



FEASIBILITY ANALYSIS

INTRODUCTION

This chapter examines the community context of the project area, analyzing the demographic characteristics of the surrounding region as well as the existing transportation infrastructure. Paired with analysis of route and user information, the project team identified the most popular routes in the region used for recreation and tracked the modes of transportation park users currently take to High Cliff State Park. From this information, conclusions were drawn about bike and pedestrian travel to High Cliff as well as recreational user activity within the Fox Cities, and used to help inform the potential route options explored for subsequent phases of the High Cliff Connection study.

The feasibility analysis was shared with ECWRPC staff, the Core Team, and the Stakeholder Group, as well as shared with the general public during engagement and outreach events.





DEMOGRAPHICS

POPULATION CHARACTERISTICS

Data available through the US Census Bureau and the East Central Wisconsin Regional Planning Commission (ECWRPC) provides a snapshot of the region's demographics. The Fox Cities' total population in 2021 was 251,755, with 102,501 households. The average household size for this region is 2.42 people, which is slightly above average for the State of Wisconsin, but lower than the US average of 2.58.

The counties in this region combine rural areas with important urban centers that function as trade and employment centers. The following information represents the urbanized areas of the Fox Cities, which include the cities of Appleton, Neenah, Menasha, and Kaukauna; the villages of Kimberly, Combined Locks, Harrison, Fox Crossing, Little Chute, and Sherwood; the towns of Buchanan, Grand Chute, Greenville, Harrison, Kaukauna, Menasha, Neenah, Vandenbroek; and the counties of Calumet, Outagamie, and Winnebago.

EDUCATION, EMPLOYMENT, AND INCOME

Education levels and available employment have a strong influence on the character and make up of a community. The region encompasses communities with a higher level of education than the state's average, 34% of people in East Central Wisconsin have a bachelor's degree or higher, versus 30% in the rest of the state.

Nearly two-thirds of the population participate in work considered white collar, which includes office and administrative work and management work. Twenty-six percent of the workforce is employed in blue collar positions, and 9% work in the service industry.

The average household income for the area is \$63,971, which is slightly above average for the State of Wisconsin (\$61,747). The average per capita income is \$33,890. The largest income bracket (20.5% of households) is between \$50,000—\$74,999. However, 7,997 households (8%) live below the Poverty Level in the region.

RACE AND ETHNICITY

The racial diversity index of this region is 29.50. This index indicates the probability that two people chosen at random will be from different race and ethnic groups. The majority of residents (89%) are white. The remainder of the population is Asian (4%), and Black (2%); 2% of the population is some other race, and 2% are two or more races. Nearly 6% of the population is of Hispanic origin.

AGE

The median age for residents is 38.9 years. As of the 2020 census:

- 22.6% of residents are under 18
- 62% of residents are between the ages of 18 to 65
- 14% of residents are 65 or older

HOUSING

About 69% of households are owner-occupied, 26% are tenant-occupied, and 5% are vacant.

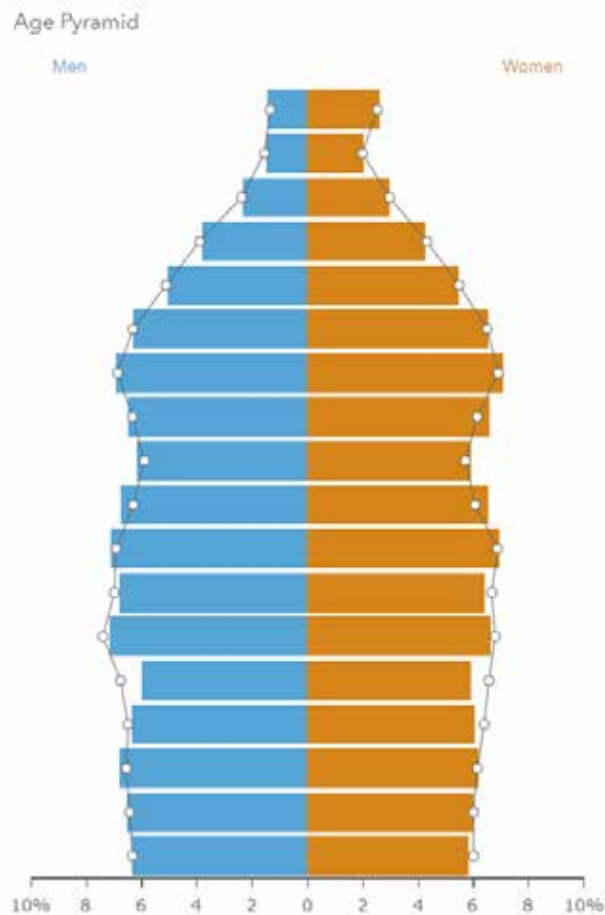


Figure 2.1 Figure 2. ACS 2021 Age Pyramid for the Fox Cities TMA

TRANSPORTATION

Understanding how people commute provides insight regarding potential multi-modal use in the region. As of the most recent American Community Survey (ACS) data, 85% of people reported driving alone to work or school, while 7% say they carpool.

The majority of households have access to 2 or more vehicles; approximately 16% have access to one vehicle; and one percent of households have no access to a vehicle.

Approximately 2% of people report walking to work, 2% report taking public transportation, and less than 1% bike to work. While these rates of active transportation are low, they are comparable to other similar areas. It is important to note that this data reflects pre-pandemic patterns and so may not accurately reflect current realities, such as potential increases in the number of people working from home. **Approximately 38 percent of people in the area spend an average of less than 15 minutes commuting to work**, most of which are likely traveling by personal vehicle, alone. With the projected increase in investment in trails, bicycle and pedestrian infrastructure, and public transit throughout the area, this group of people may be most impacted by better options for active transportation.

At a regional scale, there are approximately 70,000 workers who commute into the Fox Cities metro area daily for work, while approximately 79,000 workers work and live within the same area. Over 46,000 workers commute from the Fox Cities to outside of the metro region.

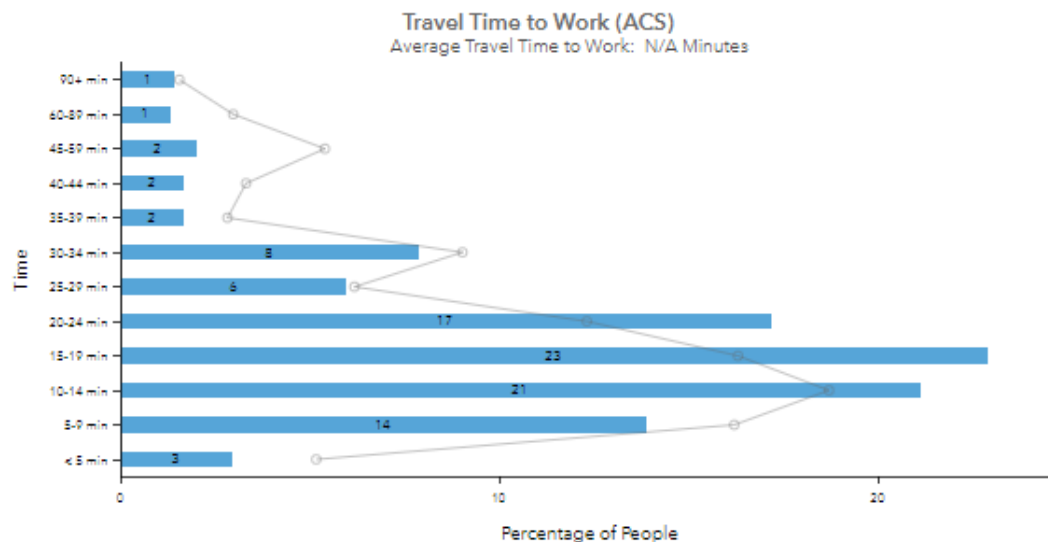


Figure 2.2 2021 ACS Estimates for Travel Time to Work

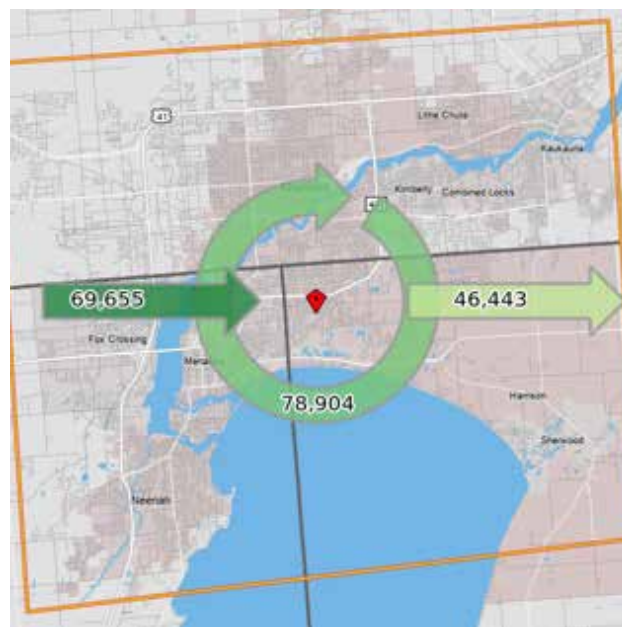


Figure 2.3 2019 US Census On The Map diagram showing in-flow and out-flow of commuters in the Fox Cities

HOUSEHOLDS AT-RISK

Addressing equity through planning requires understanding which populations are currently disadvantaged. Individual challenges related to poverty, health and education are often inter-related, compounding disparities over time.

Of the 100,423 households that are within the Fox Cities region:

- 21% (20,897 households) have at least one member with a disability
- 29% (29,235 households) receive Social Security Income
- 1% (1,138 households) do not have access to a personal vehicle
- 8% (7,808 households) receive food stamps/SNAP benefits



ROUTE & USER ANALYSIS

DATA COLLECTION TOOLS

New data sources, such as StreetLight and Strava Metro, are making it possible to better understand points of interest, preferred routes, travel patterns (origins-destinations), and bicycle/pedestrian demographics. These data sets are typically being collected through people who have opted into mobile applications that track their movement. A summary of the data sets used for this study are highlighted below and discussed throughout this section.



Strava Metro The study team was granted access to Strava Metro © data to analyze pedestrian and bicycle routes and demographics for portions of the study area in Winnebago & Calumet counties. Strava Metro is a voluntary mobile application people use to track their routes by foot or bike. It is important to note the data does not represent the entire population. The data is provided voluntarily by pedestrians and bicyclists who chose to use the application for recreational and community purposes. The data may represent people living outside the study area and should not be considered the only method for understanding user routes and behaviors.



StreetLight InSight® provides metrics about major modes of transportation, including information on bicyclists and pedestrians, trip volumes, origin-destination patterns, trip characteristics, inferred traveler demographics, and inferred home and work locations. Using the metrics generated by the StreetLight platform, the study team was able to measure trends in travel patterns and forecast community needs.

StreetLight uses trillions of spatial data points from millions of devices (e.g., cell phones, connected cars, fleet management systems, and smartphone applications) to determine on-the demand trip volumes and trip routes.

STRAVA METRO ANALYTICS

Pedestrian and bicycle activity in the study area is relatively high when reviewing Strava Metro © heat maps. These maps indicate routes people are choosing for recreation and commuting purposes. According to Strava Metro heat maps, the region is experiencing high levels of pedestrian and bicycle activity. Points of interest include High Cliff State Park, downtown Menasha, downtown Appleton and other local destinations. Routes that are experiencing high levels of pedestrian and bicycle activity include the following (See Figures 5-8):

- Loop the Little Trail, Broad Street and Plank Road connecting the Miron Bridge and Heckrodt Wetland Reserve (walking and biking).
- Midway Road between Appleton Road and North Coop Road (walking and biking)
- Friendship Trail
- Friendship Trail and State Park Road connecting Menasha and High Cliff State Park

The level of pedestrian and bicycle activity along Midway Road/Schmidt Road, Manitowoc Road and State Park Road is also important to note. It assumes these routes are being used more heavily to access High Cliff State Park. For example, the most direct route between Menasha and High Cliff State Park is along Highway 114 by using the Friendship Trail. However, there are trail gaps (east of Fire Lane 13) that limit this connection to High Cliff State Park. It is assumed more people are choosing alternative routes (indirect routes) to access High Cliff State Park to avoid Highway 114, which has higher traffic volumes and speeds compared to other east-west roadways. Most people are using State Park Road as the primary route to enter/exit High Cliff State Park.

STRAVA METRO DEMOGRAPHICS

Tables 1 -3 provide a basic understanding of Strava Metro users at a region-wide level. The majority of pedestrians and bicyclists in the area are between the ages of 20 and 54. Data is not collected for those under the age of 13 per data privacy laws. The data also provides a snapshot of those traveling from outside the region to visit the area (See Figures 5 - 8). This finding supports general assumptions about the area's ability to attract people from outside the County to explore its lively downtowns, parks (e.g., High Cliff State Park and Heckrodt Wetland Reserve), and robust trail network. There are other driving factors that could contribute to the large number of visitors, such as college students who use the Strava Metro, but have a permanent address outside the area.

Strava data is provided voluntarily by users, so results tend to skew towards recreational users and those that are traveling longer distances for higher intensity exercise. This should be kept in mind while exploring the information.

The maps shown in Figures 5 - 8 are for internal project review. Strava Metro does not permit the widespread sharing of map images without expressed permission. These maps will not be included in final documents or those intended to be shared with the broad public.

2021	Bike	Walk, Run & Hike	Total
Total Trips	34,900	62,300	97,200
Weekend Trips	10,600	16,700	27,300
Total People	2,400	3,700	6,100
Local Users	54%	32%	39%
Visitors	46%	68%	61%

Table 2.1 2021 StravaMetro data on trips and modes in the Fox Cities region

Age Group	2021	2020	2019
0 - 12	NA		
13 - 19	5.7%	6.5%	5.0%
20 -34	26.7%	31.5%	28.5%
35 - 54	47.8%	45.4%	46.3%
55 - 64	14.8%	12.5%	15.8%
65&	4.9%	4.1%	4.3%

Table 2.1 2019 - 2021 StravaMetro data on age of Strava bicycling participants in the Fox Cities region

Age Group	2021	2020	2019
0 - 12	NA		
13 - 19	9.7%	11.6%	11.9%
20 -34	34.9%	42.2%	39.9%
35 - 54	42.3%	36.4%	39.5%
55 - 64	9.6%	7.6%	7.1%
65&	3.5%	2.3%	1.5%

Table 2.1 2019 - 2021 StravaMetro data on age of Strava pedestrian participants in the Fox Cities region



PEDESTRIAN TRIPS (INTERNAL USE ONLY)

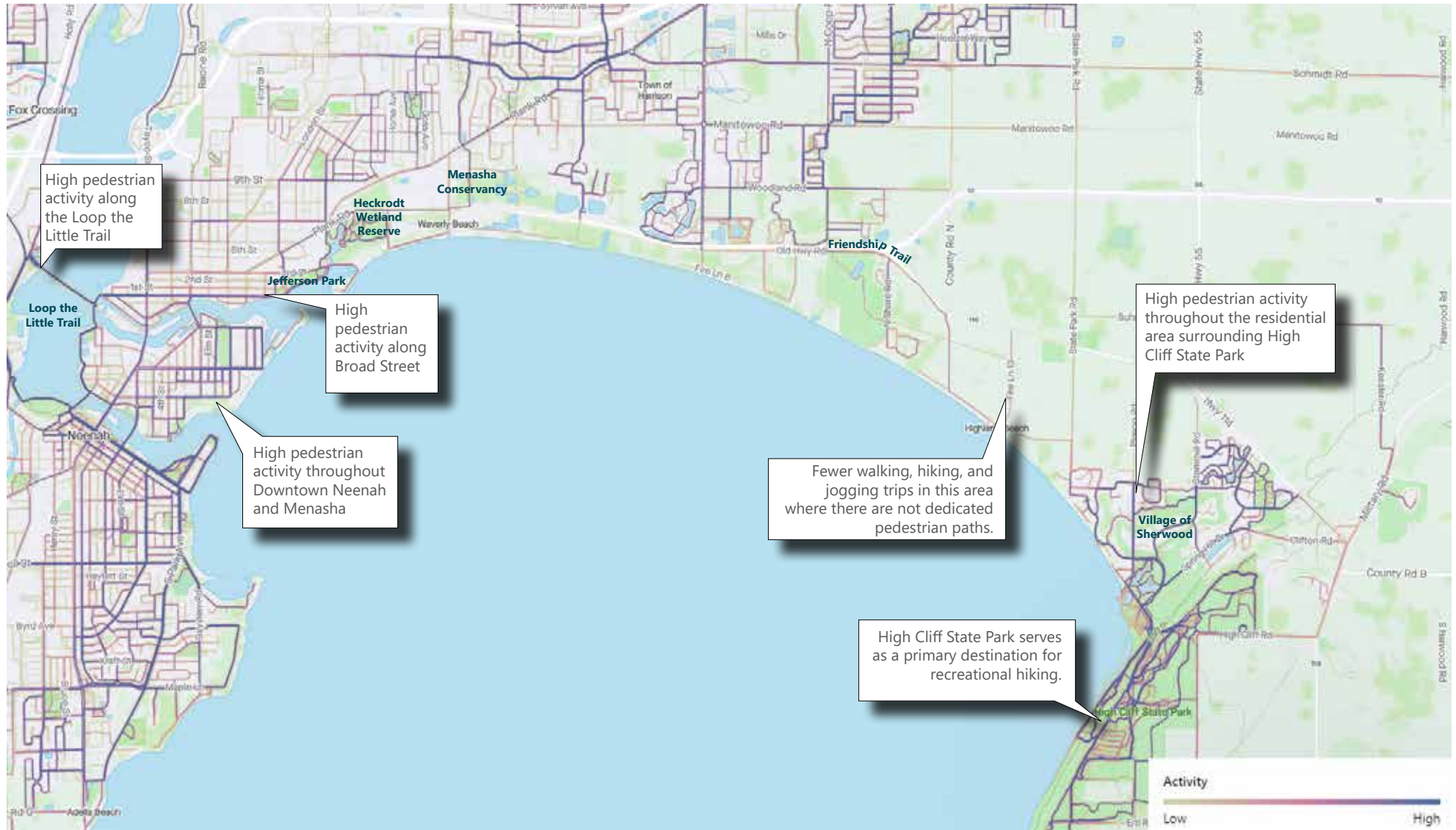


Figure 2.4 StravaMetro map of pedestrian trips taken in 2021

BICYCLE TRIPS (INTERNAL USE ONLY)

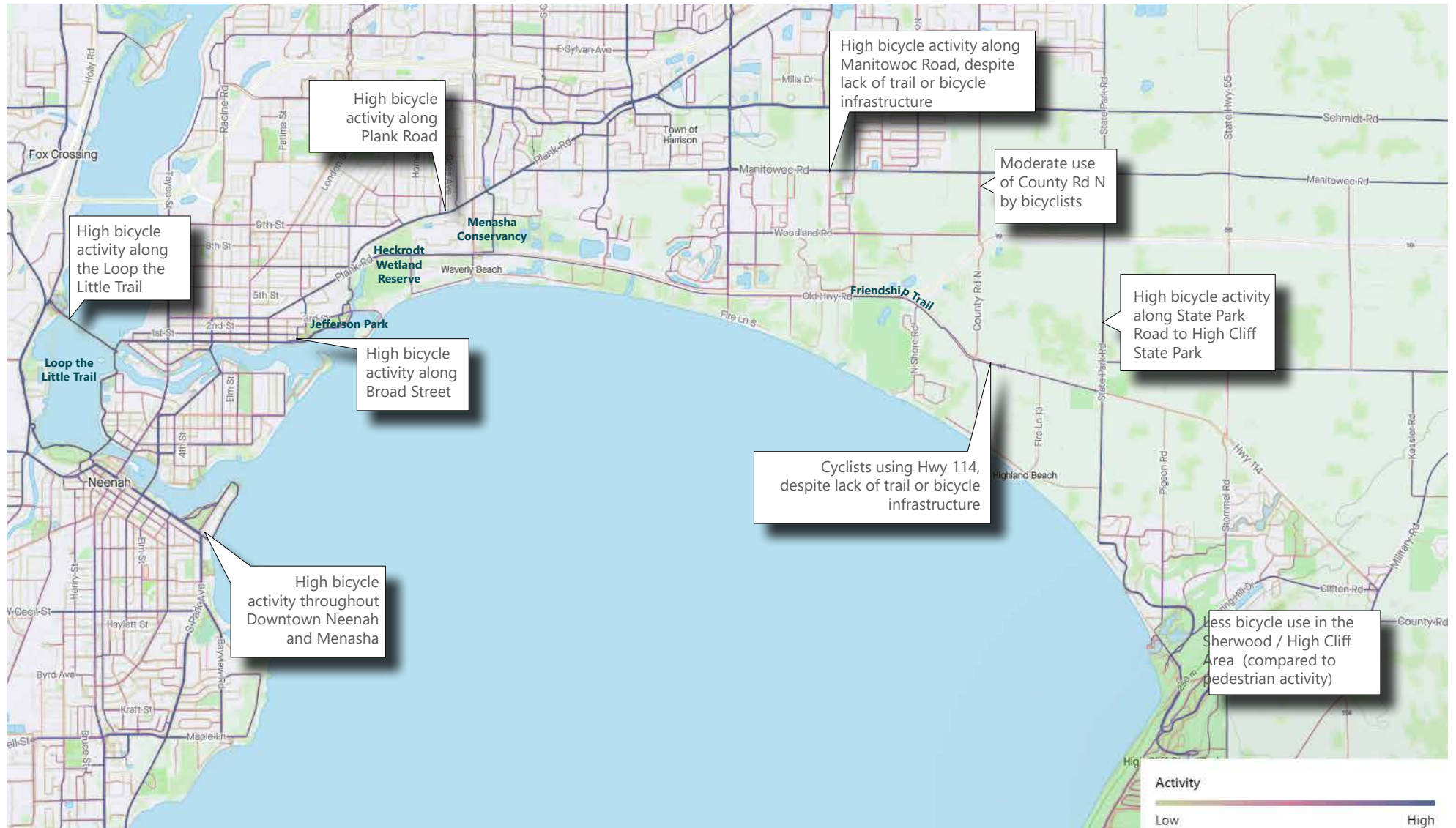


Figure 2.5 StravaMetro map of bicycle trips taken in 2021



POPULAR AND DIRECT BICYCLE ROUTES (INTERNAL USE ONLY)

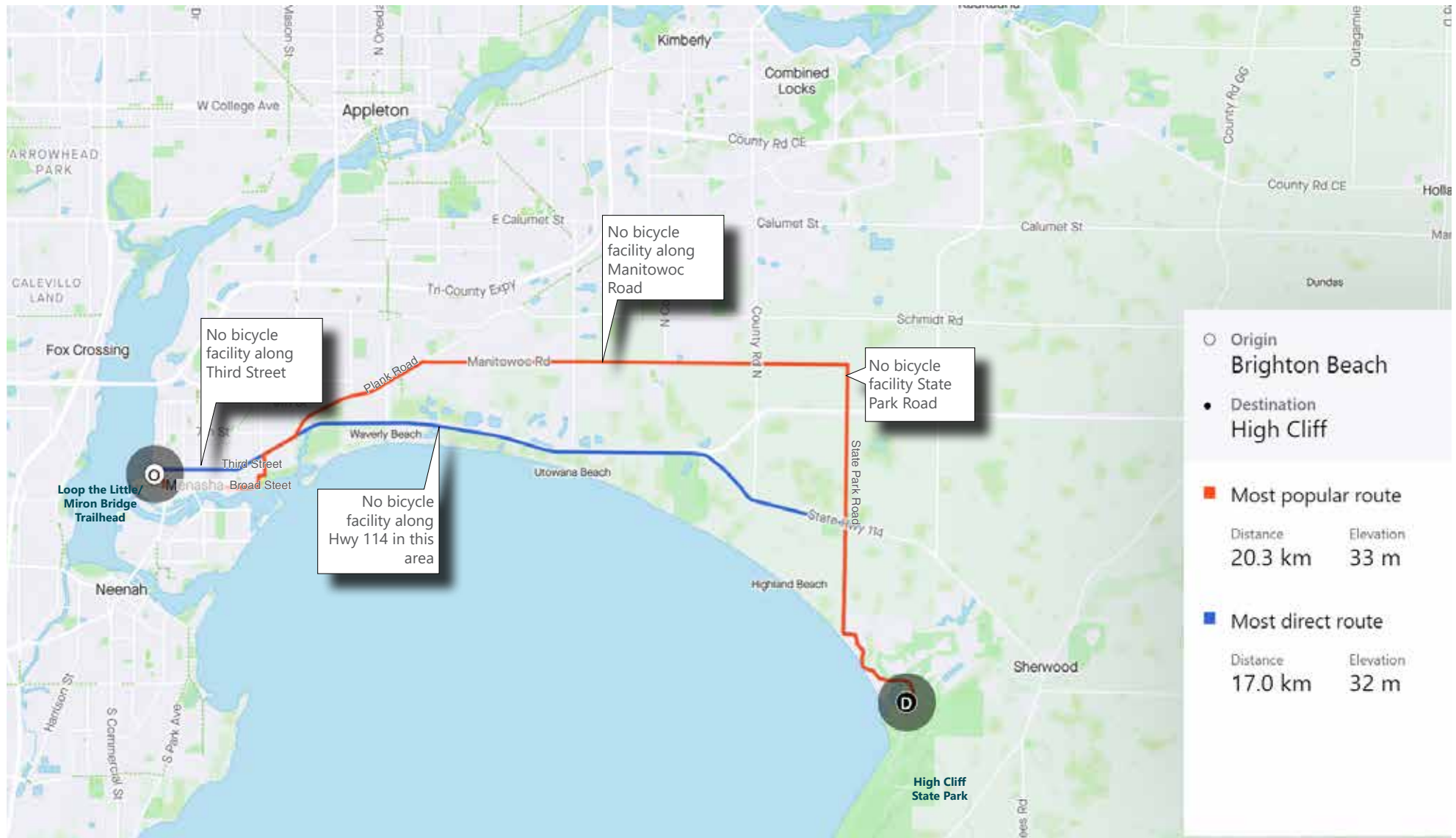


Figure 2.6 2021 StravaMetro map of most popular/most direct routes between the Miron Bridge Trailhead and High Cliff State Park

BICYCLE TRIPS (INTERNAL USE ONLY)

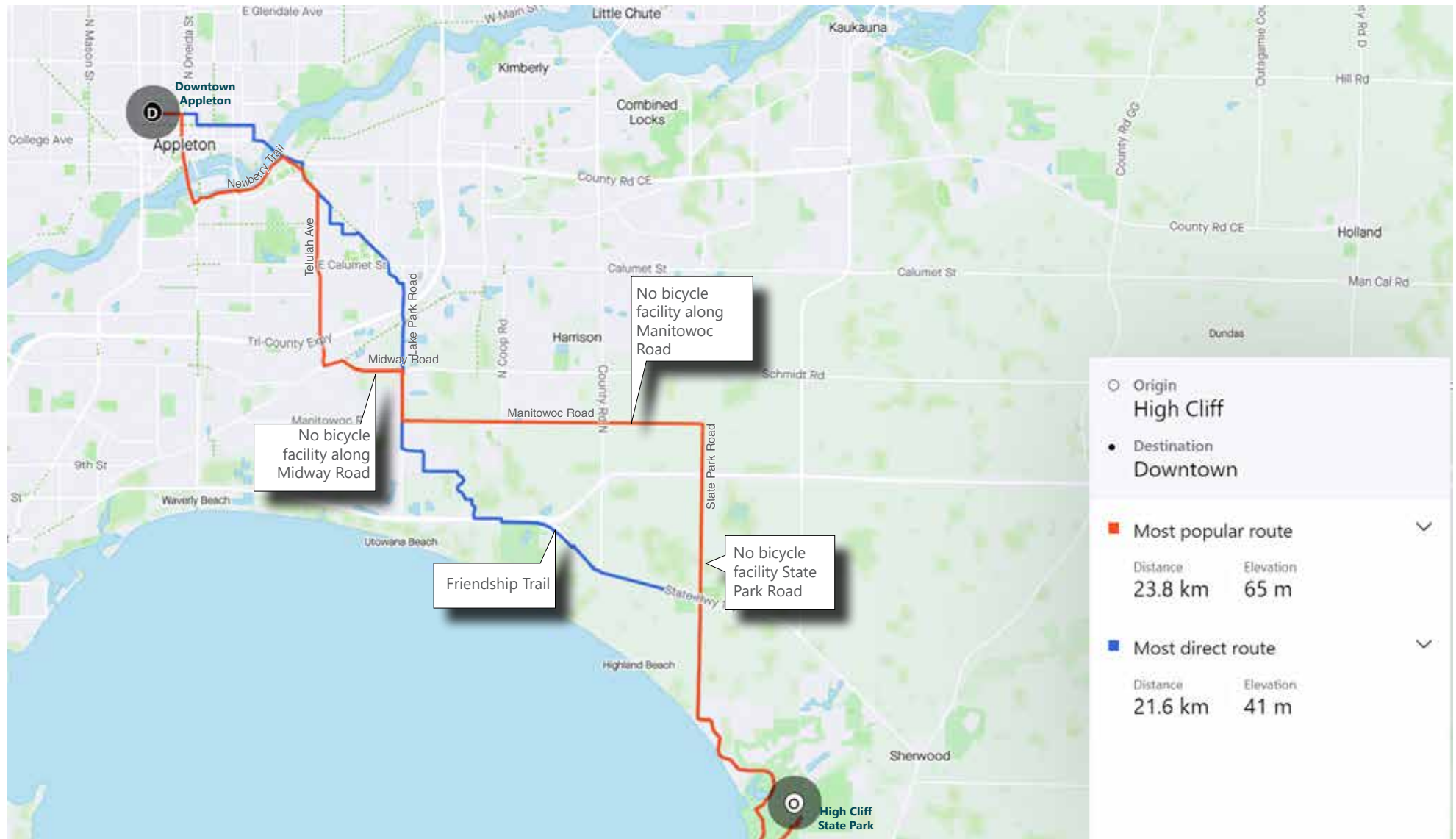


Figure 2.7 StravaMapro map of most popular/most direct routes between Downtown Appleton and High Cliff State Park



STREETLIGHT ANALYSIS

StreetLight metrics were used in this feasibility analysis to better understand the ways that people are moving around the study area. These metrics are calculated using de-identified (anonymous) smartphone location data and other navigation devices in combination with several other sources including the U.S. Decennial Census, American Community Survey (ACS), digital road networks, and parcel data. The Streetlight program normalizes and adds context to that information to allow users to answer questions that relate to how people are moving within and through different geographic areas.

TIME FRAME

The analysis took stock of activity by mode of travel for the entire year of 2020. While 2020 was an unusual year in many ways, trends in outdoor activities that the onset of the COVID-19 pandemic brought on have largely continued today.

StreetLight data can also differentiate between days of the week and parts of the day when travel is occurring. For our analysis we gathered data on the differences between weekdays (Monday-Friday) and weekend days (Saturday and Sunday), and each day was separated into 4–6-hour segments (Early AM, Peak AM, Mid-day, Peak PM, and Late PM) of activity. By differentiating the data in this way we can look at trends and patterns in the way the study area is used over the course of a normal week.

MODES

StreetLight data identifies modes of travelers based on patterns of travel such as speed and location within the roadway. Three modes of travel analyzed for this study are:

- All Vehicles (cars, trucks, and buses)
- Bicyclists
- Pedestrians

By looking at each of these modes separately, we are able to understand how far and what routes people take to walk, bike, and drive within the study area.

ZONES

Zones are used by the Street Light Program to identify areas of interest. The boundaries of a zone determine which travelers are measured in the analysis. Some zones will be considered Pass Through because most people are moving through an area and likely not stopping and staying for long (like a trail segment) and others are Non-pass Through zones that indicate the place a person's trip starts or ends. The zones used for this analysis were: High Cliff State Park; Heckrodt Wetland Reserve; the Miron Bridge Trailhead; and Jefferson Park.

TYPES OF ANALYSIS COMPLETED

A wide variety of transportation analyses is available to explore using StreetLight data. The project team decided to ask the following questions:

- How far are people traveling to reach High Cliff State Park and other destinations within the study area?
- Which mode of travel (bike, walk, or drive) are people choosing to take to travel to their destinations within the study area?
- Which modes of travel are taken within High Cliff State Park? What can we understand about recreational activities within High Cliff State Park?
- What demographic information can we gather to understand the characteristics of the people who are traveling to destinations within the study area?

To best answer the questions above, the following types of analyses were completed for the study area:

Zone Activity Analysis

This type of analysis is useful for identifying who is coming to a zone and general information on how the space is being used including how long people spending in that zone, how far they are going within the zone, etc.

Trips to or from Pre-set Geography

This type of analysis evaluates trips to and from the zone of interest providing information on where visitors to each zone are coming from and going to.

STREETLIGHT RESULTS

The following pages provide a snapshot of some of the information gathered through StreetLight. The amount of information that can be explored is quite vast, and the project team will continue to return to this platform to answer questions throughout the planning process. The following results represent information gathered over the entirety of the year 2020 using StreetLight metrics, which track cell phone data. This information is not exhaustive but provides some insight regarding patterns of travel.

VEHICLE TRAVEL TO HIGH CLIFF STATE PARK

People travel from all over the state of Wisconsin and beyond to visit High Cliff State Park. The Streetlight data shows that generally most people are entering the park via a vehicle (bus, car or truck), with 2,677 vehicles counted in 2020. Approximately 55% of these trips originate from within the Sherwood and Harrison area immediately adjacent to the State Park, within 10 miles of the park entrances. Most other trip originations by vehicle to High Cliff State Park are spread equally throughout the Fox Cities and along the east shore of Lake Winnebago.

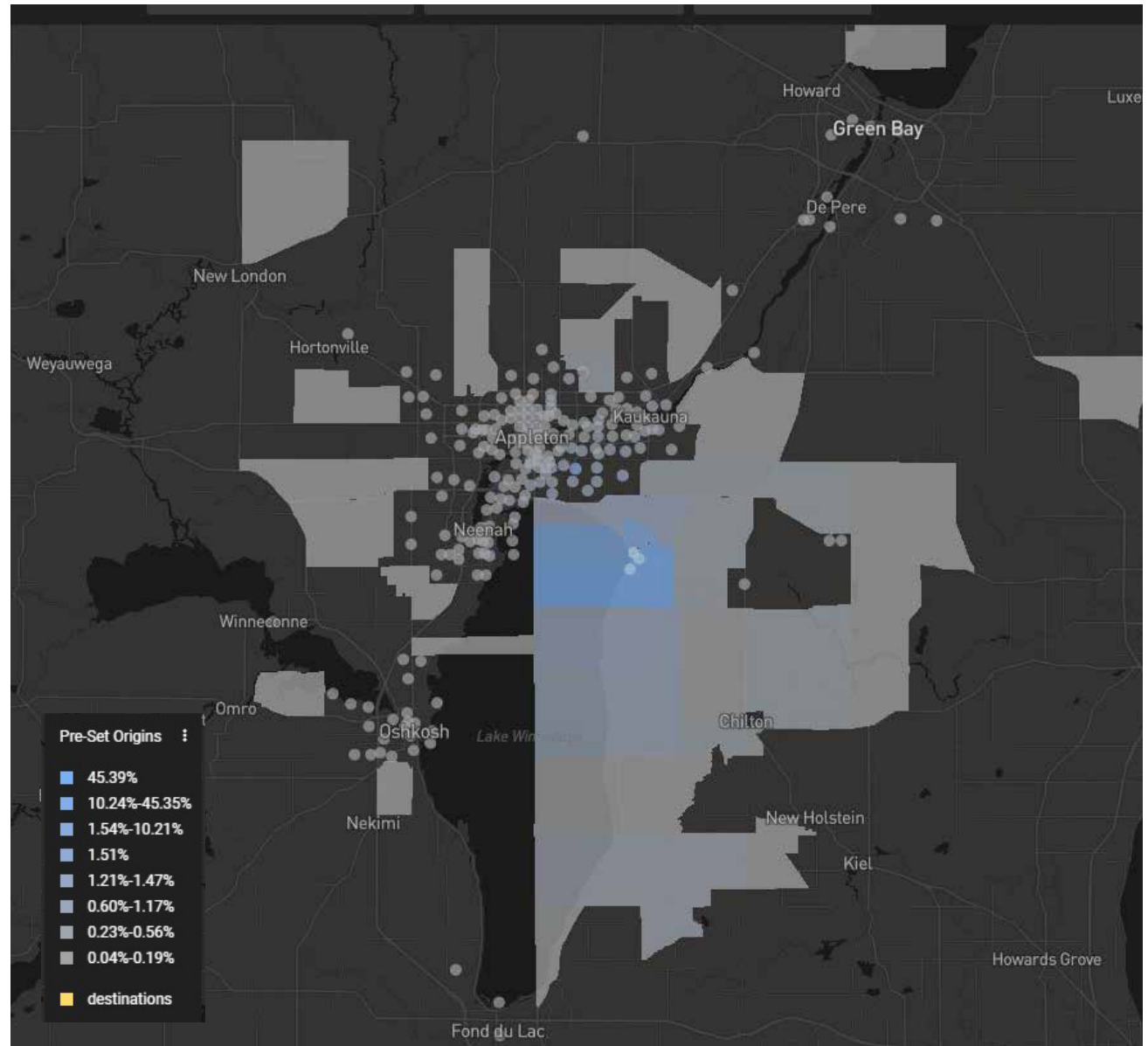


Figure 2.8 StreetLight Data: Origins of Vehicles Traveling to High Cliff State Park in 2020



BICYCLE TRAVEL TO HIGH CLIFF STATE PARK

All bike trips to the park are coming from the Fox Cities region. Of those trips, 58.4% are coming from the census tracts directly around the park and 39% are coming from the census tract immediately north of the park. Most bike trips (24%) taken are between 0-5 minutes long. Bike trip frequency largely decreases as travel time increases until getting to the 55–60-minute trip mark where there is an increase. A similar trend occurs when considering trip length. Most trips (36%) are between 0-1 miles and the frequency of trips decreases as length of trips increase until reaching trips above 9 miles long. **Likely, the majority of bike trips taken to the park are by nearby residents, but there are a number of cyclists traveling to the park as part of longer trips.**

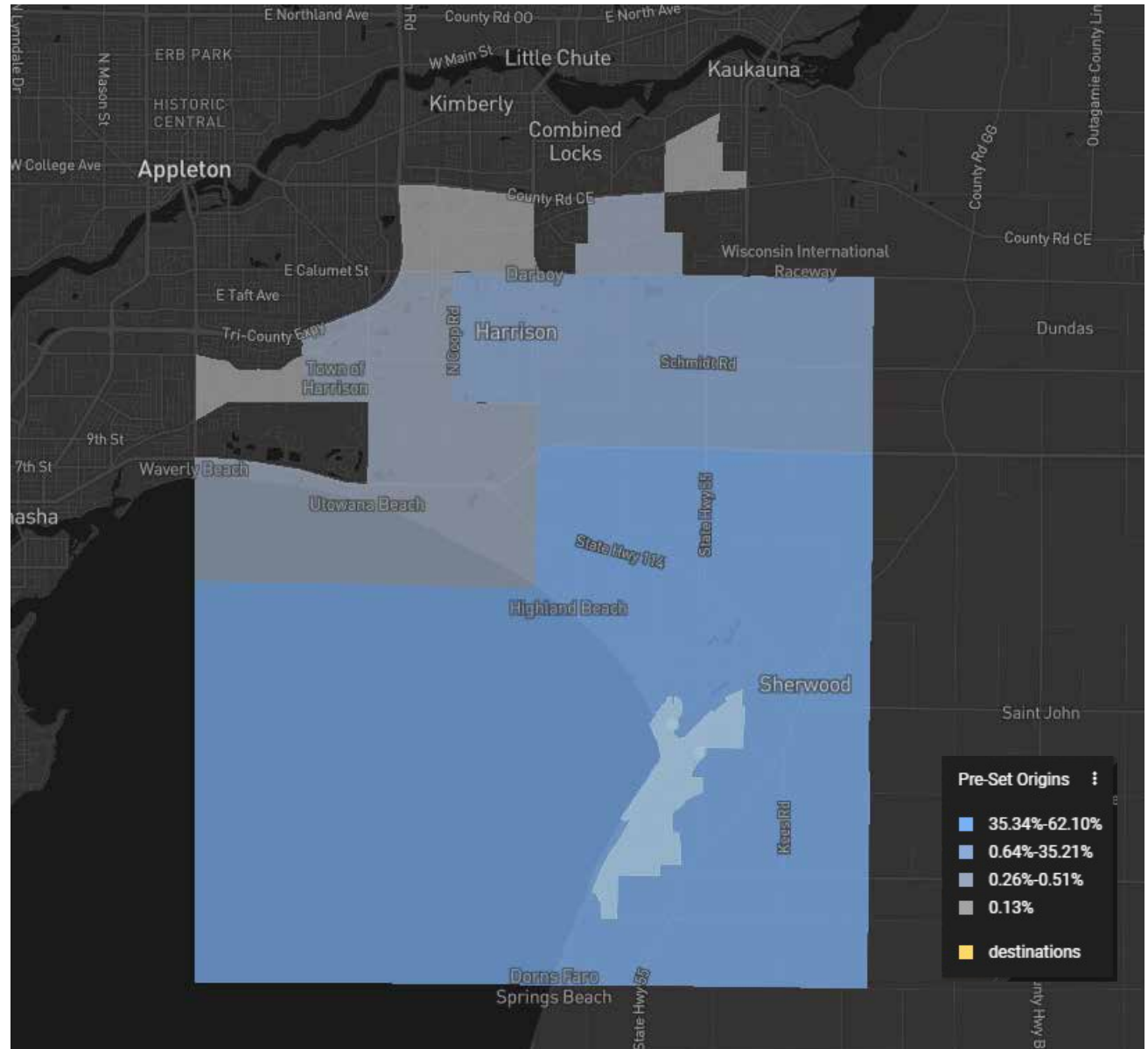


Figure 2.9 StreetLight Data: Origins of Bicyclists Traveling to High Cliff State Park in 2020

PEDESTRIAN TRAVEL TO HIGH CLIFF STATE PARK

A significant number of people walked to High Cliff State Park in 2020. Like the other modes discussed, most pedestrians are coming from the areas immediately adjacent to the State Park. Of pedestrian trips, 72% are starting from the census tract that surrounds the park. **Surprisingly, many people walking to the park are spending more than 60 minutes (15%) to arrive at their destination, although they are primarily only traveling up to 2 miles. This indicates that pedestrians are walking for recreation, likely taking longer or more scenic routes to reach the State Park.**

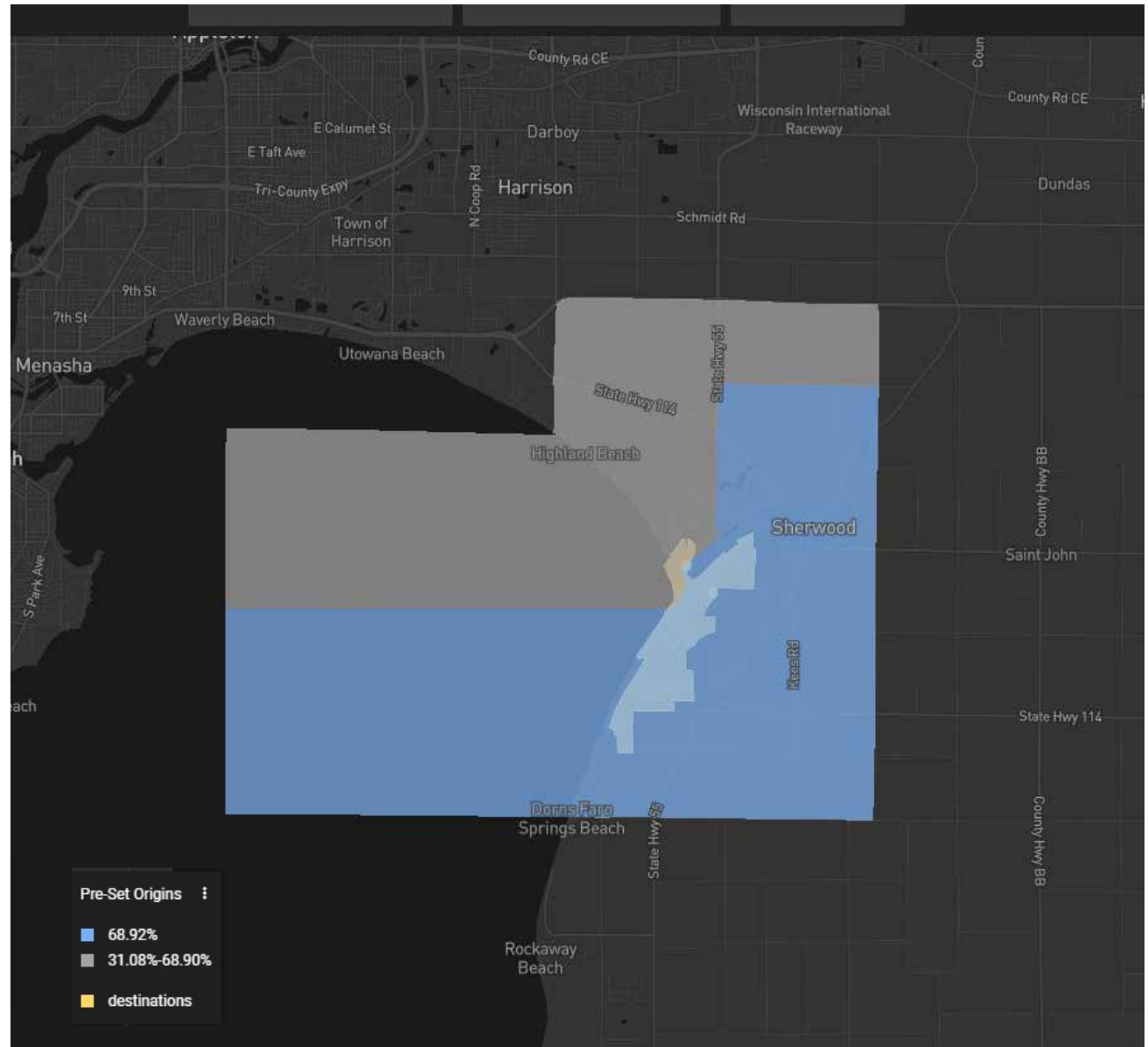


Figure 2.10 StreetLight Data: Origins of Pedestrians Traveling to High Cliff State Park in 2020



VISITOR ACTIVITY WITHIN HIGH CLIFF STATE PARK

Using the StreetLight Data, we can understand characteristics and travel patterns for the activities that people are undertaking while they are visiting High Cliff State Park. Based on the feedback gathered through the Community Engagement phase, it is clear that biking and hiking are among the most popular activities for visitors within the park.

Of the people who are cycling as an activity within High Cliff State Park, many actually live farther than the areas adjacent to the State Park. Most of these cyclists live in the Appleton (12%) and Menasha (8%) areas, with other cyclists living throughout the Fox Cities, and smaller percentages who live throughout the state. Because the home locations of these park users differ from the origin data collected about how people travel to the park, there are a few assumptions we can make:

- Many cyclists throughout the Fox Cities tend to drive to High Cliff State Park, bringing their bicycle to ride recreationally throughout the park.
- Most (59%) cyclists within the park most are traveling a short distance of 0-2 miles at fairly low speeds (between 0-6MPH). This could indicate younger children, seniors, and families taking leisurely rides together within the park.

Zone Activity data from StreetLight shows that people who visit High Cliff to walk or hike are traveling from farther destinations, some beyond the state. The duration of these hikes vary, with most (18%) walking for more than 60 minutes. However, most walking trips within the park (61%) are less than one mile, which likely is due to people taking short trips to connect to park facilities while camping.

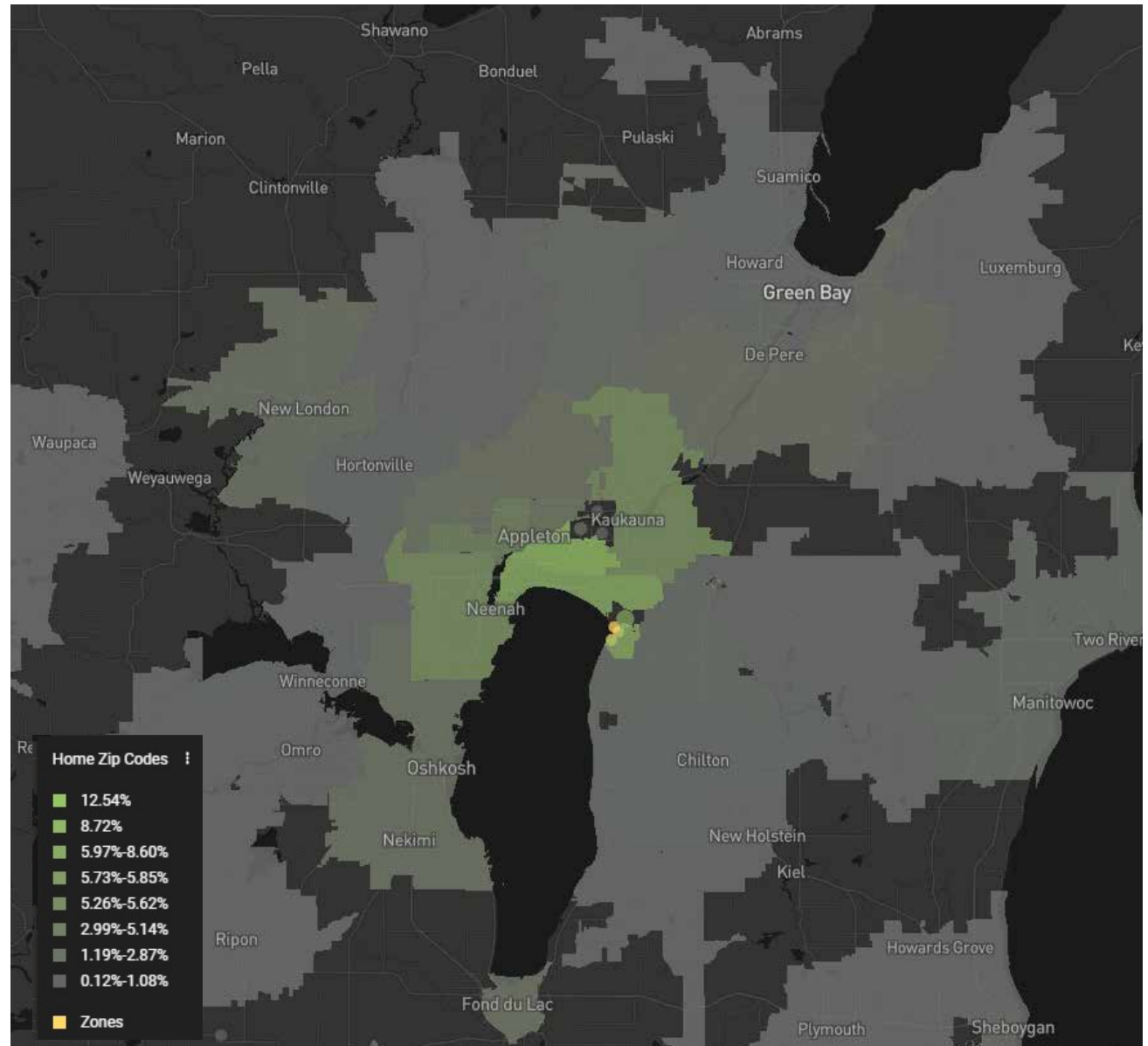


Figure 2.11 StreetLight Data: Home Locations of Cyclists within High Cliff State Park in 2020

DEMOGRAPHIC INFORMATION OF HIGH CLIFF VISITORS

StreetLight Data combines trip information with census data to make assumptions about the demographics of the travelers represented in the datasets.

After examining the assumed demographic information about bicyclists traveling to and from High Cliff State Park, the following observations were made:

- While the race and ethnicity information of bicyclists traveling to/from High Cliff is similar to the region's demographics, the percentage of cyclists who are white (92%) is higher than the percentage of overall residents who are white (89%).
- Household income of bicyclists traveling to/from High Cliff is very close to the region's current demographics, with slightly more cyclists from incomes below \$100K (78.5%) represented than percentage of overall residents with incomes below \$100K (71.9%).
- Information about trip purposes shows very few cyclists traveling throughout the study area for work commuting purposes. Less than 3% of trips taken were likely related to employment destinations.
- While the data does not provide travelers' ages, there is information assumed about family status. Of the cyclists traveling within the study area, approximately 64% are part of households that do not have any kids. 16% are part of households with young kids (6 years and younger), and 28% are part of households with kids between the ages of 6-17.

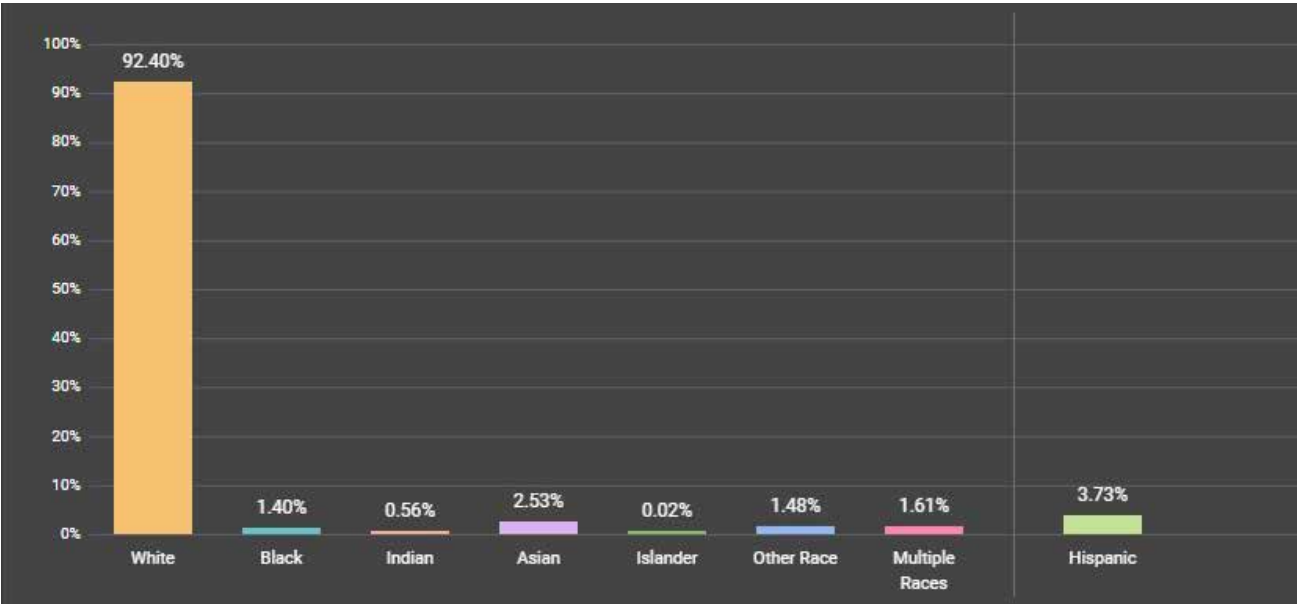


Figure X. StreetLight Data: Race and Ethnicity Data for Cyclists Traveling to/from High Cliff State Park in 2020

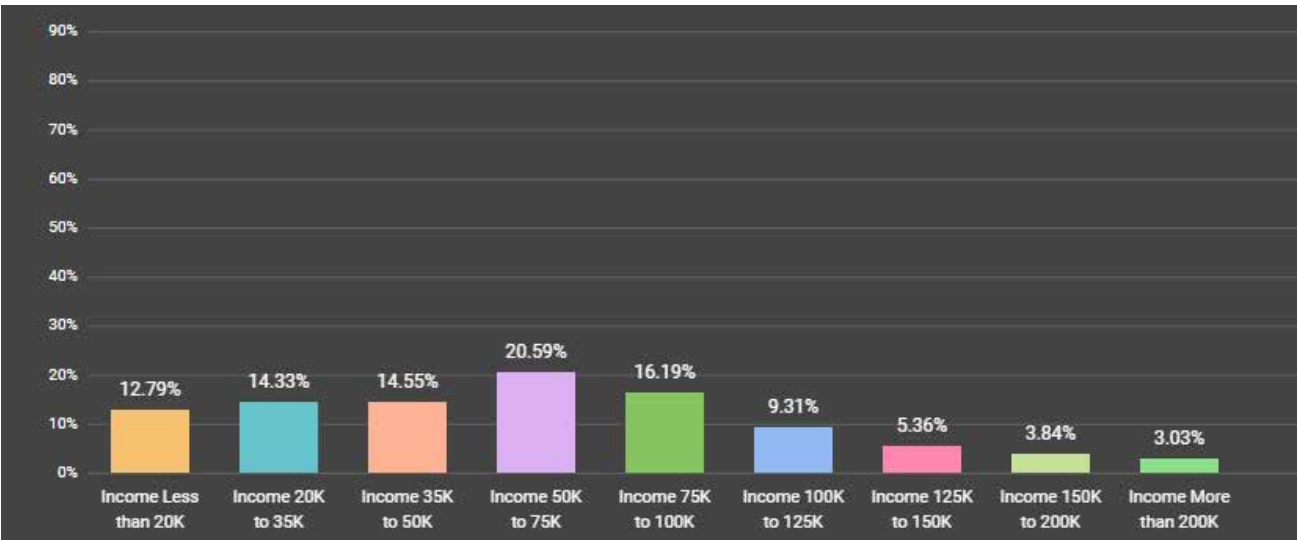


Figure 2.12 StreetLight Data: Income Data for Cyclists Traveling to/from High Cliff State Park in 2020



LEVEL OF STRESS / COMFORT ANALYSIS

UNDERSTANDING THE THRESHOLDS FOR USE

A Level of Stress (LTS) analysis was performed to understand the level of comfort or stress bicyclists face on the existing bicycle and pedestrian system in the urban (developed) area of downtown Menasha. While this analysis traditionally focuses on bicyclists, the outcomes are easily translatable for pedestrian experiences. Understanding that this part of the potential route for the High Cliff Connection would involve using existing roadway corridors (rather than develop facilities along new roadways or developments), this was the only area that seemed appropriate for a LTS analysis.

Level of stress is influenced by the following:

- **Traffic Volume:** High volume of adjacent traffic is stressful and less desirable for bicyclists, especially when sharing the road with vehicles.
- **Traffic Speed:** High speed of adjacent traffic is stressful and less comfortable for bicyclists, especially when sharing the road with vehicles.
- **Separation:** Adjacent vehicle traffic in close proximity is stressful and less comfortable for most bicyclists. Separating bicyclists from the road (e.g., off-street trails) are the most comfortable routes to experience. Off-street trails also provide safer routes for pedestrians.
- **Crossings:** Unmarked or un-signalized intersections can be stressful and uncomfortable for both pedestrians and bicyclists. Crossing driveways and access roads can also be stressful for pedestrians and bicyclists. Visible and comfortable pedestrian and bicycle crossings require site-specific design elements. Not every crossing is stressful or uncomfortable.

After completing the LTS scores for the Menasha urban area it appeared that most of the existing roadways, or potential routes, connecting the Little Lake trailhead and Jefferson Park had similar levels of comfort for pedestrians and bicyclists, with most appearing to be comfortable for folks with a wide range of abilities, ages, and perceptions of safety. When applying the criteria of traffic volume, speed, separation and crossings, there were very subtle differences in the user experience for stress or comfort. The biggest differences between the corridors appear to manifest in the rating of comfort for crossing intersections, and some differences in posted speed limits.

The map on the opposite page shows inventory of intersection types, Average Annual Daily Traffic (AADT) and posted speed limits, along with existing bicycle and pedestrian facilities in the anticipated route area for the High Cliff Connection in Menasha.

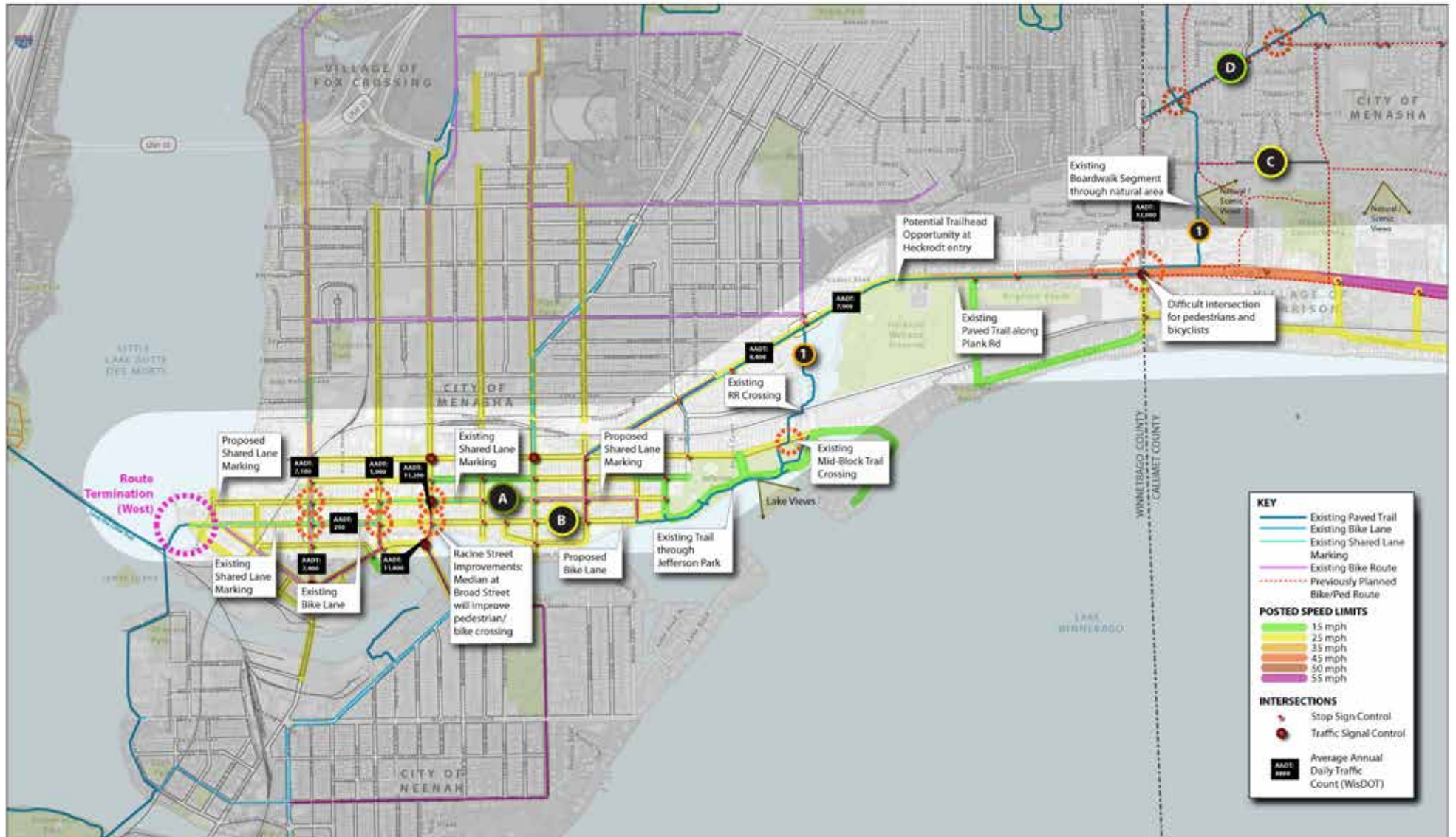


Figure 2.13 Inventory of Posted Speed Limits and Intersections in Menasha



ISSUES + OPPORTUNITIES

The following high-level issues and opportunities were identified at the conclusion of the feasibility analysis phase of the study and were refined later on through the route exploration phase.

? ISSUES

- Finding one single facility type along the full corridor is not likely.
- Balance of connecting to neighborhoods and finding a direct route seem to be at odds with each other.
- Preference for route options along more “public” roadways.
- Additional land acquisition is likely needed for most routes east of Oneida Street.
- Need for engineering (survey) level study to determine best facility types.

+ OPPORTUNITIES

- Direct route options along major roadways seem to be preferred, prompting exploration of trail designs along US 10/114 that are elevated and could provide a new type of trail experience.
- Through engagement and interaction with Core Team and Stakeholder Group, preferences for as much separation between trail users and vehicles seems to be preferred, even if cost or impact is greater.
- There continues to be strong support for a future bike and pedestrian connection.



Example image of an elevated boardwalk trail



Example of separated, multi-use paved trail