle/pedestrian) peaked in the late afternoon and evening, with spikes at 3pm and 7pm.
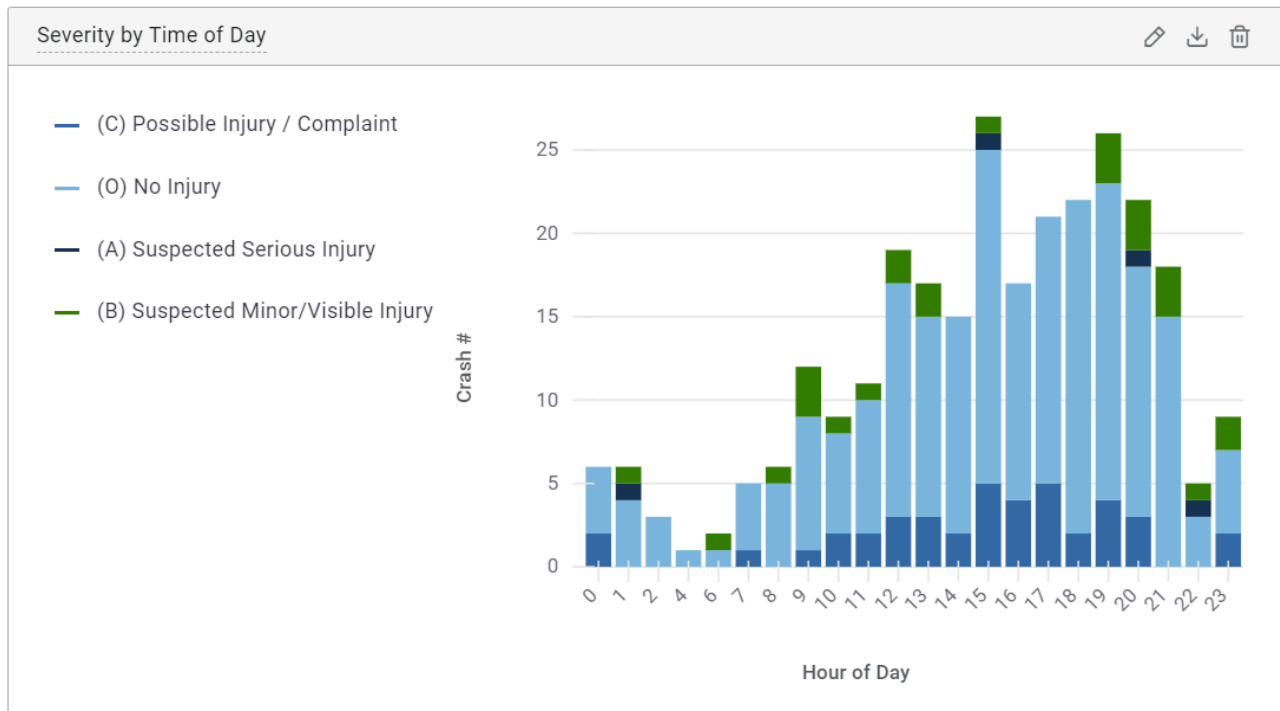
b. What time of day were your severe crashes happening at
 i. 1am, 3pm, 8pm, 11pm
c. What time of day were your ped/bike crashes happening at
 Bicycle/pedestrian crashes occurred throughout the day, with slight spikes at 1pm, 3pm, and 9pm.
d. What severity were your ped bike crashes
 i. 3 A crashes
 ii. 11 B crashes
 iii. 4 C crashes

iv. 2 O crashes

Bicycle and Pedestrian Crash Time of Day by KABCO Severity

Count of each Severity
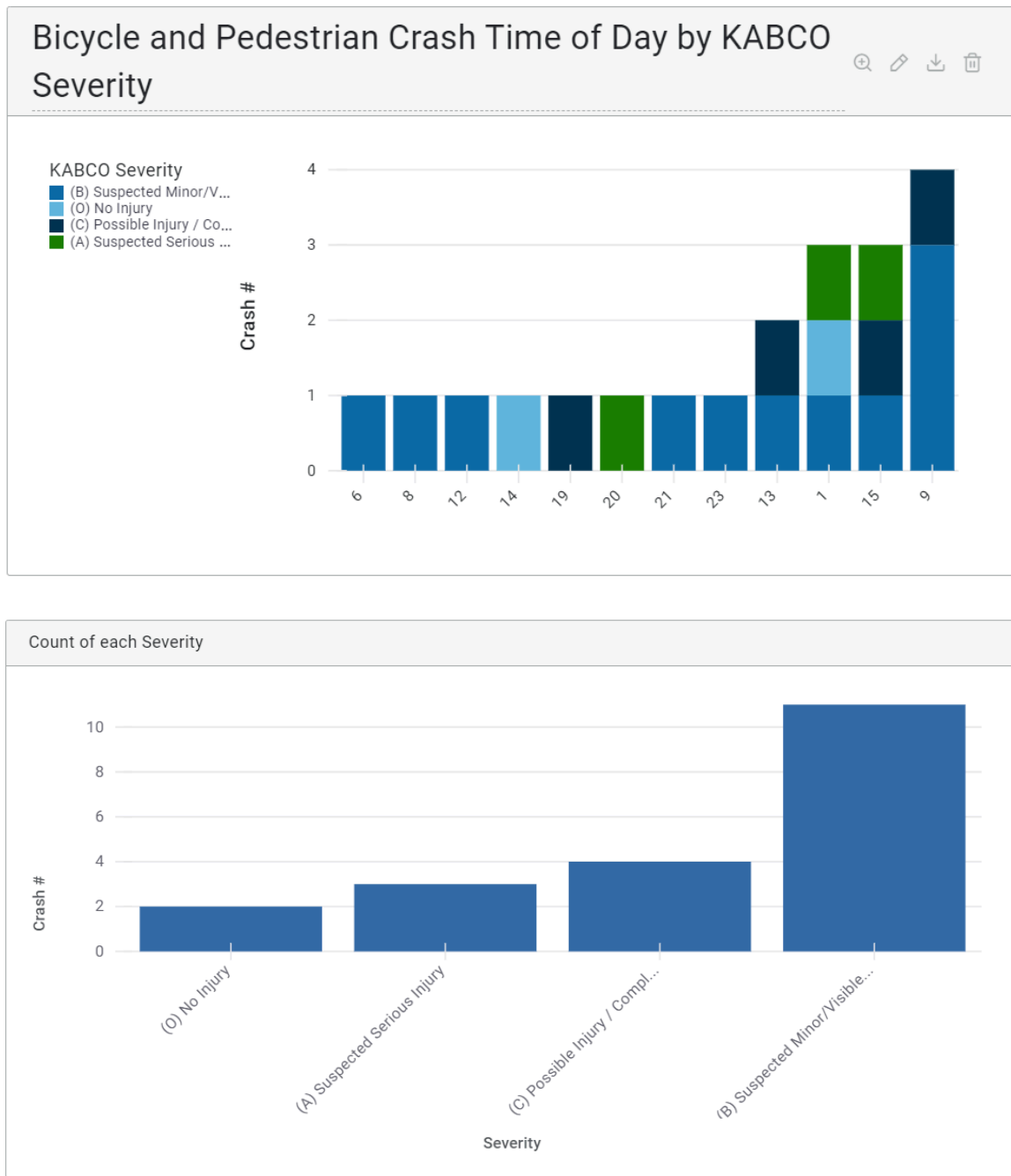
e. What crashes had the highest cost values associated with them
   i. "Not a Collision with a Motor Vehicle," Pedestrian, and Rear End.

Crash Costs by manner of Collision

Bicycle	$5,034,000
Head On	$621,000
Left Angle Crash	$5,505,000
Not a Collision with Motor Vehicle	$10,112,000
Pedestrian	$7,820,000
Rear End	$7,582,000
Right Angle Crash	$597,000
Sideswipe-Same Direction	$1,640,000

f. What has happened to crash trends in recent years:
Overall downward trend with an uptick beginning in 2020:

Total crashes by Year
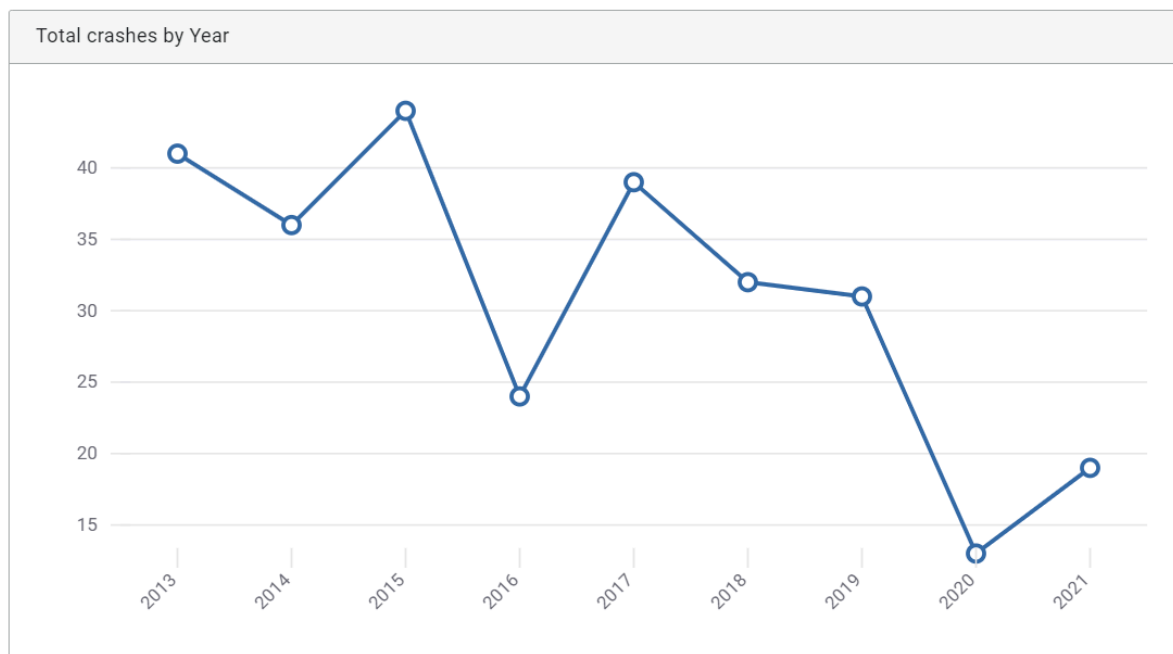
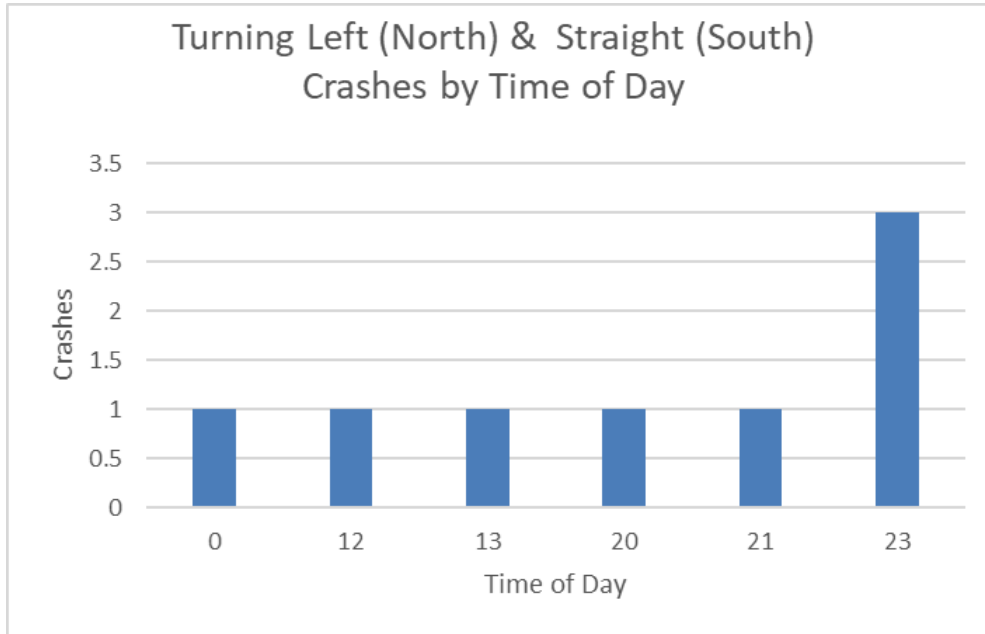g. If a safety improvement was implemented one year, did crashes reduce?

Sometime between 2017 and 2019, the right turn slip lane from Lumpkin onto Baxter St. was removed, a pedestrian bulb out was installed, and bicycle lanes were installed on Baxter. In 2020, green bike paint was installed at the same intersection. Bike/ped crashes decreased between 2018-2020, before increasing again in 2021.

GDOT Policy (6785-2) Opposing Left Turn Evaluation

At Baxter and S. Lumpkin, the turning left (north) versus straight (south) movement resulted in five crashes in a 24-month period in 2014-2015 as shown in this collision dataset from Numetric's Left Turn Crash Analysis below. At this intersection, the left turn from Lumpkin onto Baxter is Phase 1, operating as protected/permissive 24/7. The left turn from Baxter onto Lumpkin is Phase 8.

Left vs Straight Opposing Movement	Collisions Dataset	
Turning Left (North) & Straight (South)	8	100.00%
Turning Left (East) & Straight (West)	0	0.00%
Turning Left (Northeast) & Straight (Southwest)		
Turning Left (Northwest) & Straight (Southeast)		
Turning Left (South) & Straight (North)		
Turning Left (Southeast) & Straight (Northwest)		
Turning Left (Southwest) & Straight (Northeast)		
Turning Left (West) & Straight (East)		
Show less		

Date and Time (Year)	Collisions Dataset	
2018	1	12.50%
2017	1	12.50%
2016	1	12.50%
2015	2	25.00%
2014	3	37.50%
Show all (4 more)	0	0%

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Turning Left (North) & Straight (South) Crashes by Time of Day

The majority of crashes resulting from this left (north) versus straight (south) opposing movement occurred overnight, with the most crashes occurring around 11pm.

Alternatives

Improvement 1: Crosswalk Visibility Enhancements at all 4 intersections (16 crosswalks)

Delivery Mechanism: Quick Response and/or local funding

Benefits: Enhanced visibility of crosswalks increases likelihood that drivers will see pedestrians attempting to cross the roadway and increases likelihood that drivers will yield to pedestrians in the crosswalk. A pedestrian count is recommended at the intersection of Baxter. St. and S. Lumpkin St. due to significant pedestrian traffic during UGA class changes.	Concerns: May need to be executed in conjunction with larger improvement project.
Estimated Crash Reduction: 40% for pedestrians	Estimated Costs (4 intersections): $136,000.00
Estimated Safety Benefit Cost Design Life Benefit: $212,824.10 Design Life Cost: $18,360.00 Safety B/C = 17.45	

Improvement 2: Separated Bike Lanes (Install Barriers)

Delivery Mechanism: Menu of Service Design and/or Local Funding

Benefits: Separated bicycle lanes provide protection for cyclists and other micro mobility users. The addition of barriers to already existing bike lanes would reduce lane width, which could result in reduced travel speeds for vehicles and help to address the other safety issues in this segment as well. On-street parking between Hull St. and Finley St. could be relocated to the outside of the bike lane in order to provide protection and possibly decrease construction costs.	Concerns: Potential lane width reductions where barriers are installed.
Estimated Crash Reduction: CRF: Could be up to 30% for both bicyclists and pedestrians, (FWHA) however bicycle lanes already exist and protections would be added, therefore reducing some of the reduction percentage increase.	Estimated Costs: Up to $1.7M, however this estimate is likely too high, since bike lanes already exist and the only construction needed would be additional protections for the lanes.
Estimated Safety Benefit Cost Design Life Benefit: $428,587 Design Life Cost: $5,062 Safety B/C = 84.6	

Image of the intersection of Baxter St. and S. Newton S./E. Cloverhurst Ave.
Suggested bike lane separation indicated by the orange lines. Note the lack of green paint in the bike lanes.

Improvement 3: Green Bike Markings at Intersections of Newton and Baxter, Finley and Baxter

Delivery Mechanism: Quick Response and/or Local Funding

Benefits: Minimizes vehicle-bicyclist conflict at signalized intersections; reminds drivers that bicyclists may also be in the intersection. Green bike markings should also be considered wherever vehicles are crossing over a bike lane to merge into a right turn lane or turn into a high traffic driveway.	Concerns:
Estimated Crash Reduction: CRF: 39% for bicycle crashes	Estimated Costs (two intersections): $38,000.00
Estimated Safety Benefit Cost: Design Life Benefit: $130,220.36 Design Life Cost: $5,130.00 Safety B/C = 25.38	