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TPO Multimodal Counts Methodology

The Hillsborough TPO's 2017 Vision Zero Action plan identified High Injury Network (HIN) corridors in the county. These corridors have high rates of crashes resulting in fatalities and serious injuries. To understand where the system's most vulnerable users – people on foot and on bikes – interact with the HIN, the TPO collected data in the form of multimodal counts. Motor vehicle counts are a typical tool used to evaluate roads and plan for future needs, but the traditional methods for collecting motor vehicle counts are ineffective at capturing the activities of people on foot and on bikes along corridors or at intersections. The most effective and accurate method for capturing such data is through using video equipment to record and document the numbers of people traveling by foot and on bikes, as well as their precise location – on the road, on a sidewalk, etc. – and their direction of travel.

A specialized data collection company deployed 80 cameras along HIN corridors at locations identified by the Hillsborough TPO staff. The consultant collaborated with TPO staff to determine the number of cameras and the desired vantage points required to adequately provide coverage at each of the 80 locations.

Each camera was installed on public property, most often on street signs, as shown in Figure 1. The device was securely attached and locked, and then the camera was telescoped to a higher elevation for optimal data collection (Figure 2).



Figure 1. Camera installed on public property



Figure 2. Camera deployed in its telescoped position



Figure 3. Weatherproof box held battery and recording device



Figure 4. Technician confirmed data capture

The camera's recording device was housed in a weatherproof box along with a long-lasting battery. (Figure 3). The camera's operation and view were confirmed (Figure 4), and these and the unique location number were recorded as part of the quality assurance (Figure 5).

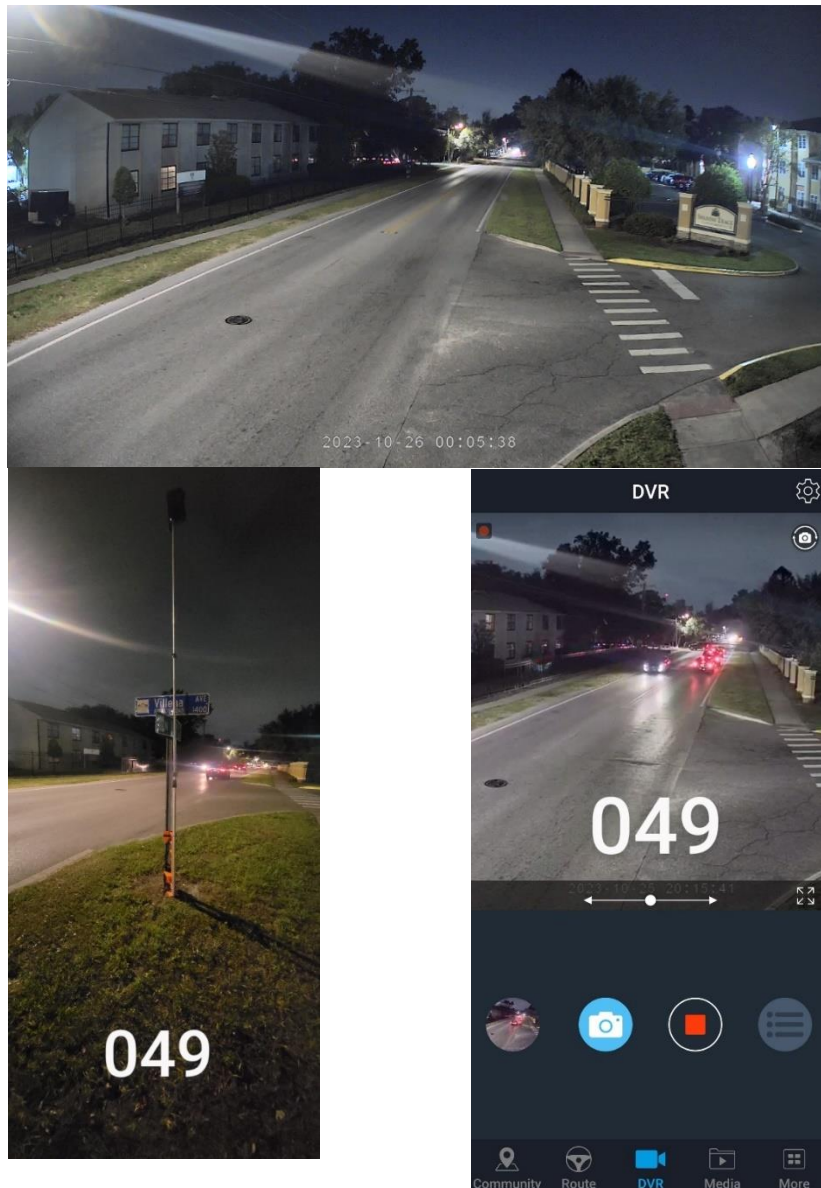


Figure 5. Location 49's view and specific location were confirmed

The cameras recorded all transportation movements - motor vehicles, people on foot, and people on bikes - for a minimum of 24 consecutive hours. At locations within three miles of a public school, the counts were taken during a day when school was in session.

The data collected by all deployed cameras was downloaded for processing. All video data was reviewed to determine the number of bicycles and pedestrians in the coverage area during the duration of the filming.

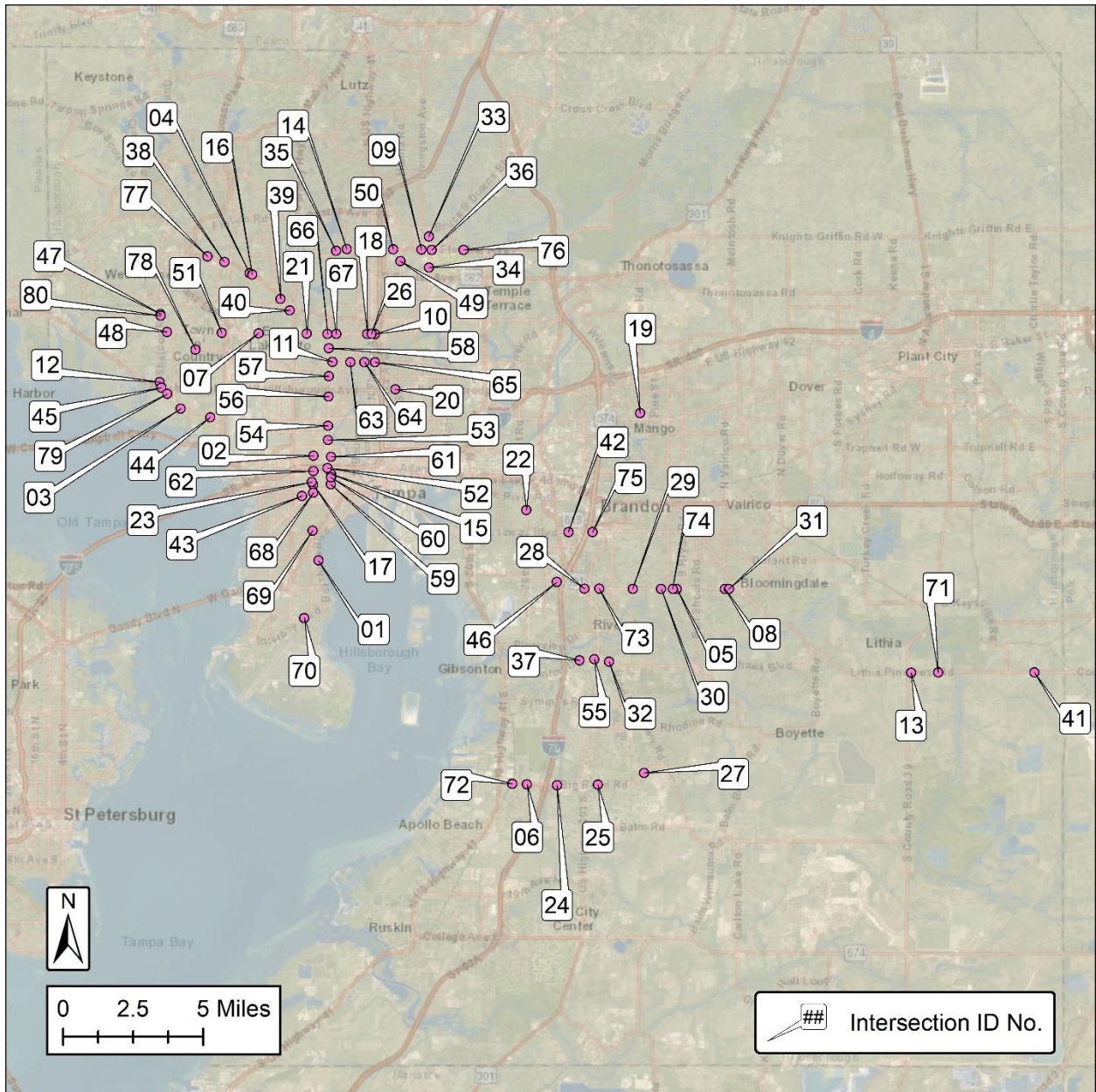
In addition to cataloging the number of bicyclists and pedestrians present, the location and facilities used were identified and diagrammed. This records the presence of people on foot and on bicycles:

- In roadway
- In designated bicycle facility

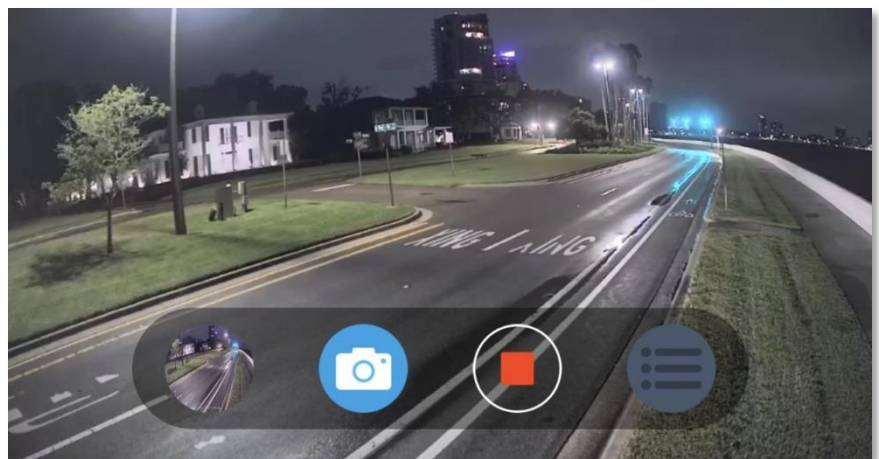
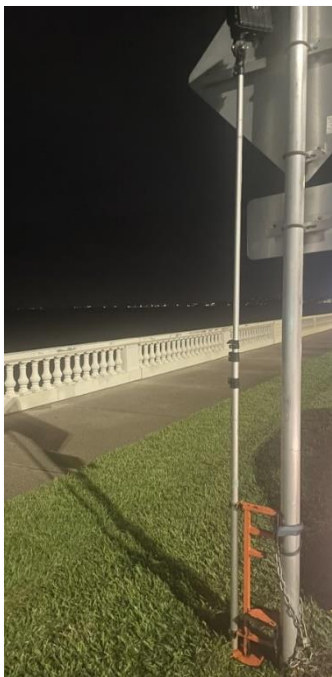
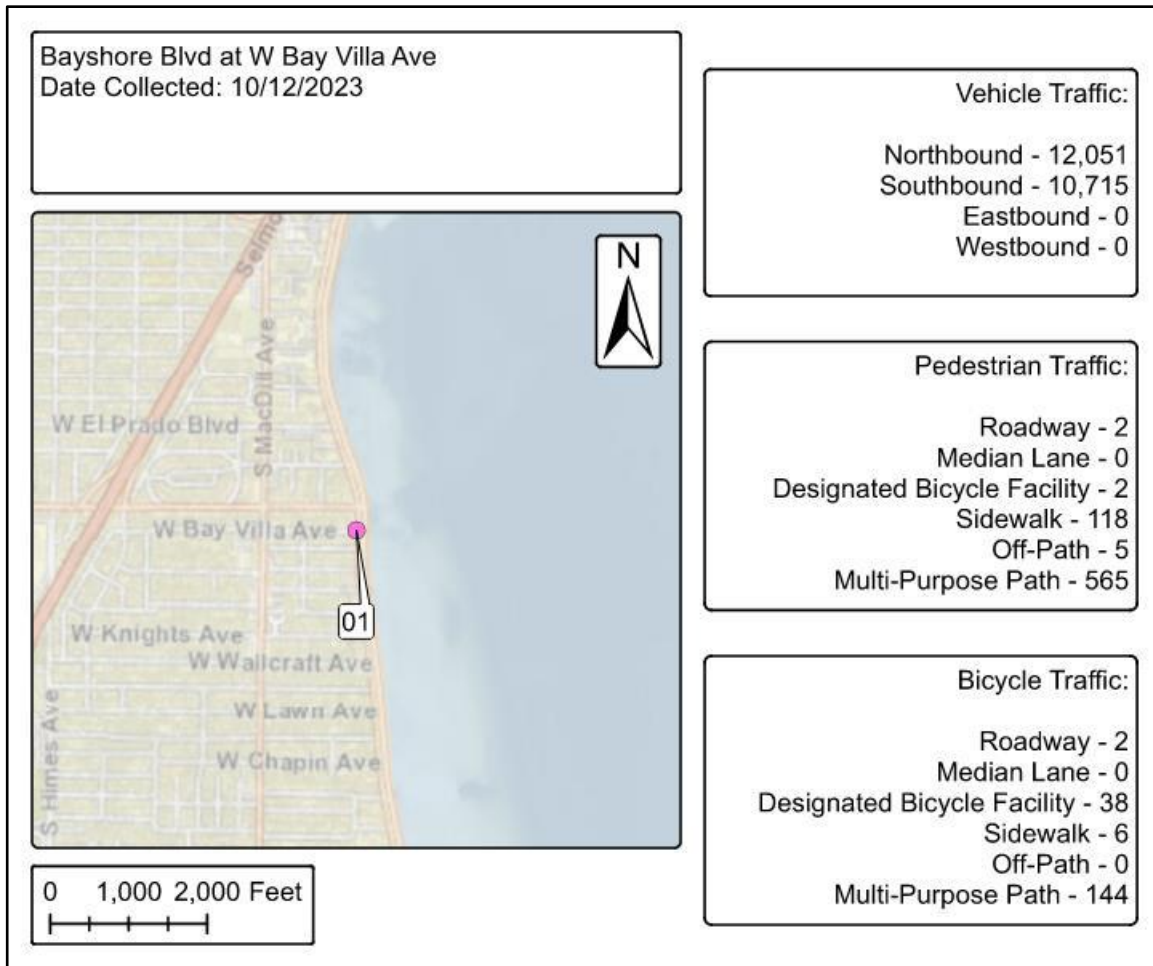
- On sidewalk
- On multi-use path
- On separate trail facility
- Off path

The resulting data is shown in the remainder of this report. Each data collection location has one page with the motor vehicle counts and direction of travel; bicycle counts and presence on specific facilities; pedestrian counts and presence on specific facilities; the mapped location; the installed camera, and a screen capture from the collected video data.

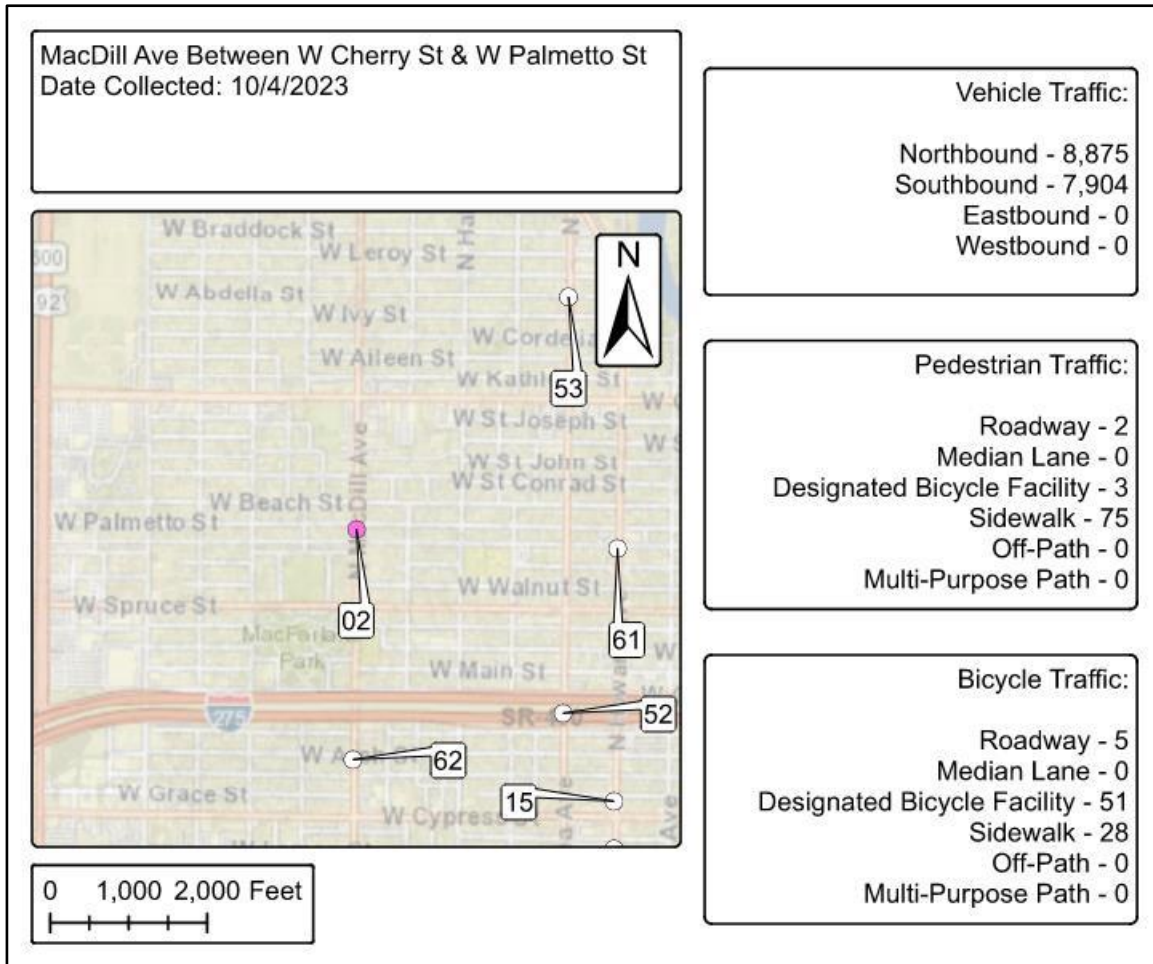
Intersection Overview Map



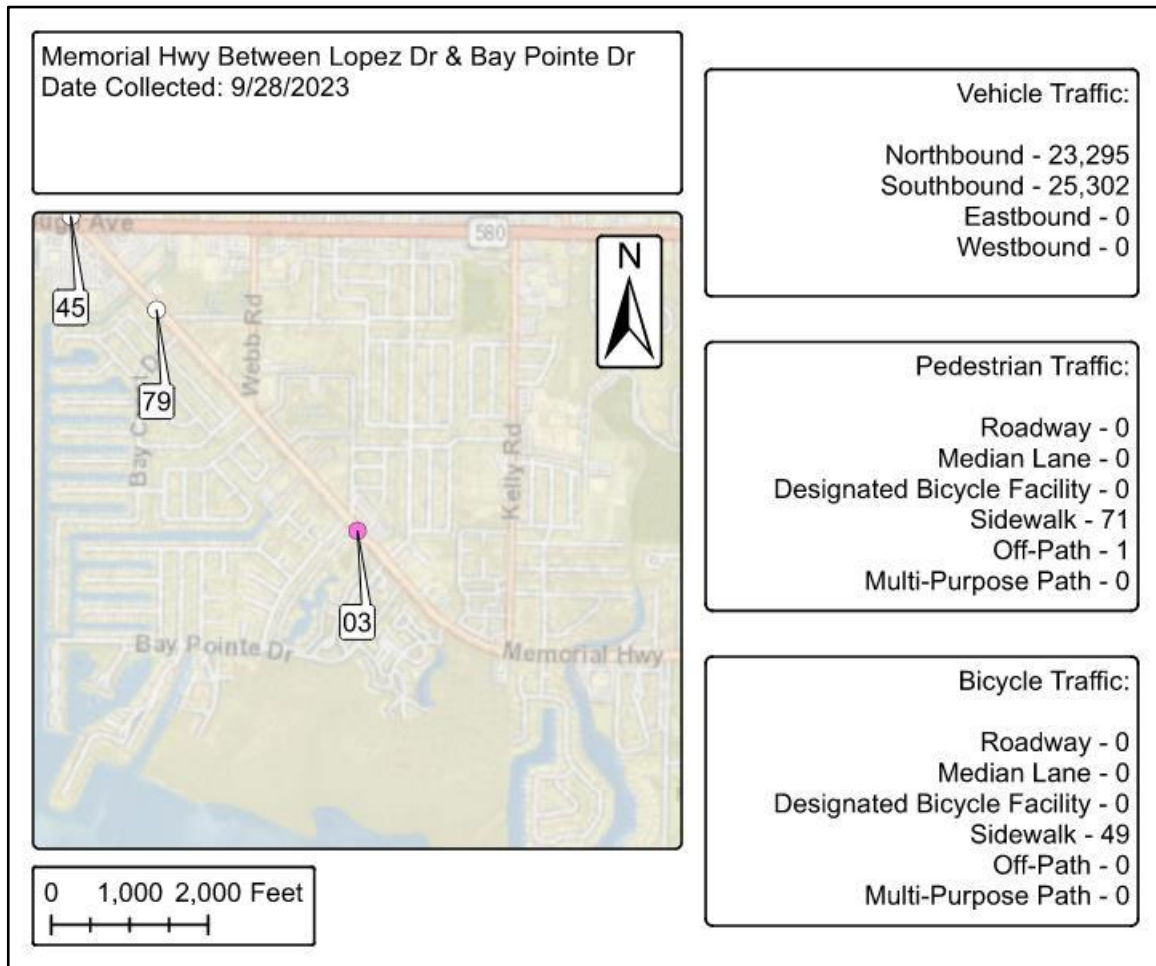
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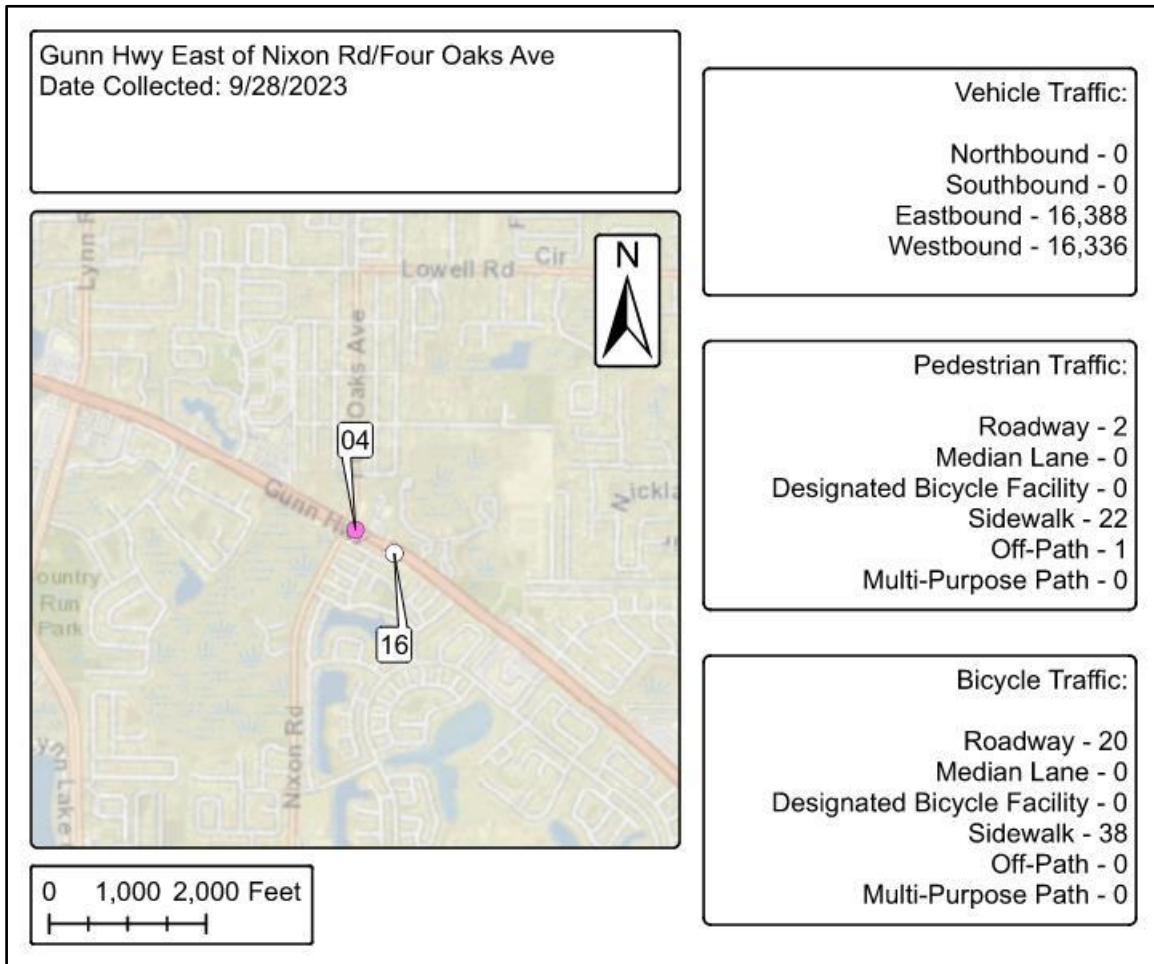
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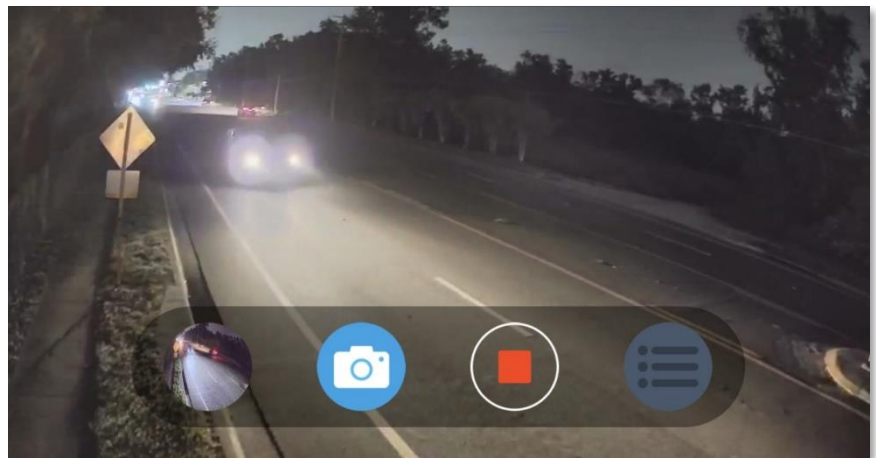
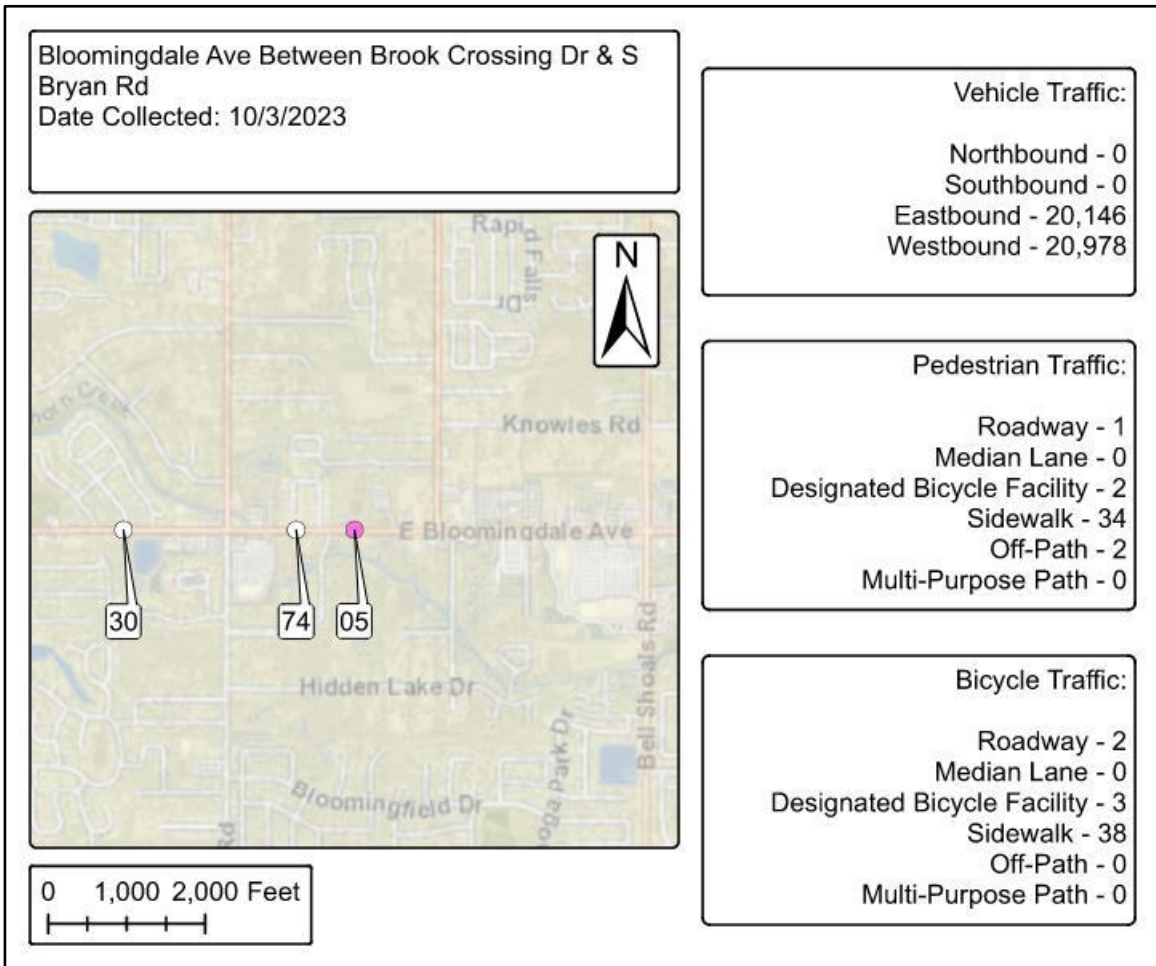
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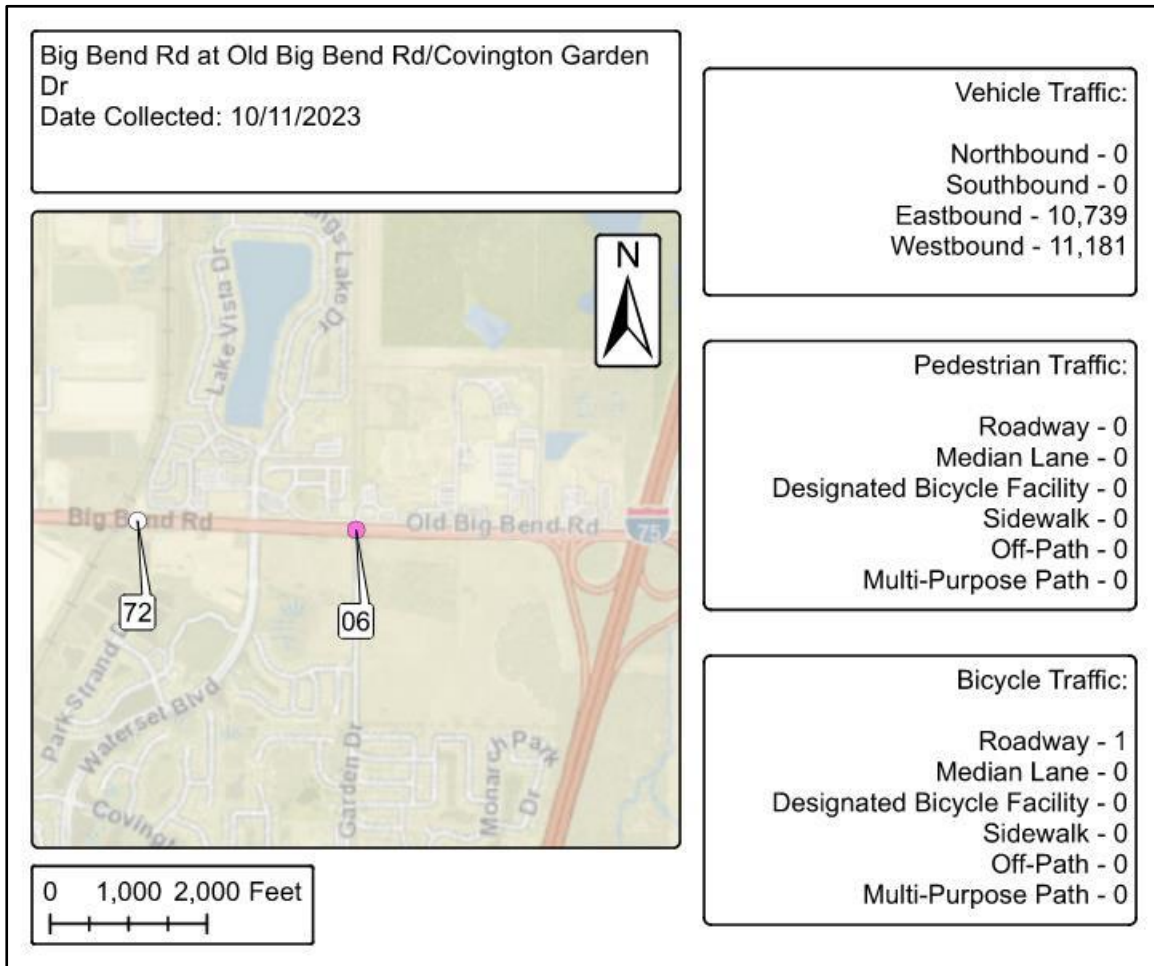
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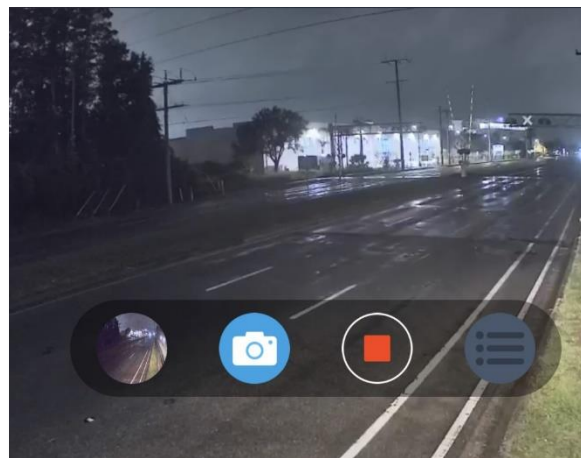
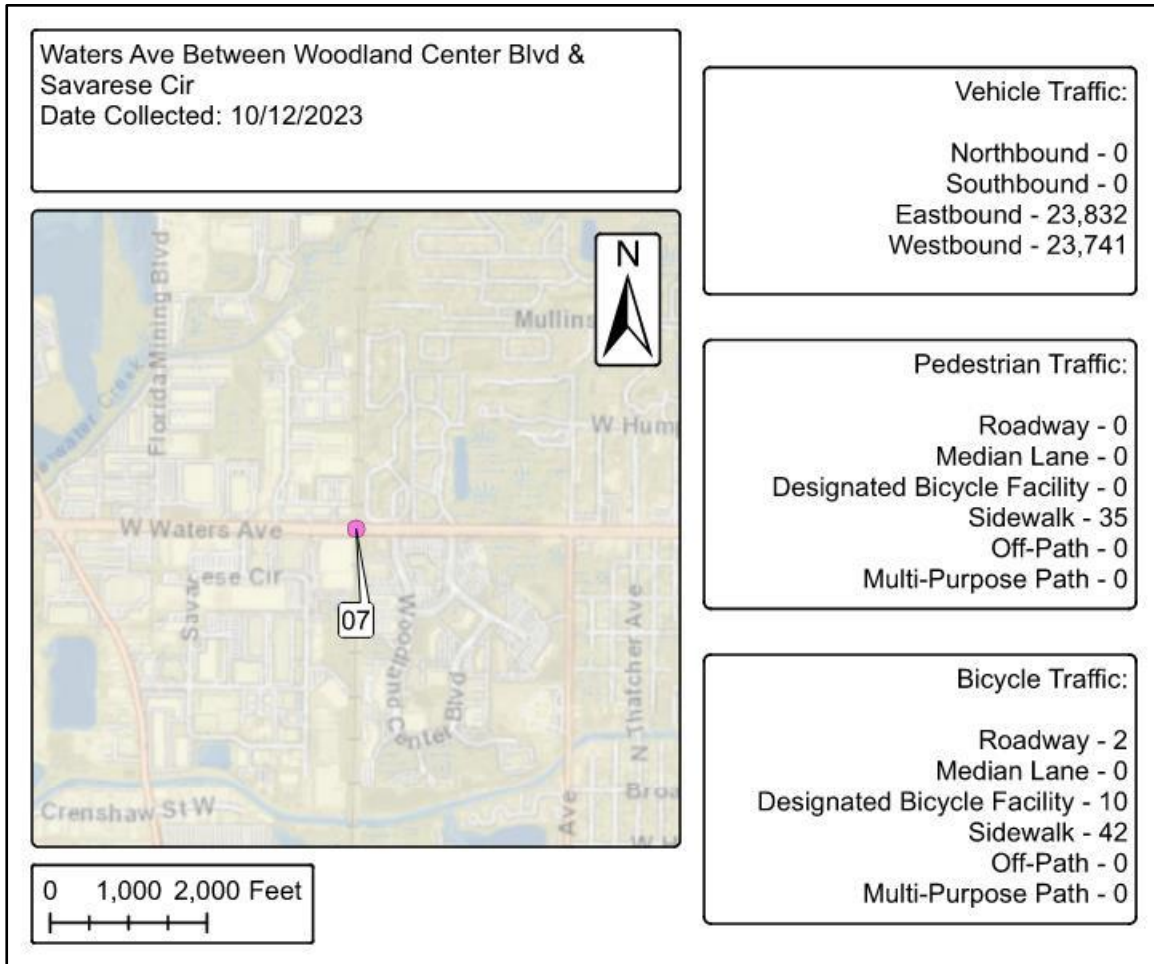
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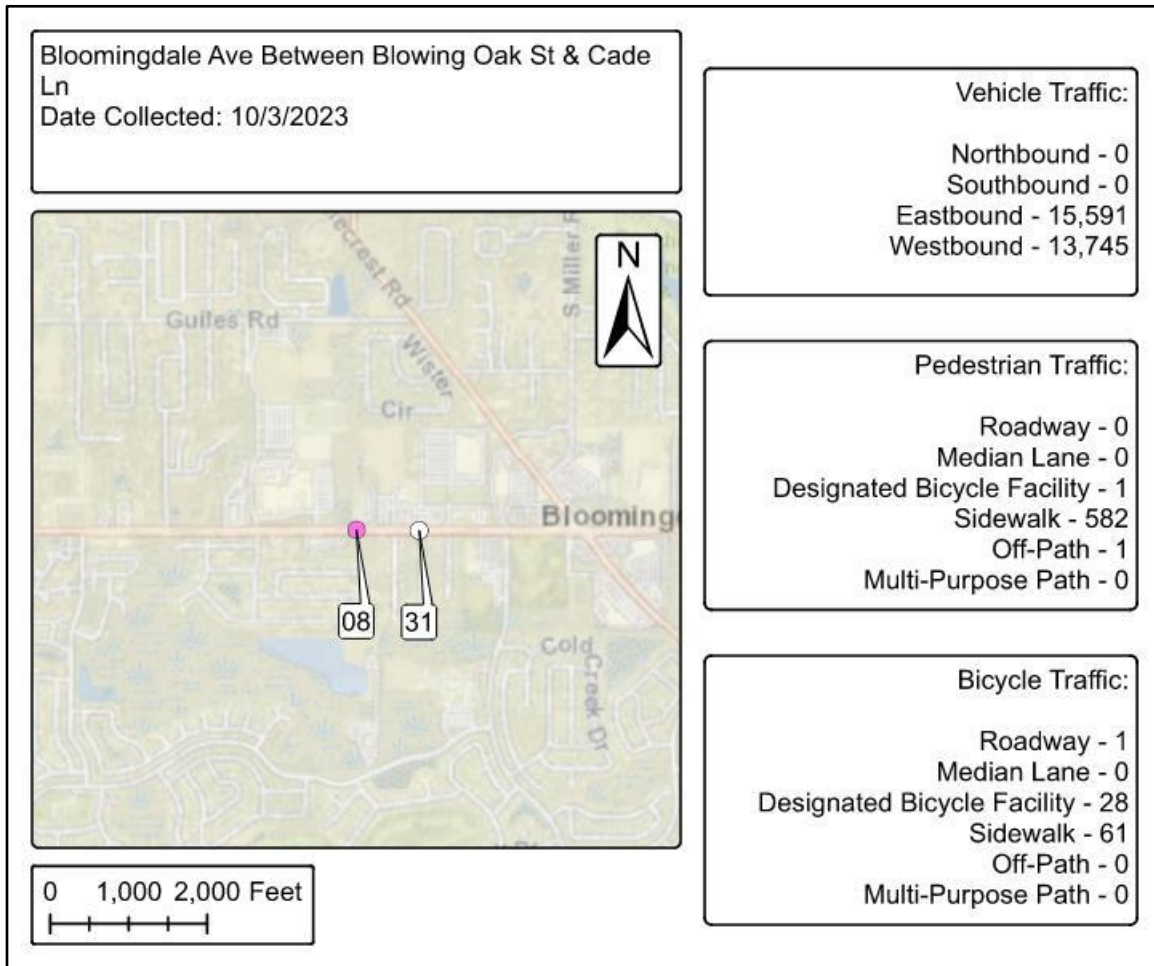
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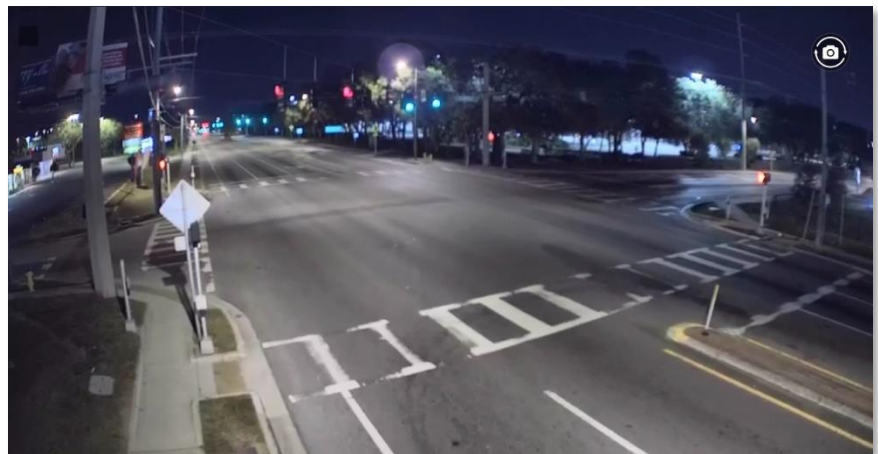
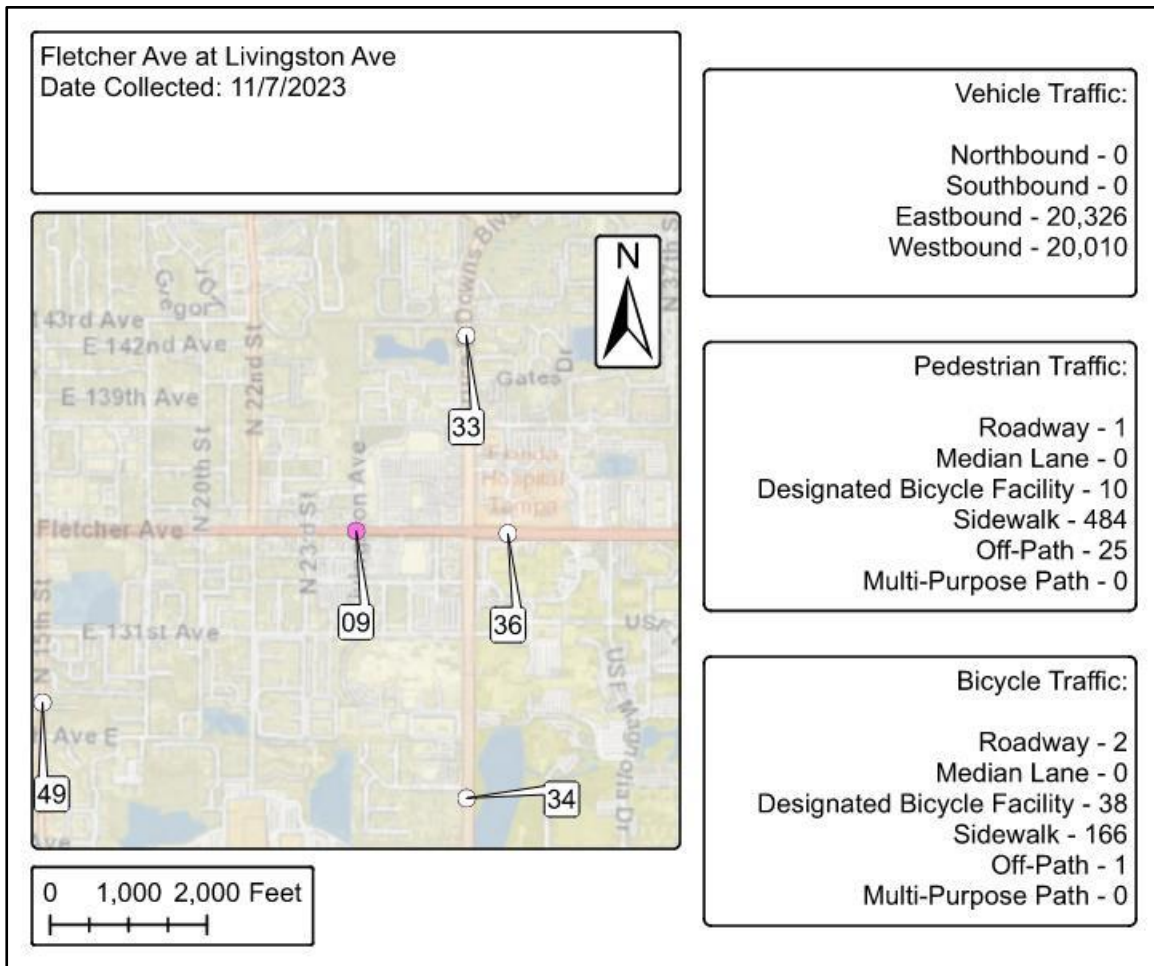
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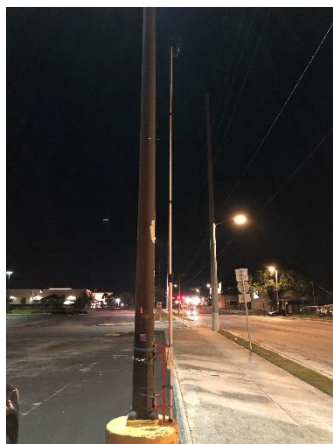
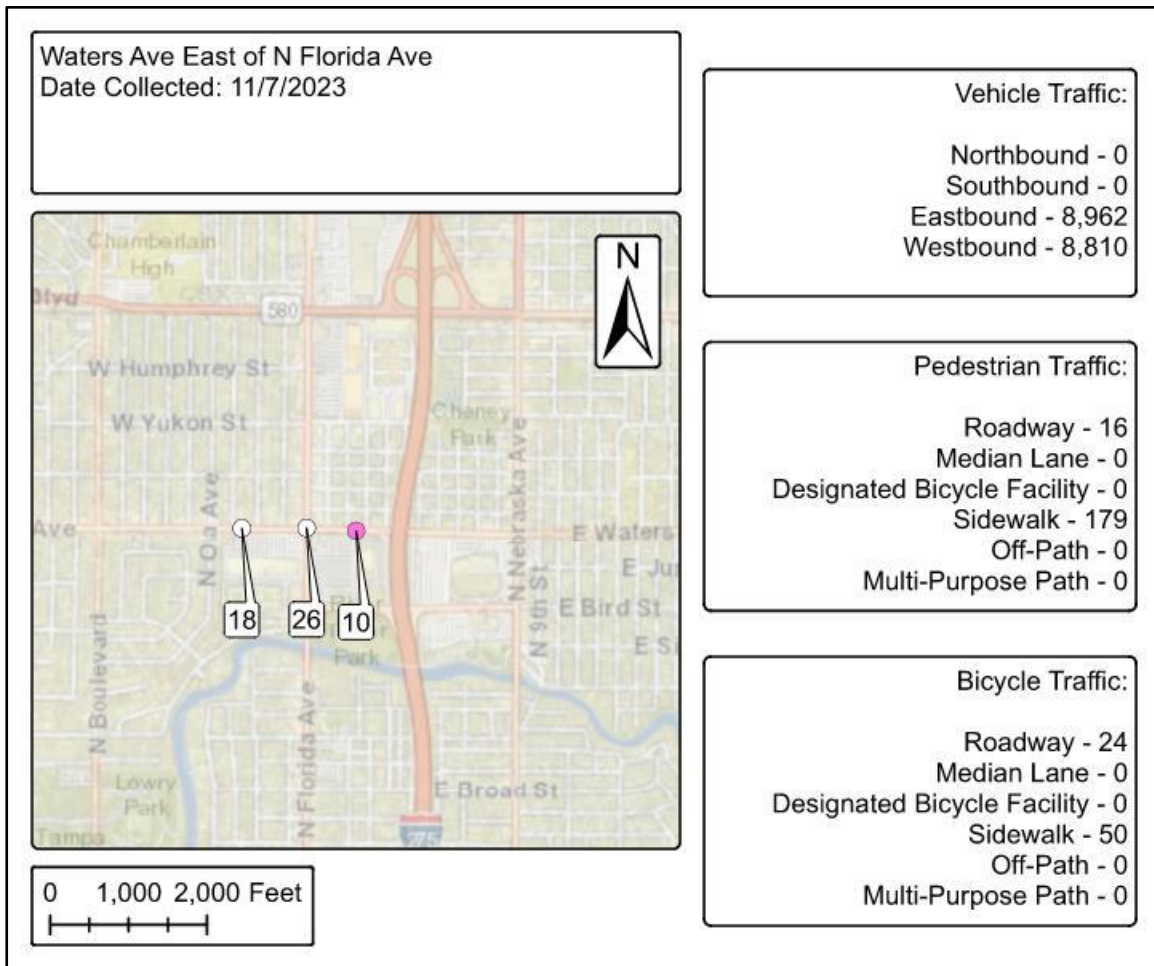
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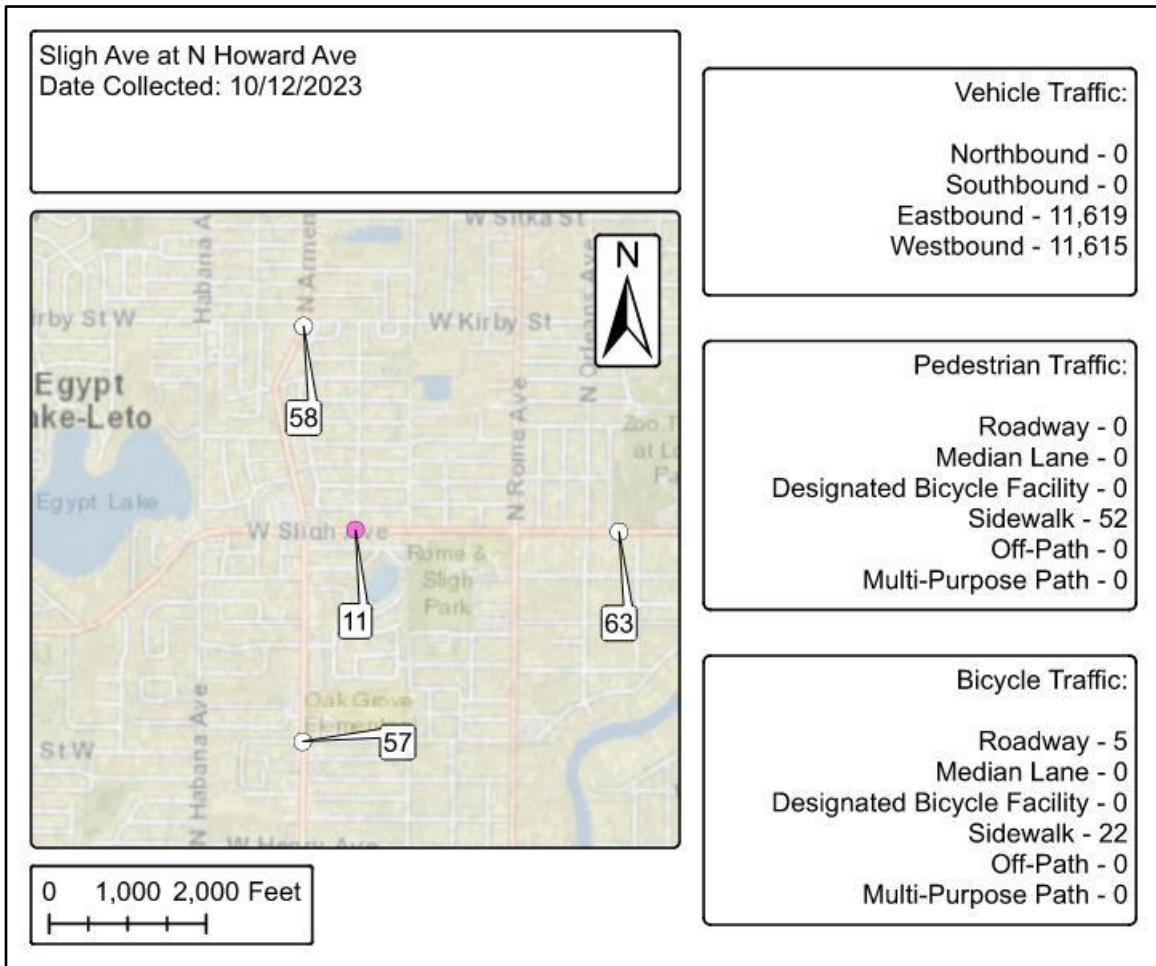
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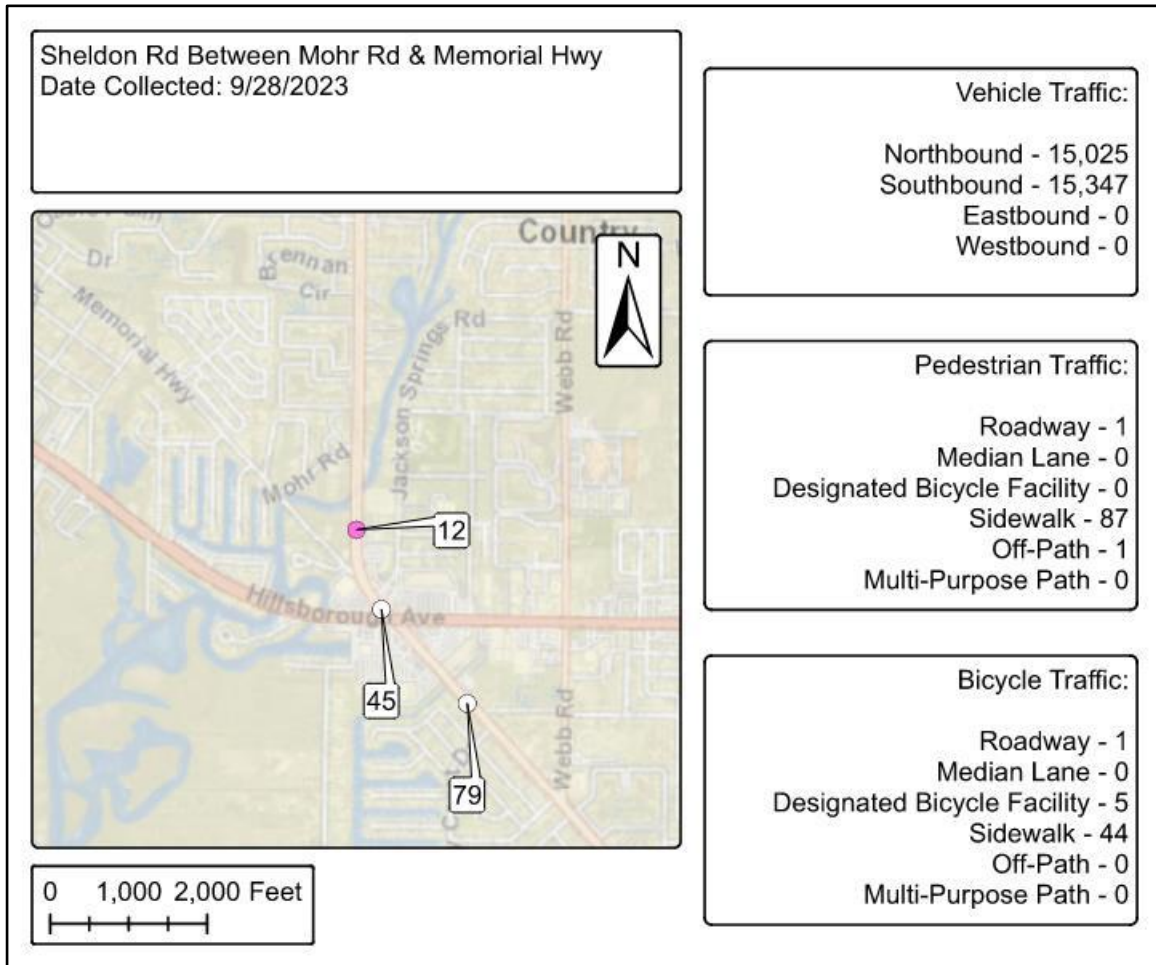
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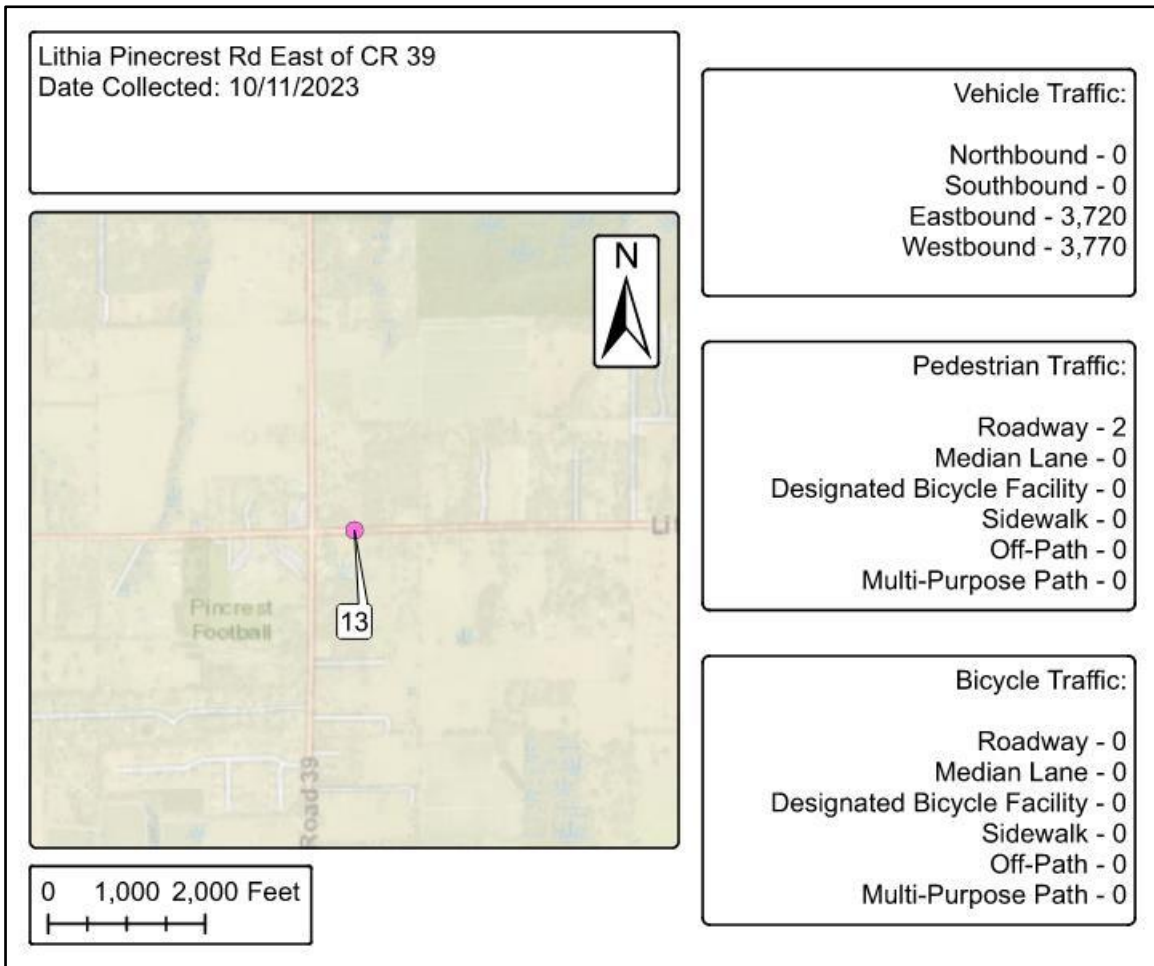
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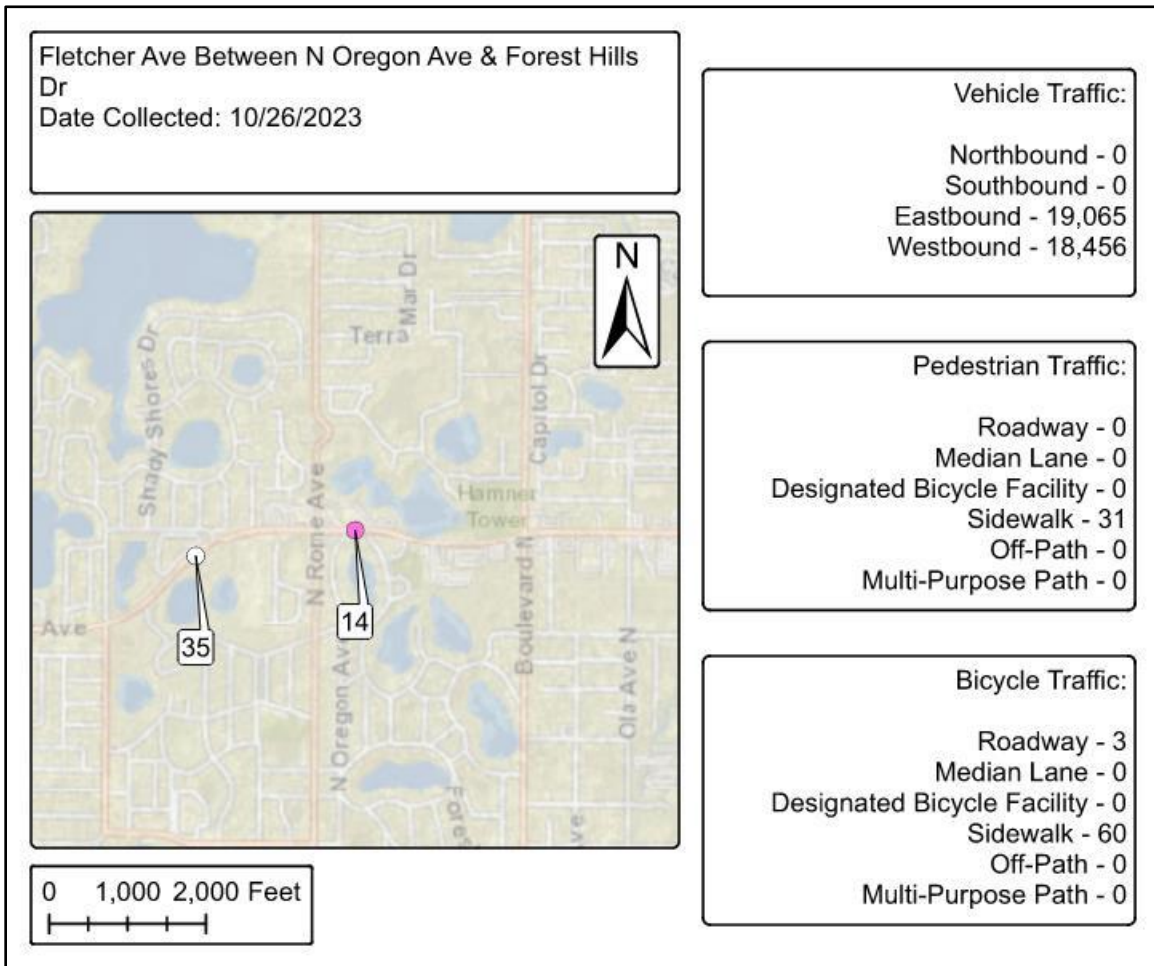
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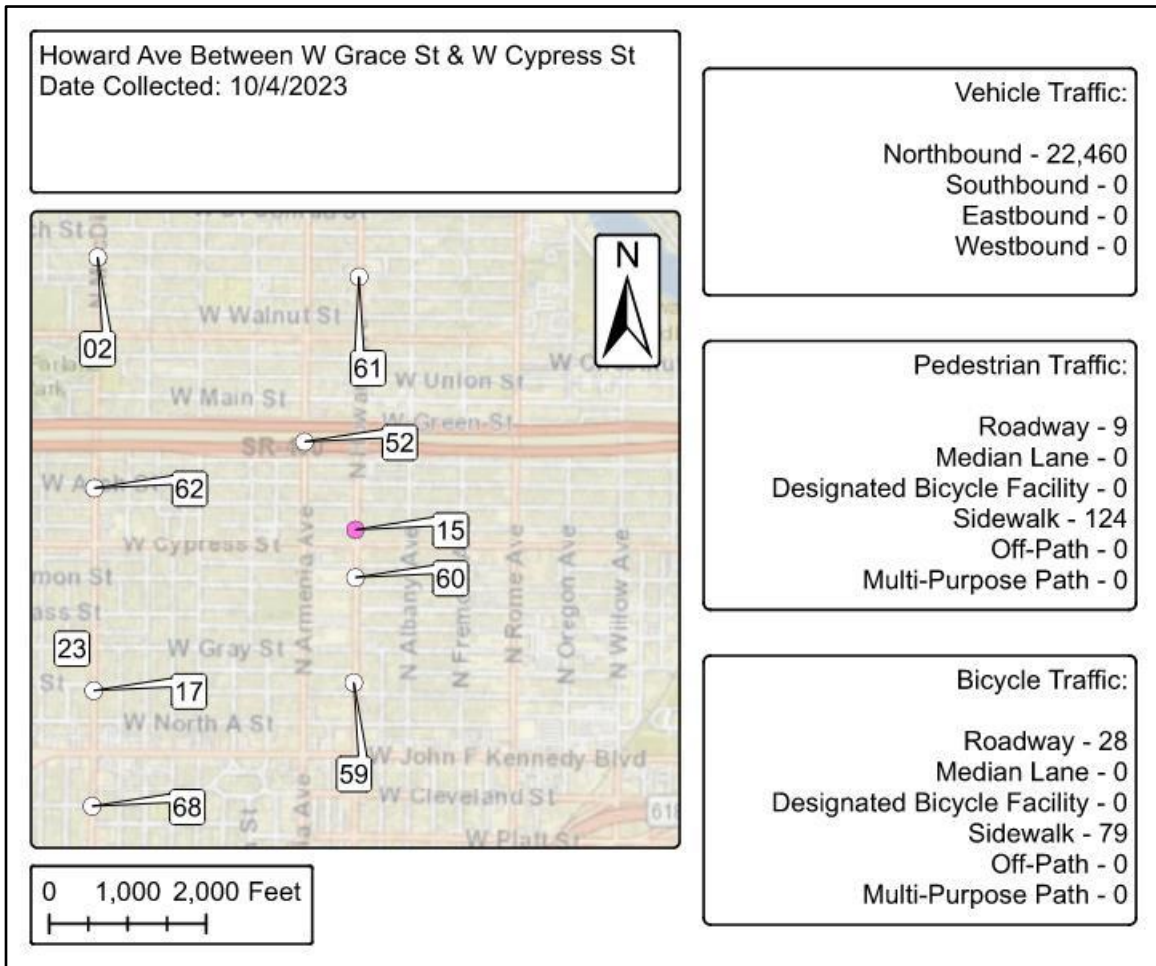
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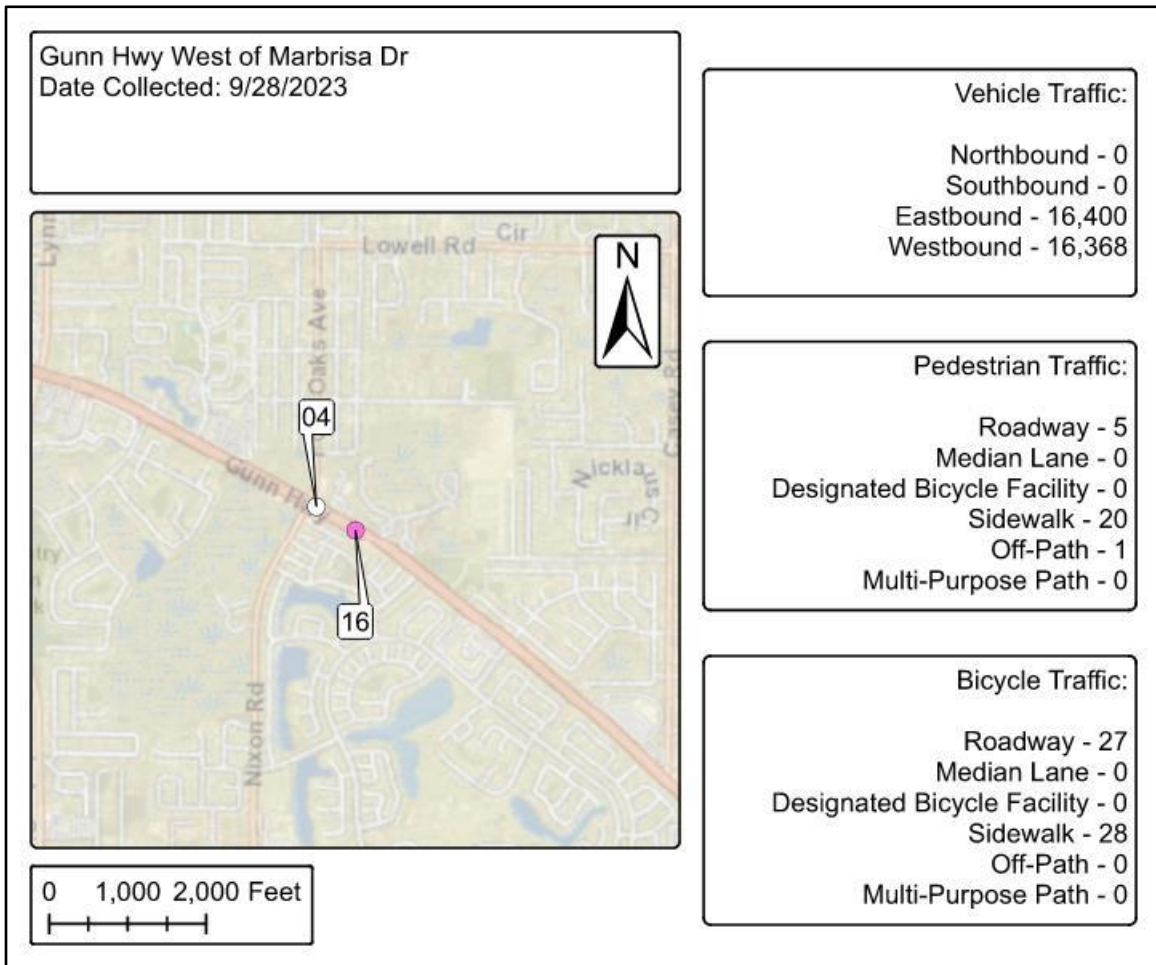
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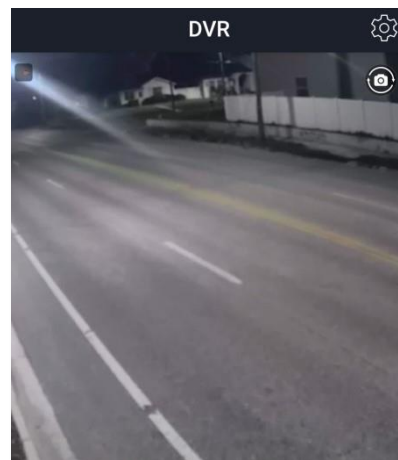
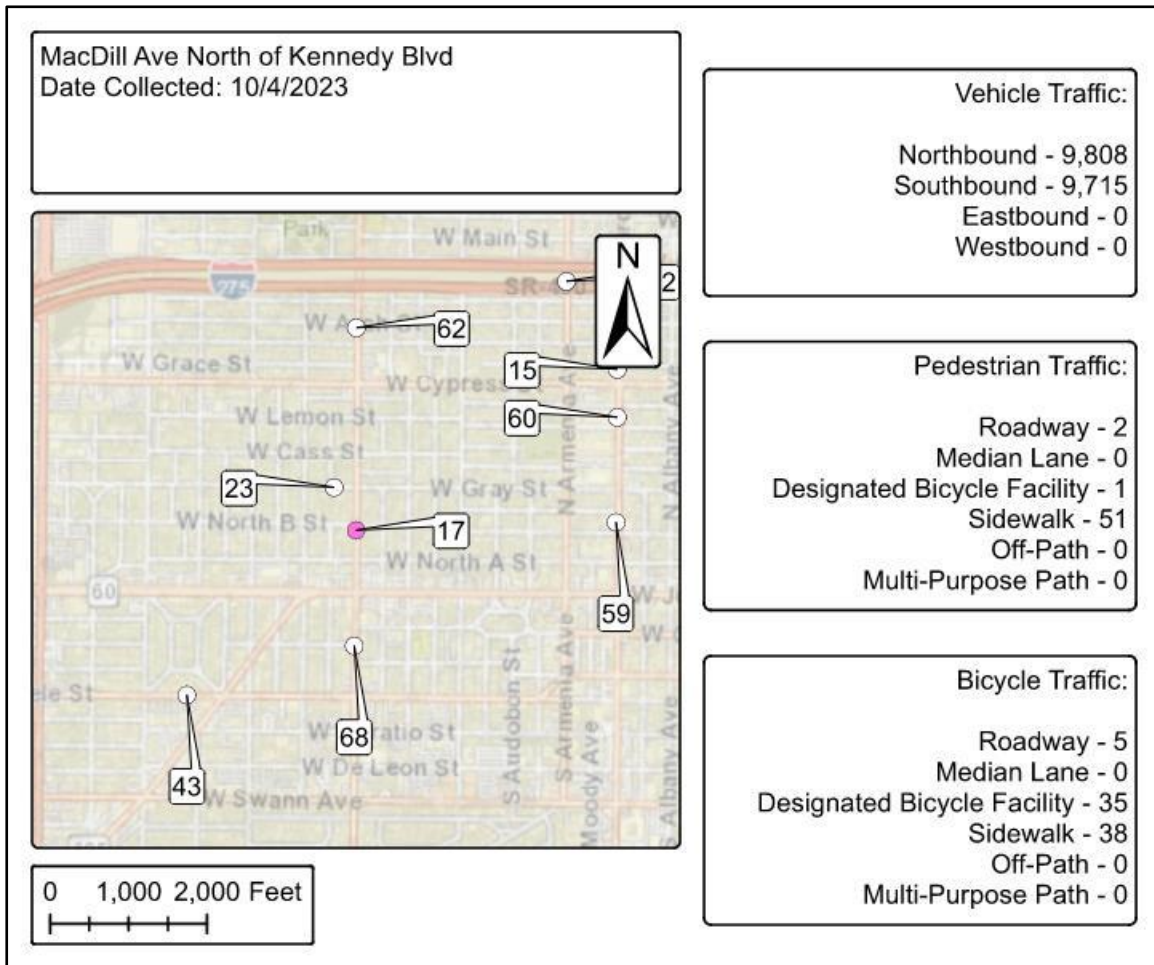
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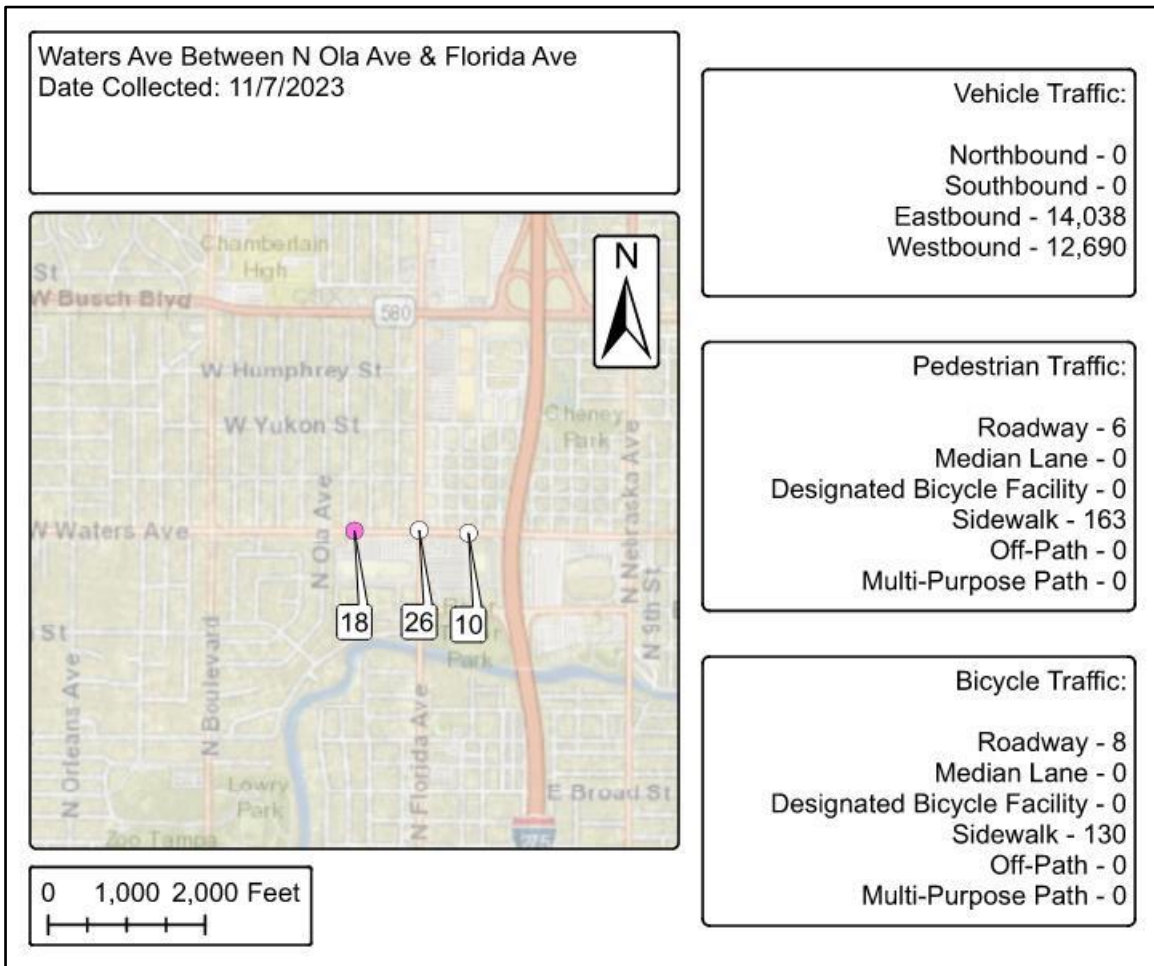
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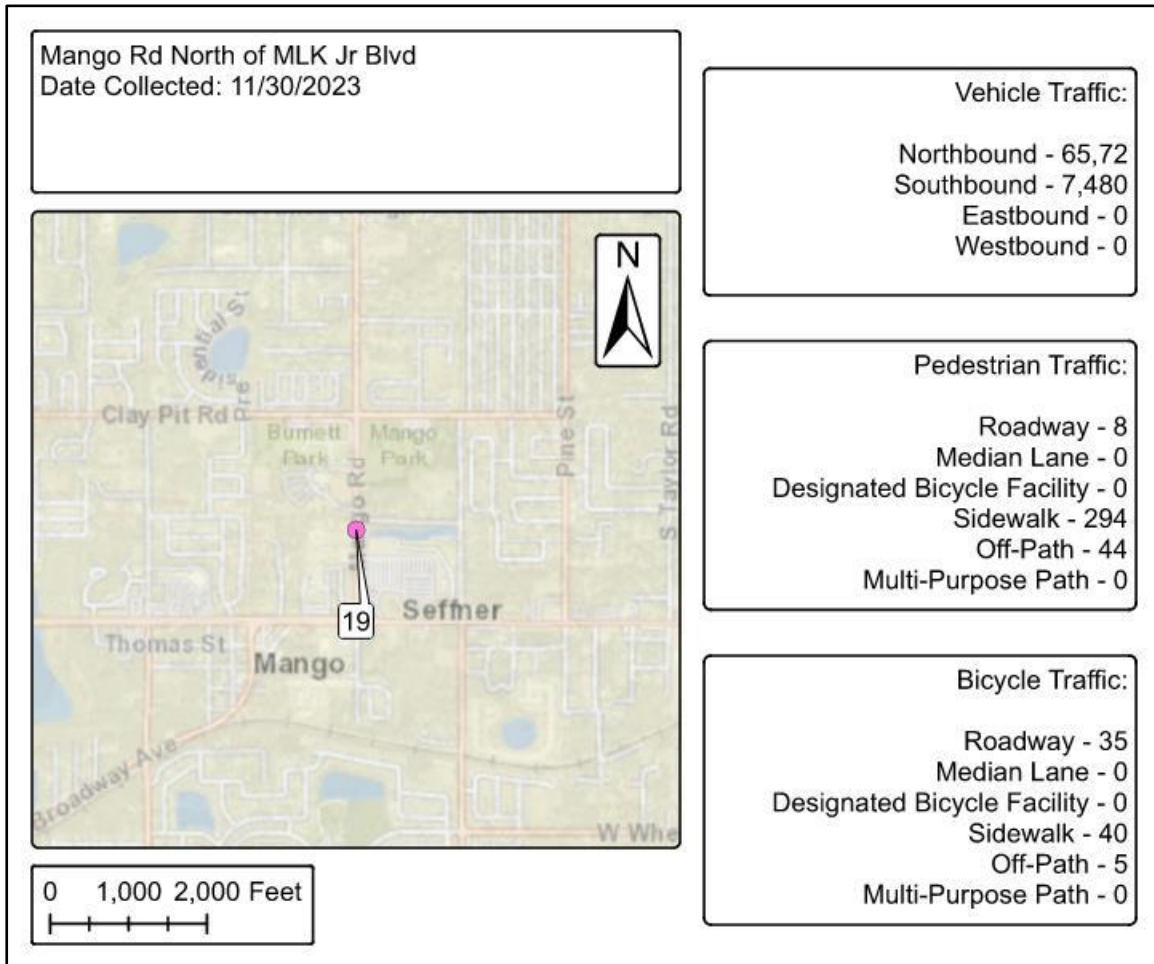
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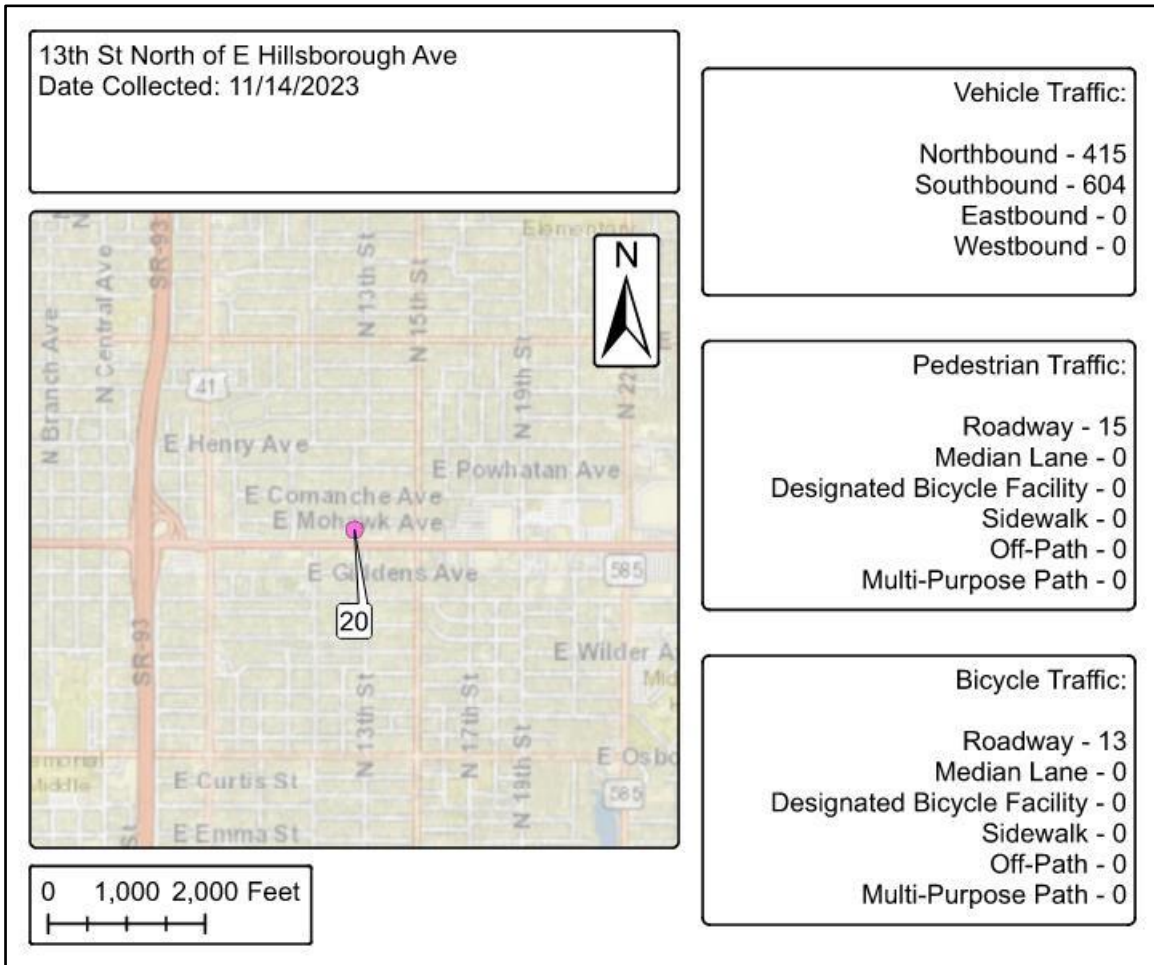
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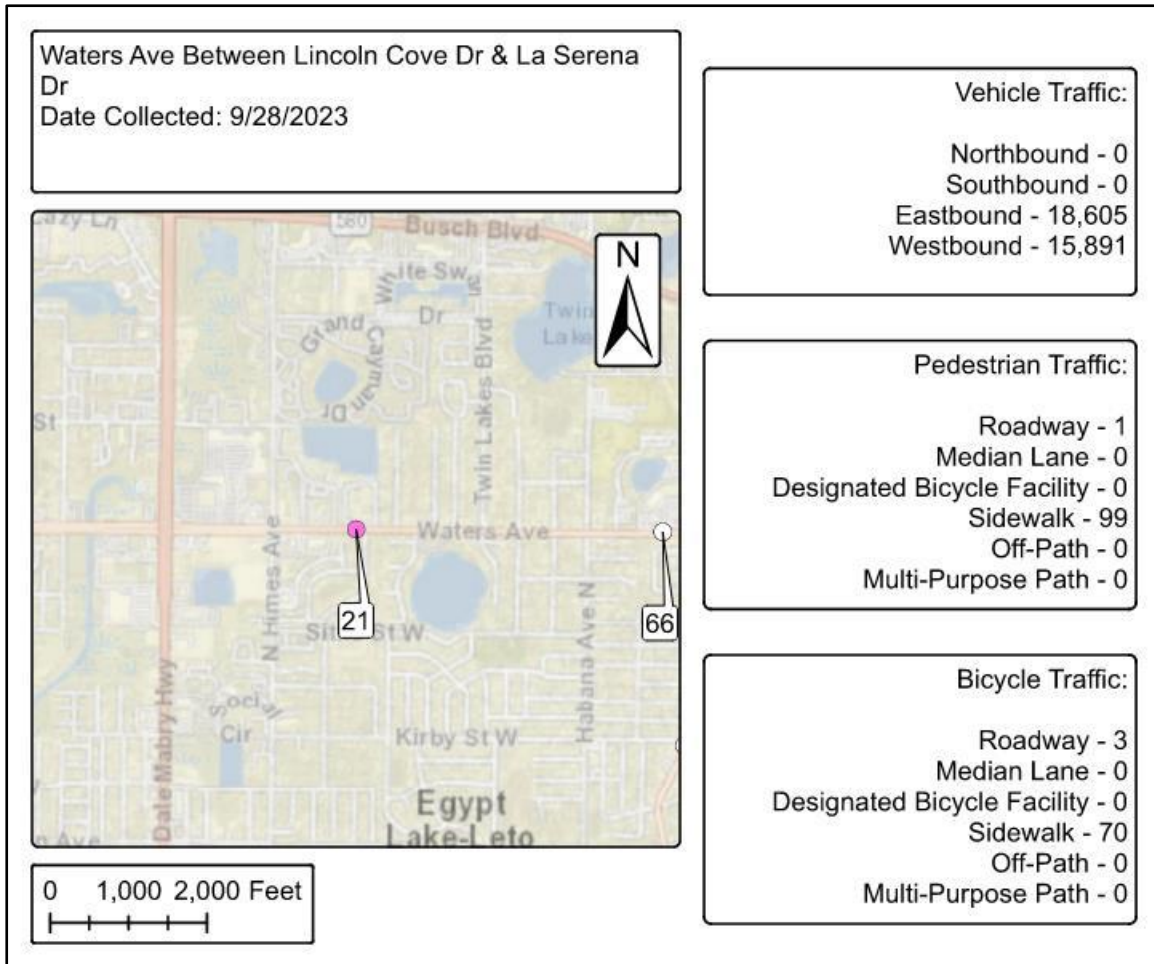
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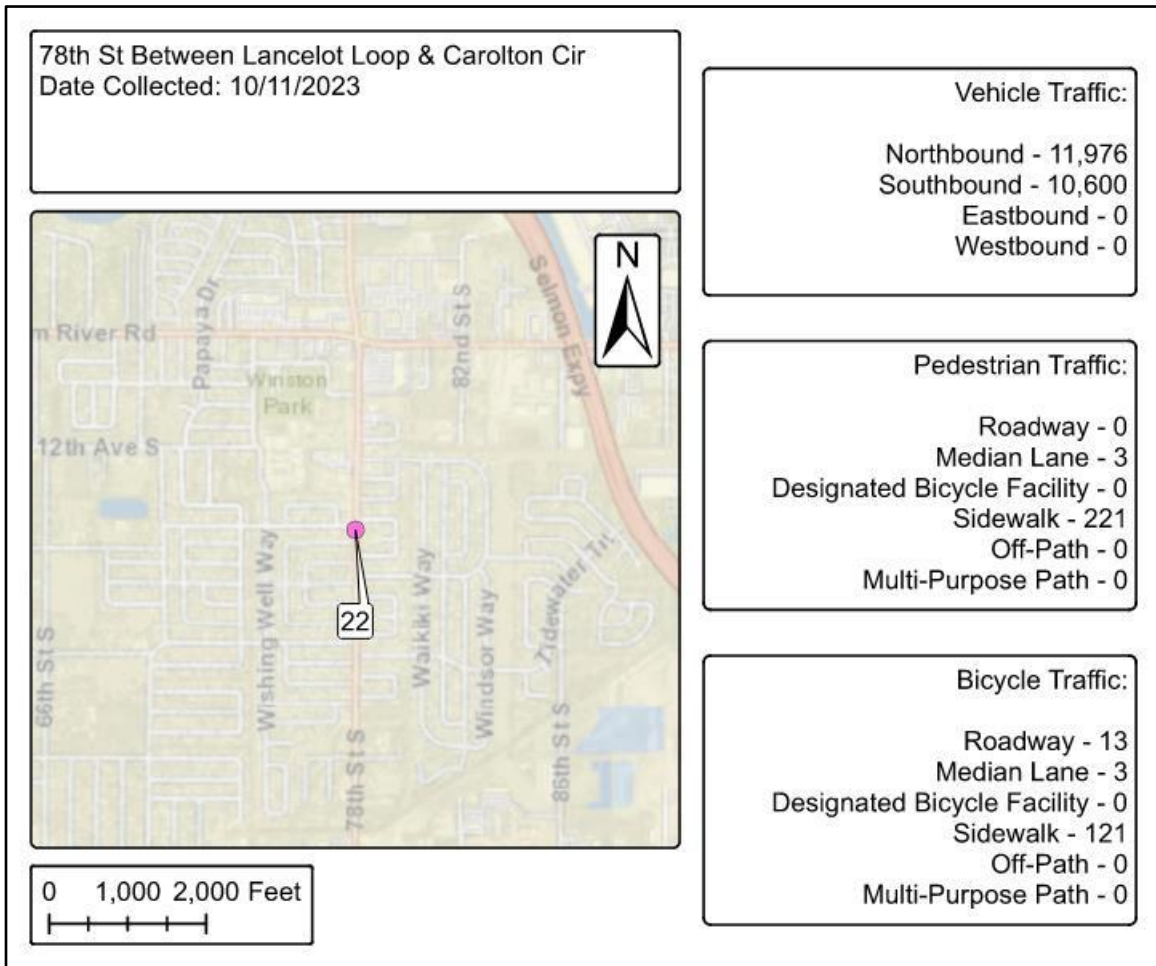
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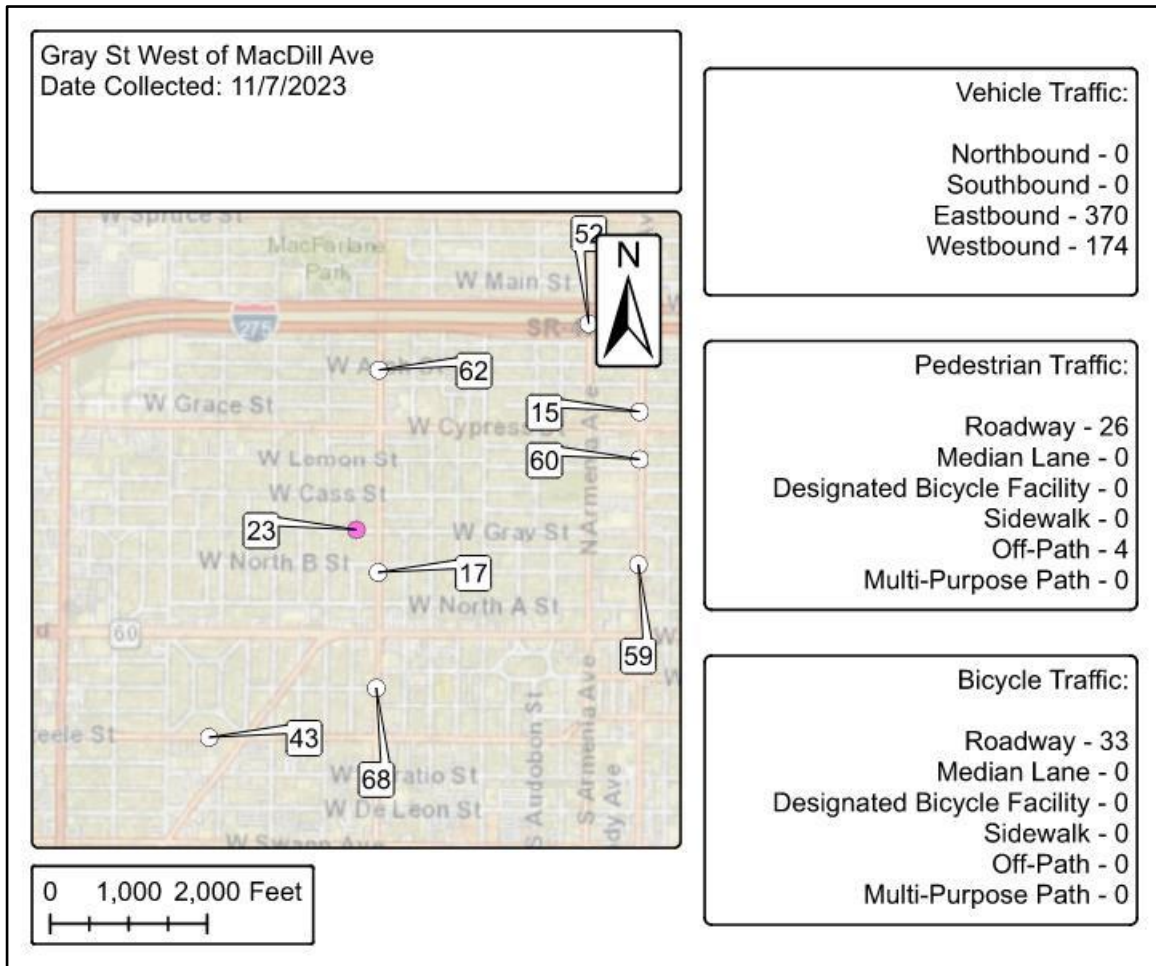
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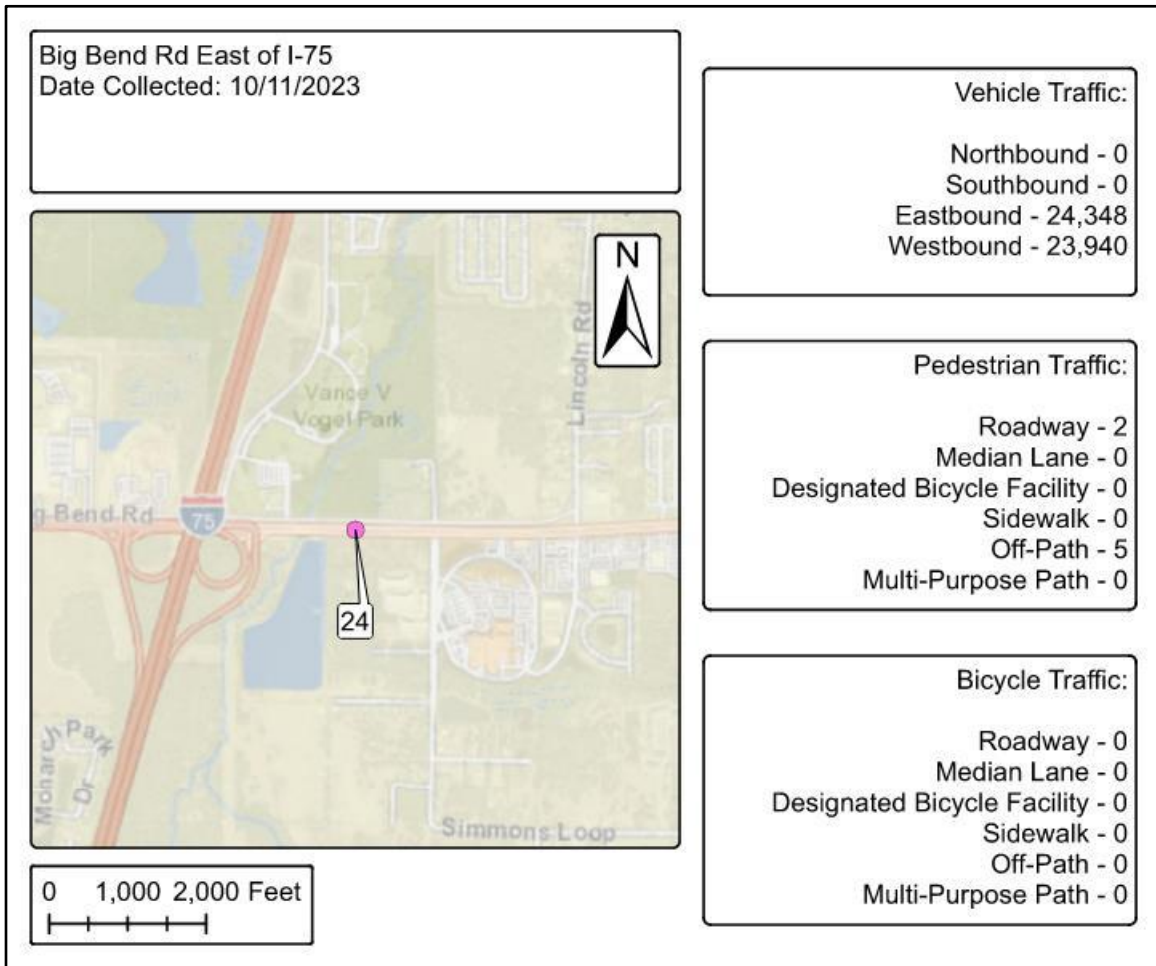
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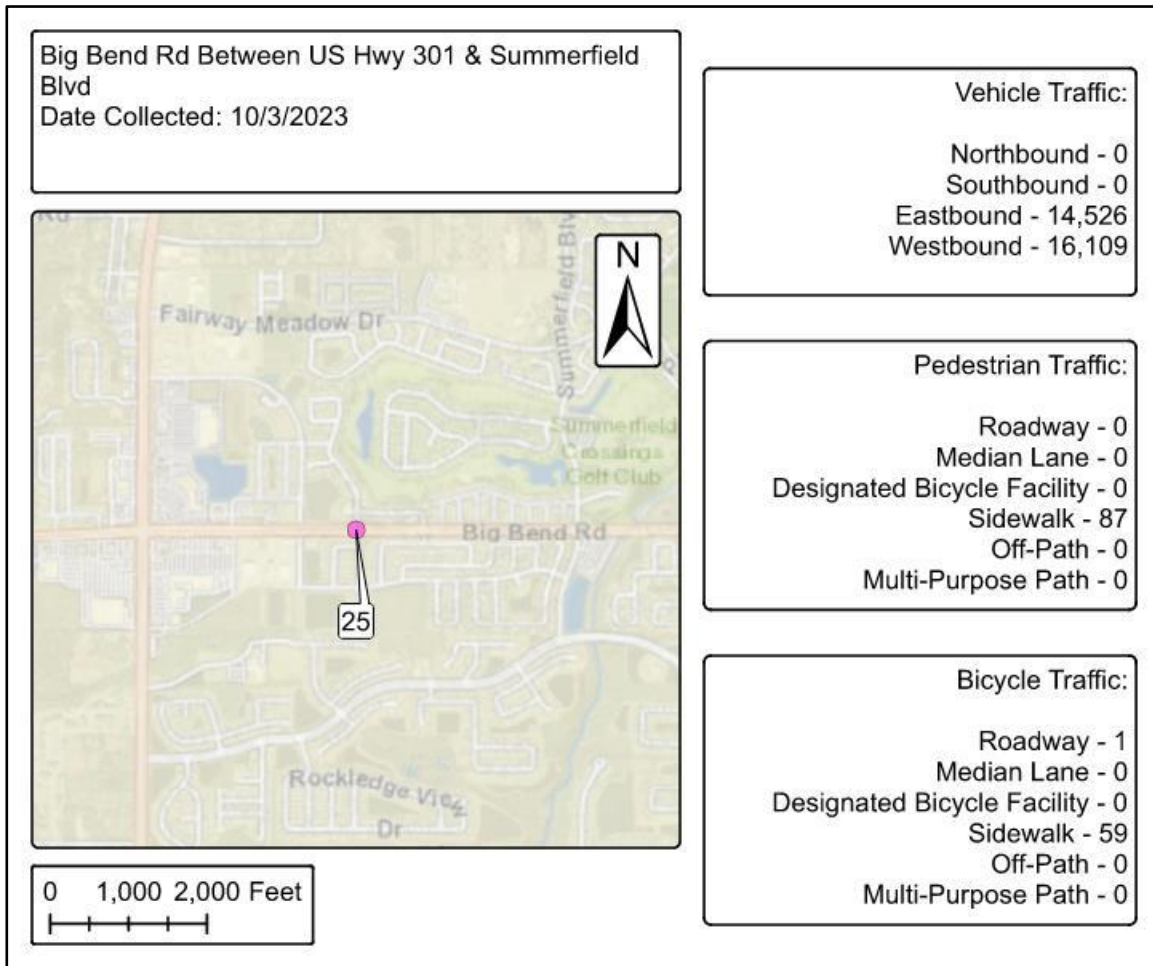
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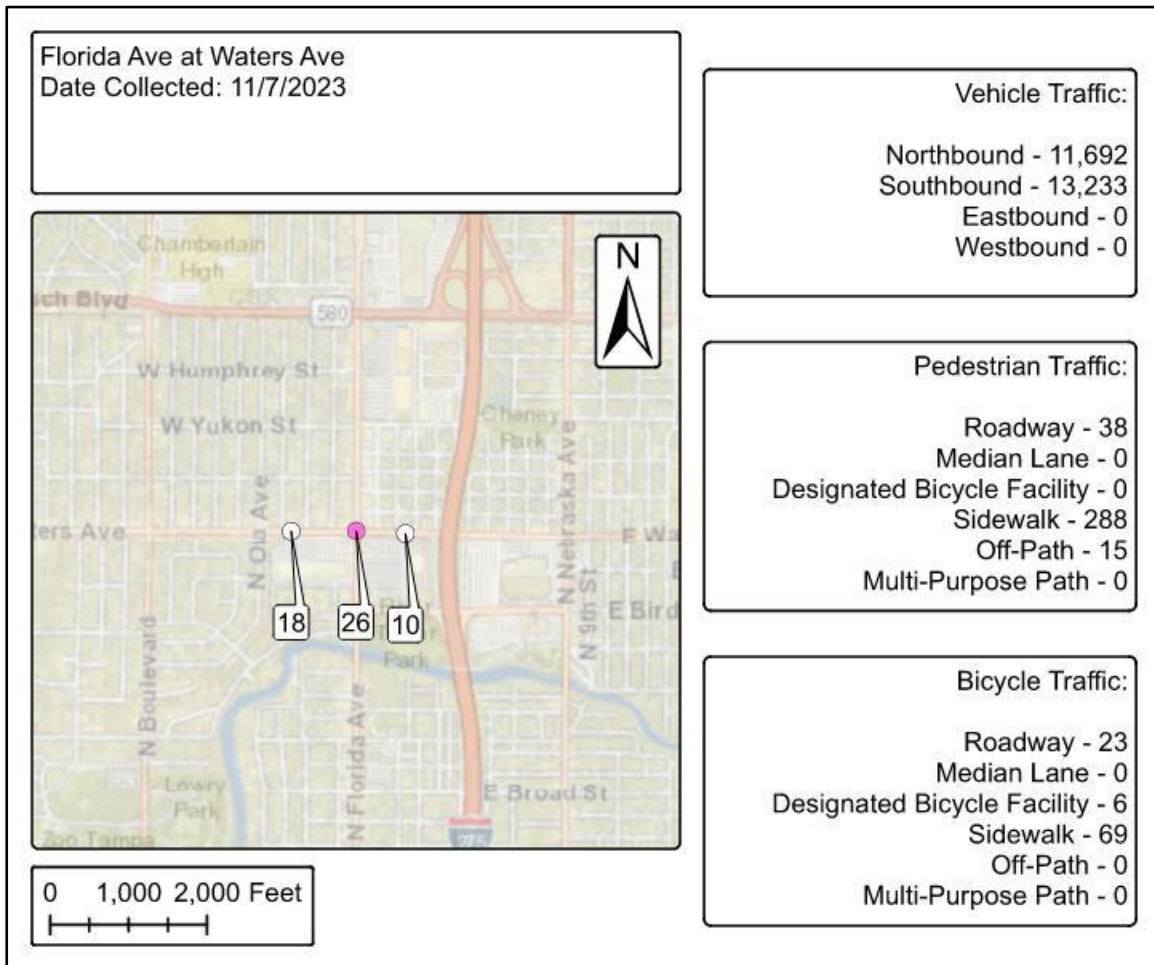
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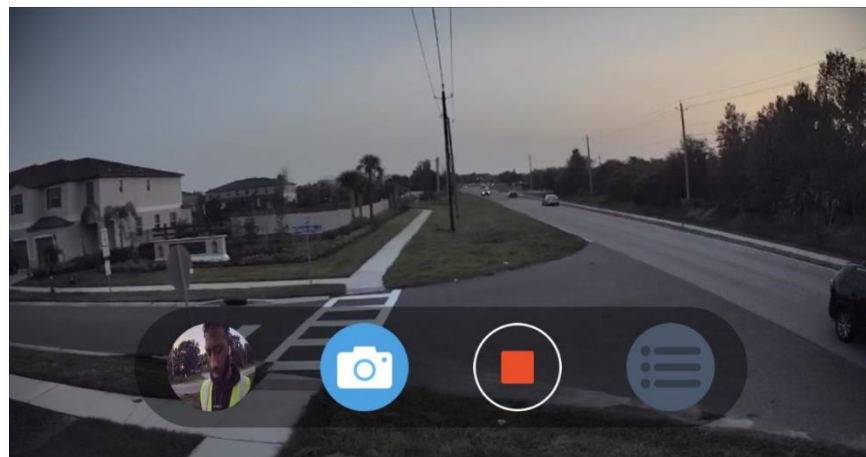
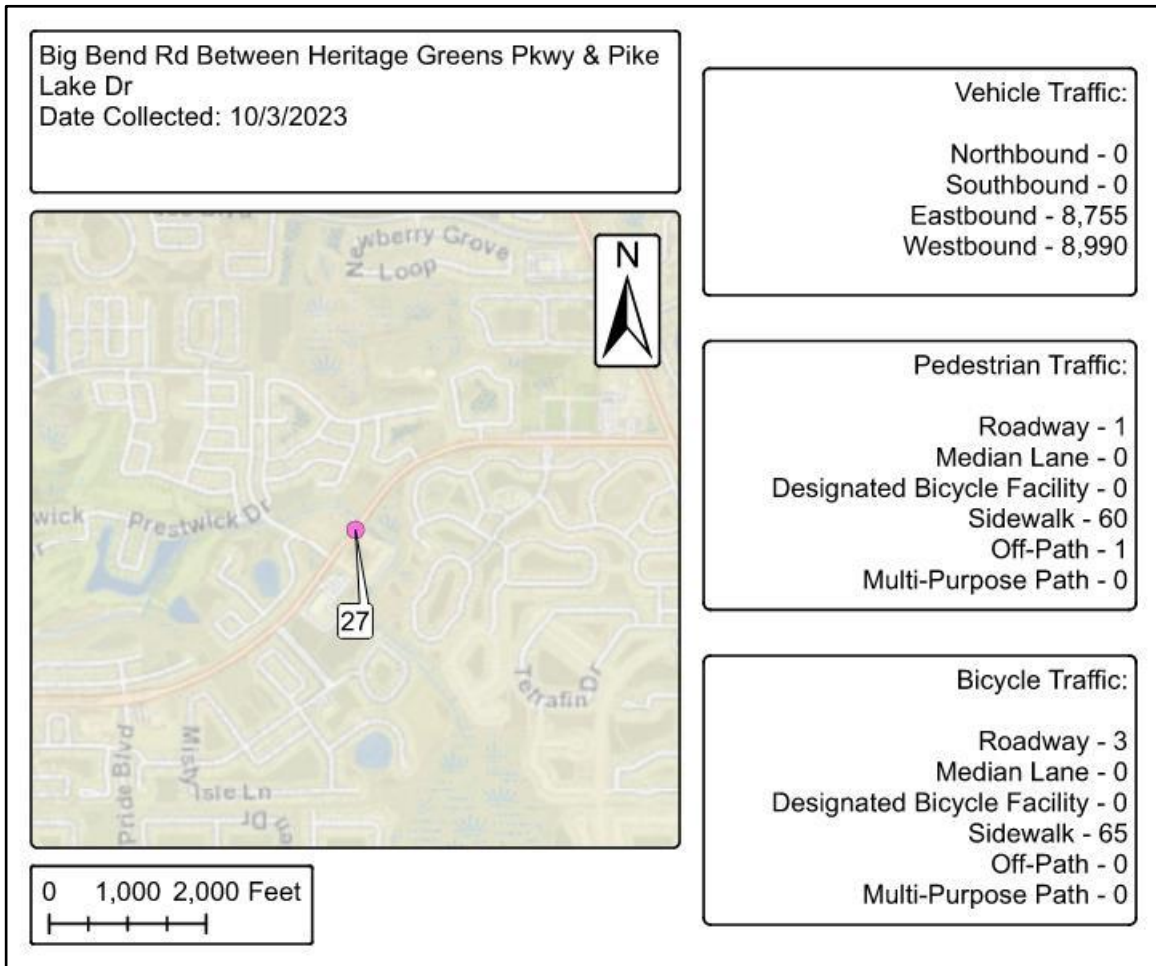
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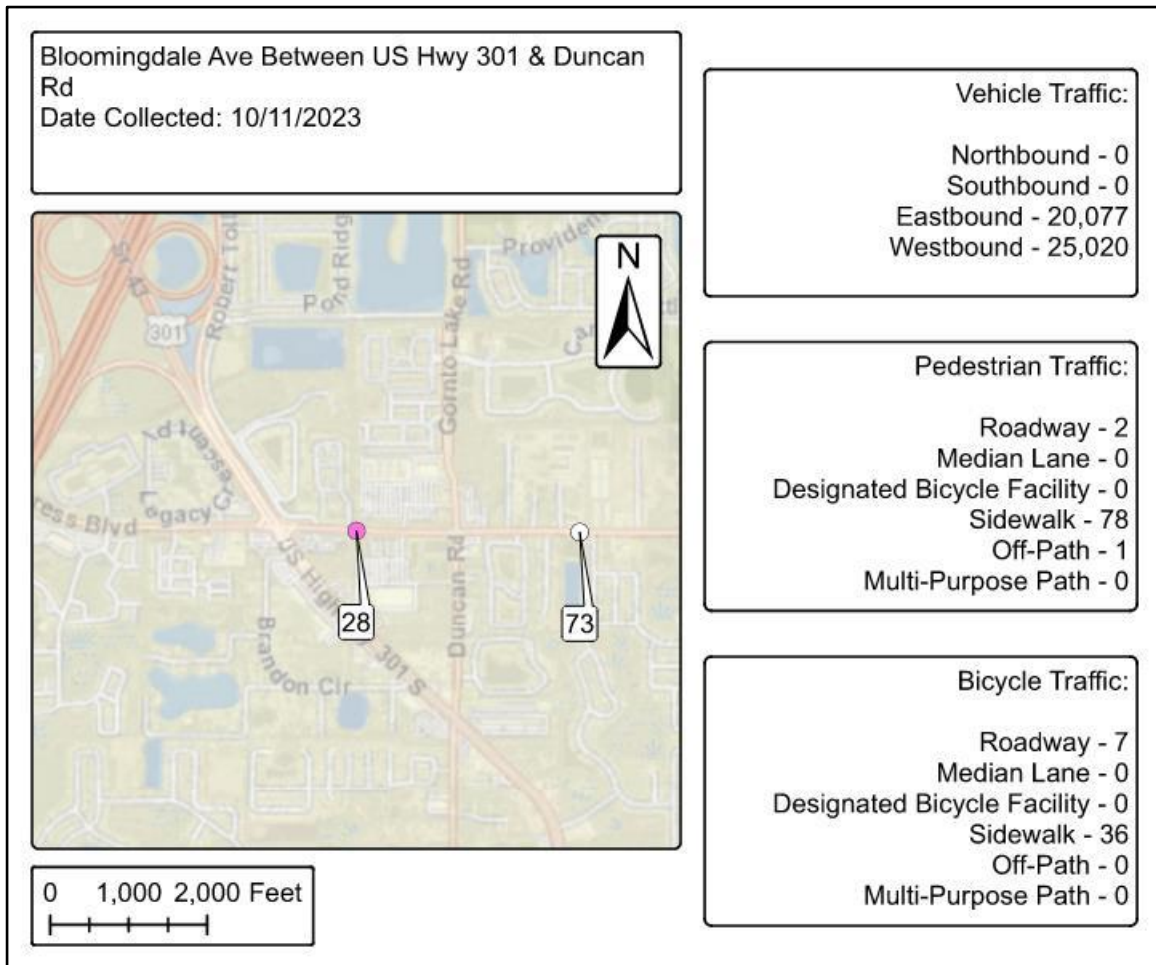
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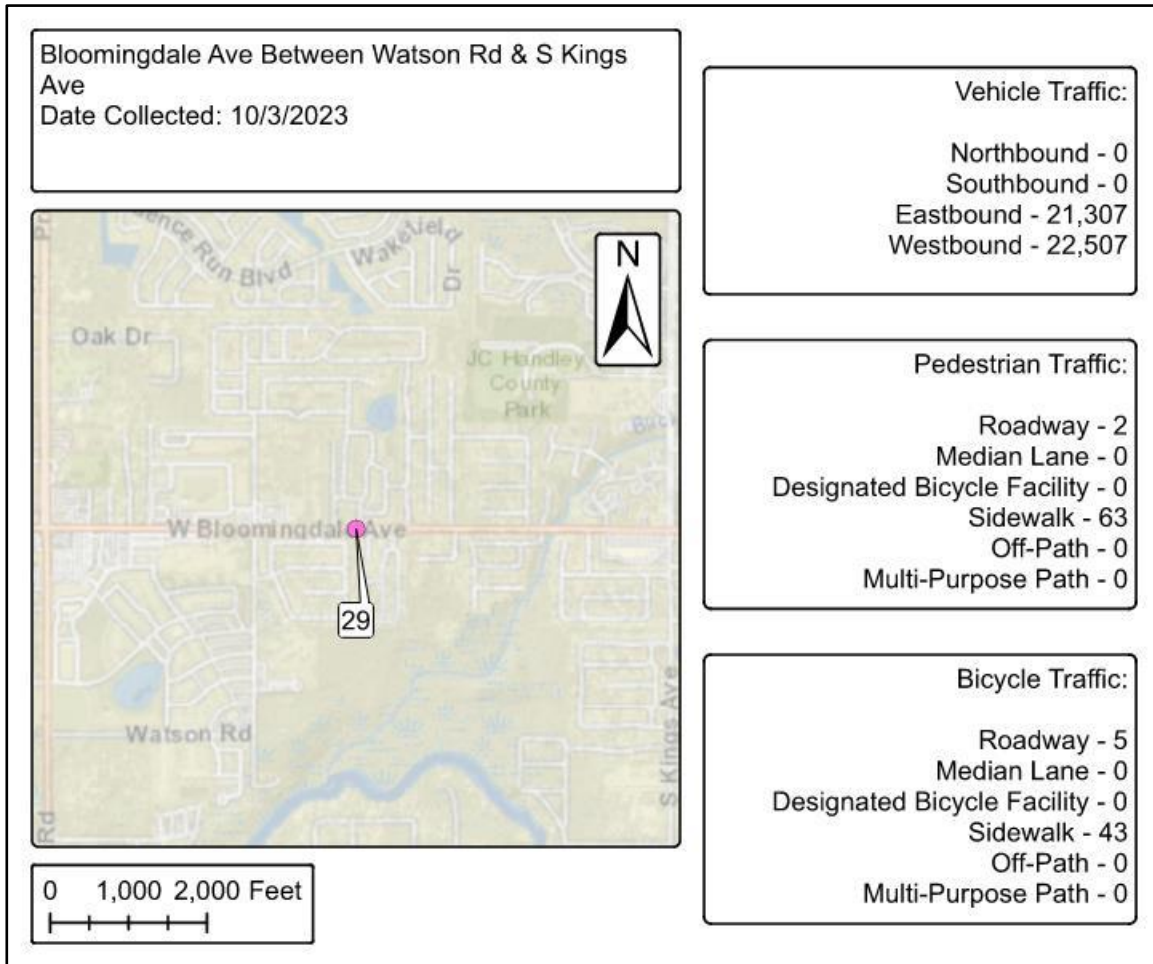
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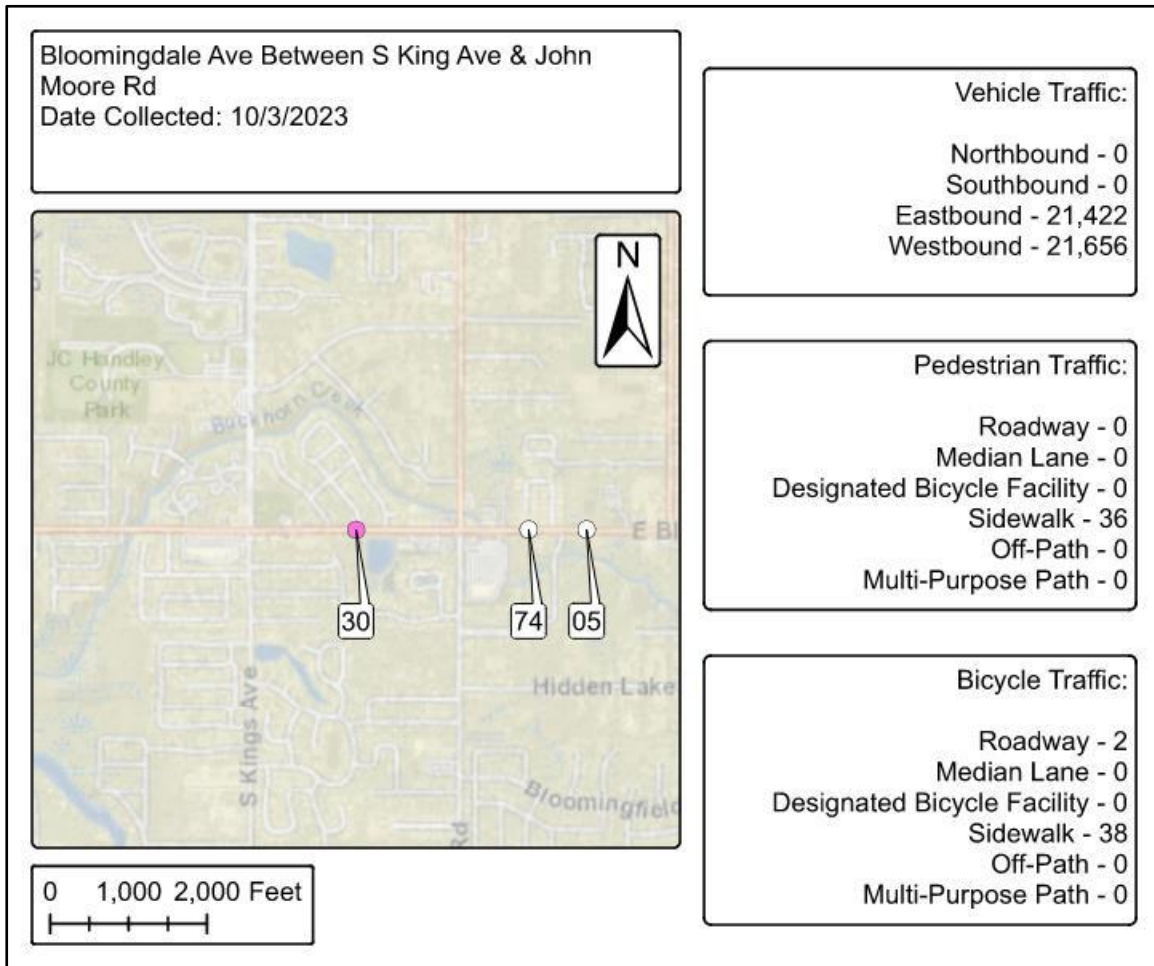
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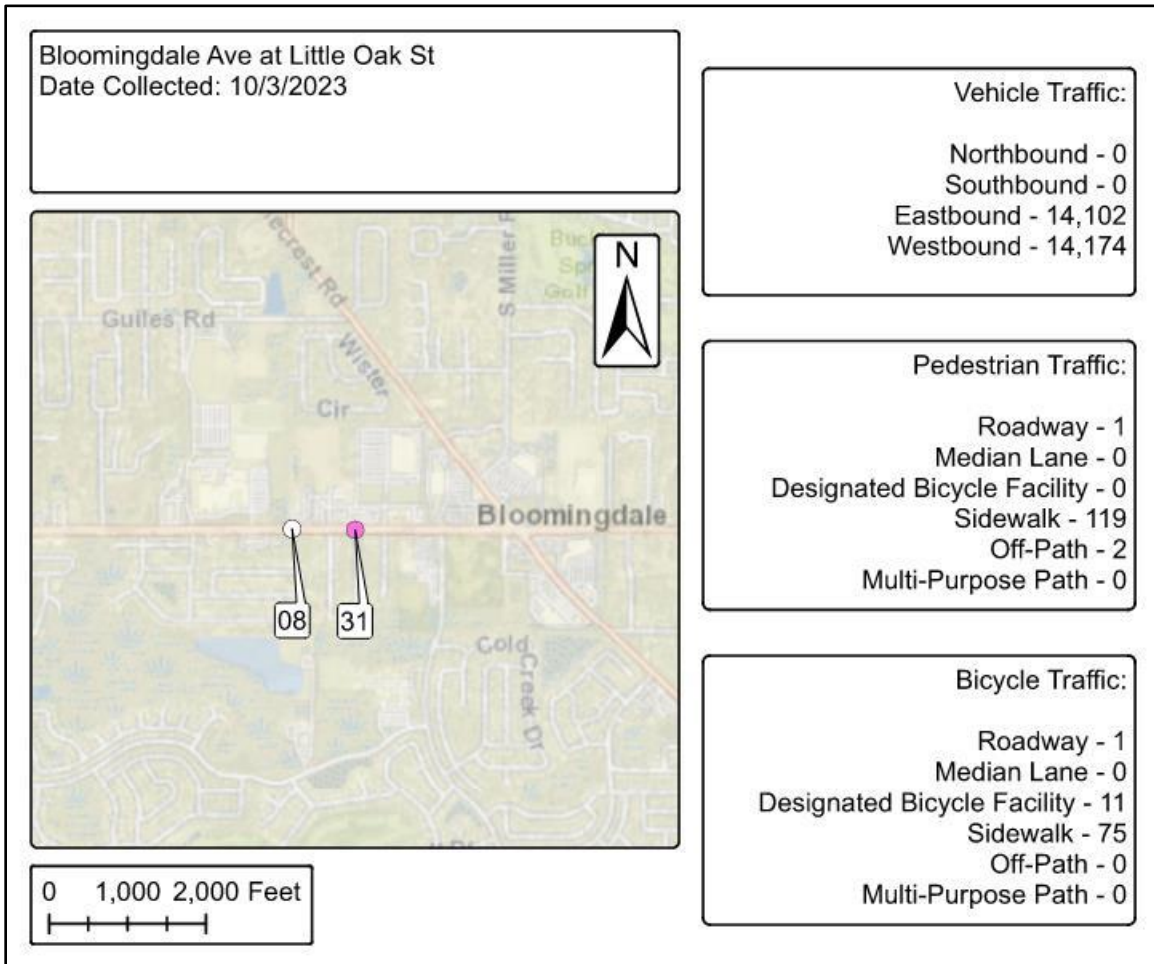
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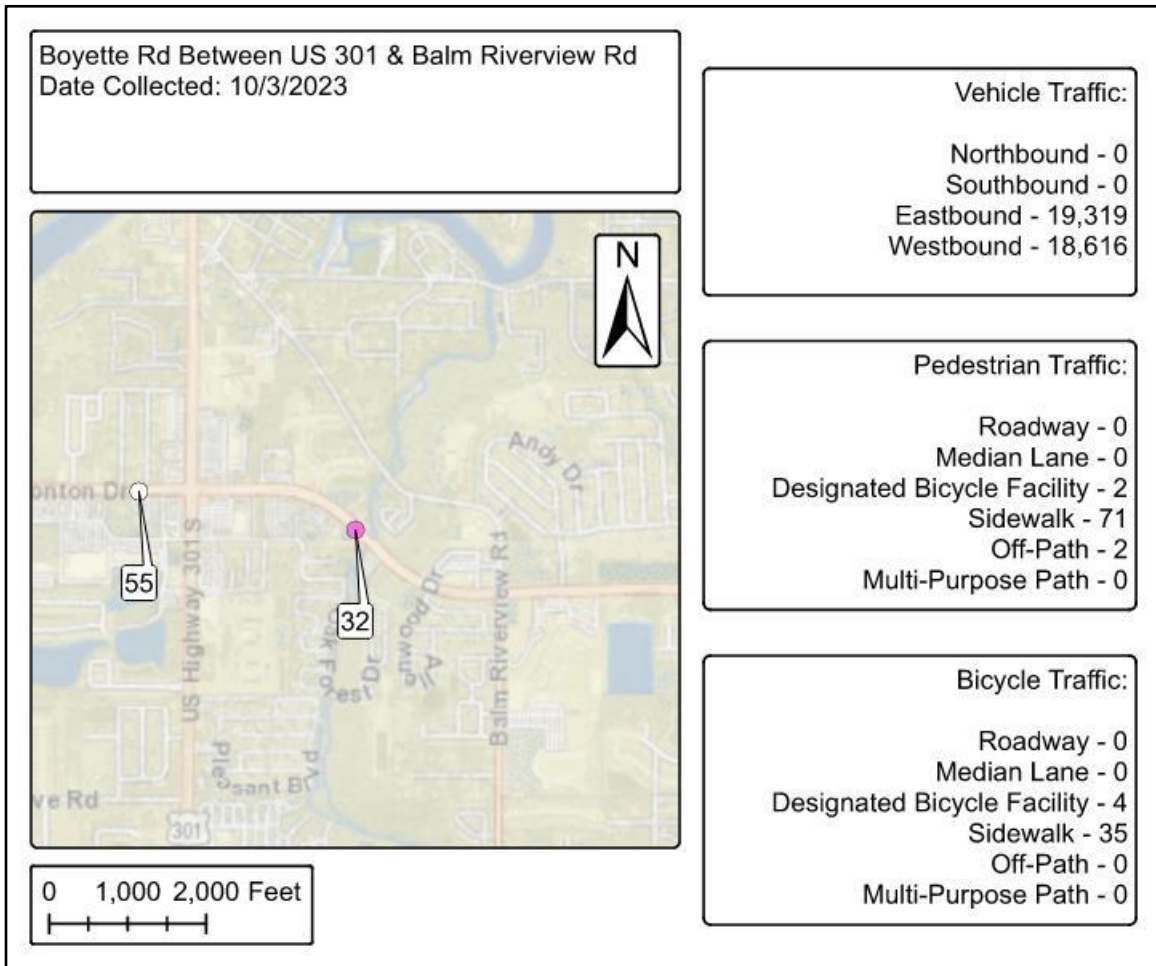
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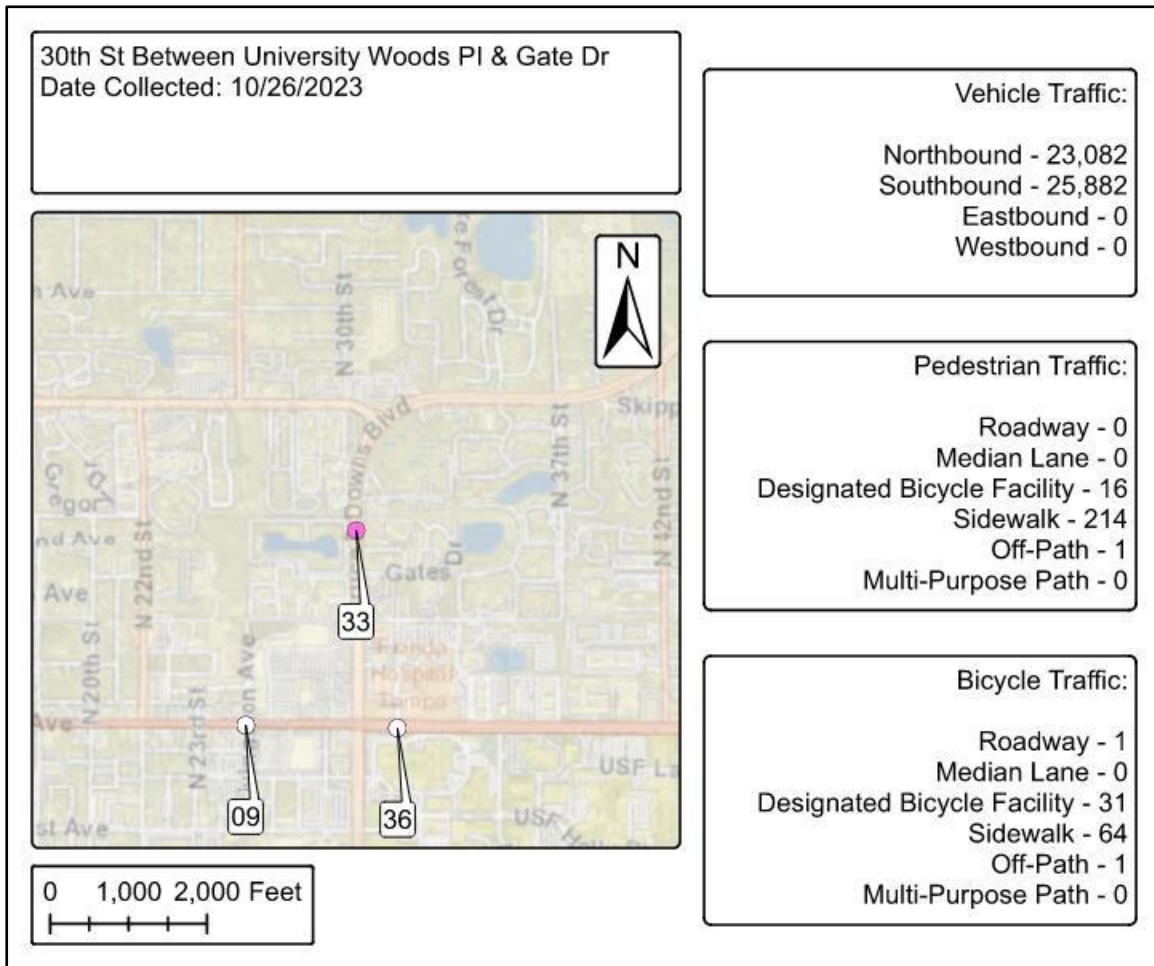
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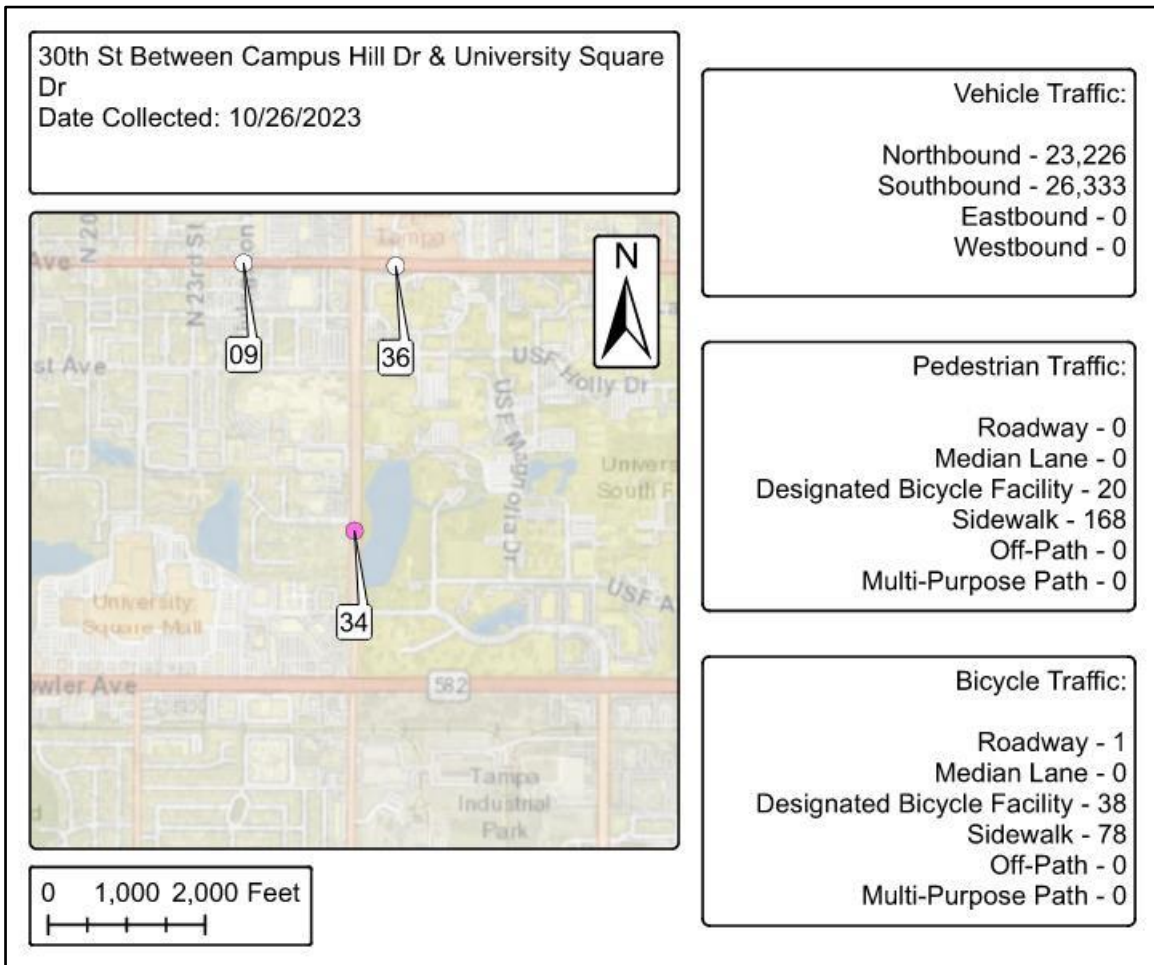
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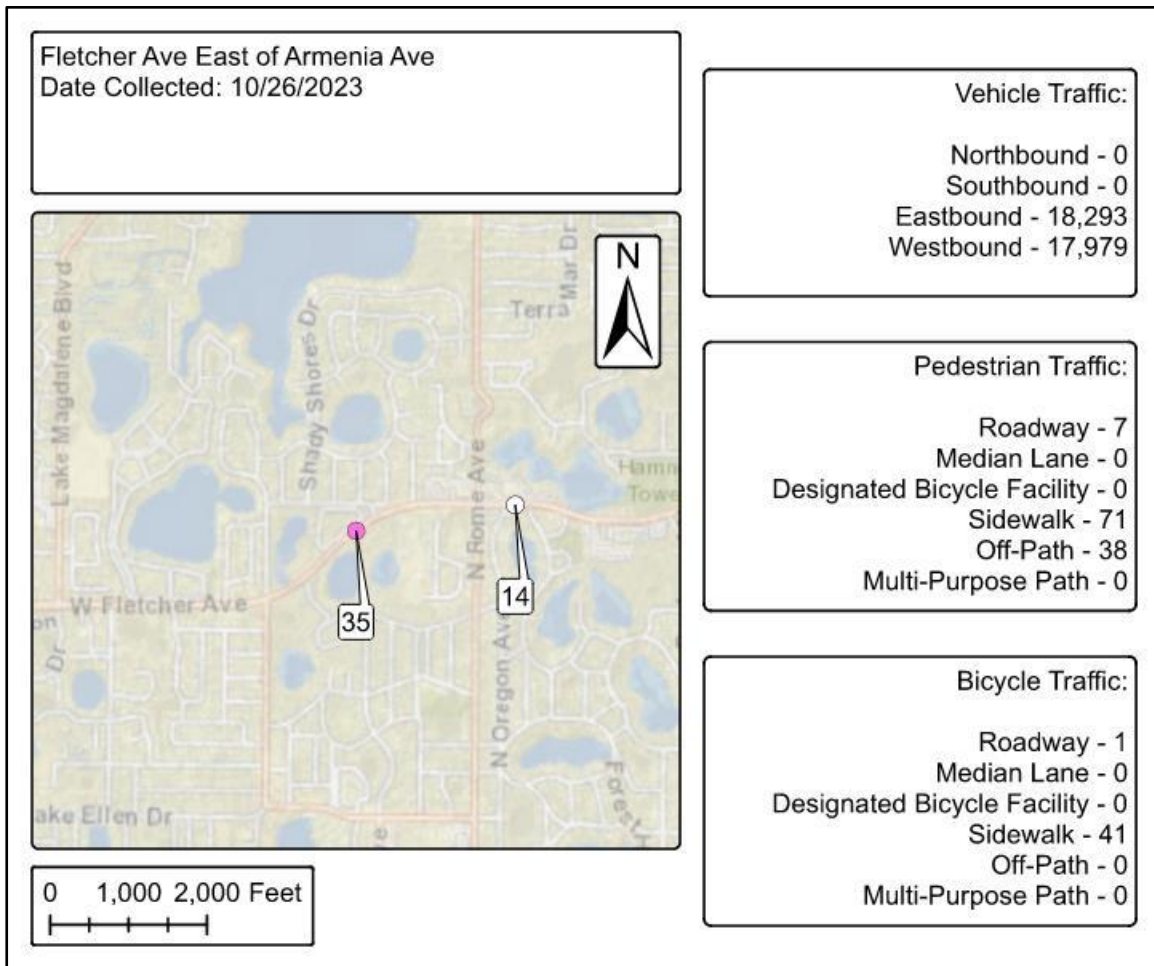
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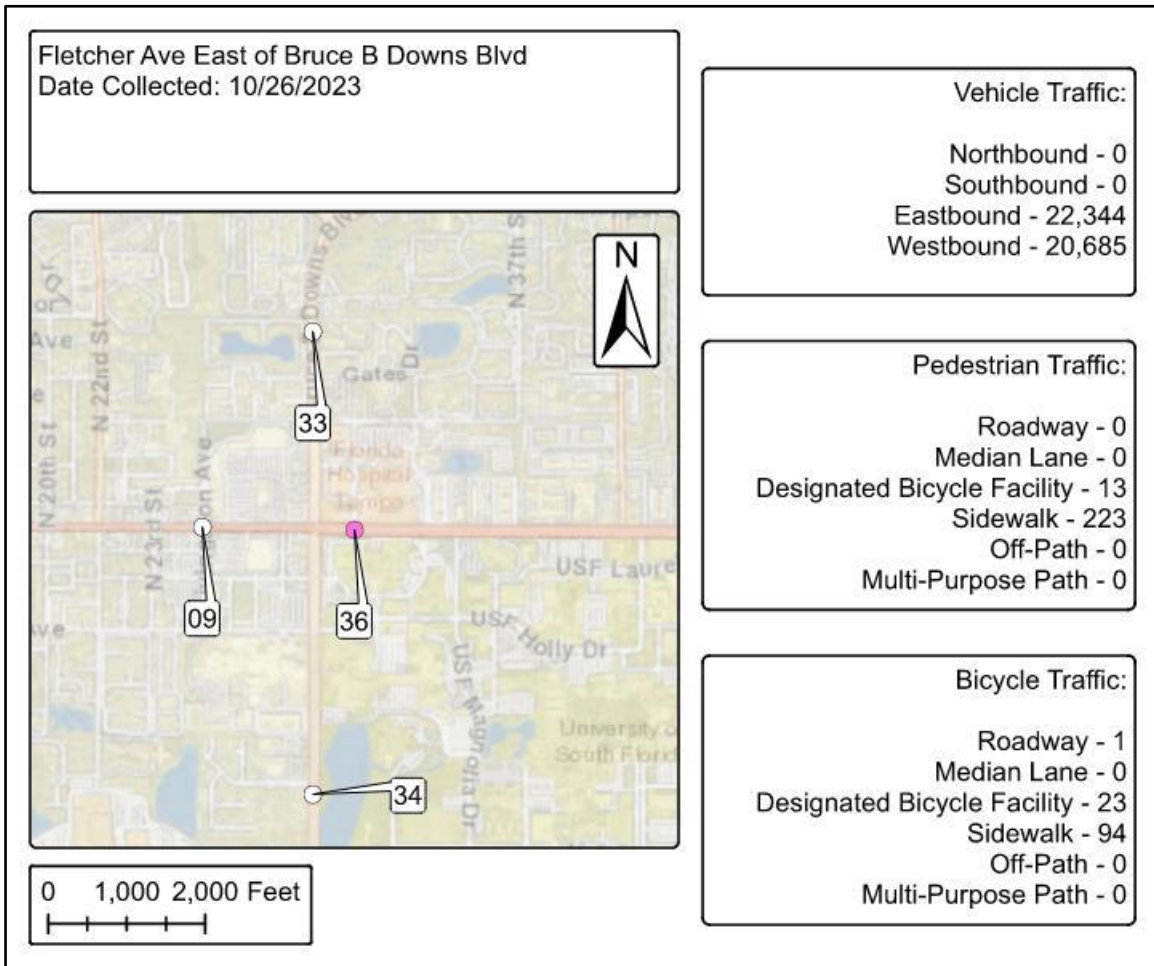
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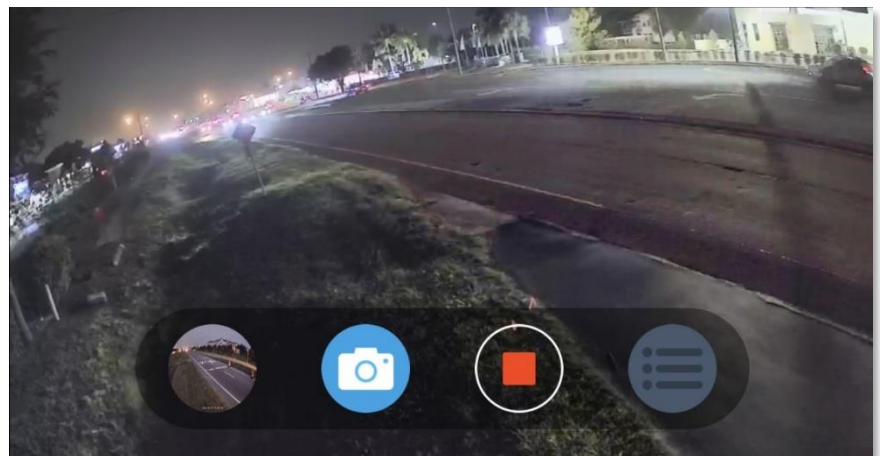
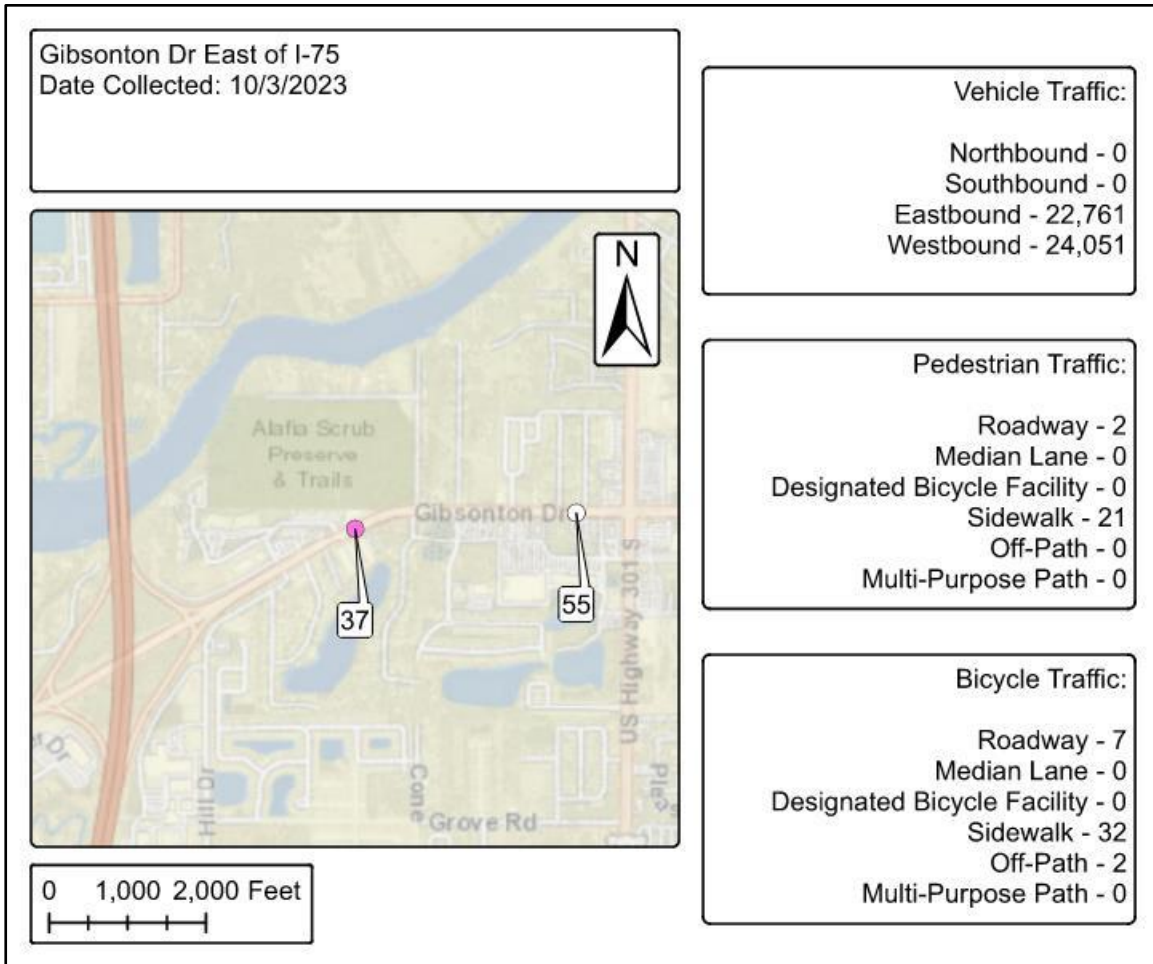
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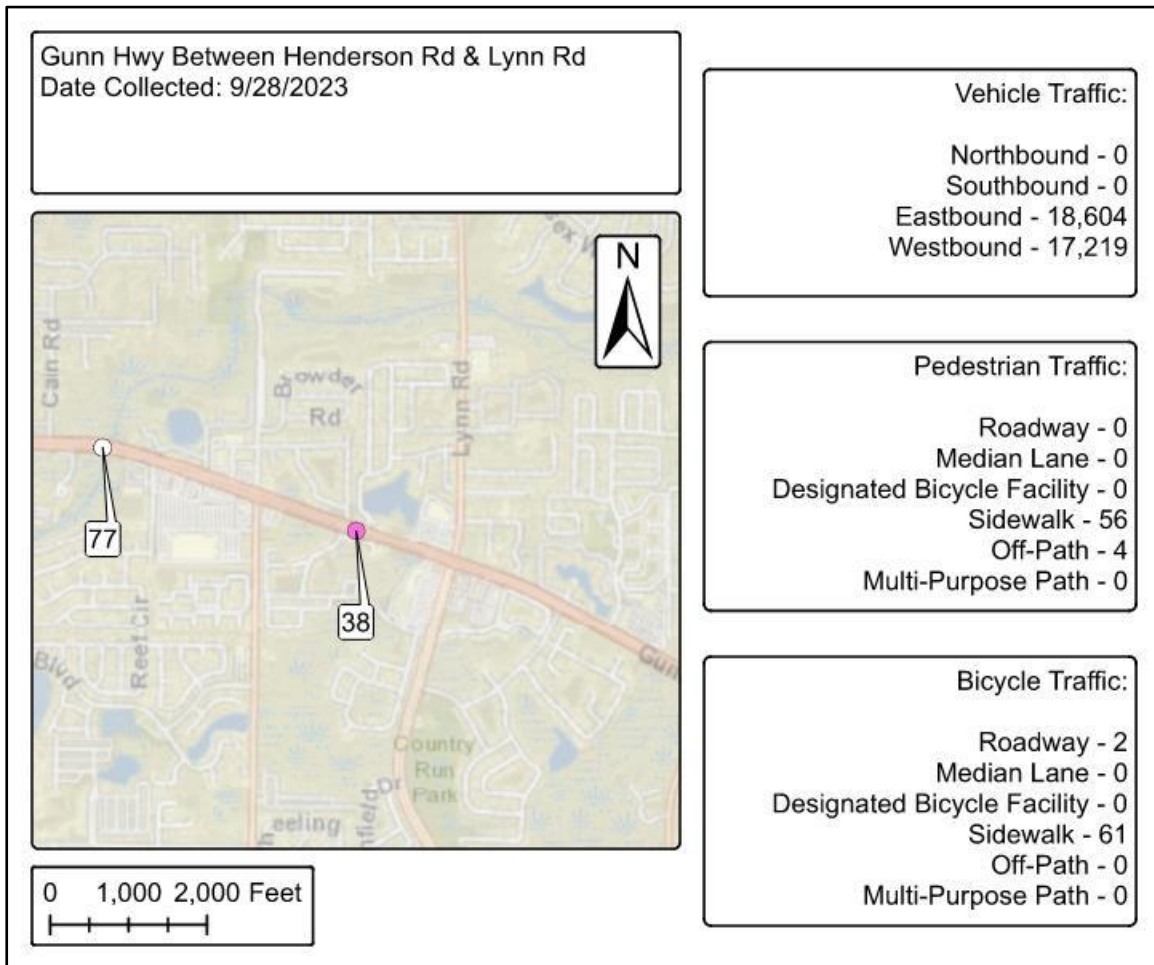
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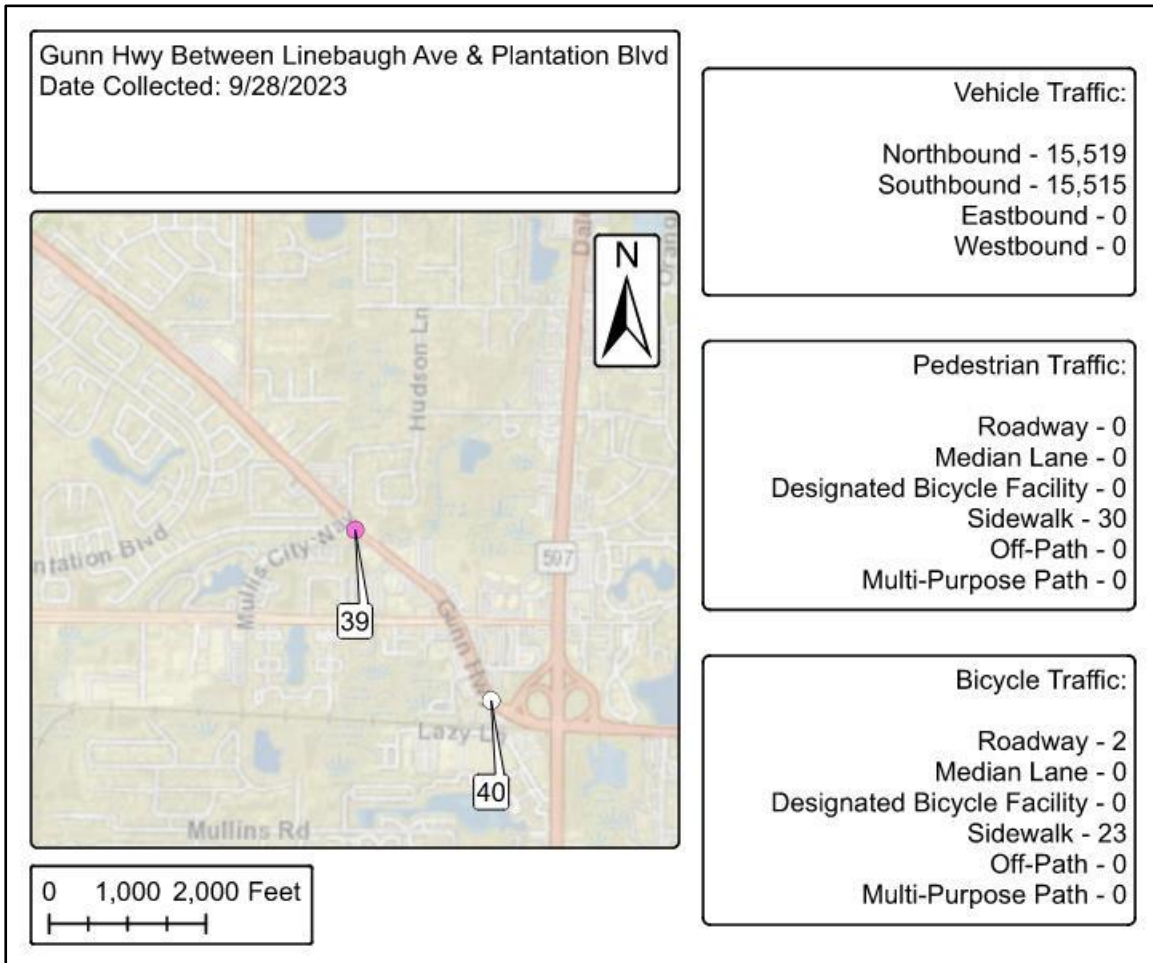
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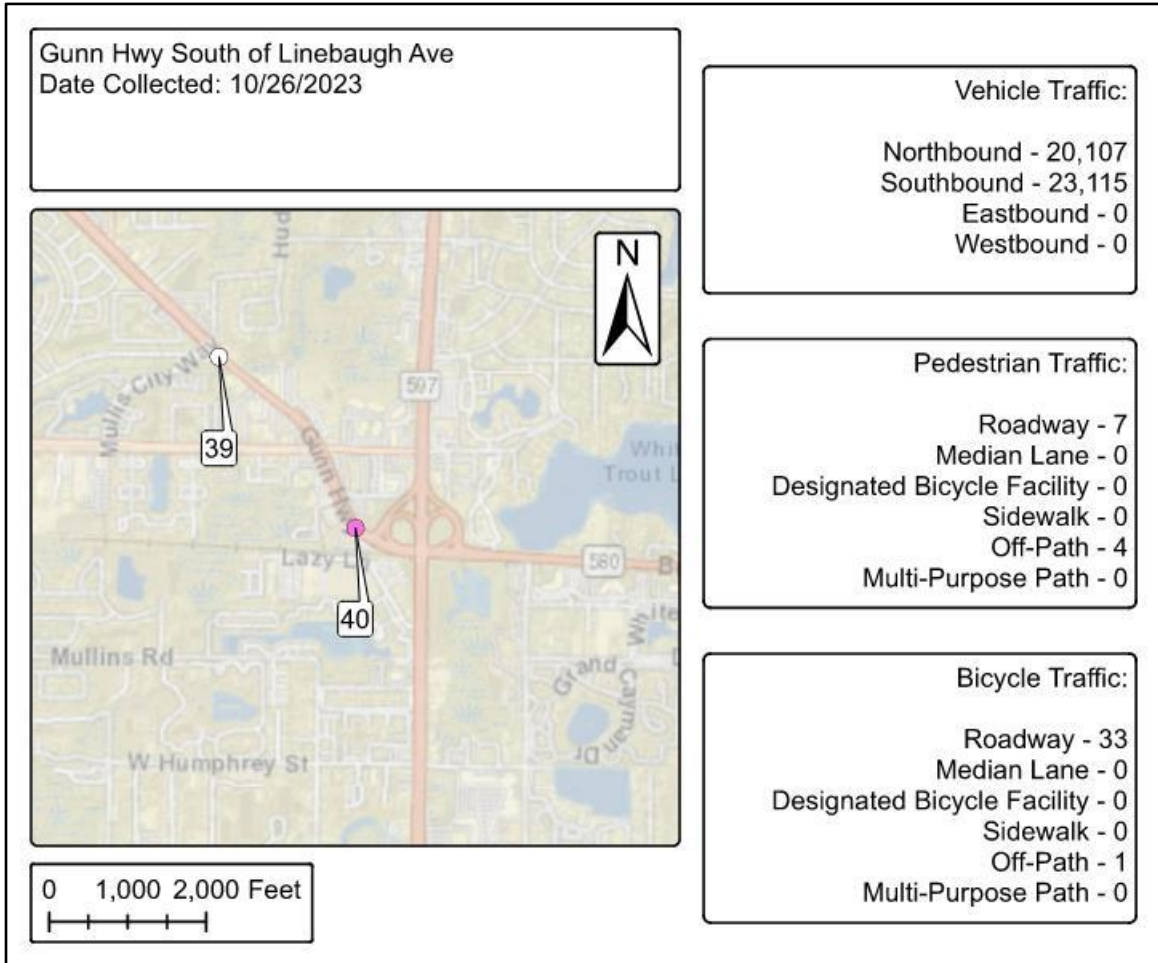
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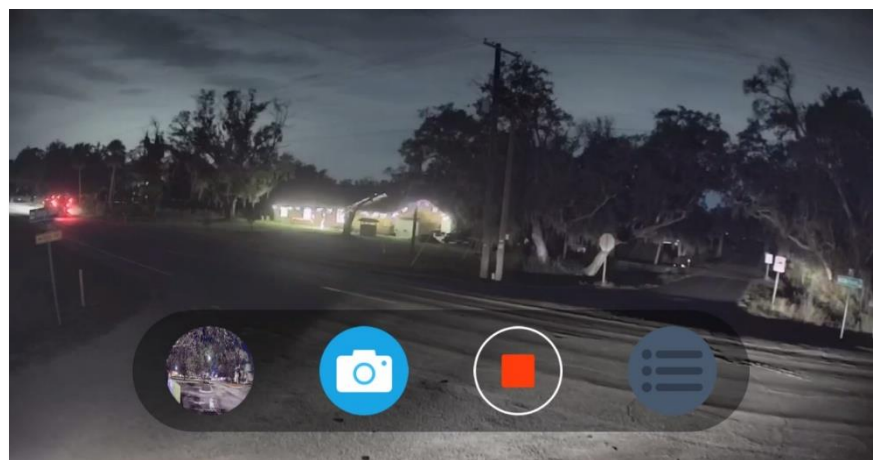
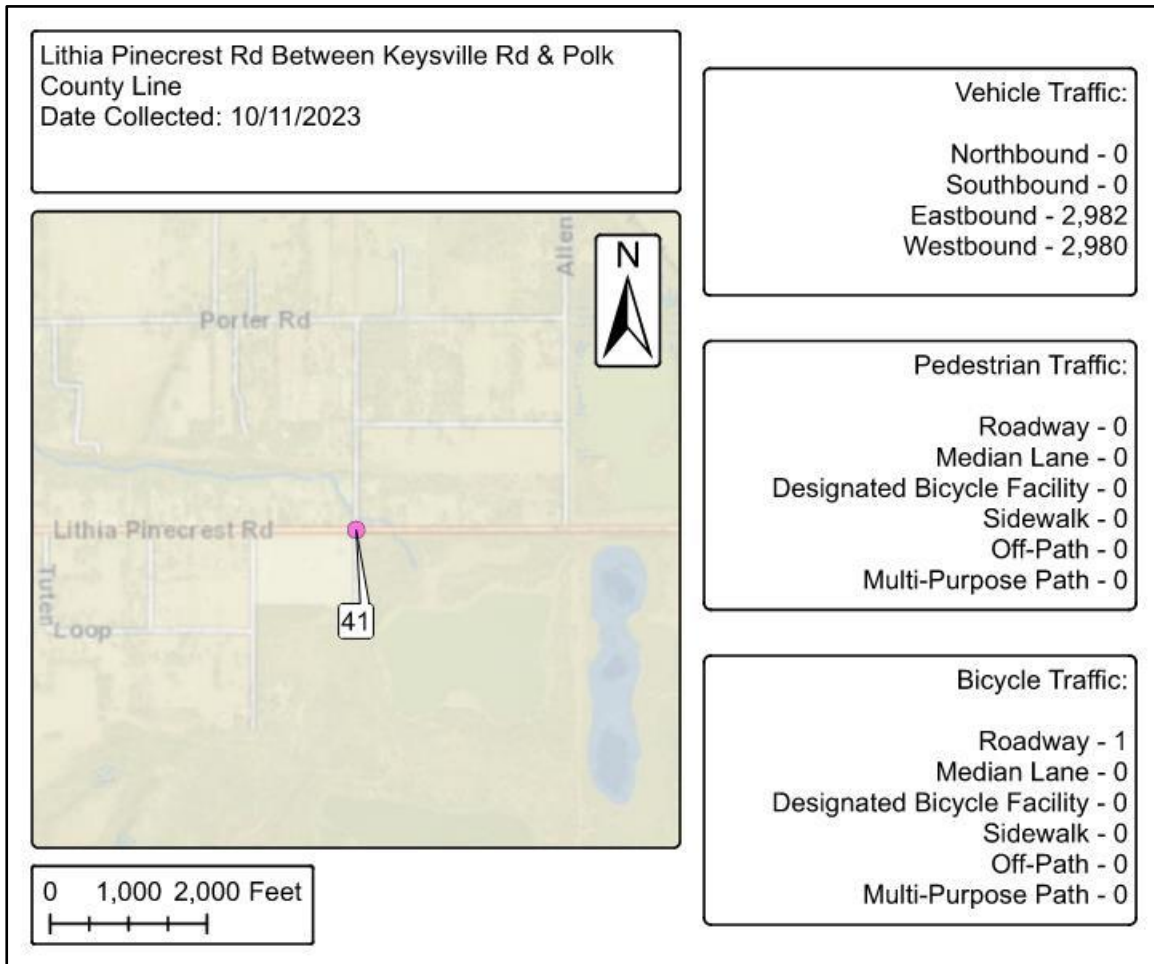
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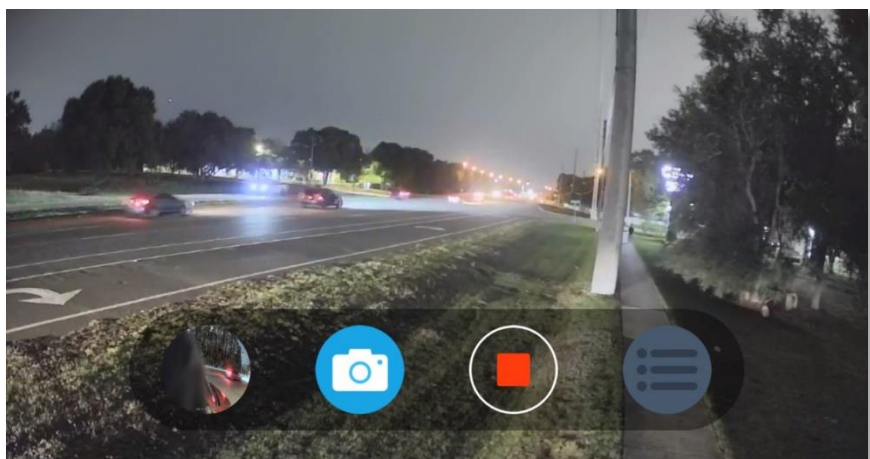
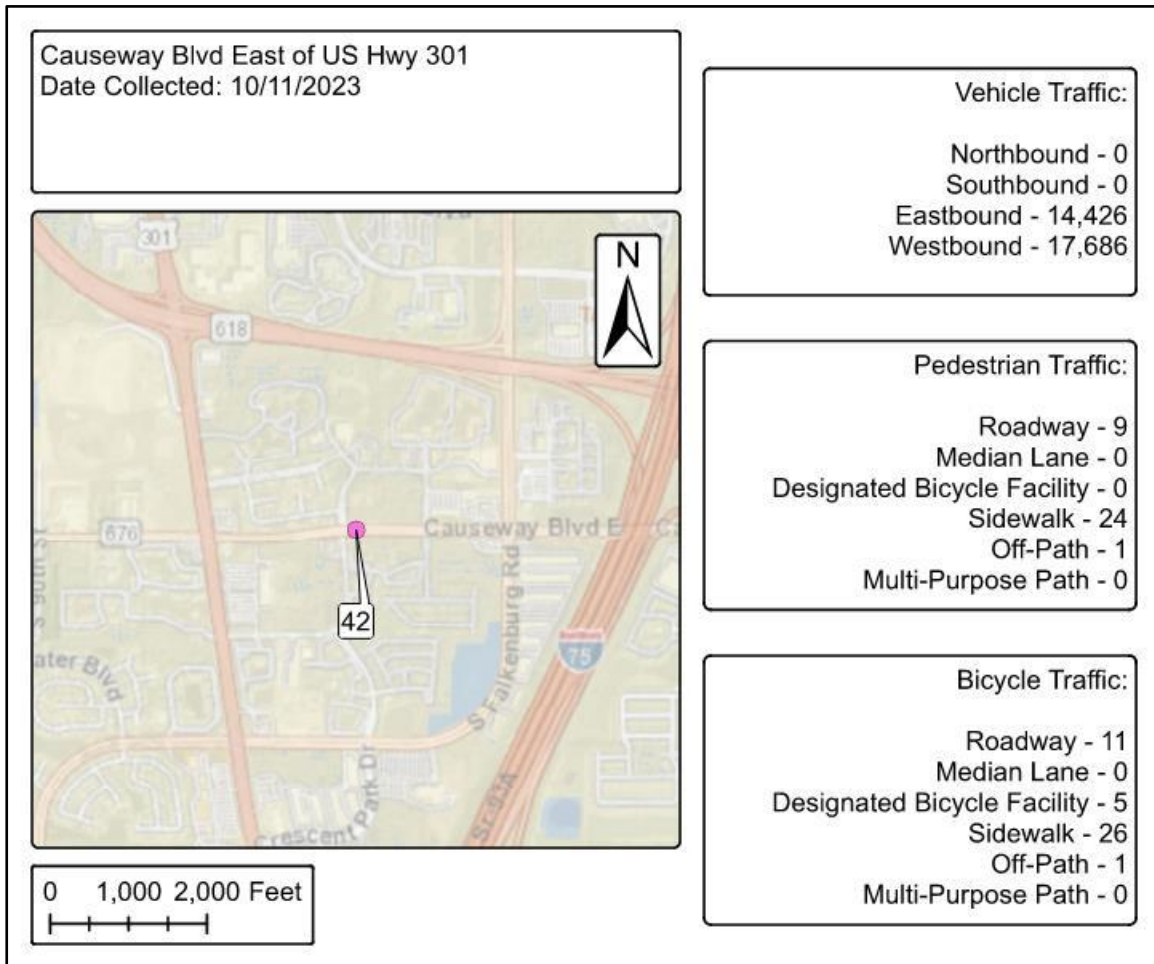
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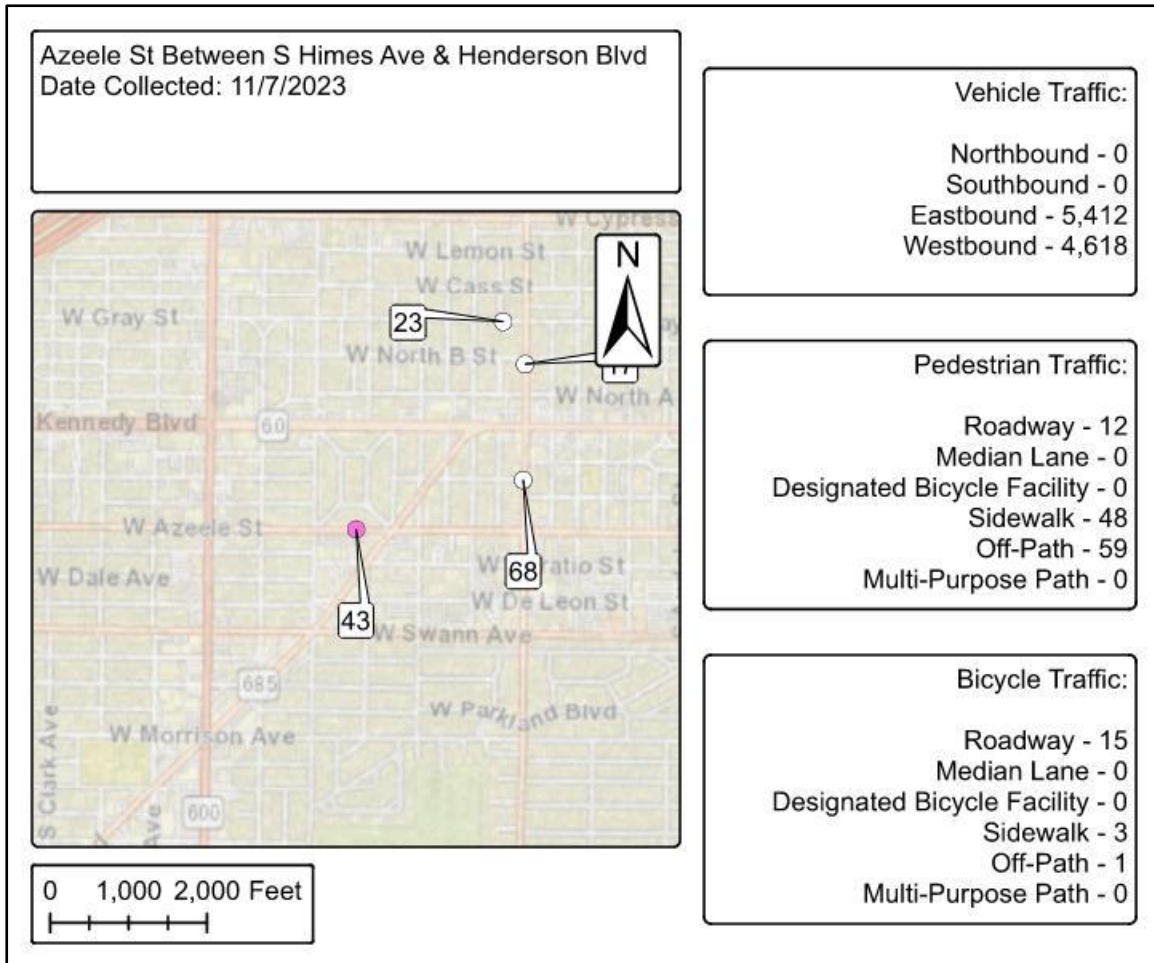
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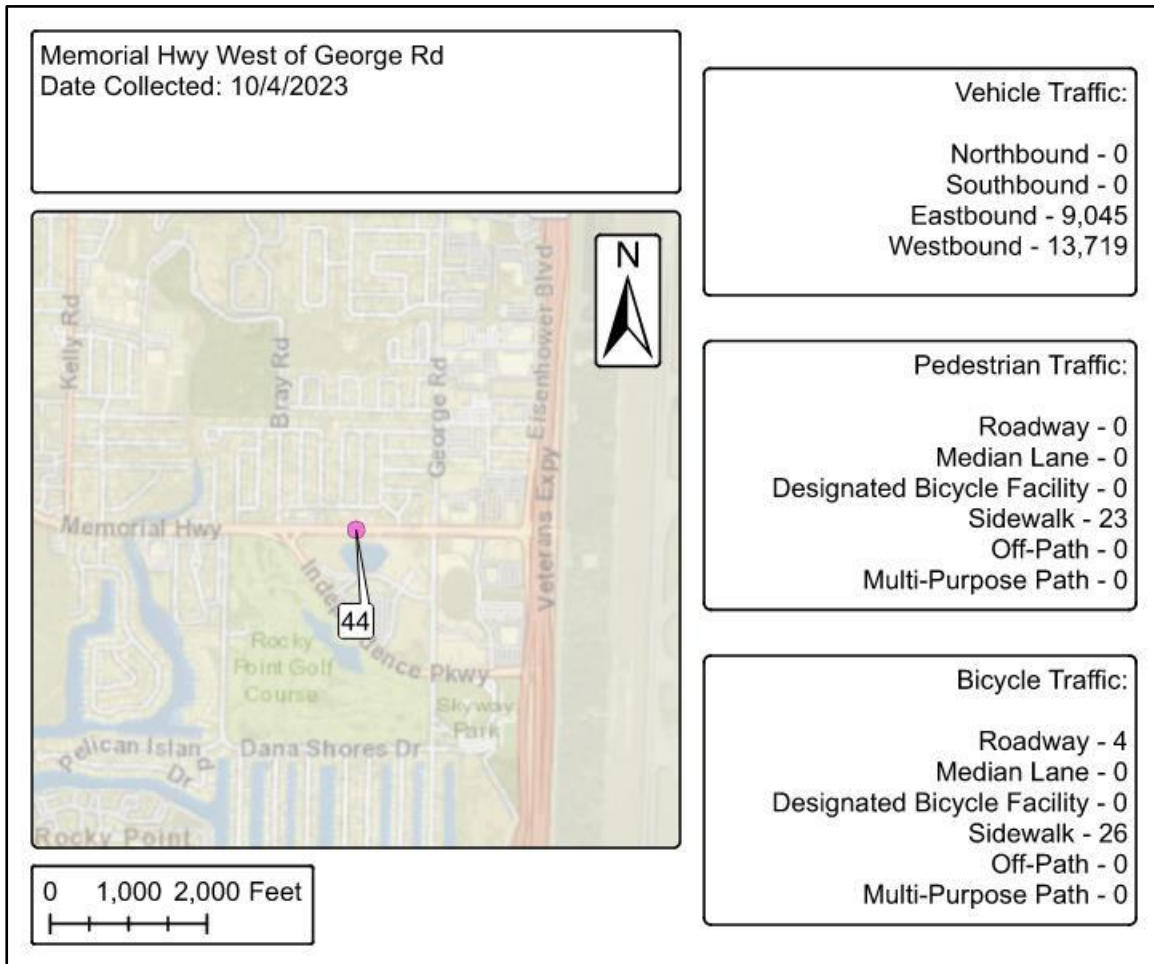
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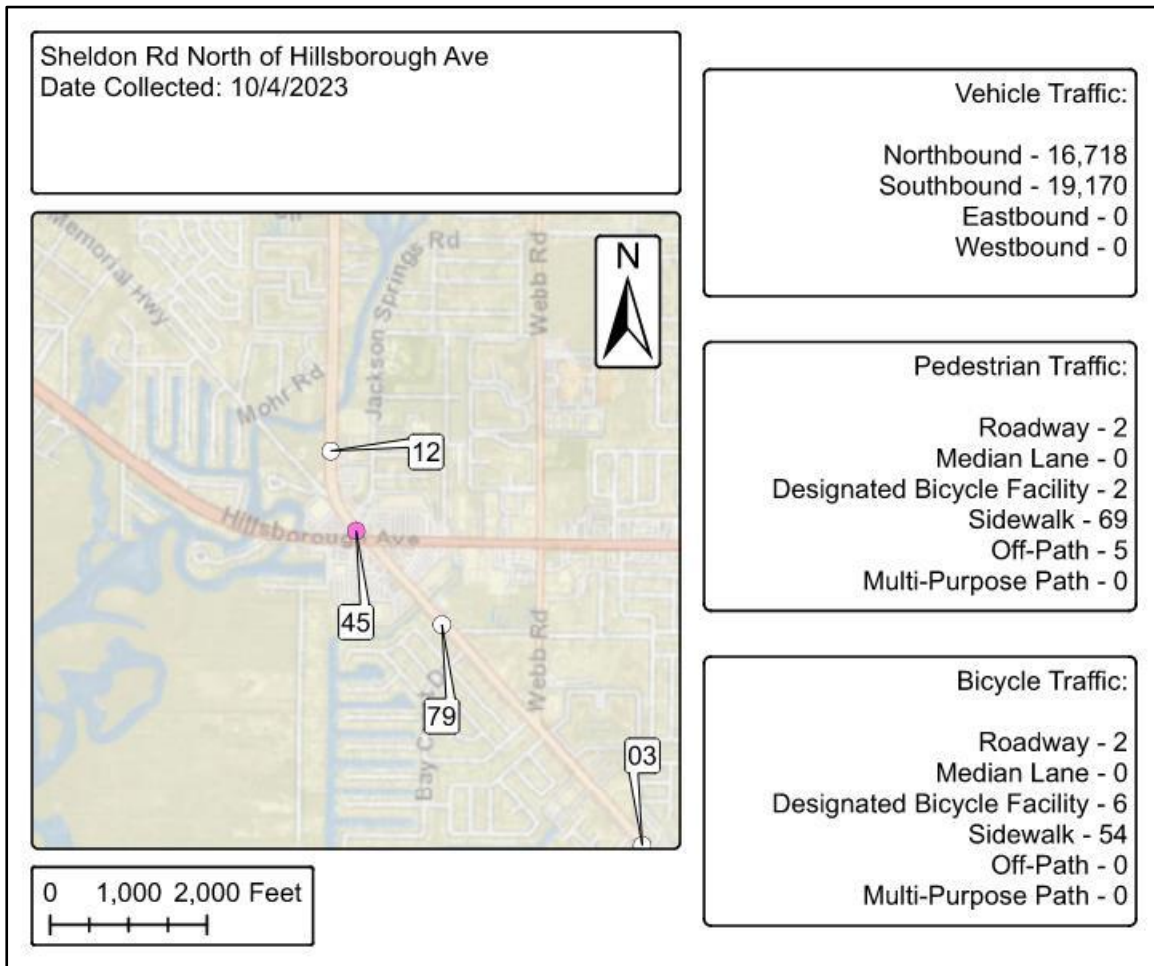
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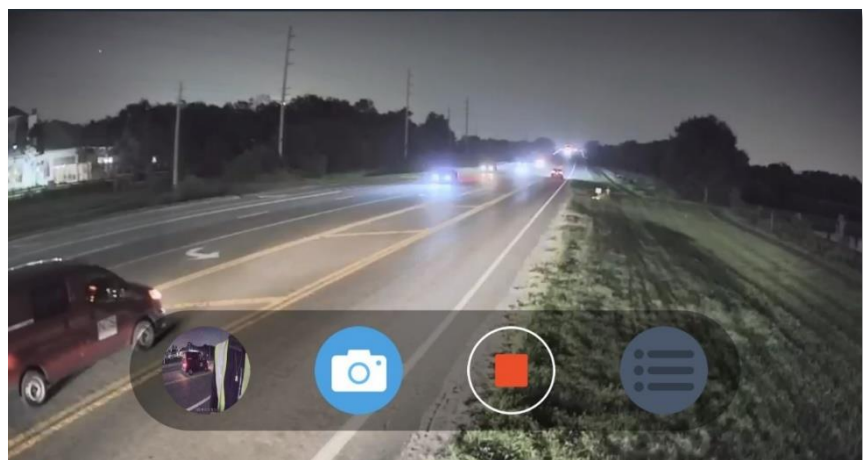
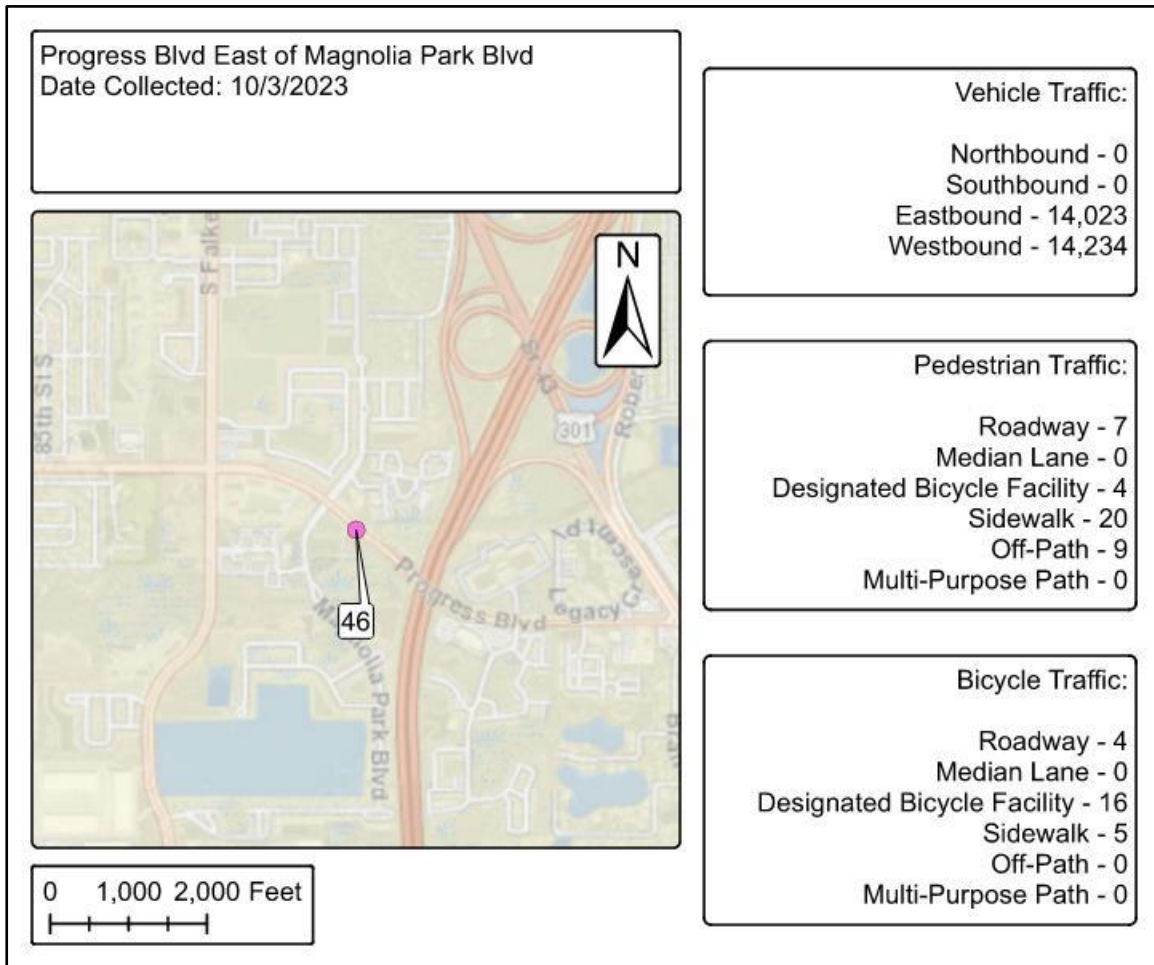
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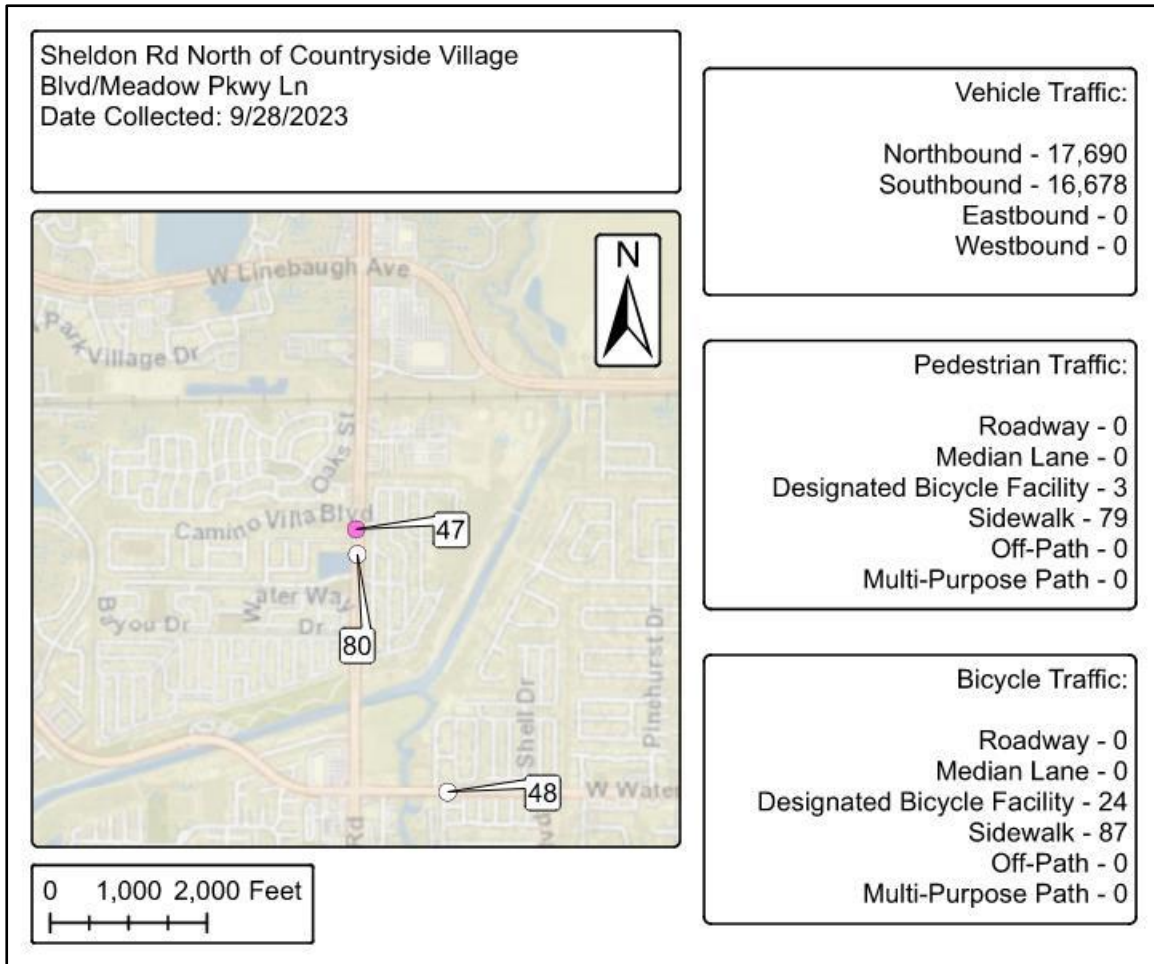
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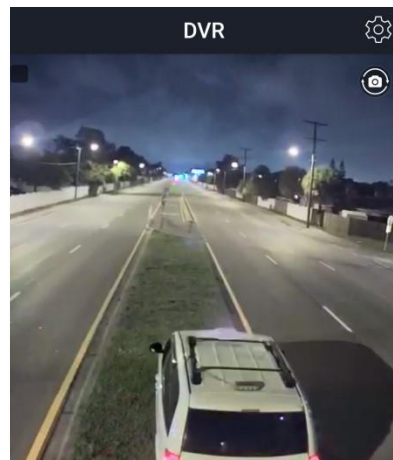
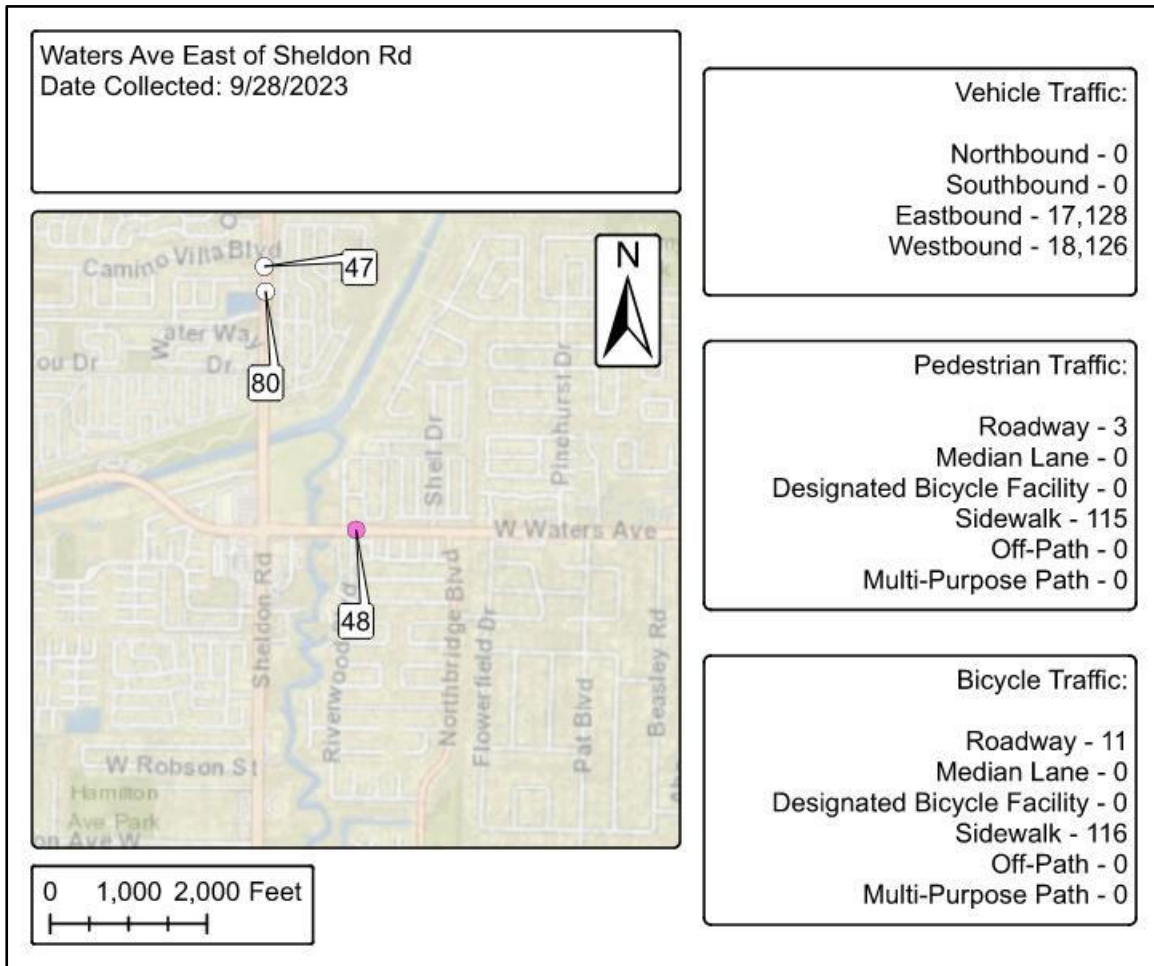
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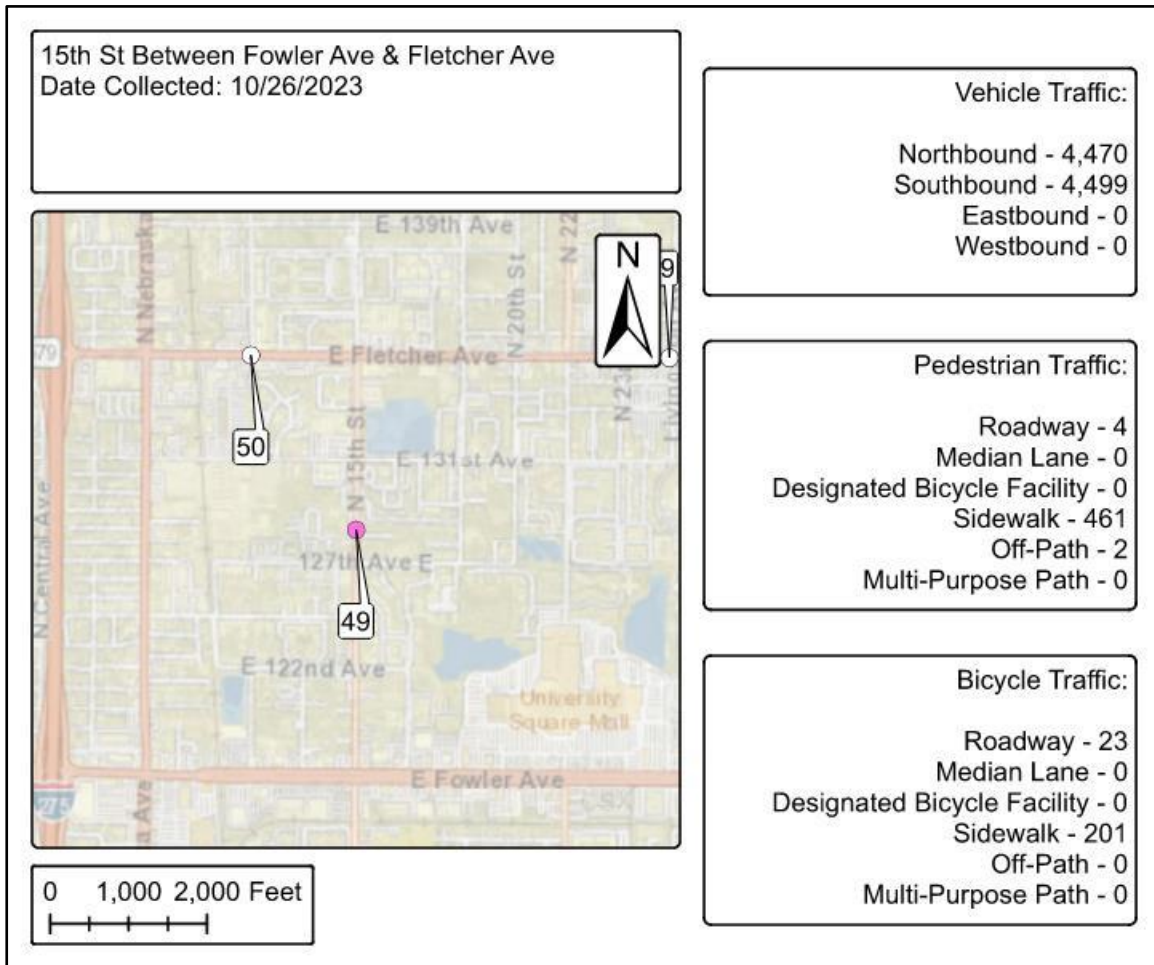
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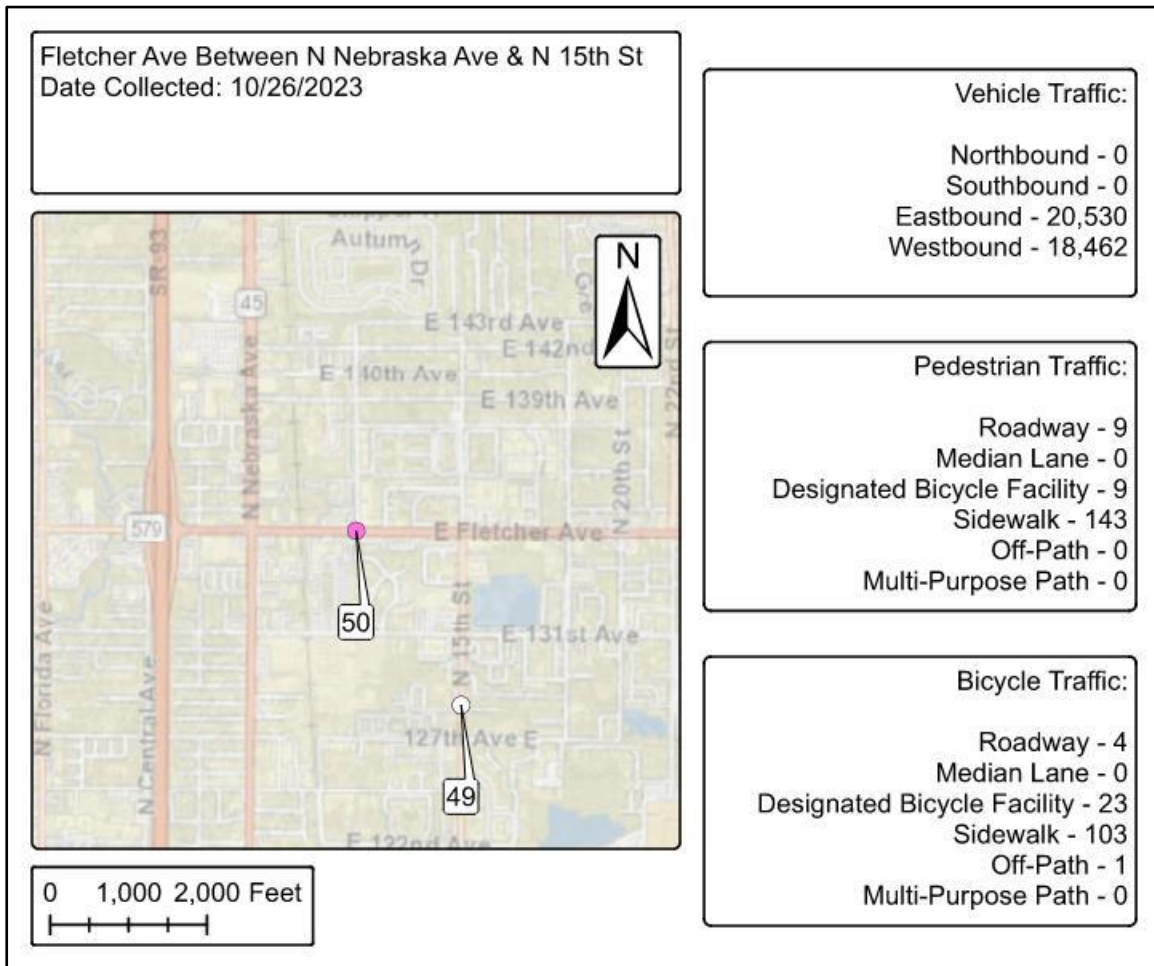
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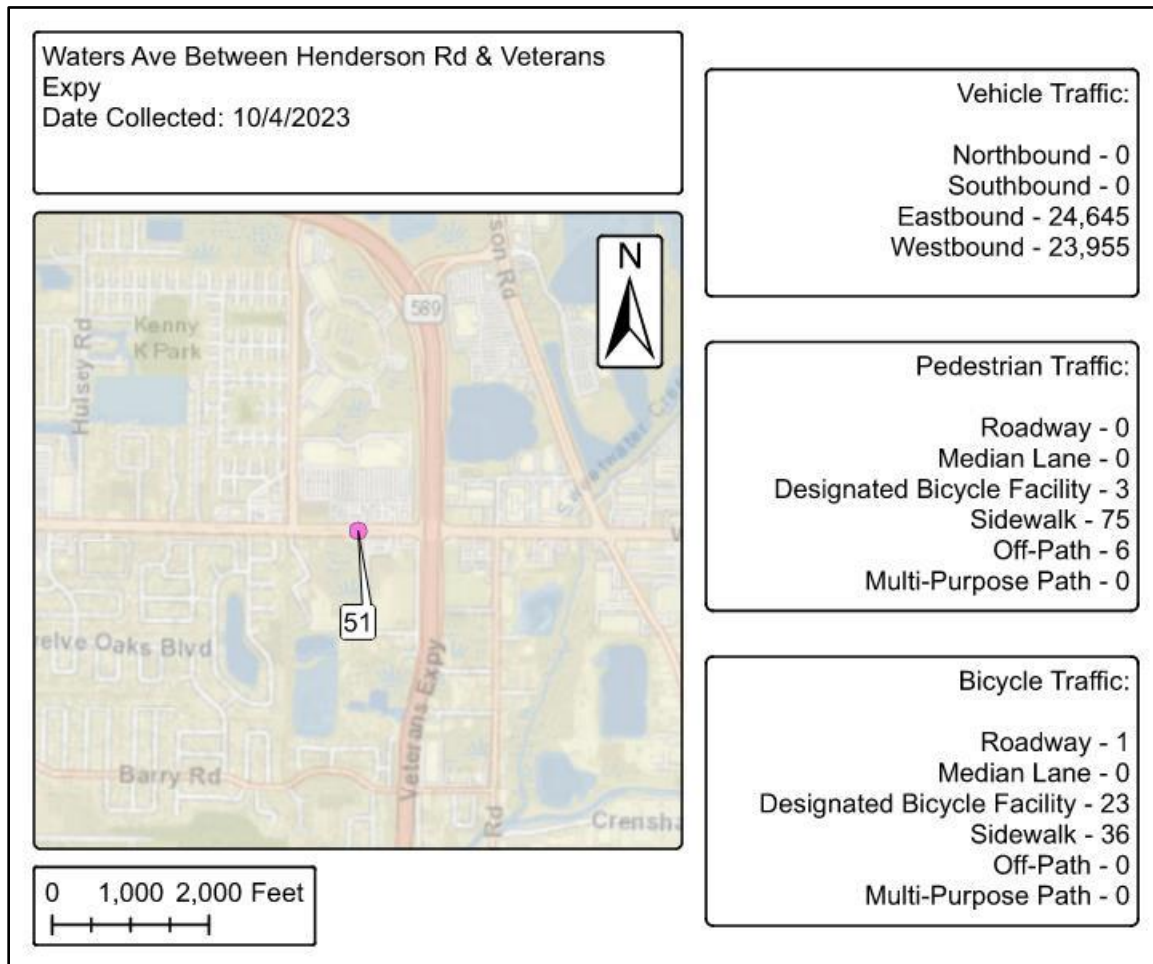
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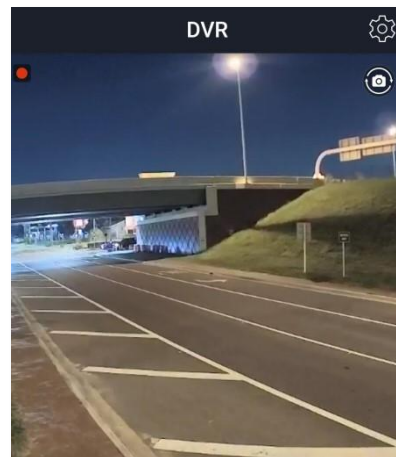
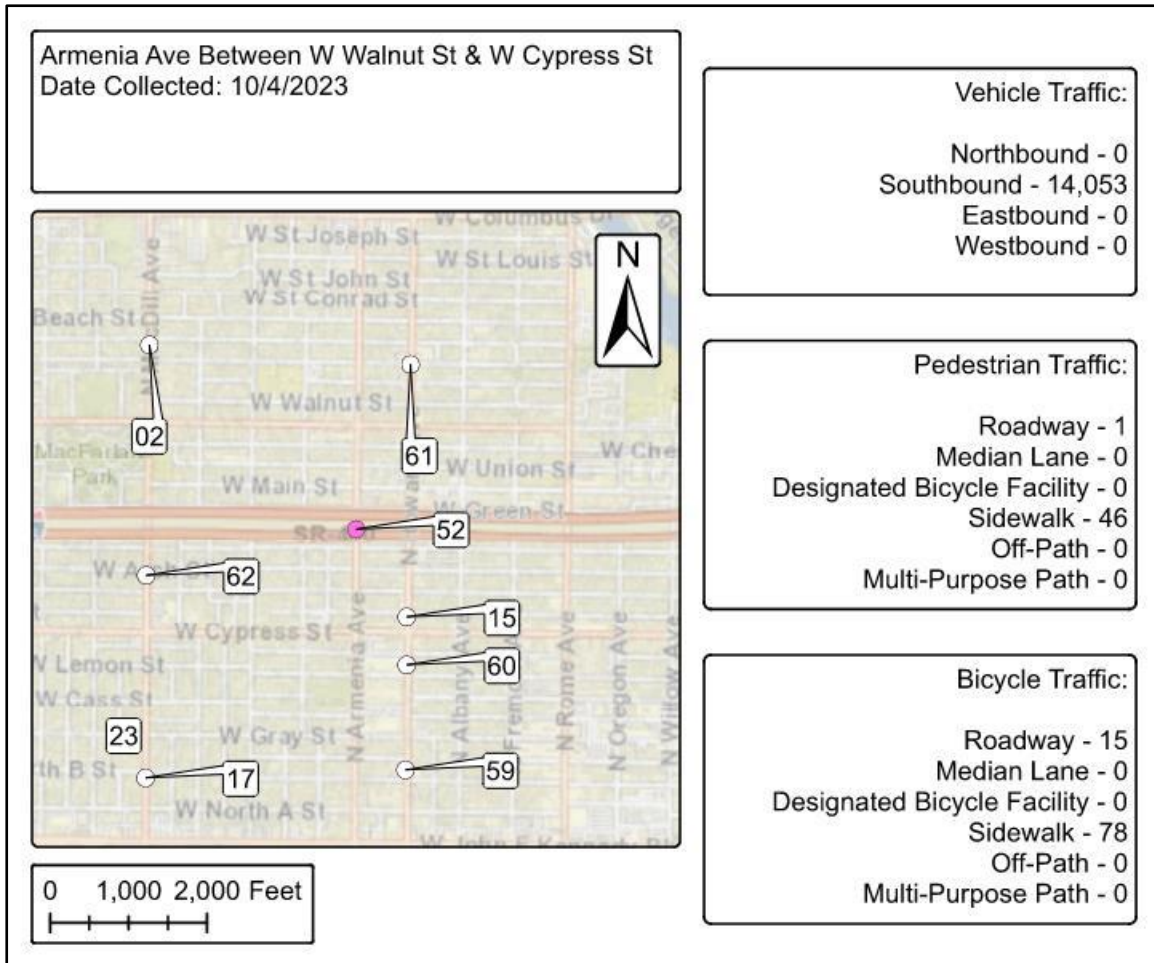
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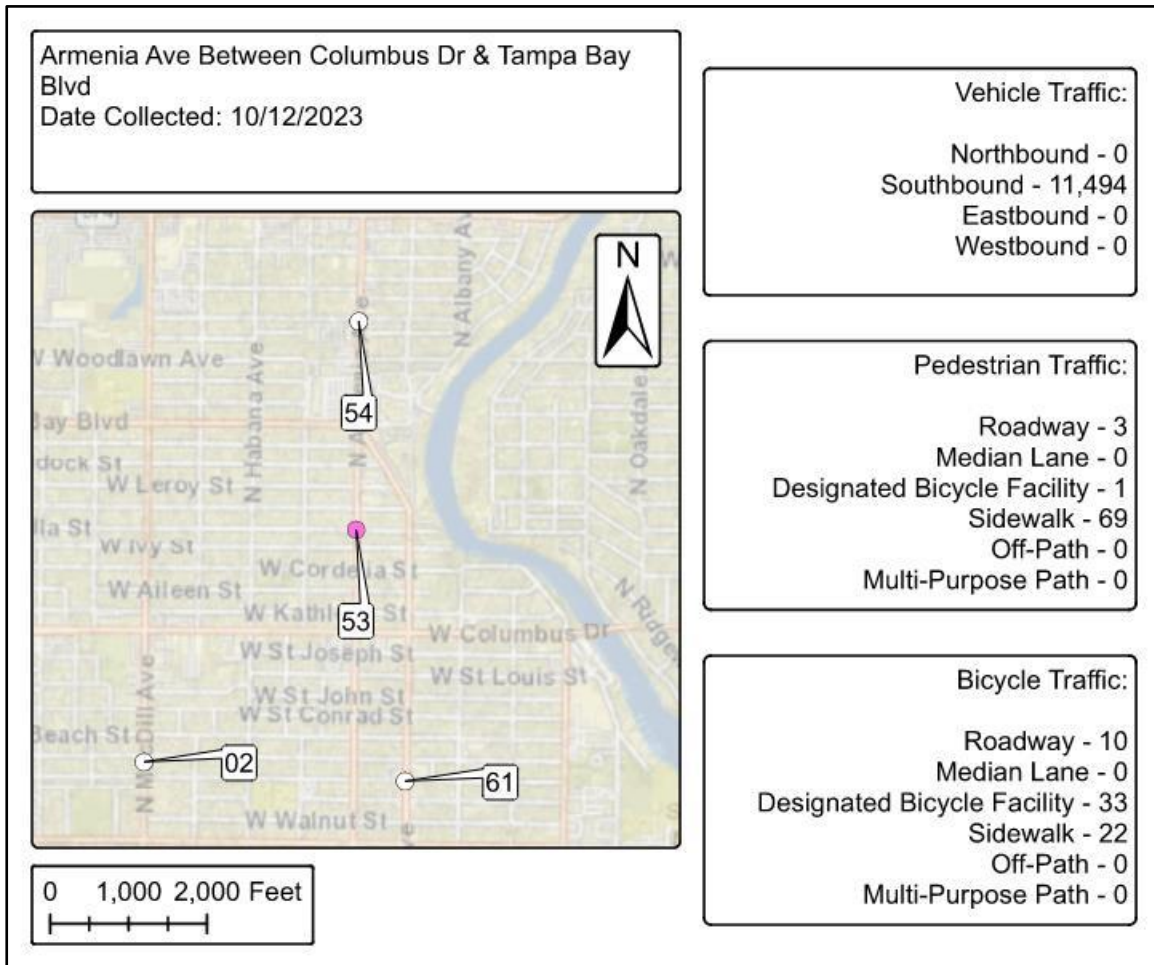
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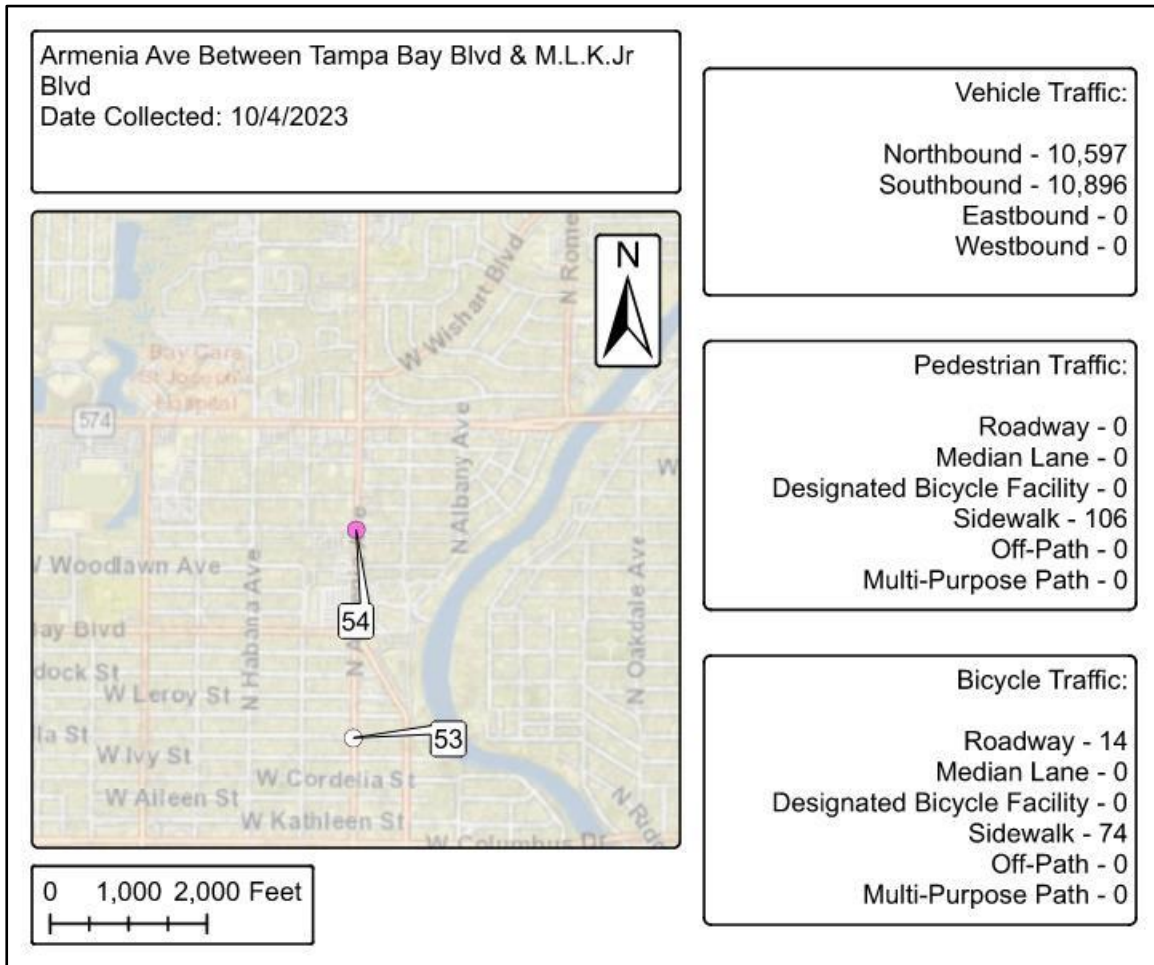
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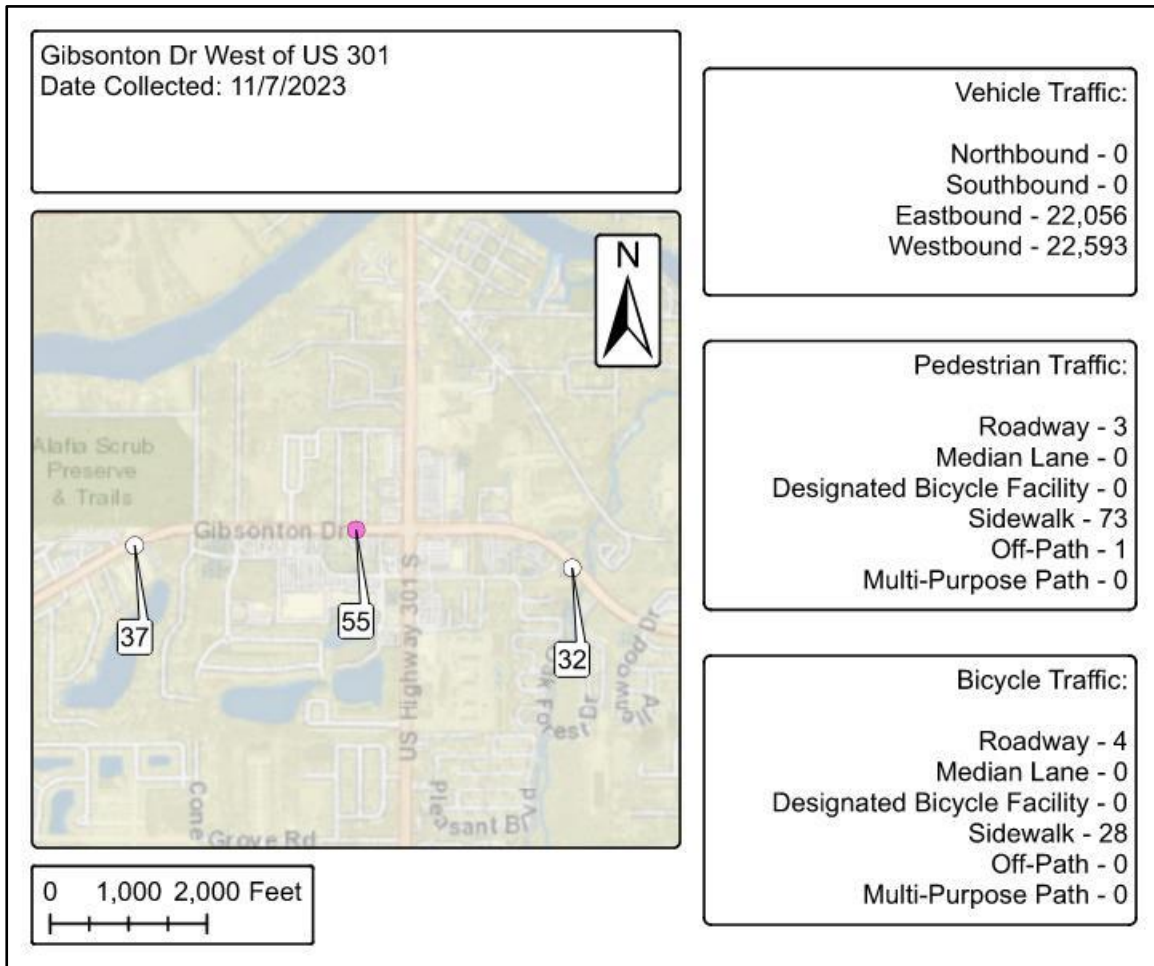
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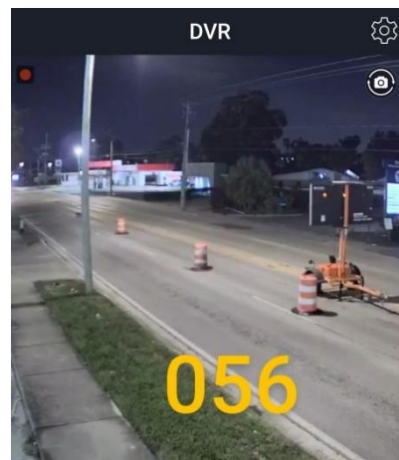
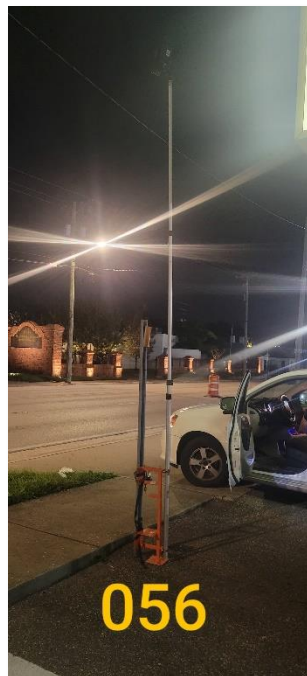
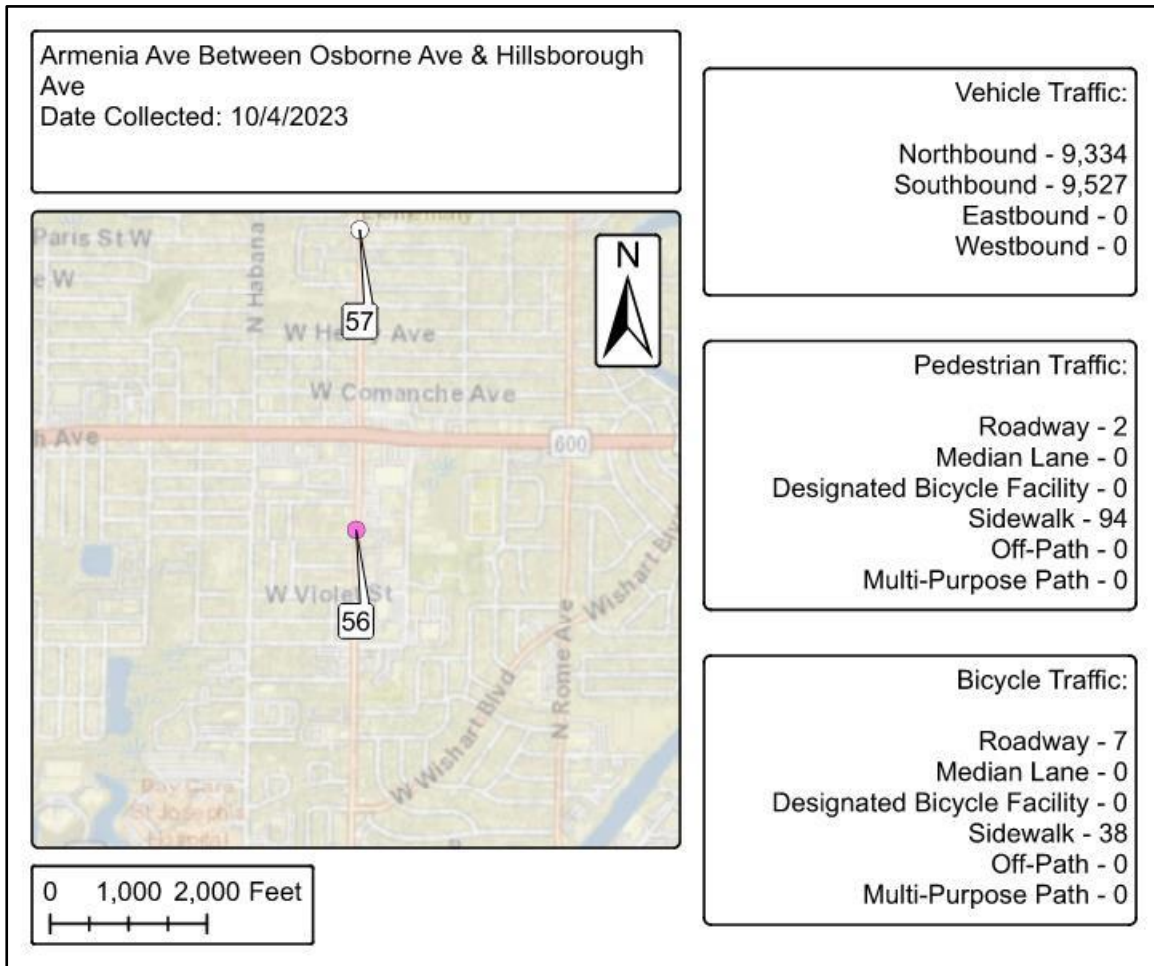
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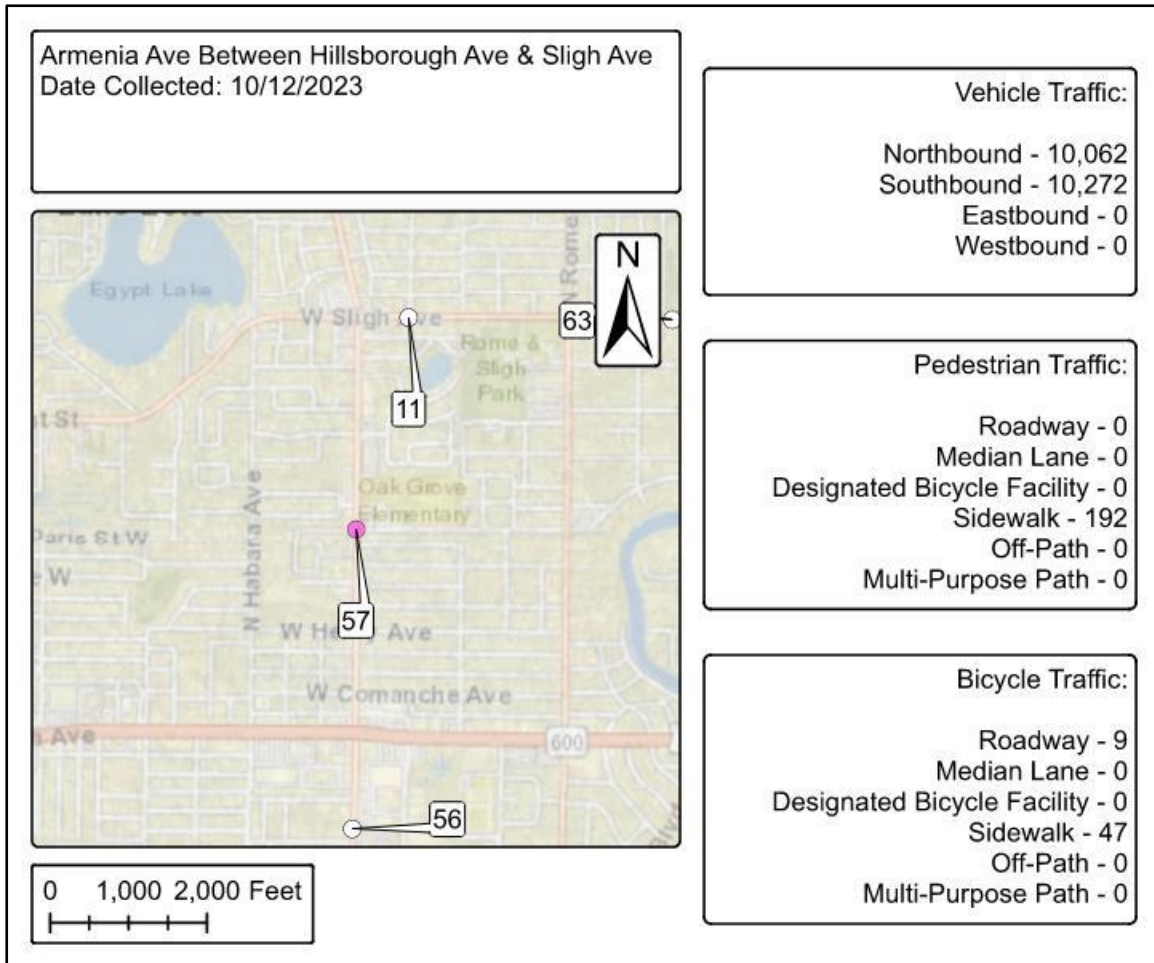
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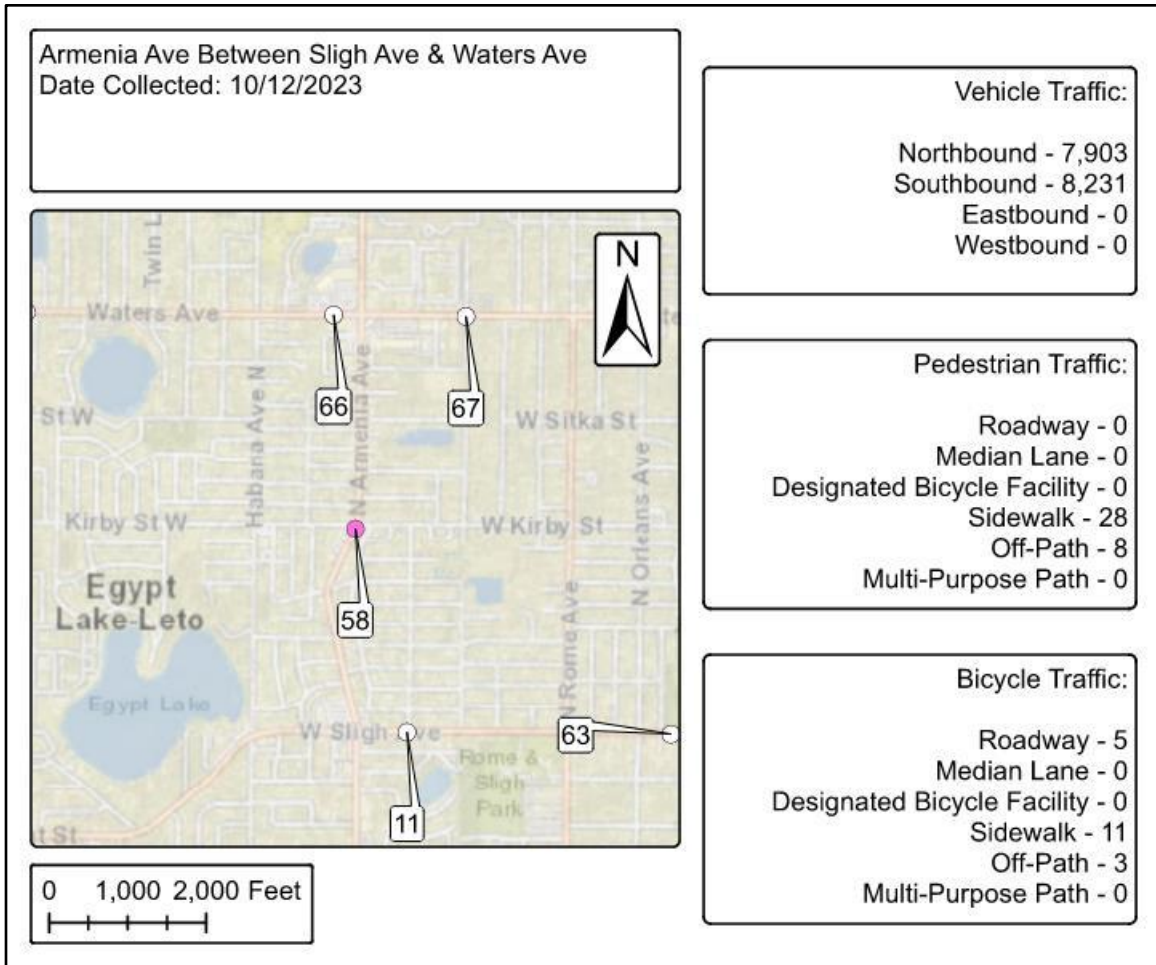
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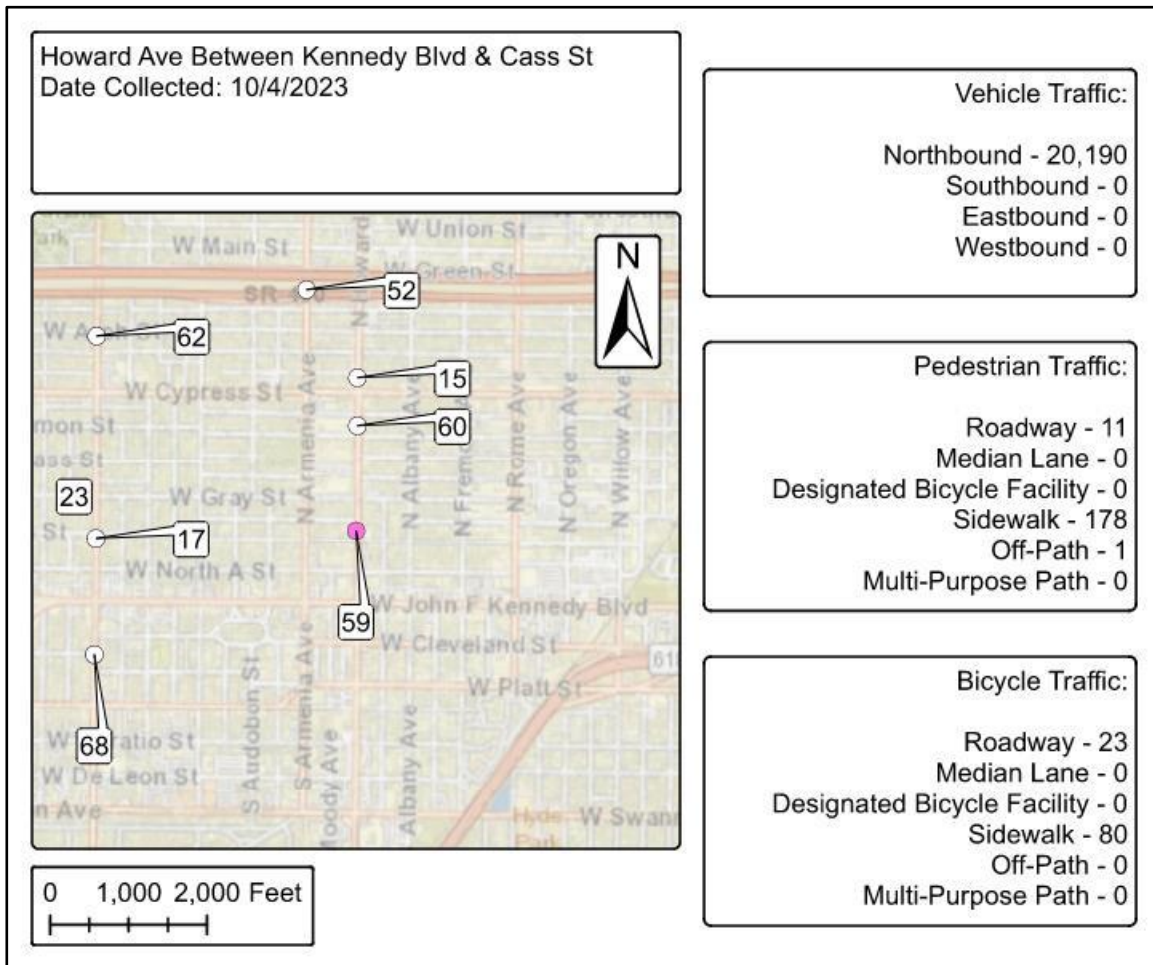
Intersection 57



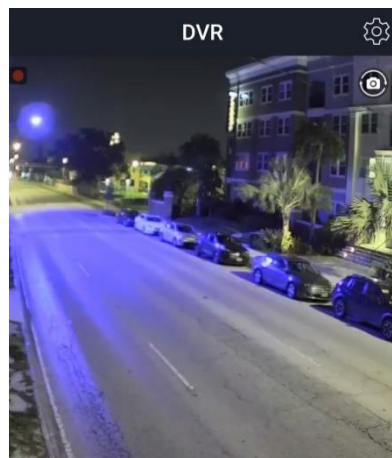
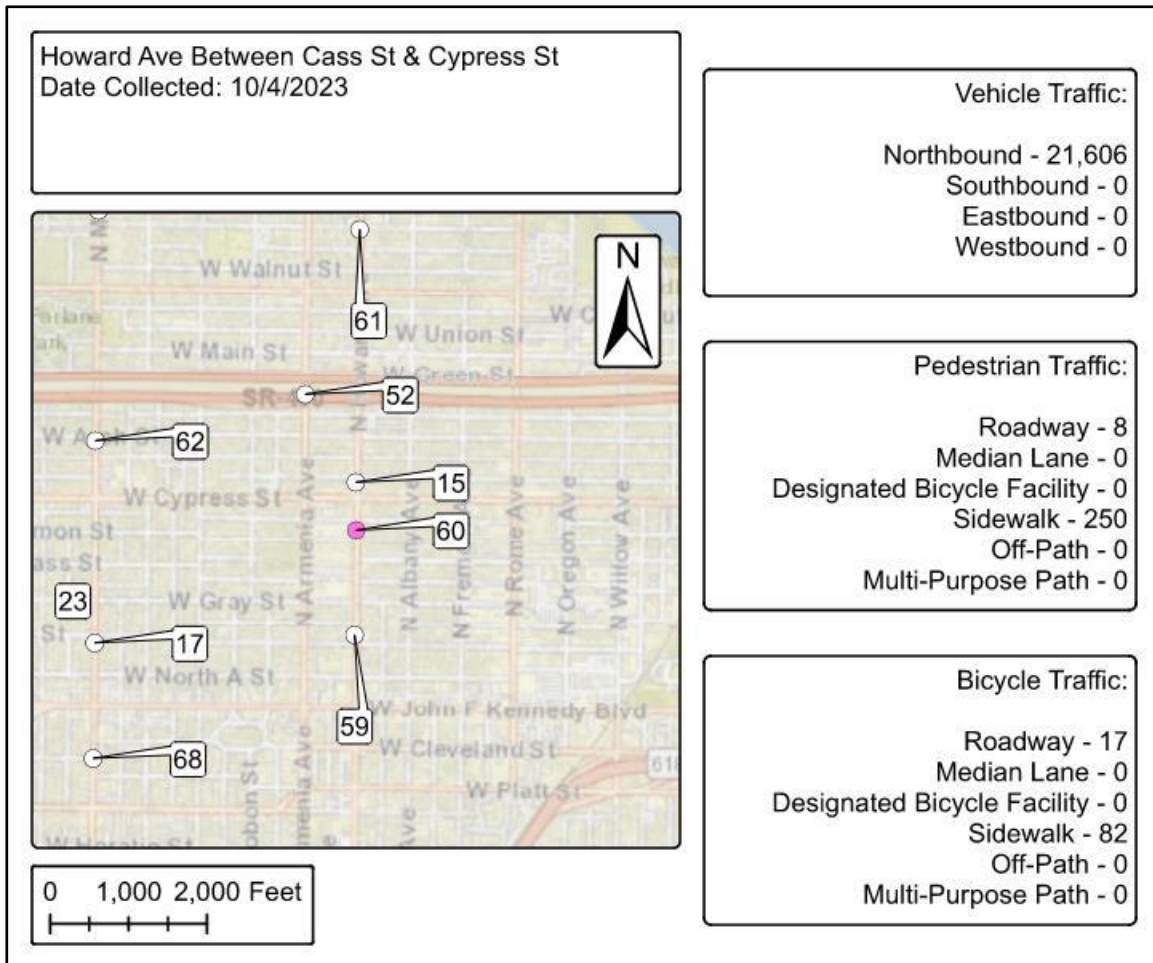
Intersection 58



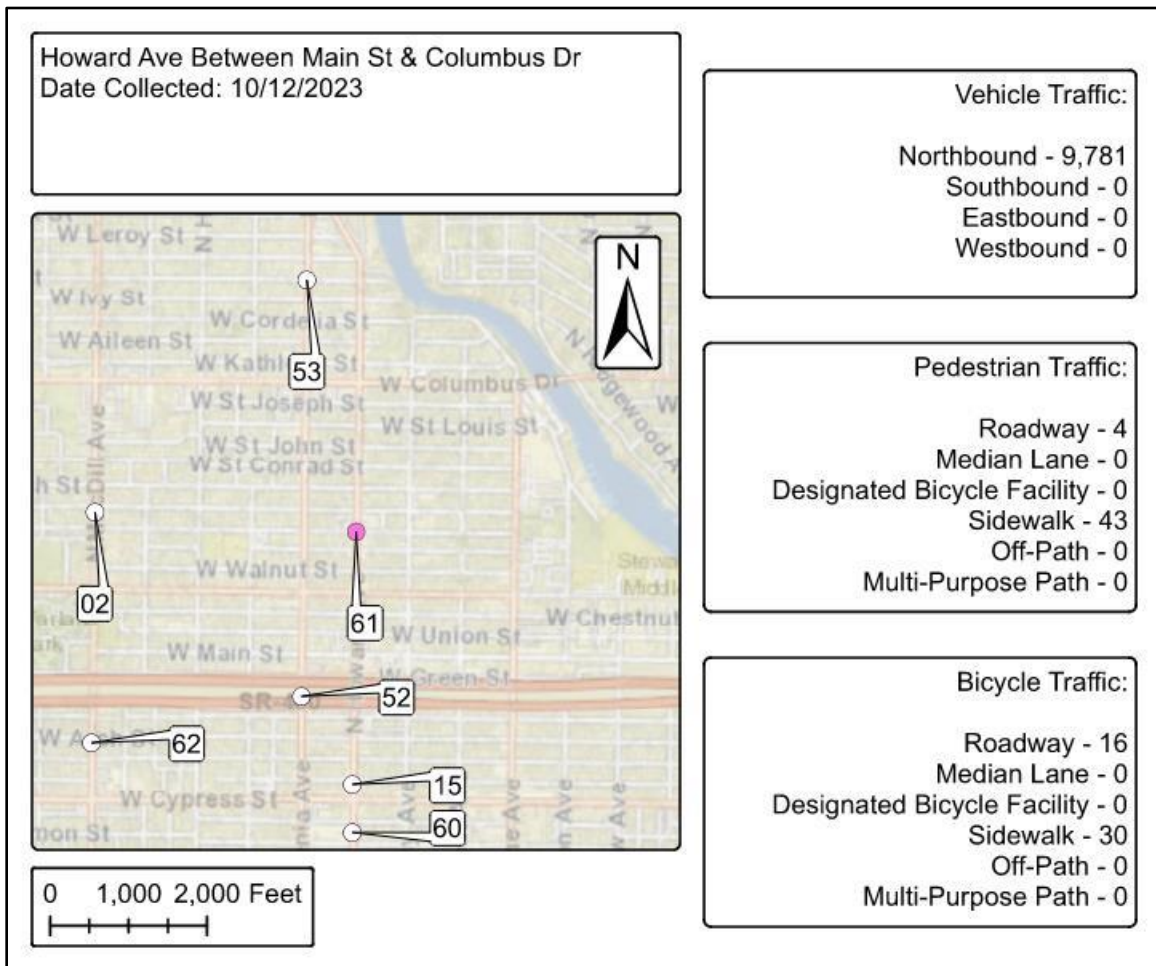
Intersection 59



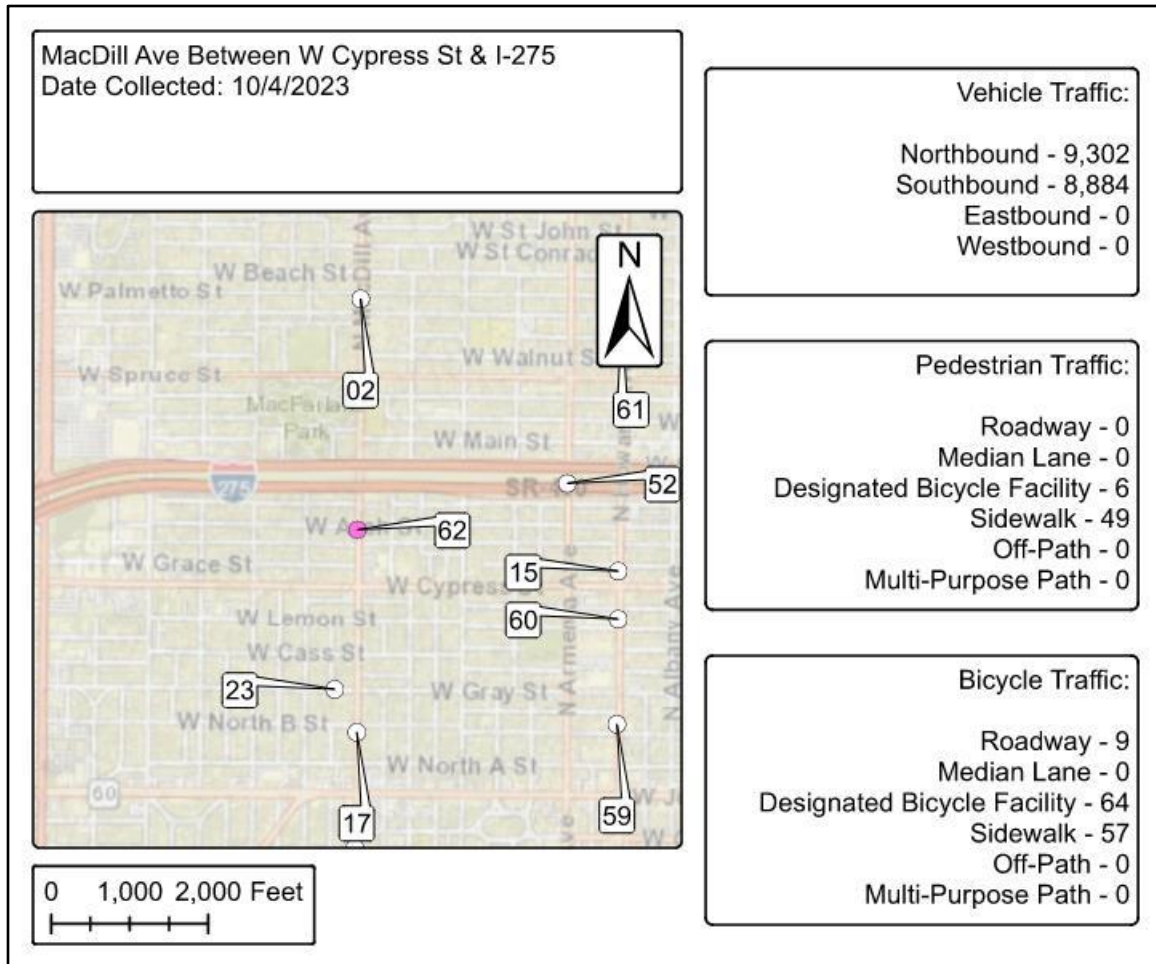
Intersection 60



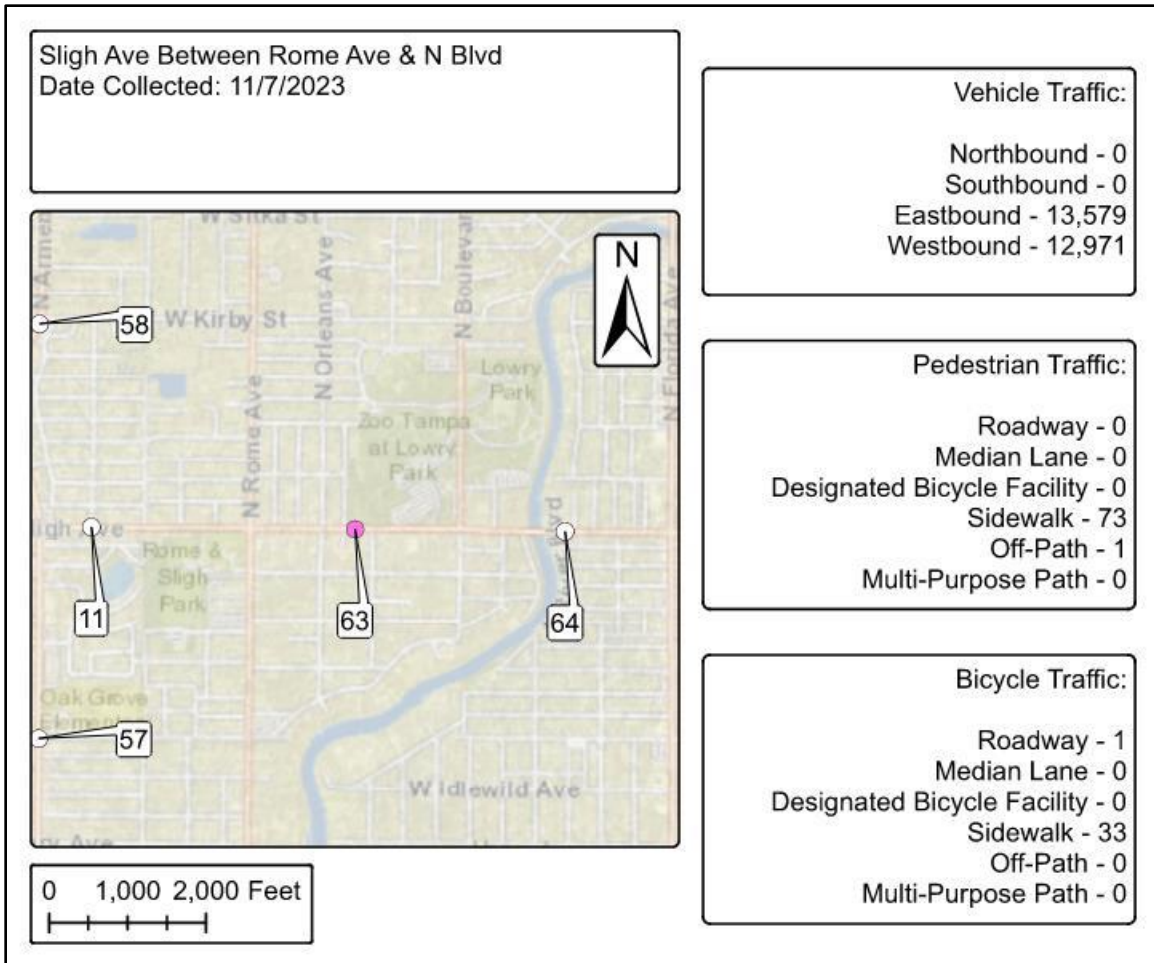
Intersection 61



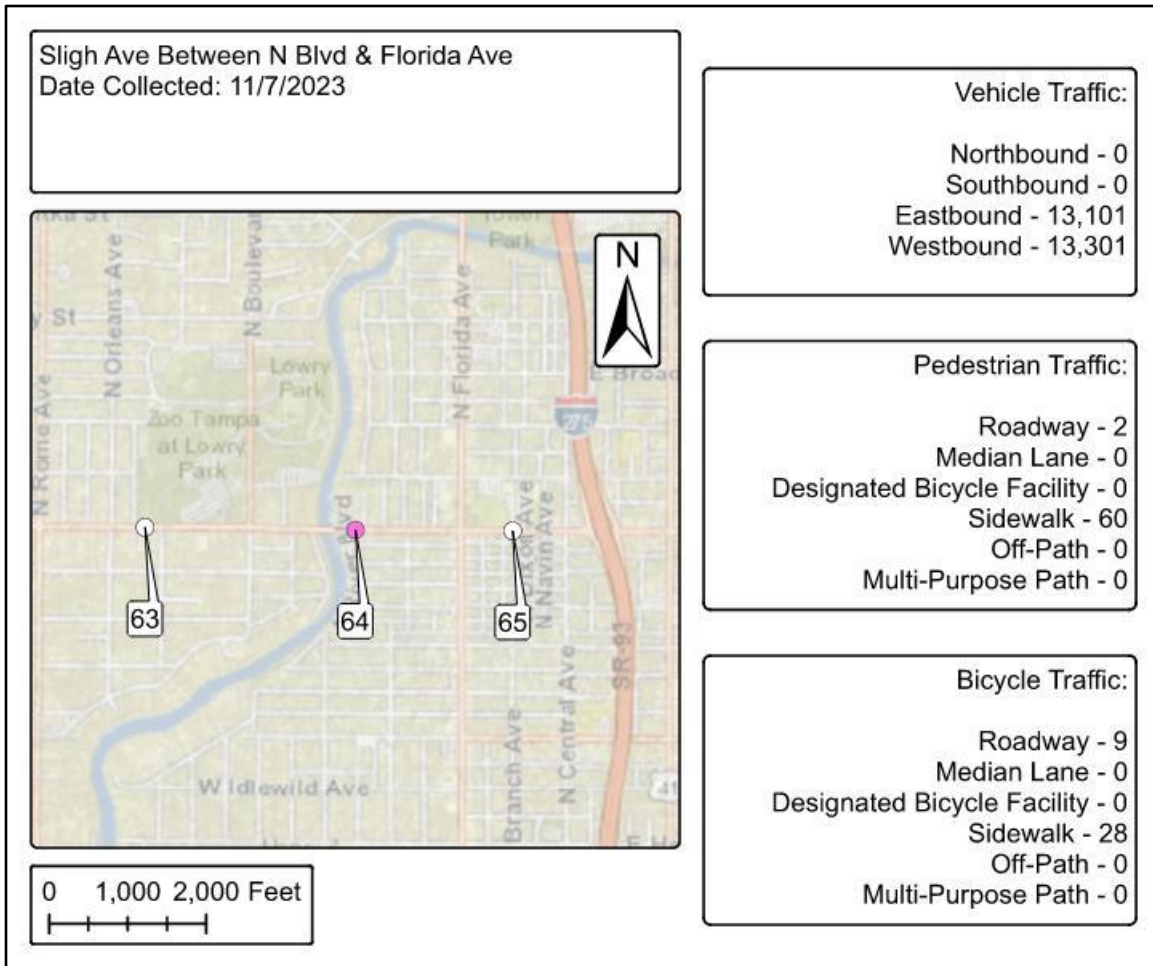
Intersection 62



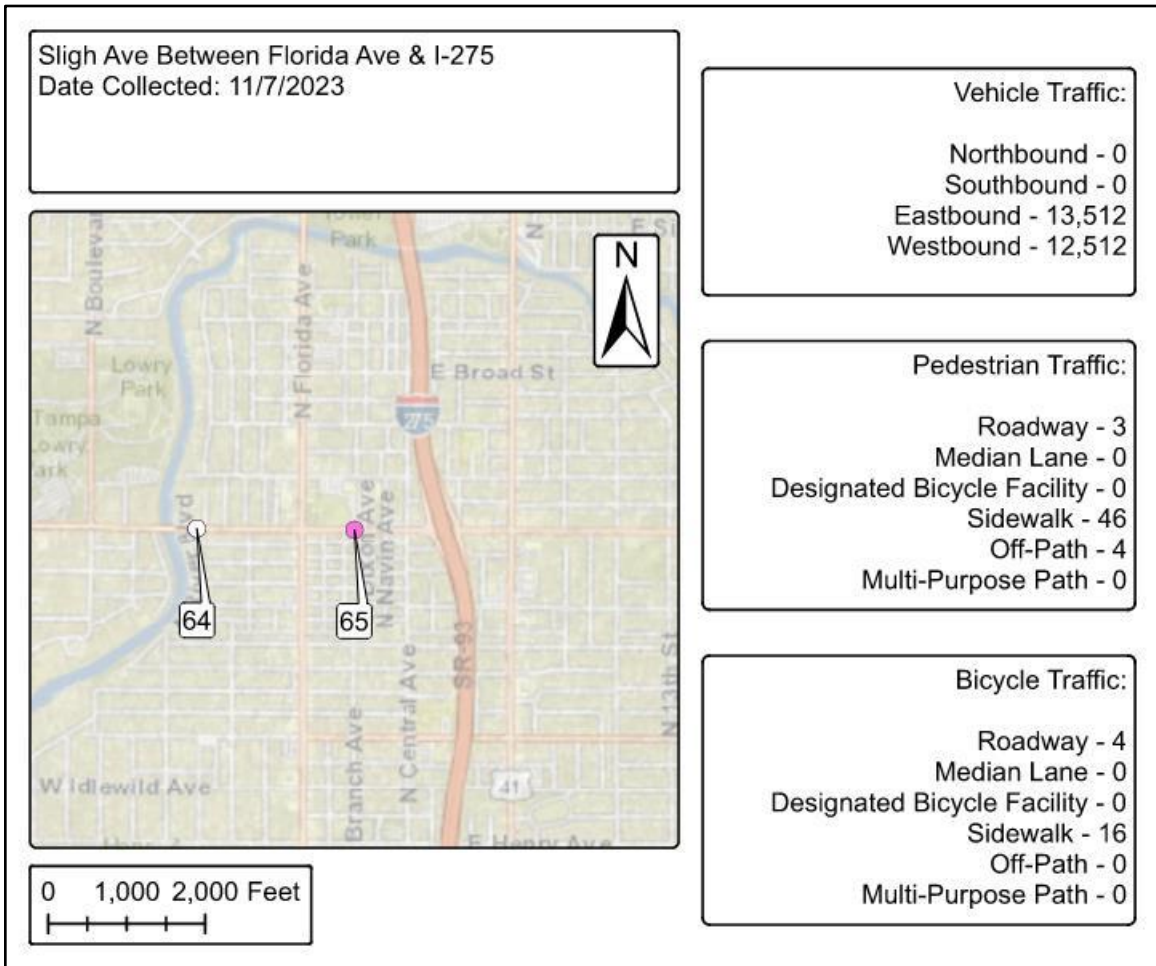
Intersection 63



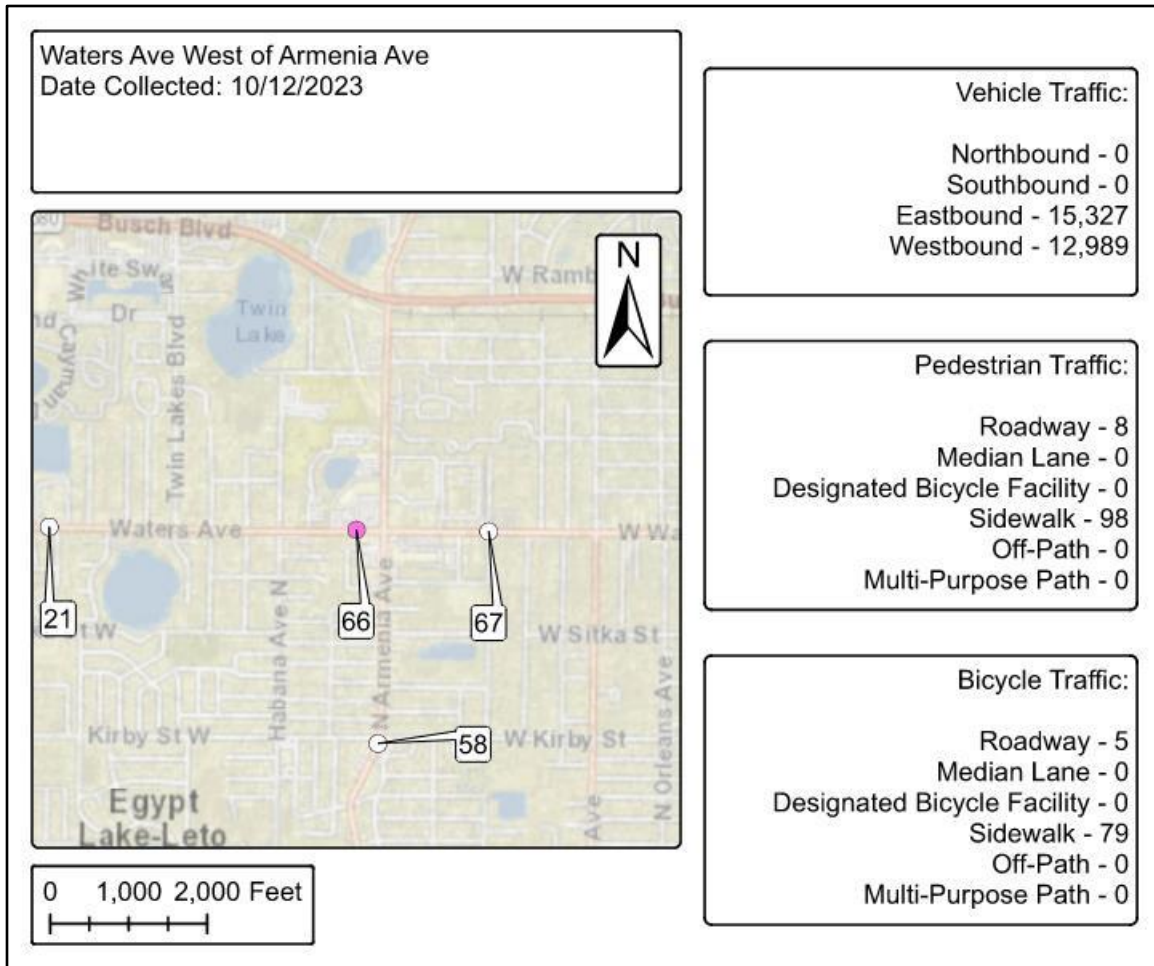
Intersection 64



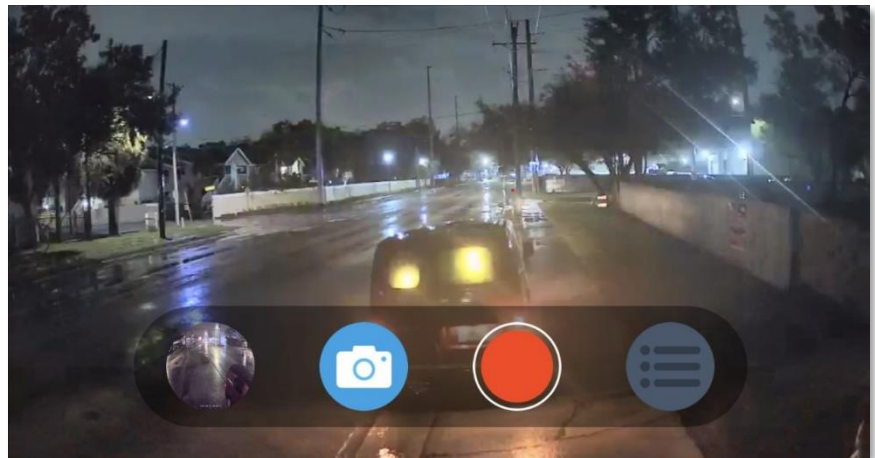
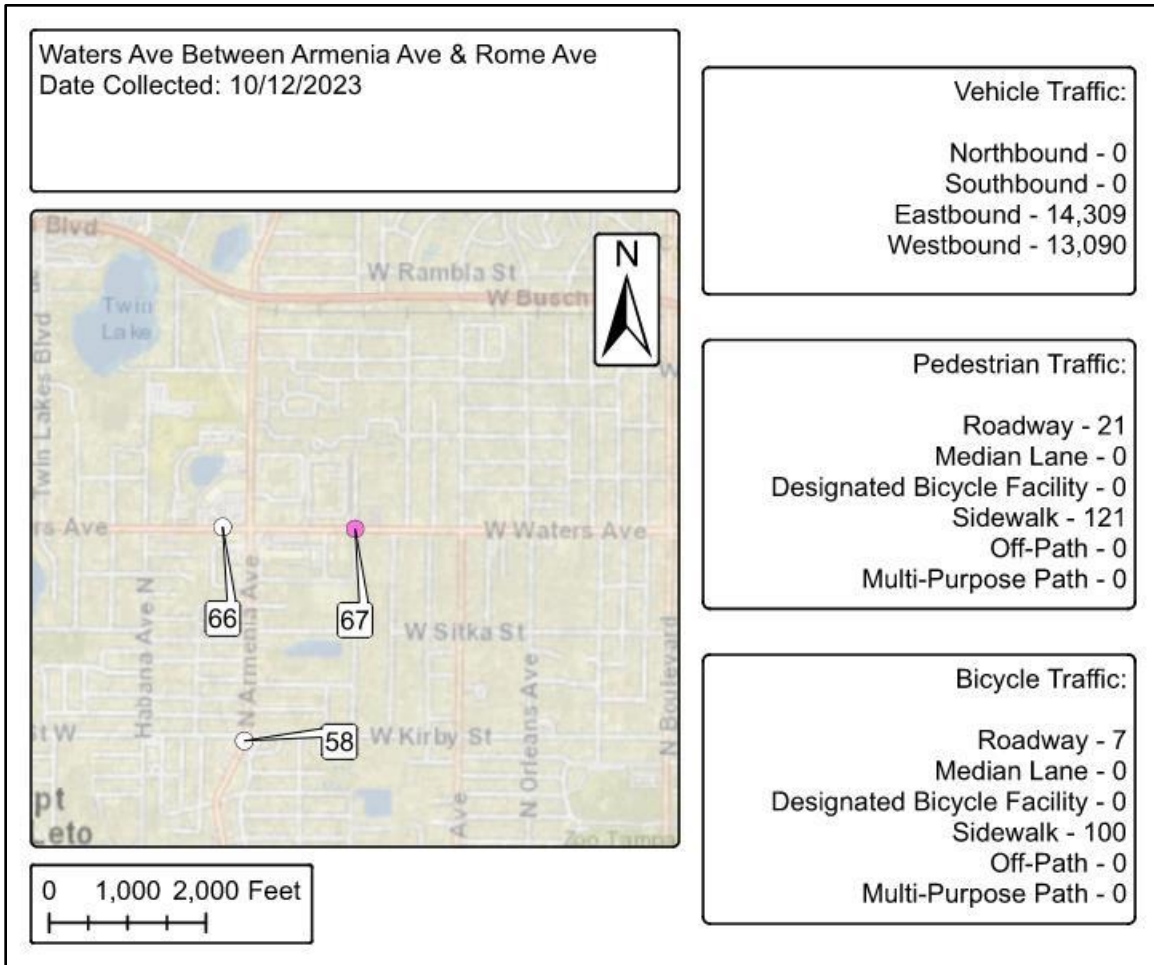
Intersection 65



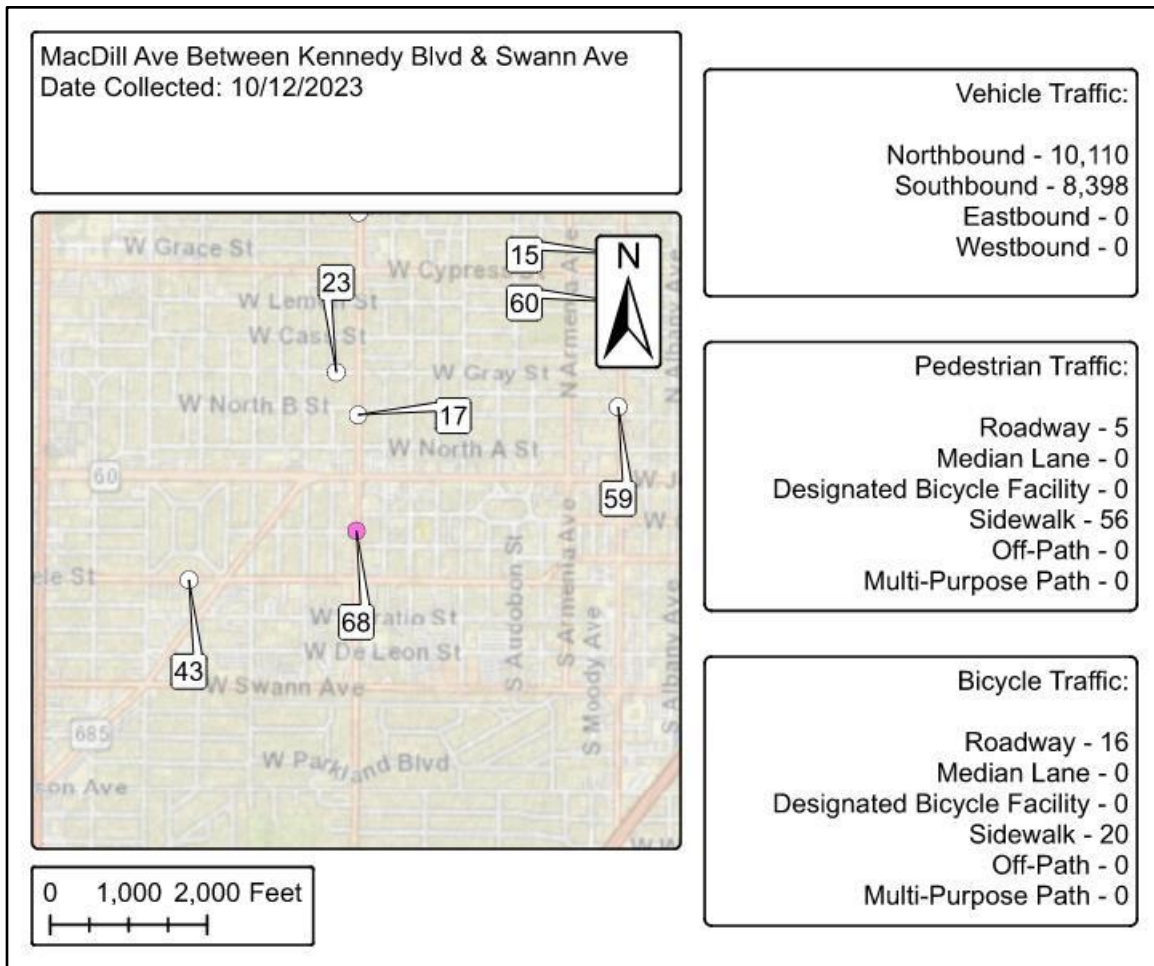
Intersection 66



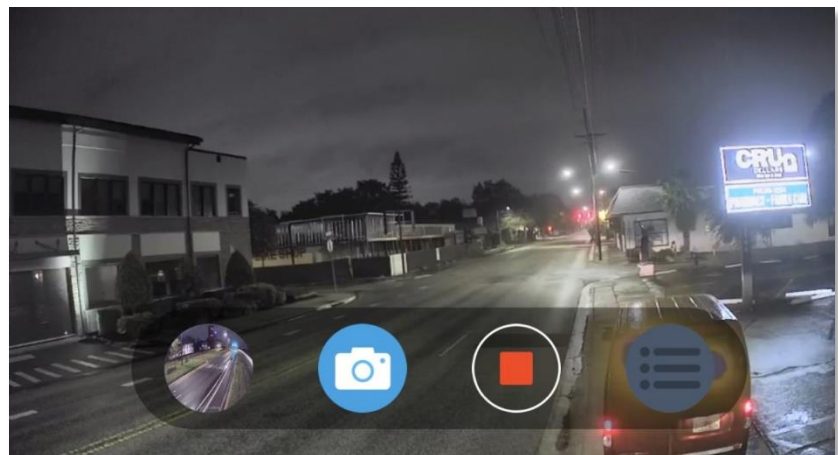
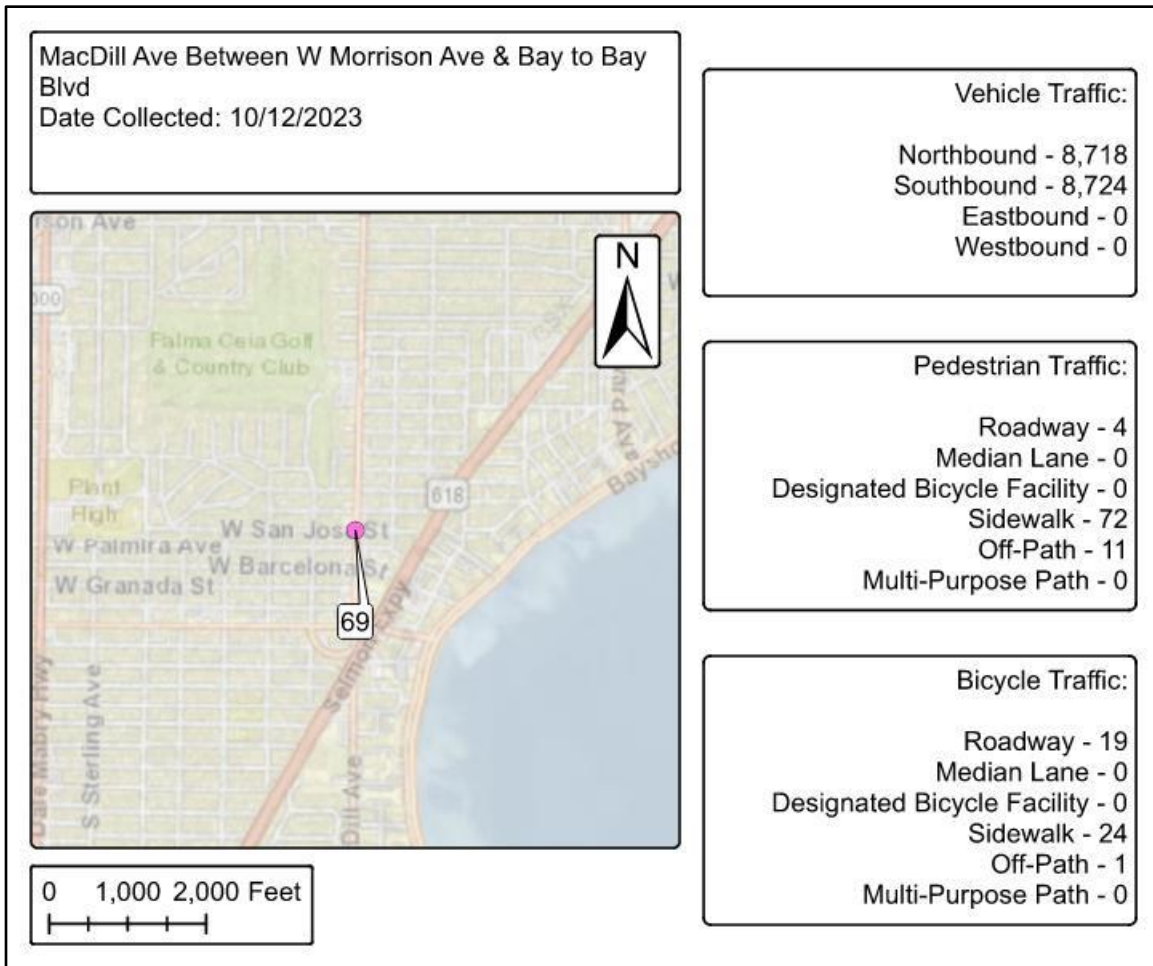
Intersection 67



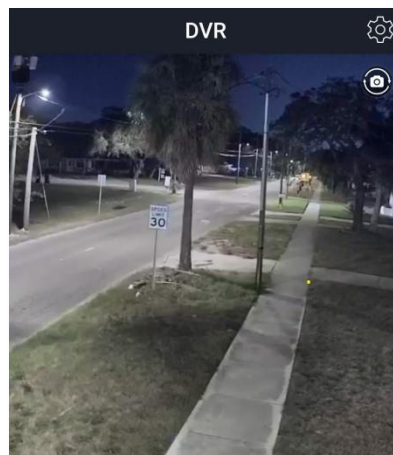
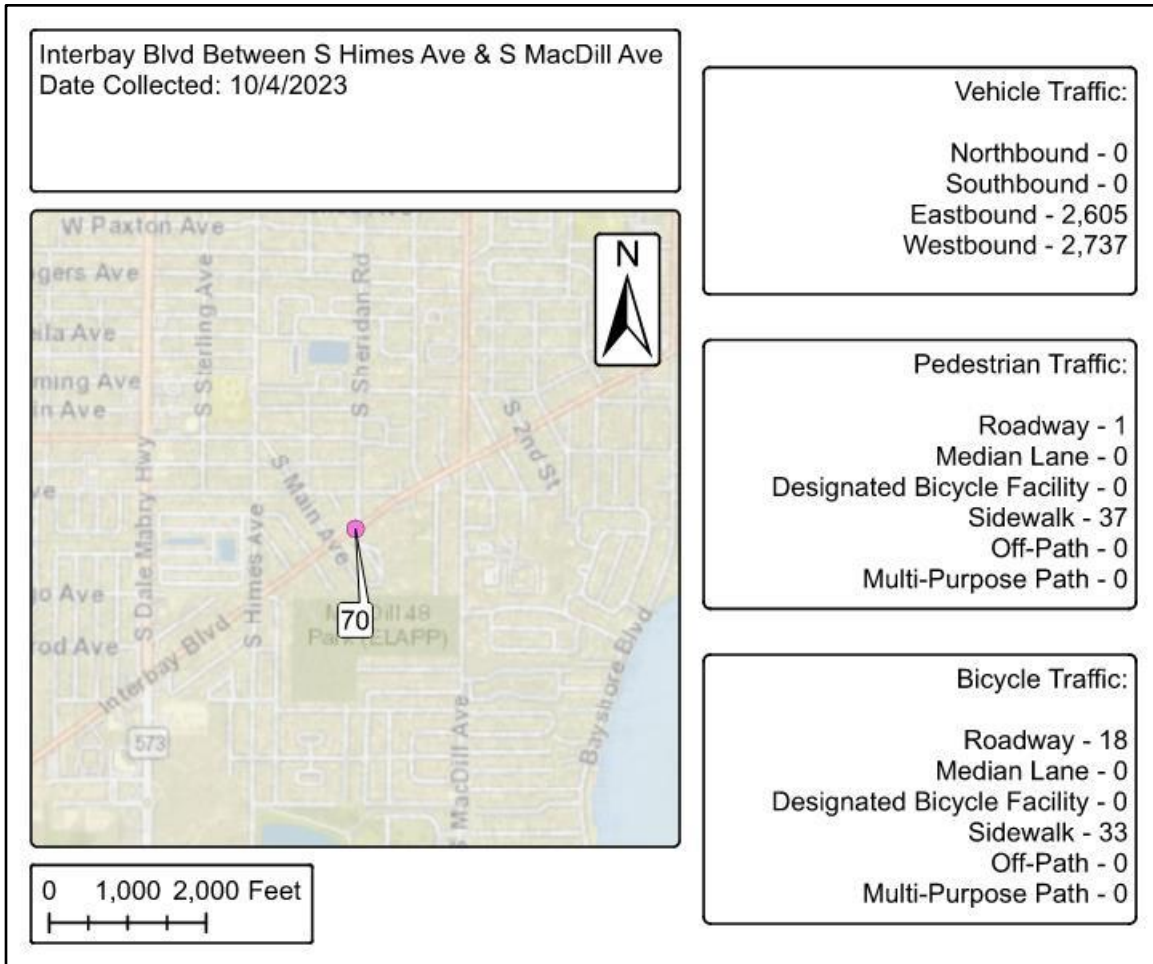
Intersection 68



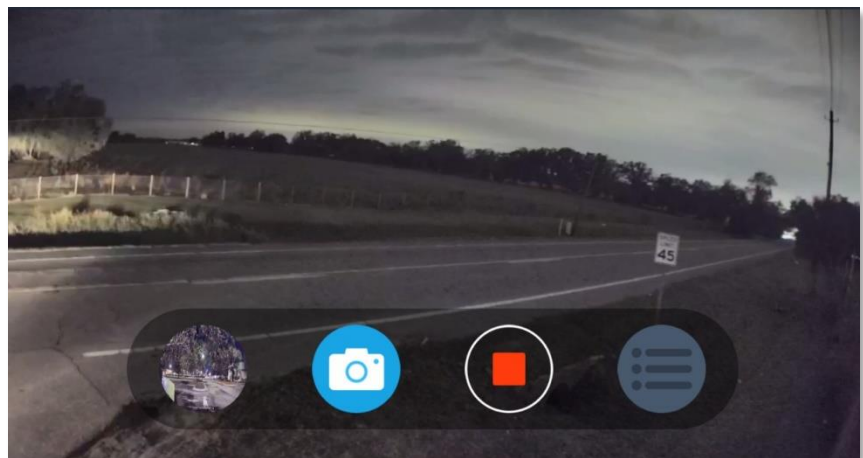
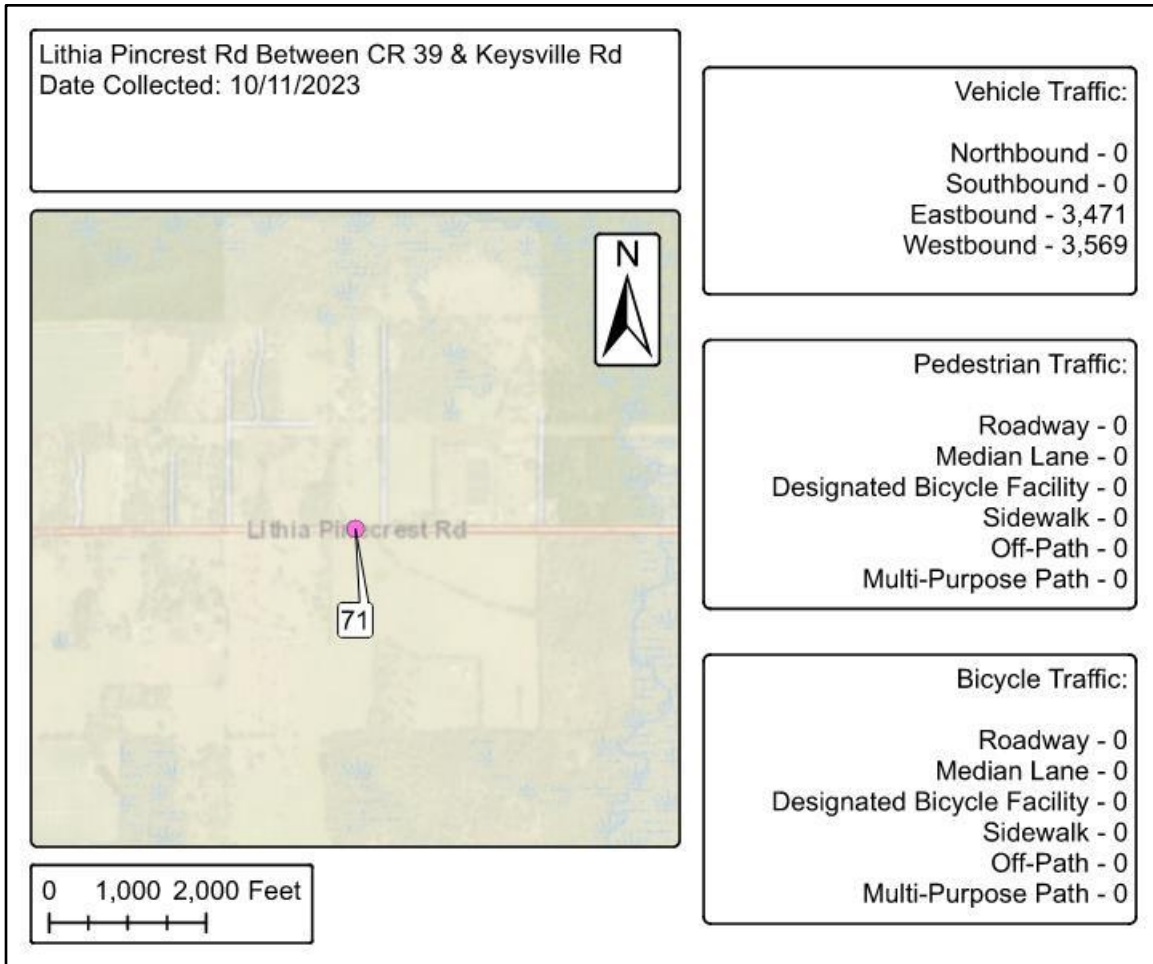
Intersection 69



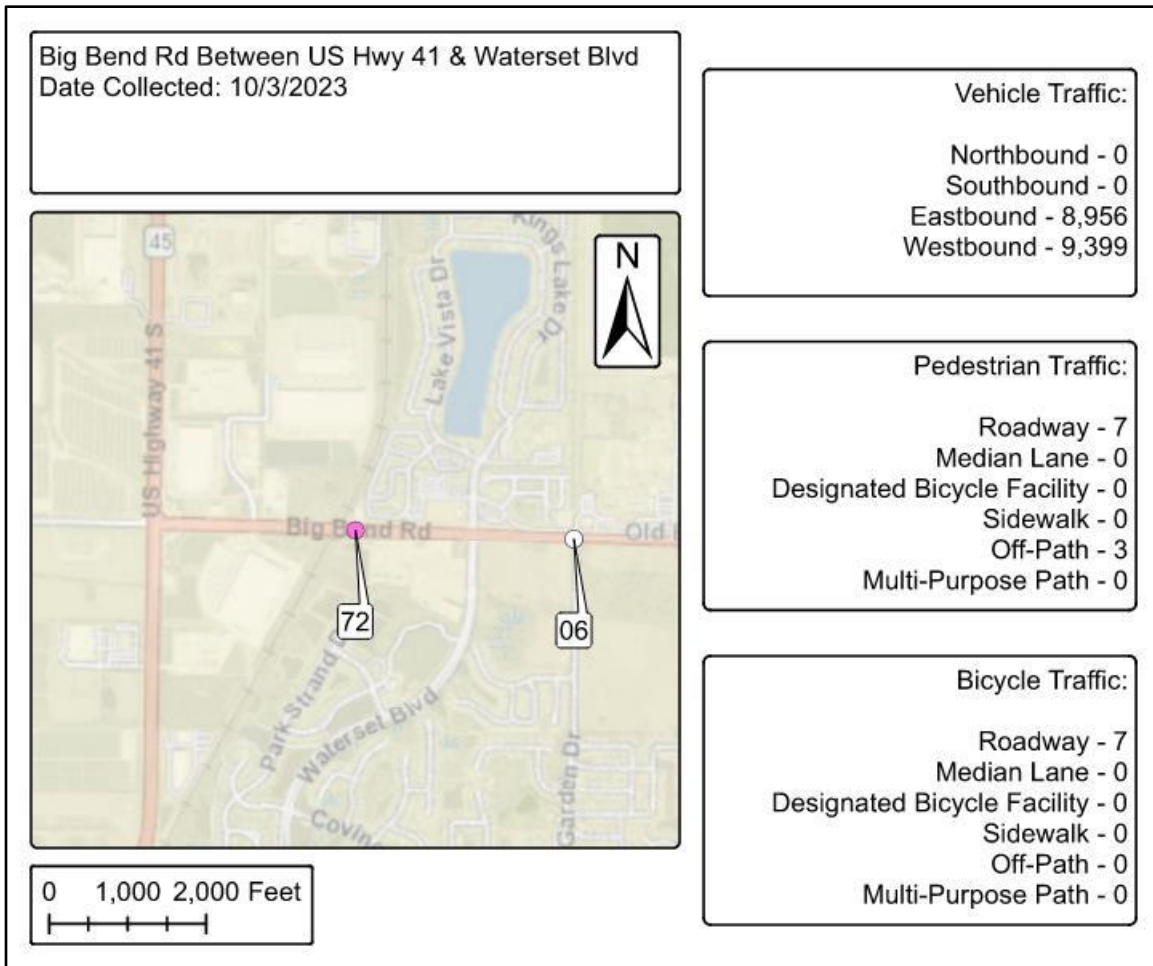
Intersection 70



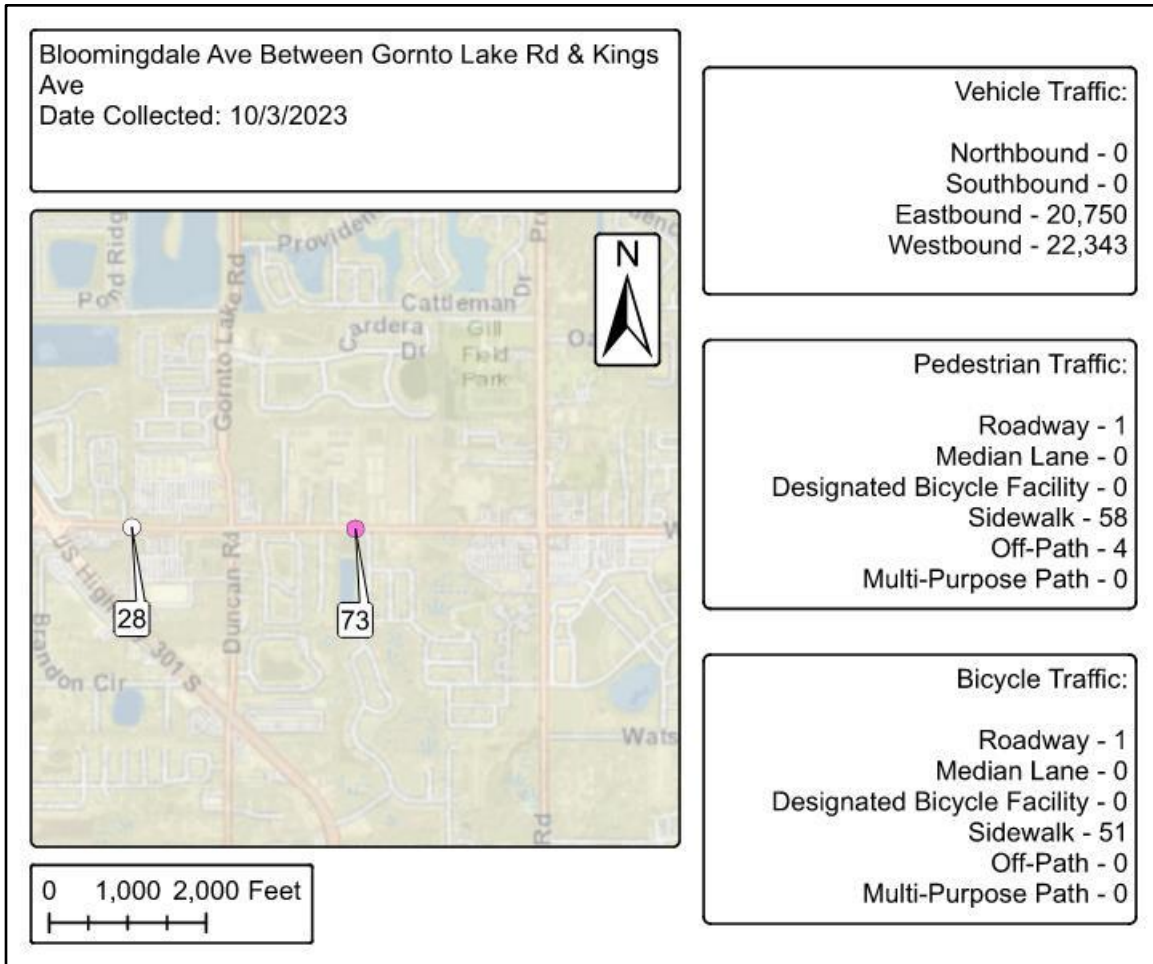
Intersection 71



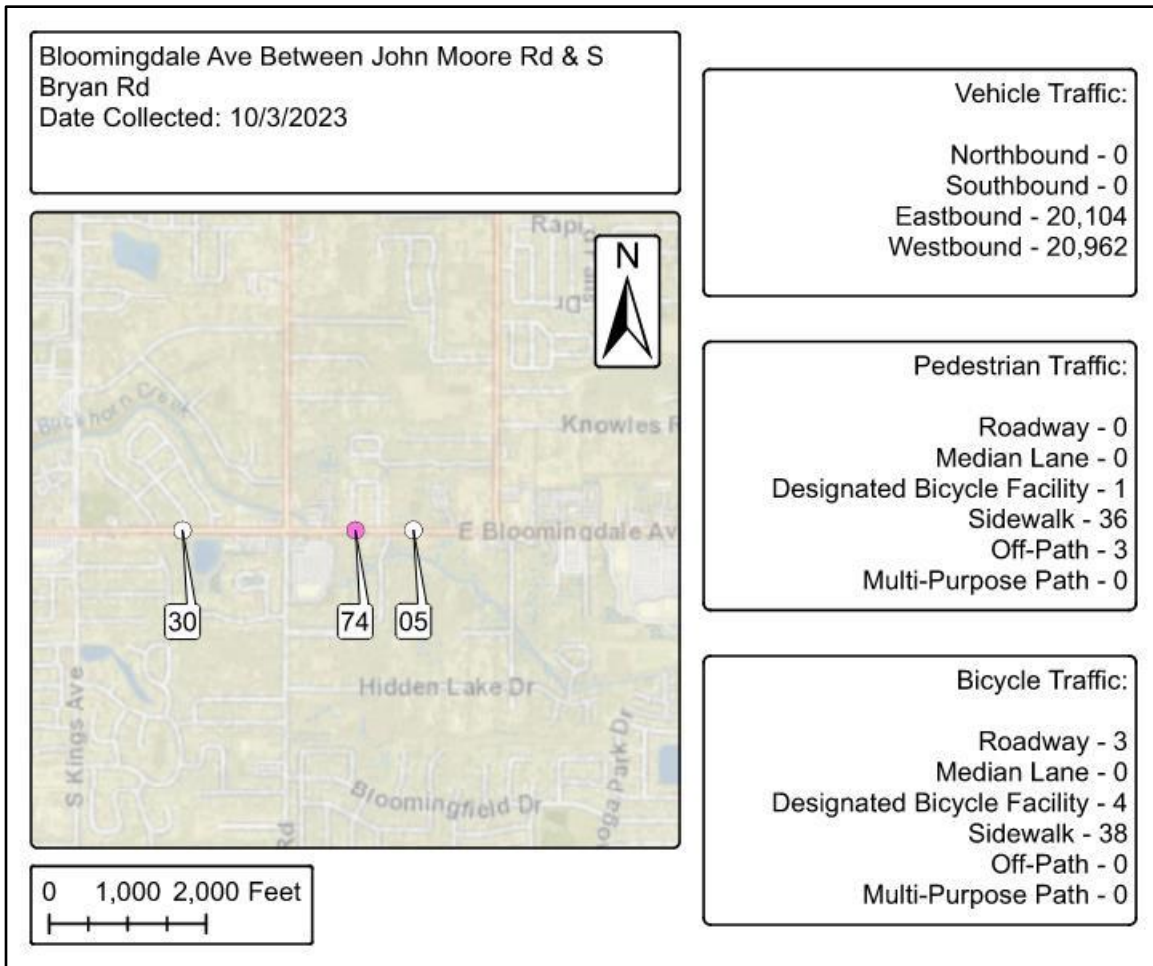
Intersection 72



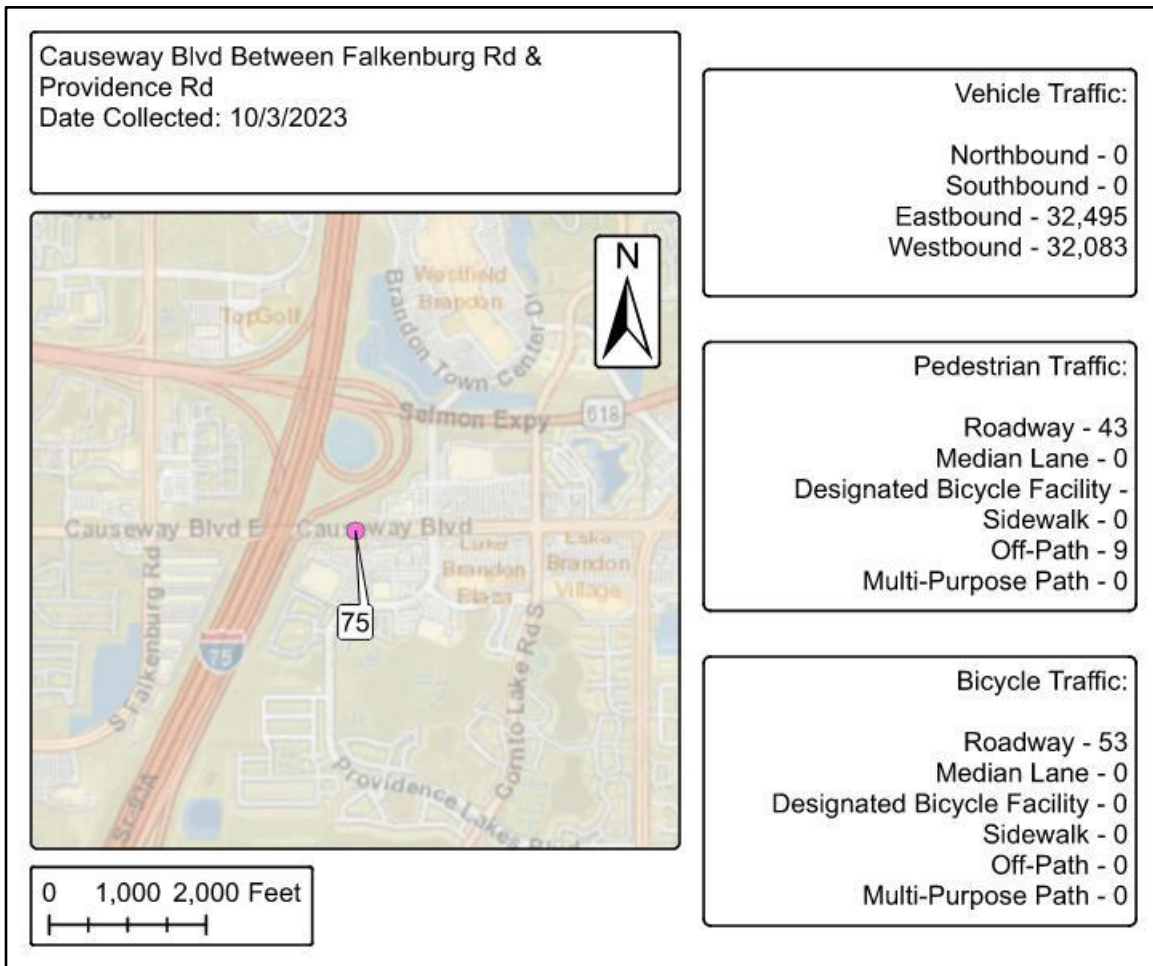
Intersection 73



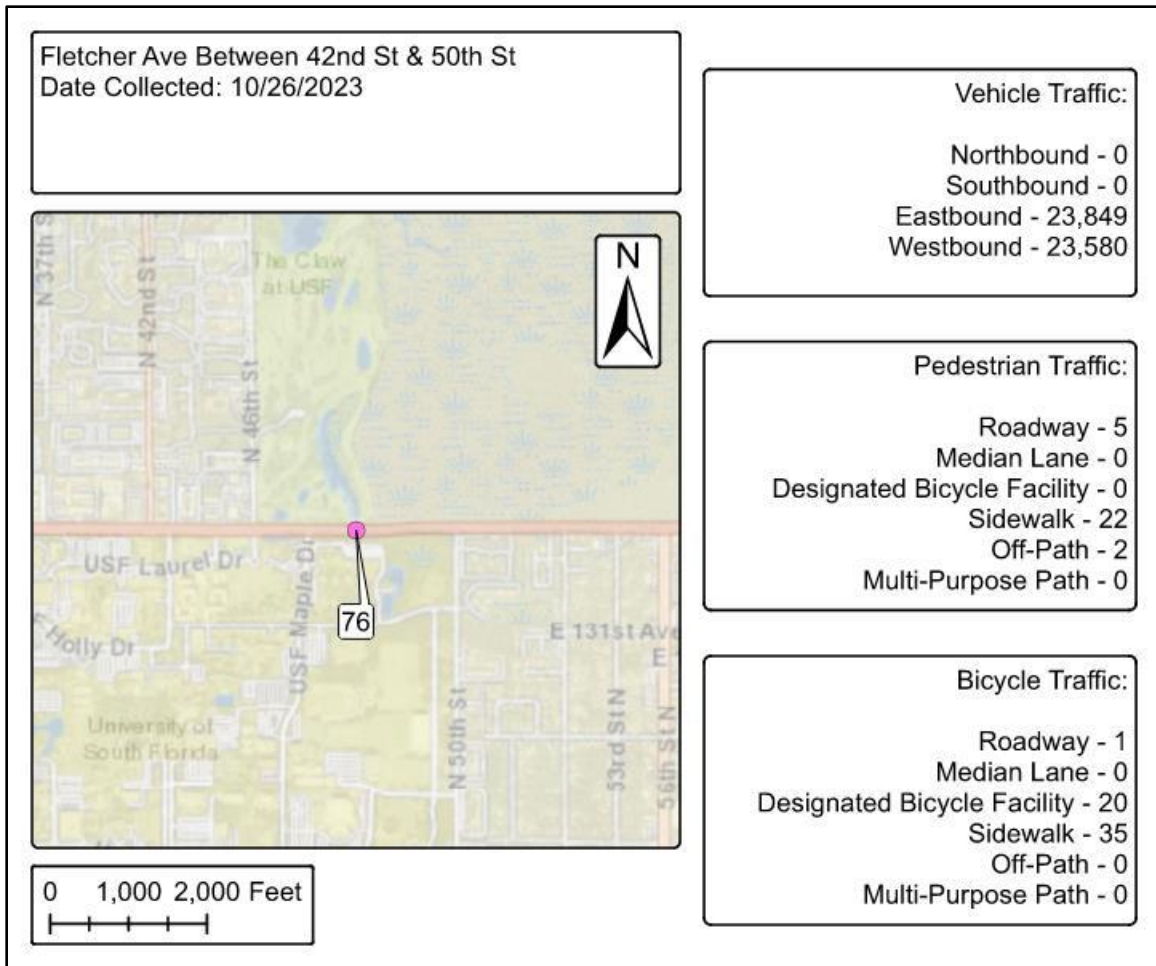
Intersection 74



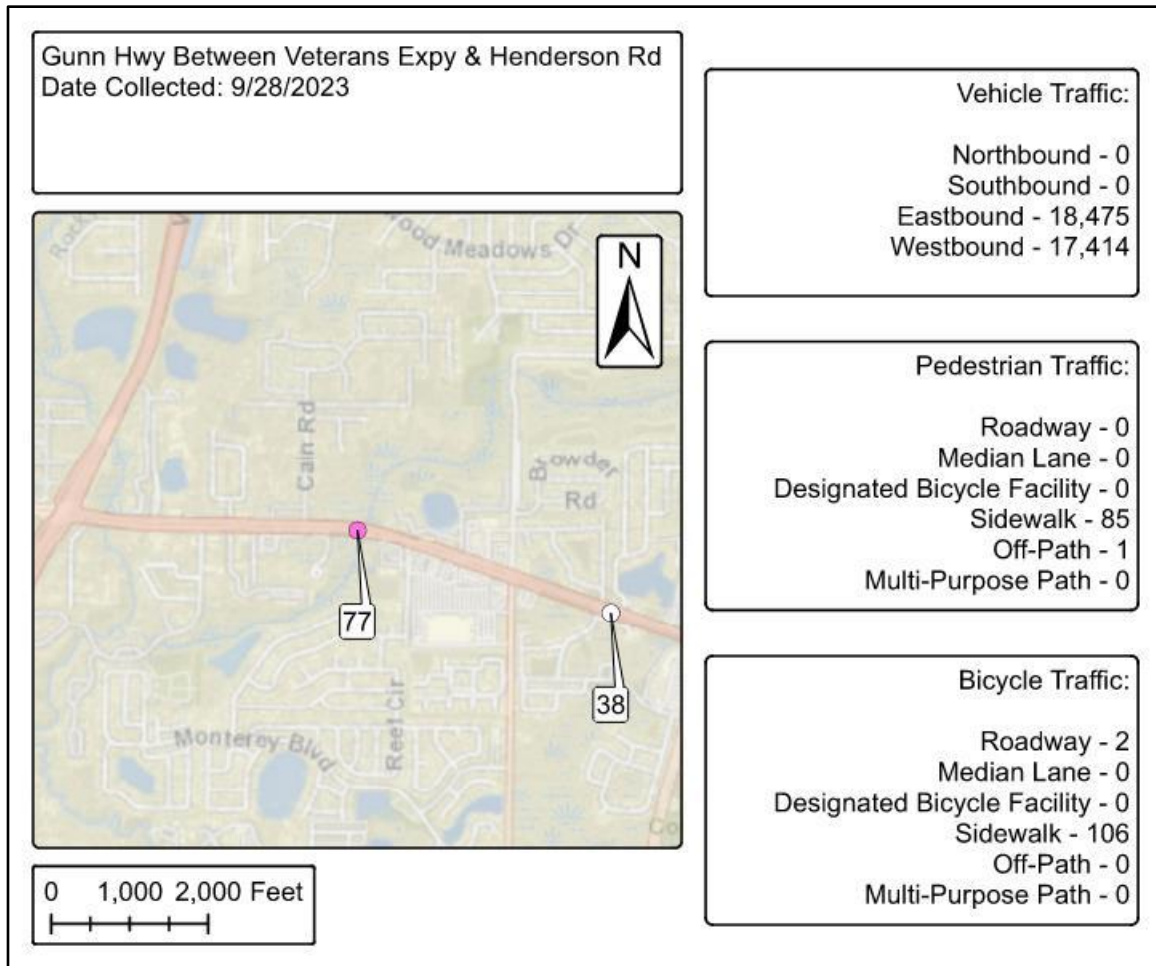
Intersection 75



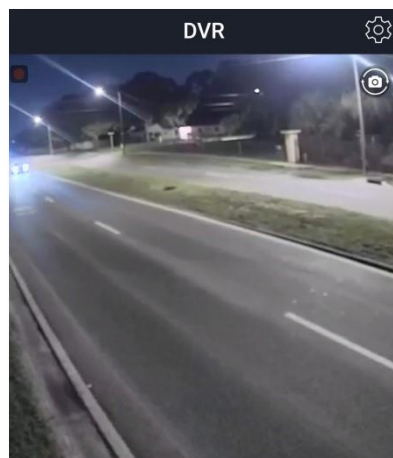
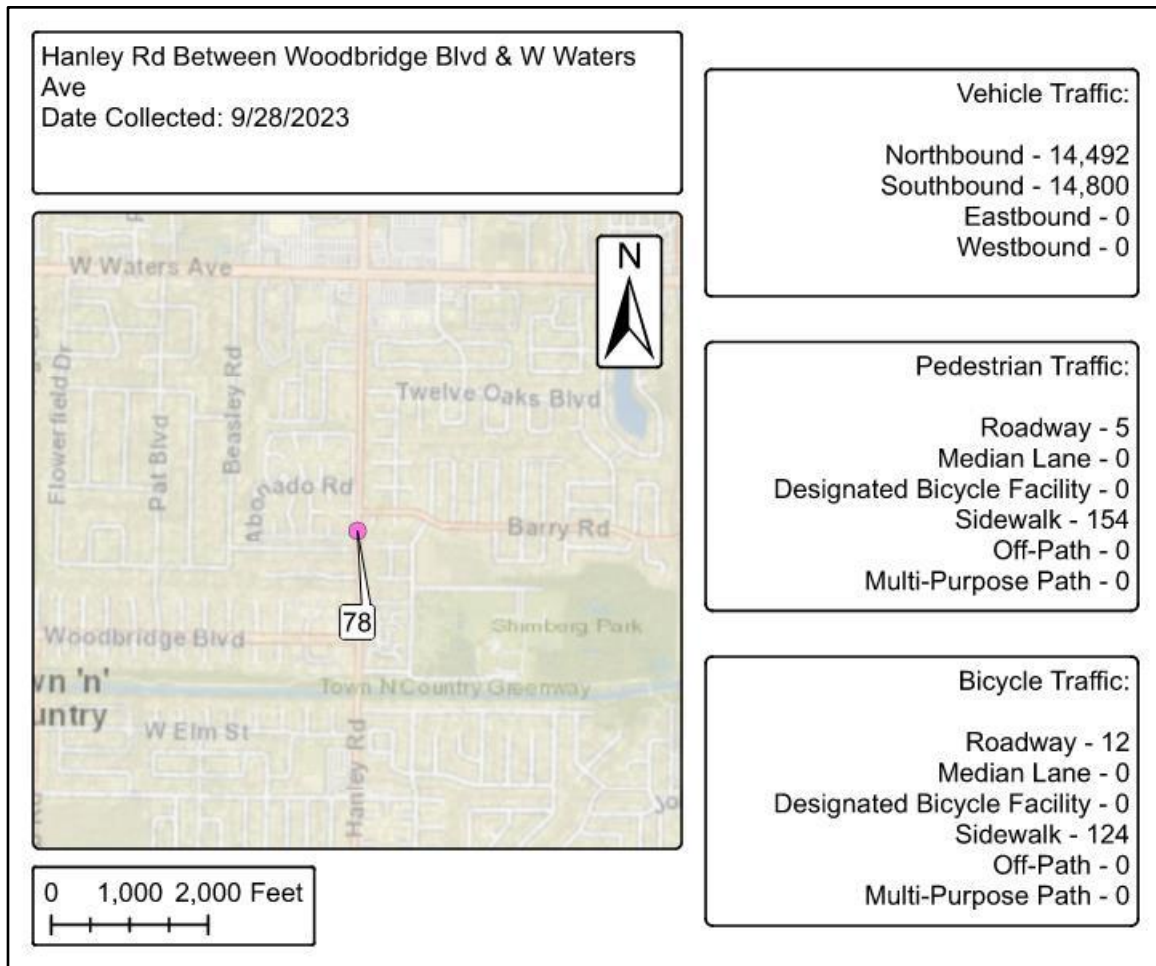
Intersection 76



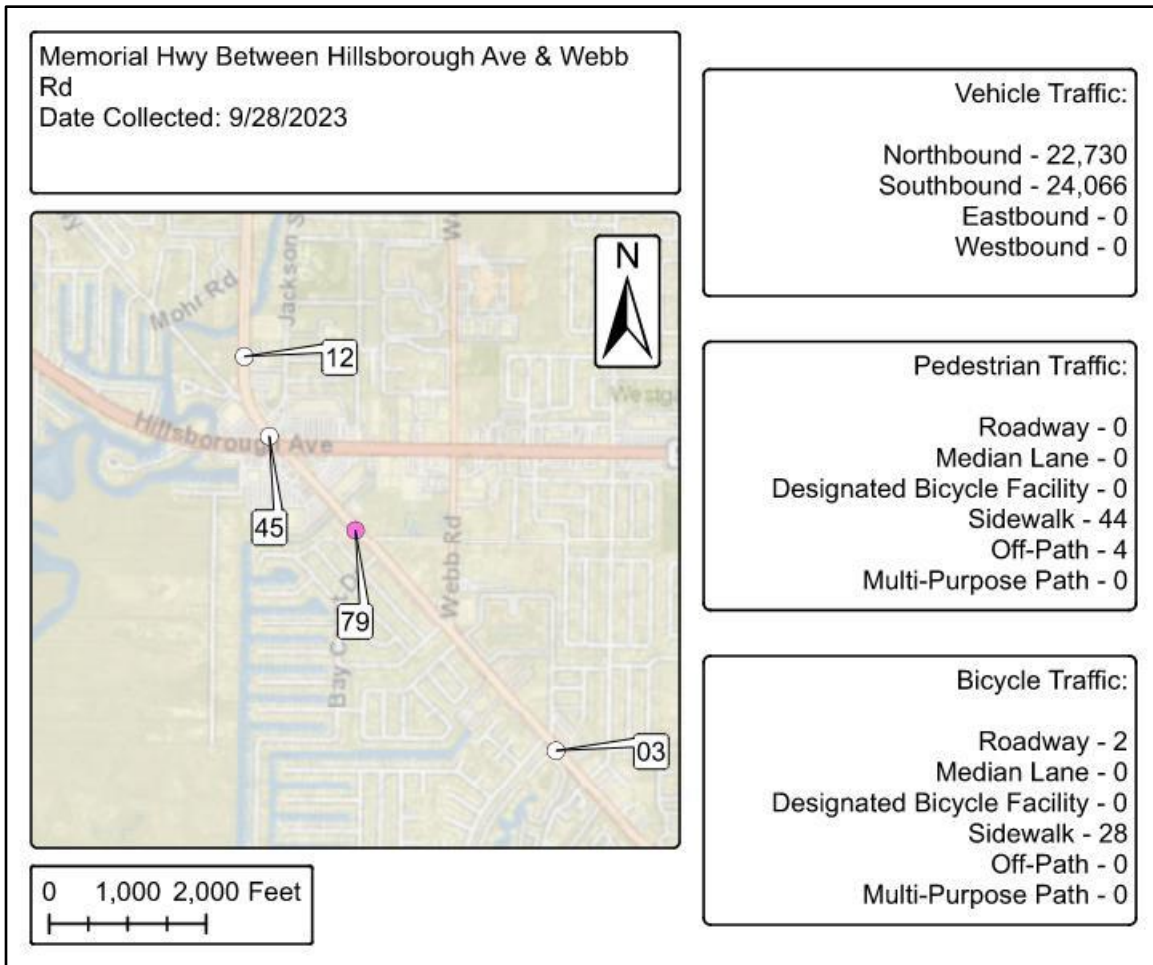
Intersection 77



Intersection 78



Intersection 79



Intersection 80

