

# Saint Cloud APO

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## US 10 Pedestrian Corridor Report

The contents of this report reflect the views of the St. Cloud Area Planning Organization, which is responsible for the facts, and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Department of Transportation. This report does not constitute a standard, specification or regulation.

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# 1 US 10 Report Need

## Introduction

As part of efforts to increase the amount of community involvement in the design phase of State Highway construction, MnDOT has asked Regional Development Commissions (RDC) and Metropolitan Planning Organizations (MPO) to assist in identifying and starting the conversation at the local level about current and potential future bicycle and pedestrian movements in and around future construction projects.

## Transparency - MnDOT District 3 Ten Year Plan & Statewide Bicycle Plan

Annually, the District offices of the Minnesota Department of Transportation (MnDOT) have created 10-Year Capital Highway Work Plans. The 10-Year Work Plan details MnDOT's capital highway investments for the next ten years. These documents serve as a check to ensure that MnDOT is meeting the investment levels and performance outcomes identified in MnDOT's 20-year State Highway Investment Plan (MnSHIP). The 10-Year Work Plan communicates programmed and planned projects and explains any change in direction or outcomes from the direction established in MnSHIP.

Outside of the Department the primary purpose of the 10-Year Plan document is to communicate with stakeholders and partners on planned projects in their regions. This has proven crucial for many local agencies when planning and programing their construction projects.

Additionally, the 2015 Statewide Bicycle Plan created by MnDOT recommends the local agencies, primarily RDCs and MPOs assist MnDOT designers in planning local construction projects to accommodate

and properly address current and future bicycle movements. It is believed by studying and discussing non-motorized transportation issues as early in the process as possible, it will help to create places and facilities desirable to all users.

MnDOT's 10-Year Work Plans attempt to, as best as possible, list specific projects for all ten years. The first four years of a 10-Year Plan is listed in detail as these are the projects currently listed in MnDOT's Statewide Transportation Improvement Program (STIP) and the APO's Transportation Improvement Programs (TIP). The following six years of projects are considered highly probable to be included in the next or future TIPs, with the projects in the next incoming TIP year being most likely to be included.

The Department's complete analysis of the 10-Year Work Plans can be seen on the web at <http://www.dot.state.mn.us/planning/10yearplan/>. Additionally, each

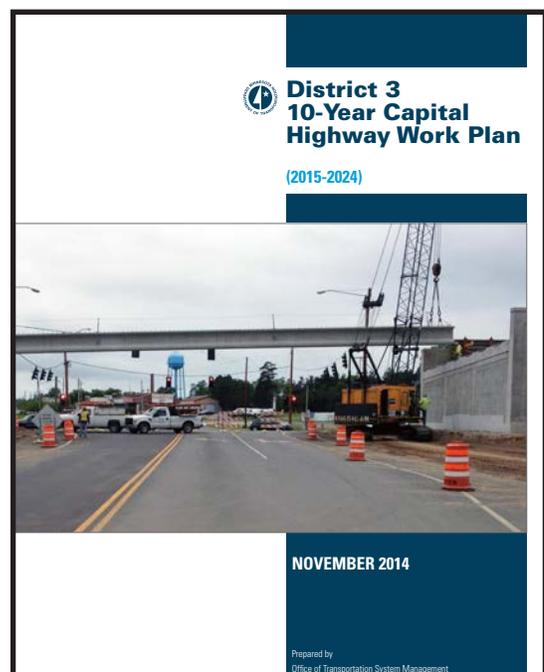


Figure 1 - MnDOT District 3 10-Year Capital Work Plan

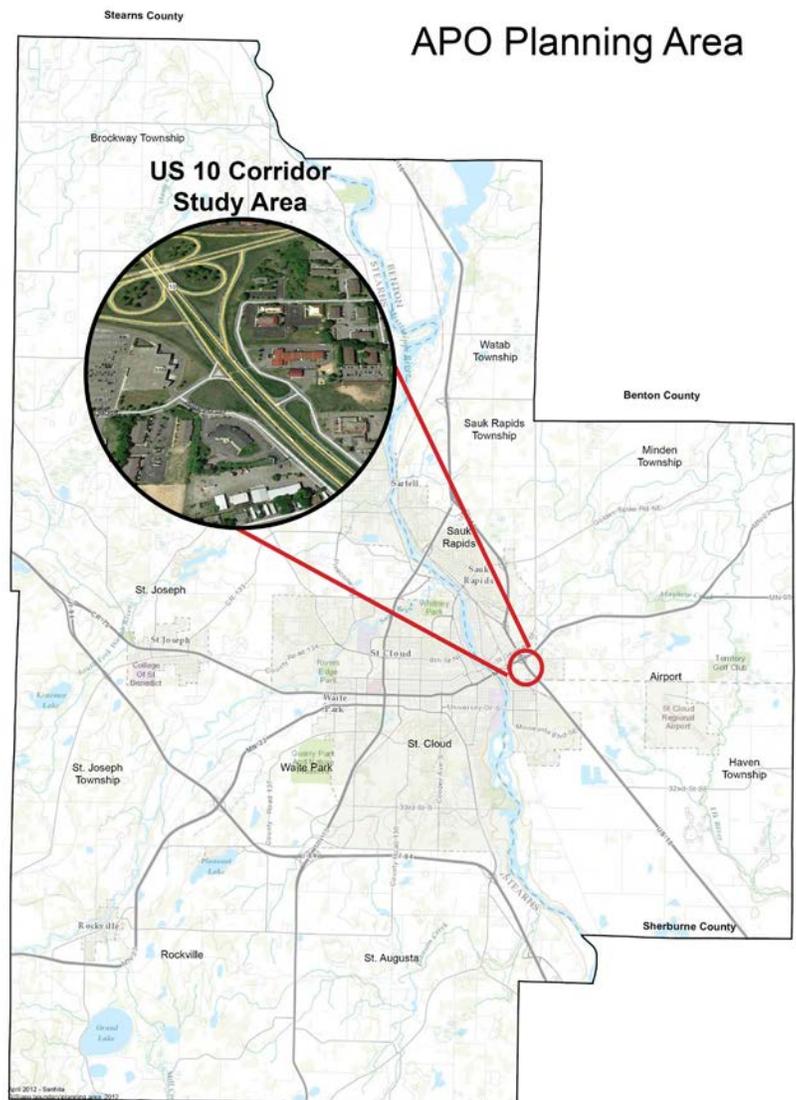
Figure 2 - Projects from MnDOT District 3's 10-Year Plan within the St. Cloud APO

Year	Route System	County Location	Description	Total Cost Estimate (Million)
2019	I94	Stearns	Near Collegeville, Rehab/Redeck at Bridge 73872 at Stearns County CR 159 over Interstate 94	\$1.50
2022	US10	Benton	Reconstruction from 0.2 miles west St. Germain in St. Cloud to Benton / Sherburne County Line	\$10.00
2022	MN23	Stearns / Benton	Reconstruction from pedestrian bridge in St. Cloud to 0.13 mile west of CR 1	\$12.00
2022	MN23	Benton	Replace Bridge #9021 over TH 10 in St. Cloud	\$2.65
2022	MN23	Benton	Replace Bridge #9022 over TH 10 in St. Cloud	\$2.65

District's Plan is available at the same website or click [HERE](#) for quick access to District 3's.

The list above is composed of those projects in MnDOT District 3's 10-Year Plan that are within the APO area and not in the current STIP or TIP. The APO, through the use of the Bicycle and Pedestrian Advisory Committee (BPAC), will work to assist MnDOT in ensuring these facilities are designed with local interest.

Figure 3 - Regional Location



# 2 US 10 Project

## US 10 General Information

United States Highway 10 (US 10) is a four-lane divided highway through the east side of Saint Cloud, Minnesota. Due to its location the project location is actually within the portion of Saint Cloud inside Benton County. The corridor experiences 25,000 average annual daily traffic (AADT) vehicles a day with 1,850 of those vehicles estimated to be commercial or trucks as according to records taken by MnDOT in 2011. With the large amount of vehicles on this portion of US 10 it is functionally classified as a Principal Arterial. The primary focus of this report looks at the portion of the corridor from just south (east) of the State Highway 23 interchange with US 10 to an area just north (west) of the lighted intersection with 15th Street SE. Within in this segment there are no other intersections or control devices. The only access the area has to US 10 in this segment is from right-in and right-out access points on either side of the roadway. Fourth Street Southeast accesses the corridor from the West and Johnson (Frontage) Road is on the East. Both access points also have right turn lanes from US 10 to help vehicles negotiate the turn. From these two access points vehicles obtain access to surrounding businesses through the use of frontage

roads.

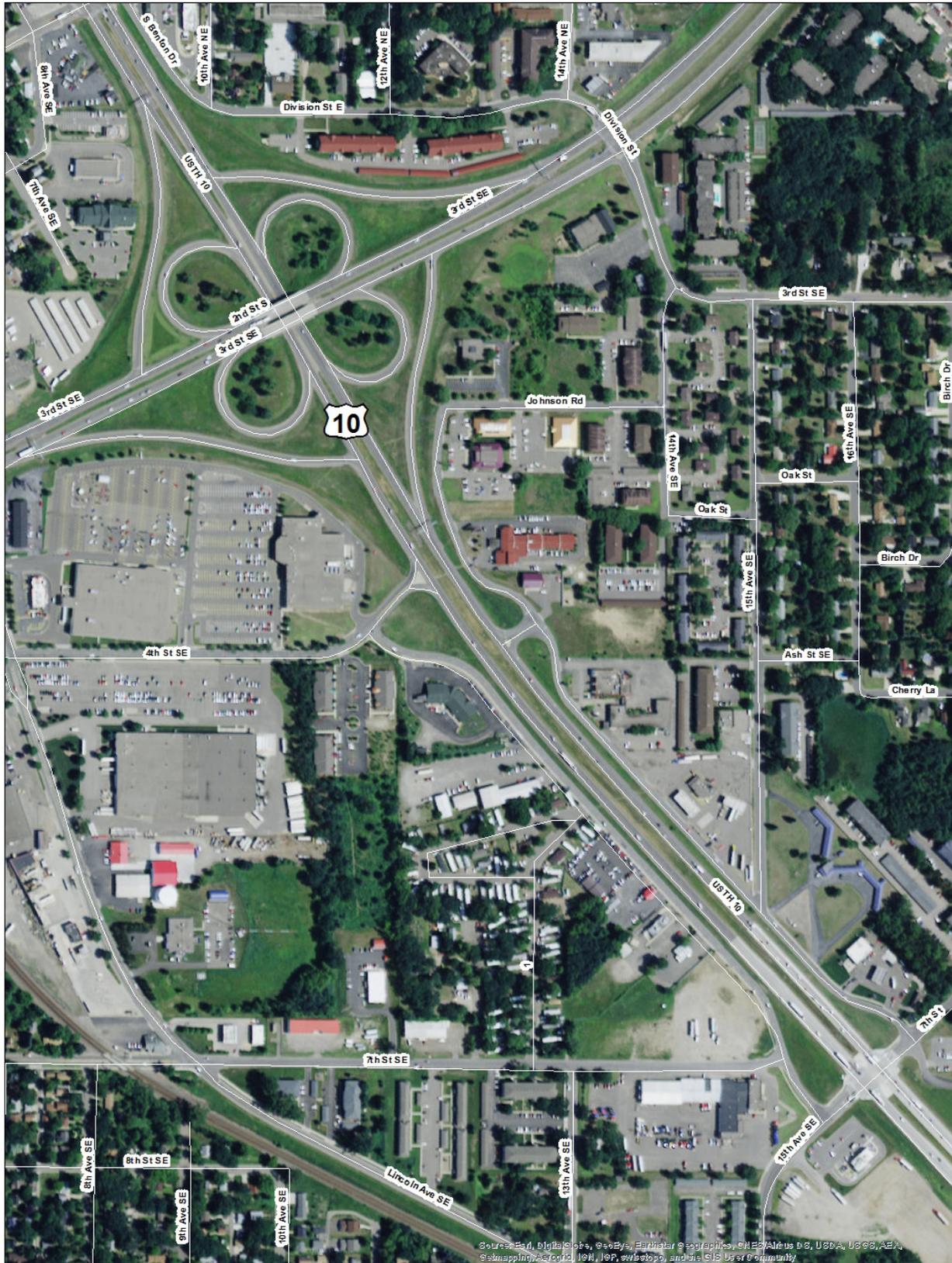
## US 10 Project

As part of this effort the St. Cloud APO has prepared this report to document the discussion and fact finding conducted with the future reconstruction work of US 10 in Saint Cloud from just (0.2 miles) west of East Saint Germain Street to the Benton and Sherburne County line or approximately 15th Avenue SE. MnDOT currently has the project scheduled for Federal Fiscal Year 2022 which typically corresponds to actually taking place the summer of 2022. The project is currently listed as a reconstruction which typically means the entire current roadway surface will be removed and replaced with new materials. The current cost estimate is \$10 million with some early indication that the estimate does include a few hundred thousand dollars to address non-motorized transportation.

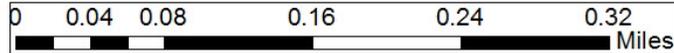


Figure 4 - Vehicles traveling East on US 10 Corridor

Figure 5 - General Location



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero  
© mapping.com, IGN, IGP, swisstopo, and the GIS User Community



# 3 Involvement

## St. Cloud APO TAC

The first form of input the APO attempted to gather was from the APO Technical Advisory Committee (TAC) on January 8, 2015. The TAC is the APO primary technical committee composed of engineers and planners from each APO jurisdiction. During the discussion attendees stressed that non-motorized transportation from the West and East side should be a primary concern.

## St. Cloud APO BPAC

The Second outreach effort to discuss the US 10 was to discuss the project with the APO Bicycle and Pedestrian Advisory Committee (BPAC) on February 23, 2015. The BPAC is composed of both technical staff from the APO jurisdictions, individuals with ties or official leadership roles in local groups with interest in non-motorized transportation and members of the general public. At the meeting nearly 10 residents and area technical staff were present. During the conversation the focus was on the amount of non-motorized, primarily pedestrian, movements that currently exist between the Cashwise Grocery store on the west side and the Salvation Army's Emergency Shelter (400 US-10, St Cloud). The APO was fortunate to also have a past resident of the area at the meeting. The attendee reemphasized that many of the individuals that may be crossing US10 actually live in the mutli-unit housing units just East of US 10. Additionally, a Metro Bus representative also in attendance, commented that even though a bus does service the multi-unit dwellings to the east, it may actually take up to 30 minutes for someone to get on a bus and be delivered to the West side of US 10, particularly Cashwise. Because of the time this takes many residents of the area may choose to walk or bike to the grocery store because it may be the faster

alternative.

## Salvation Army Emergency Shelter

As one of the leading generators of pedestrian traffic in the study corridor the Salvation Army Emergency Shelter requires some additional review. The Shelter assists central Minnesota residents with a wide range of basic needs services, including a midday meal program and an emergency overnight shelter. In addition, the Shelter operates a food shelf during the week usually from 1pm to 3pm, or occasionally from 10am to 3pm, and worship services every Sunday. APO staff met with the Shelter's Director in early July of 2015 to discuss pedestrian crossing activities. From the meeting it was learned that the Shelter can be home of up to 69 individuals and regularly is occupied at well over 90 percent. Most individuals arrive as a family unit of three to five individuals and one out of every four occupants is a child. Most families stay at the Shelter for up to two months but a single male occupant could leave as soon as seven days. Most occupants

do not have access to a motorized vehicle. Those who do have a vehicle are usually forced to park it



Figure 6 - US 10 Corridor with Salvation Army Emergency Shelter in the background.

until gas can be afforded. The Shelter will typically provide Metro Bus transit service passes to individuals requiring rides. Mainly these are individuals attempting to acquire a permanent residence or individuals unable to afford a bus ride while working.

Figure 7 - Business Map



# 4 Planning & Environmental Justice

## Land Use and Zoning

It is always important when conducting any form of transportation planning to take a look at the current and future land use of the subject area. The current land use of the US 10 Corridor is primarily composed of retail and other highway commercial uses, such as gas stations and fast food restaurants. Just off of the corridor the current land uses are multi-family housing on the east side and industrial and continued commercial uses on the west. The current land uses of the corridor are matched well to the current zoning ordinance.

The future land use was set by the 2003 Comprehensive Plan which is currently being updated. The 2003 Plan also matches closely to what exists along the corridor today. The Plan places commercial land use directly along the corridor with further commercial and light industrial land use on the west side and high density residential uses and some lower density residential uses behind that on the East side.

From the study of the current land uses we can determine that most of the neighboring properties immediately next to US 10 are highway or vehicle oriented in nature but the next layer of land uses on either side (multi-family housing and industrial) could be aided by the development of bicycle and pedestrian infrastructure.

## Low Income and Minority

Examining where concentrations of minority populations and low-income (poverty) concentrations exceeded the population averages for the entire APO planning area, is part of the APO's standard transportation planning practices. This is done to ensure these populations are neither ignored nor miss

treated compared to the rest of the population. As part of this brief study it is important to note that the US 10 corridor area under review is home to both a high proportion of minorities and low income individuals. The areas on either side of the corridor contain higher populations, compared to the rest of the APO area, of low income individuals. The east side of the corridor has even a higher concentration, of low incomes, than the west side. Similarly, the area located directly east of the Corridor is composed of a higher than normal, for the APO, concentration of minority individuals. Much of the east side of Saint Cloud contains US Census Block Groups considered high (32%) percentage of households below the poverty level and considered high (17%) percentage of minority population. The presence of both low income and minority populations along the corridor reemphasizes that there could be many individuals without access to a private motorized vehicle and who rely more on public transportation and non-vehicle forms than the average individual in the APO area. For more information about how these populations and the methodology for defining "high" percentage please look to the APO's FY 2016 to 2019 TIP or the APO's 2015 Title IV Report.

Figure 8 - Existing Zoning

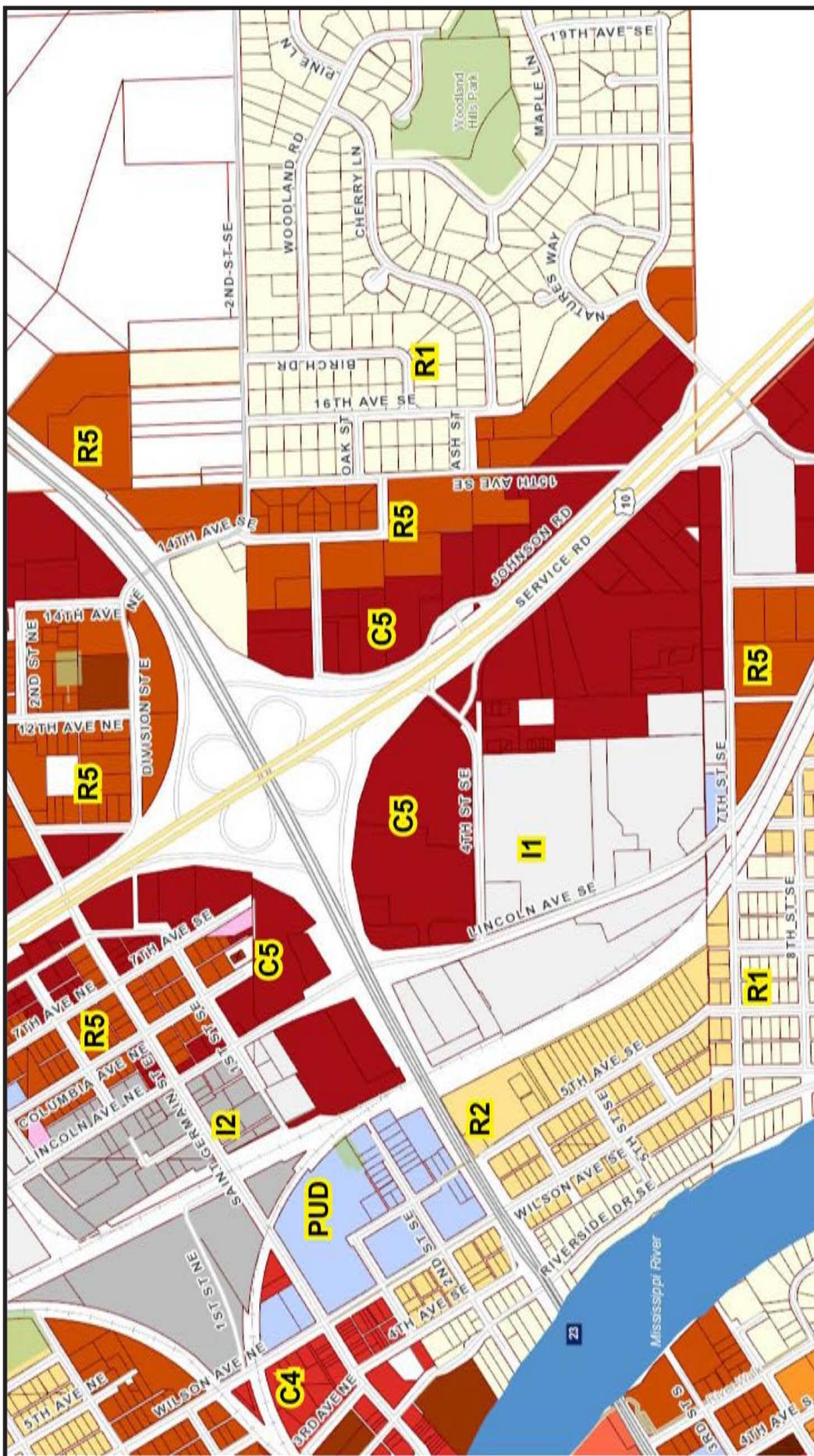


Figure 9 - Future Land Use

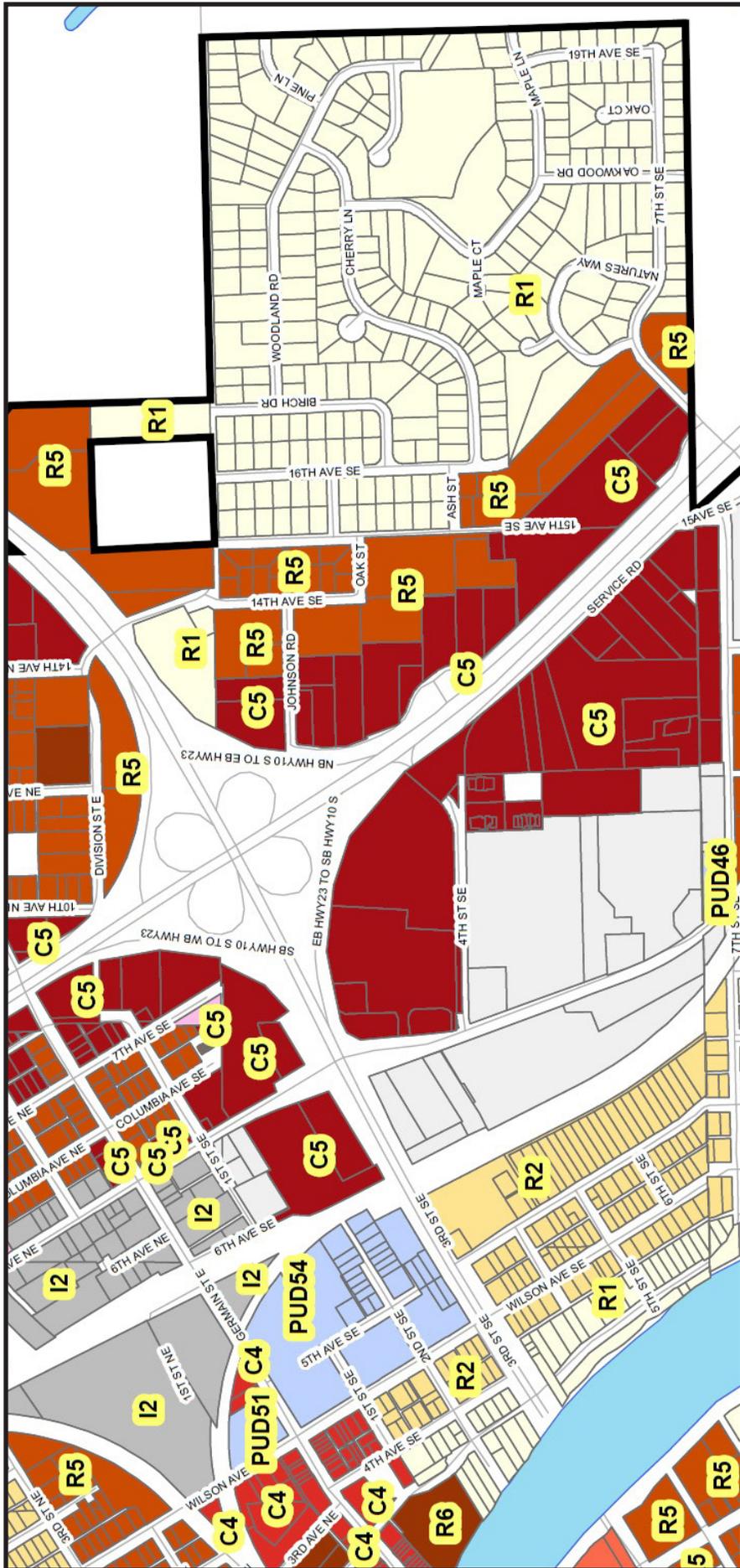


Figure 10 - Saint Cloud Area High Minority Populations

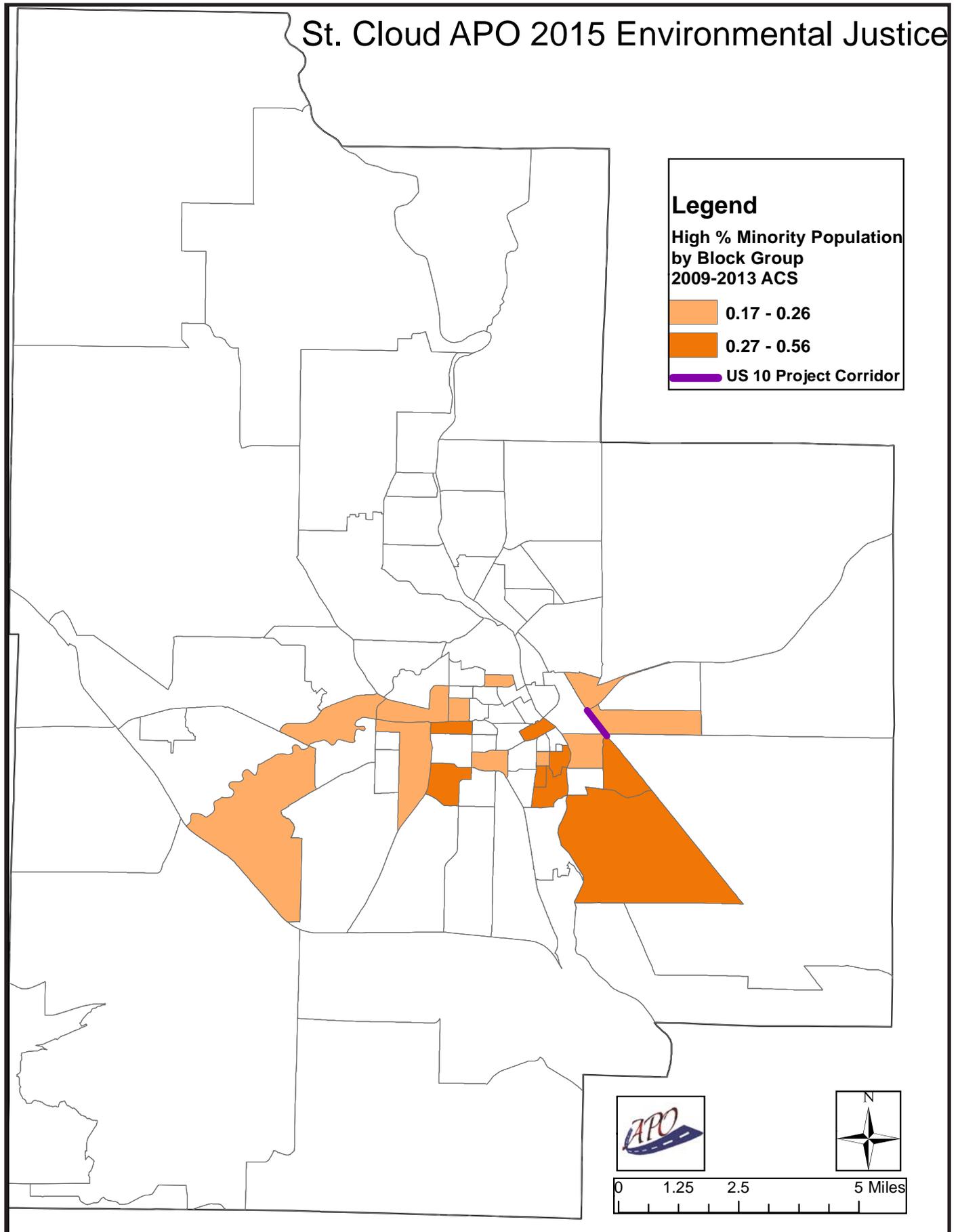
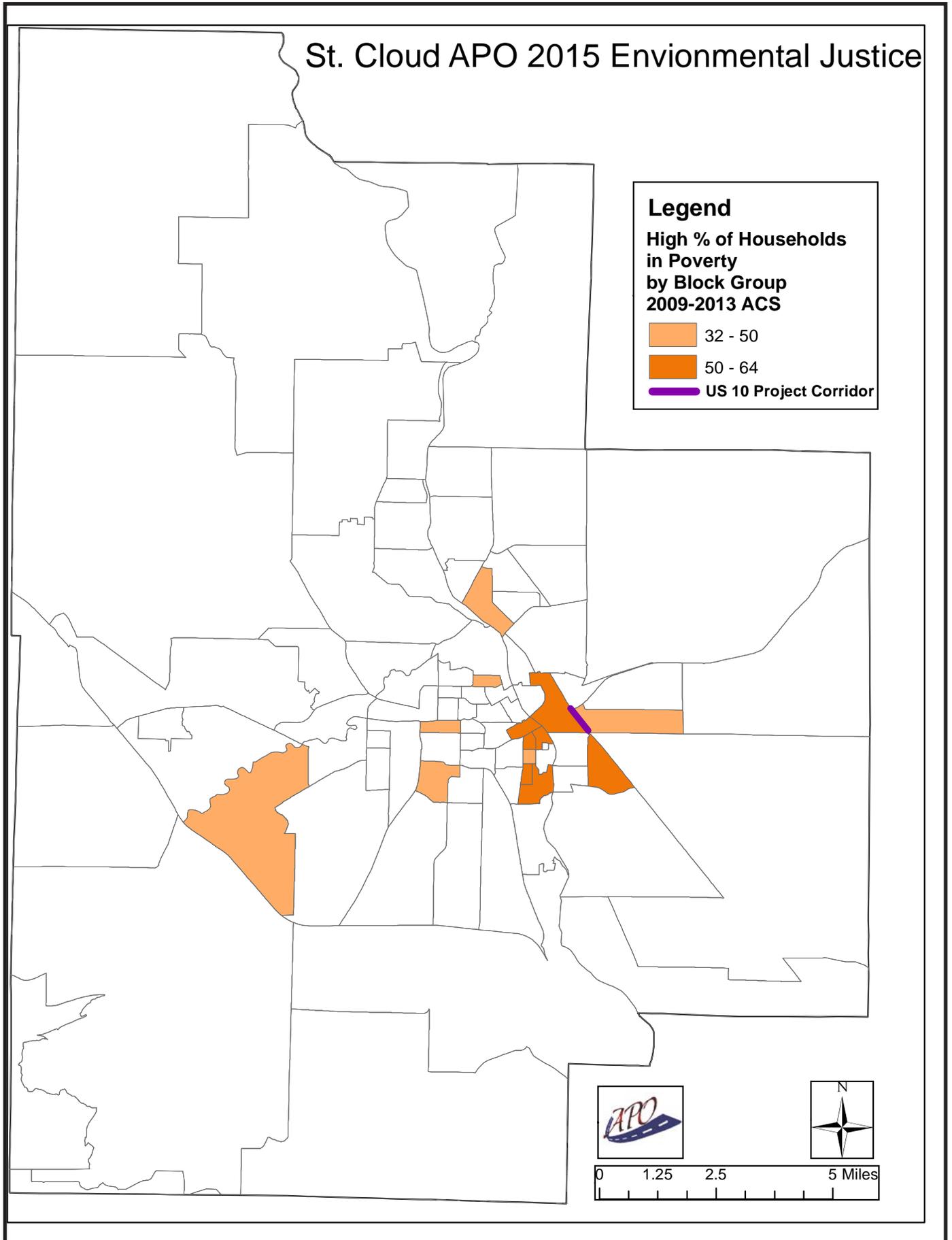


Figure 11 - Saint Cloud High Poverty Locations



# 5 Crash Analysis

## Crash Analysis

The APO conducted a search of MnDOT’s crash data to determine if the corridor has a vehicle and pedestrian or bicycle crash history. A 10 year search found four such crashes. All four recorded crashes were spread out over the ten year observed time frame. Three of the four crashes are recorded as occurring at the same mileage marker or point on US 10. None of the four crashes are recorded as occurring near 4th Street SE or closer to the State Highway 23 interchange or Cashwise Grocery Store. Finally, all parties involved in the crash records were males and did not involve poor weather conditions.

To aid in standardizing the reporting of crashes, the State uses one of five injury codes to categorize the injuries obtained and the severity of the crash. The 5 injury categories are:

- ◆ Fatal (K)
- ◆ Incapacitating injury (A)
- ◆ Non-incapacitating injury (B)
- ◆ Possible injury (C)
- ◆ Property damage, no apparent injury (N)

Only one of the reported four crashes resulted in a Possible Injury. The State defines a Possible Injury as

crashes that have individuals that “claim of an injury which is not evident (complaint of pain, nausea).” In this specific crash a younger driver, under the age of 18, hit a 13 year old crossing US 10 on a bicycle. This was the only crash discovered involving a pedestrian who was a child and also the only crash occurring during the day or normal light hours.

The three remaining crashes involved Incapacitating Injuries. Incapacitating injuries are any injury, other than a fatal injury, which prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred. All of these Incapacitating Injury crashes occurred after 7pm. One of these crashes occurred after midnight. In all three crashes the pedestrian was either recorded as darting into traffic or conducting some other pedestrian error.

Figure 12 - Pedestrian crossing corridor.



Figure 13 - 10 Year Crash History - Table

#	Mileage Point	County	Month	Year	Time of Day	Injury Severity	Age of Driver	Vehicle Description	Age of Pedestrian
1	178.60	Benton	October	2006	7:05pm	Incapacitating	23	Pickup Truck	54
2	178.60	Benton	August	2008	12:19pm	Possible	17	Pickup Truck	13
3	178.43	Stearns	November	2009	9:27pm	Incapacitating	17	Pickup Truck	21
4	178.60	Benton	April	2015	12:49am	Incapacitating	37	Pickup Truck	21

Figure 14 - 10 Year Crash History - Map



# 6 Bicycle and Pedestrian Counts

## Procedure

The APO conducted two separate manual two hour bicycle and pedestrian counts of the corridor from just east (south) of MN 23 to just west (north) of 15th Avenue SE. The first count took place from 1pm to 3pm on the afternoon of Tuesday, May 5, 2015. The second count took place from 3pm to 5pm on Thursday, May 7, 2015. Both counts attempted to identify peak crossing periods and were done in the middle of the week to follow MnDOT's recommended counting procedures. The staff members that performed the counts made every effort to not only keep track of pedestrian and bicyclists but also attempted to identify the crossing individual's gender and identify specifically on a map where and how they were crossing.

Due to the length of the corridor, combined with the randomness of some individuals crossing US 10, all crossings were identified into one of four crossing locations. The northern most crossing location corresponds to the northeast corner of the Cashwise grocery store parking lot and proceeds to utilize the east bound access ramp from MN 23. This crossing pattern continues across US 10 and proceeds over the west bound access ramp to MN 23 from US 10 and concludes near the intersection of Frontage Road and Johnson Road. The second, and most popular crossing, path begins at the right-in and right-out (pork chop) intersection of US 10 and 4th Street SE and crosses US 10 directly leading into the Salvation Army Shelter. The third crossing pattern corresponds directly with the Frontage Road access to US 10 on the east side of the study area. The final crossing pattern has little to no consistent connection on the west side of US 10 but in general those crossing are always headed toward the Super America gas station on the west side.

## Results

In total, between the two counts conducted 63 individuals crossed the corridor. Most, 49, were pedestrians crossing on foot and by far (51) most people crossing were males. It is also worth noting that only 3 kids crossed the corridor. Comparing the two counts, the 1pm to 3pm time slot saw more (39) crossings than in later in day. This is most likely a result of the Salvation Army's food shelf being open until 3pm during the week. The earlier time slot also saw much larger percentage of bicyclists.



Figure 15 - Pedestrian crossing the corridor near the Frontage Road access on the East side.

The primary crossing location was the crossing from 4th Street SE to the entrance to the Salvation Army Shelter, which saw a total of 28 movements. The second highest crossing location was by those visiting the Super America gas station. This could have been helped by the fact most individuals crossing to the gas station would return, or cross again as a new count, to their original location within the two hour observation window. The 4th Street SE crossing did experience some crossing the highway twice as they returned home.

## Comparison

Two times a year, typically in May and in September, the APO has conducted counts in as many as 17 and as few as 8 locations across the metro. Individually, the two counts conducted within the US 10 corridor rank as the 9th and 13th highest counts in the Spring of 2015. Both counts experienced more users for the Spring 2015 counting effort than both the 2nd St. N/ Benton Dr. Bridge and Helix in Sauk Rapids and along the Mississippi River Trail (MRT) in Sauk Rapids.

The US 10 counts have some similarity to other crossings of State Highways and grade separated non-motorized facilities within the metro. The primary similar count was taken at the 5th Avenue SE Pedestrian Bridge over Highway 23, also located on the east side of St. Cloud. Other State Highway crossings experienced nearly twice as many crossing movements than those at US 10. These larger counts were observed at the HAWK Pedestrian Crossing System near the Great River Regional Library in St. Cloud and the State Highway 15 Pedestrian Bridge near Apollo High School.

Overall, the comparison of the non-motorized traffic across US 10 is significant and similar to many movements around the metro but still does not meet the counts of some of the high volume pedestrian locations.

Figure 16 - Spring 2015 Select Bicycle and Pedestrian Counts

2015 APO 2-Hour Counts on April 27 to May 9, 2015

Count Location	Date Counted	Number of Bicycles	Number of Pedestrians	Total Count (April 2015)	Average (2012 to 2014)
SCSU Ped bridge over University Ave.	5/6/2015	11	287	298	546
State Highway 15 Pedestrian Bridge near Apollo HS	5/6/2015	7	69	76	NA
HAWK Pedestrian Crossing Saint Cloud Library	4/29/2015	11	50	61	NA
5th Avenue SE Pedestrian Bridge over Highway 23	5/5/2015	16	25	41	NA
<b>US 10 Bewteen Jct MN 23 and 15th Ave SE - Day 1</b>	<b>5/5/2015</b>	<b>12</b>	<b>27</b>	<b>39</b>	<b>NA</b>
<b>US 10 Bewteen Jct MN 23 and 15th Ave SE - Day 2</b>	<b>5/7/2015</b>	<b>2</b>	<b>22</b>	<b>24</b>	<b>NA</b>
2nd St. N/Benton Dr. Bridge and Helix in Sauk Rapids	4/28/2015	12	4	16	34

Figure 17 - Spring 2015 Bicycle and Pedestrian Crossing Count and Location

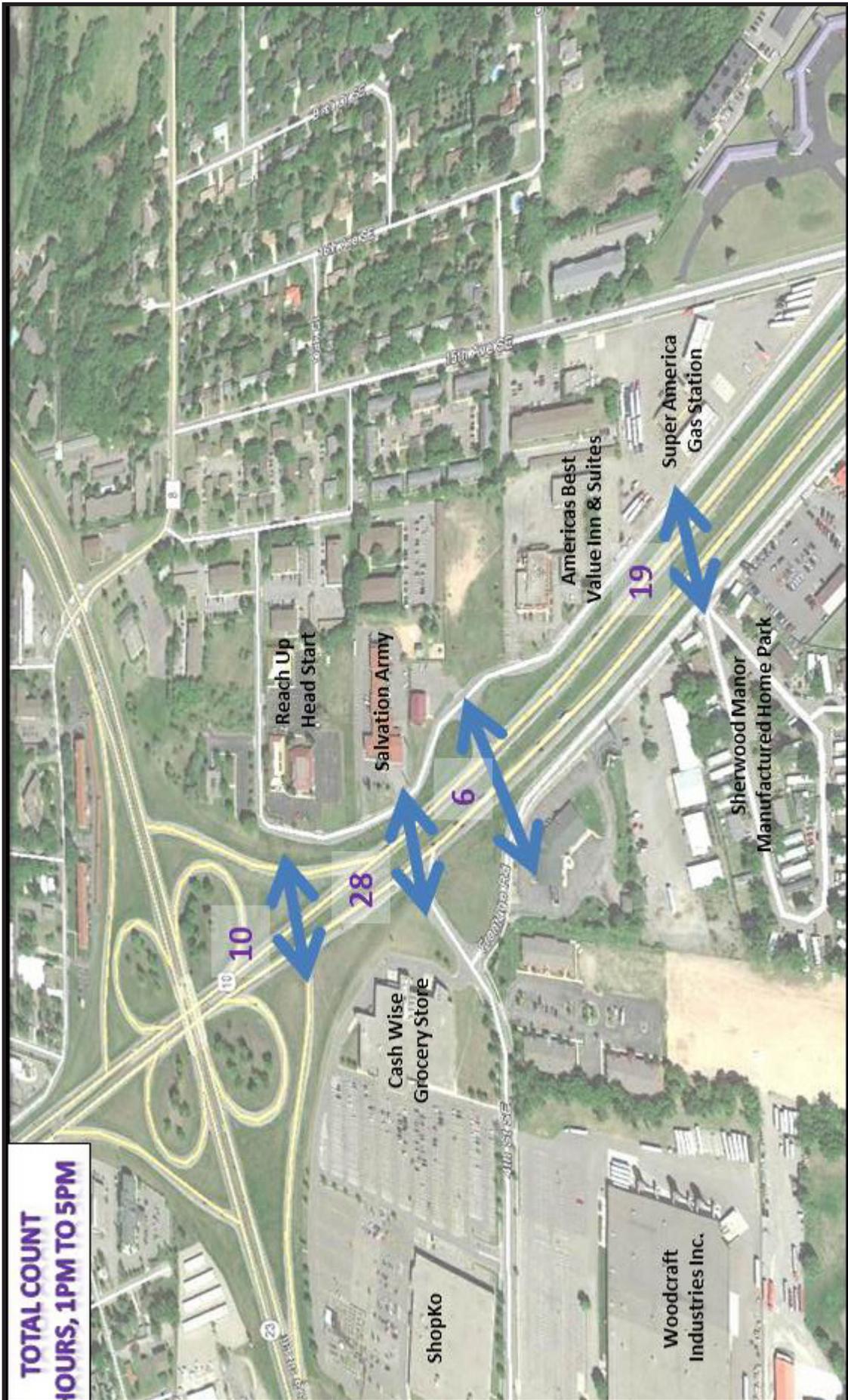
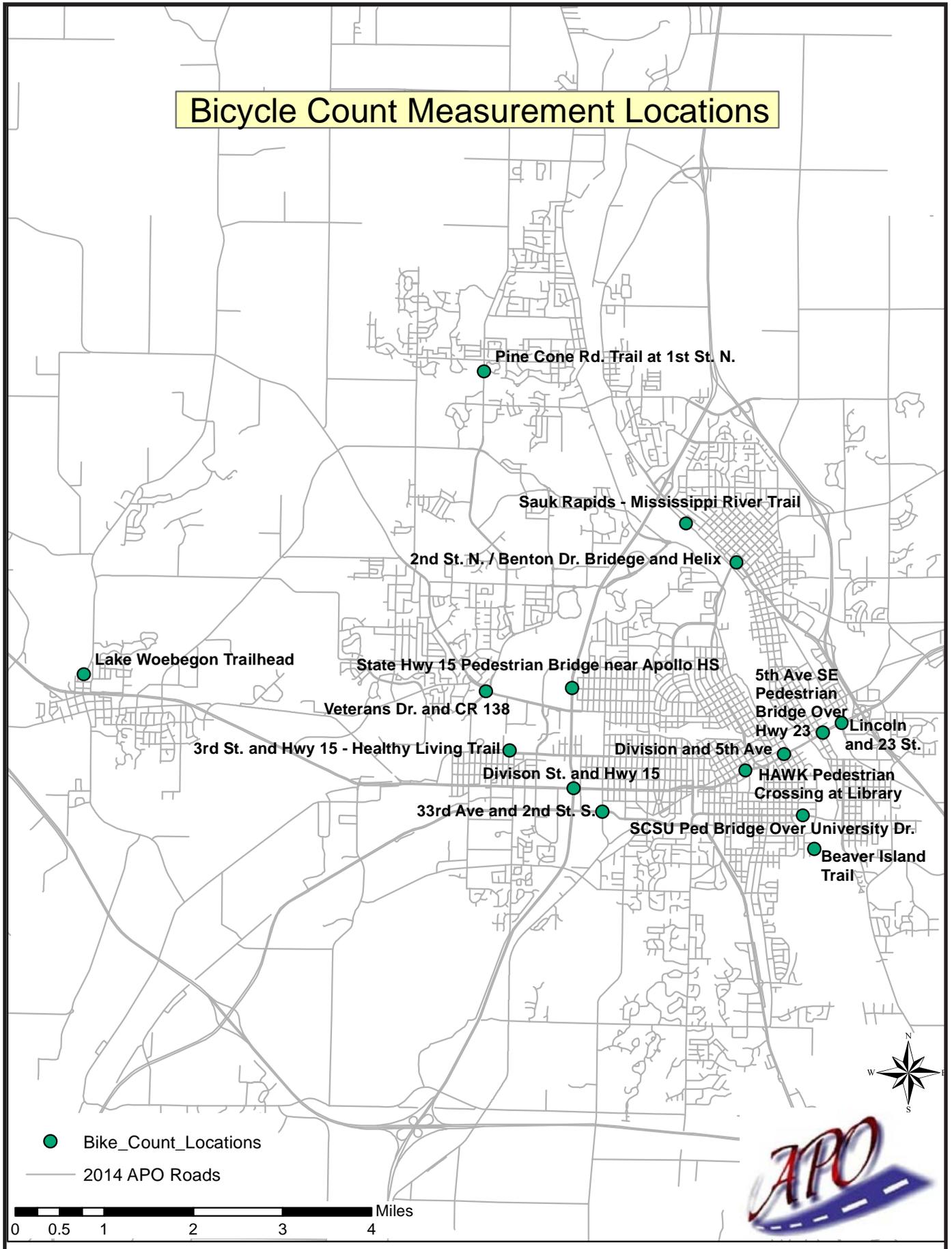


Figure 18 - All Saint Cloud APO Bike and Pedestrian Count Locations



# 7 Solutions

The following is a brief discussion of the challenges and benefits of possible solutions.

## Challenges

The US 10 corridor provides many challenges that one must consider before reviewing any solutions. First is the current volume and speed of vehicles. According to the 2011 vehicle count 25,000 vehicles pass through this corridor a day at the posted speed limit of 50 miles per hour. In spite of this amount and speed of traffic people still feel comfortable to cross the corridor. In fact, while staff was present conducting the counts, on very rare occasions were individuals extremely held up waiting for a gap to appear to cross. Additionally, most individuals only attempted to cross two lanes (one direction) of traffic at a time, choosing instead to wait for the next two lanes of traffic to open up before proceeding. The lighted intersections at East Saint Germain Street and 15th Avenue SE help to facilitate the openings in traffic.

Most pedestrians struggle to find the best location to cross, due to a lack of bicycle and pedestrian infrastructure leading up to corridor. In place of infrastructure a pedestrian only has access to “cow paths,” or areas in the grassy median and right-of-way that are so often traveled that grass has not been permitted to grow. Additionally, the lack of approaching pedestrian infrastructure is the reason why many people cross at 4th Street SE on the west side or the right-in right-out access to Frontage Road on the east side. By using these roadways individuals have the ability to walk or bike on a paved street. Whatever solution is developed some non-motorized infrastructure leading up to and away from the corridor is required.

One of the last and larger challenges is in the crossing

locations. As referenced in this study people tend to cross US 10 at four locations. The 4th Street SE crossing may be the most popular but by no means is this location ideal for all individuals. Additionally, all locations are considered a “mid-block” crossing due to the lack of a lighted intersection. Mid-Block crossings face their own struggles mainly because drivers, are typically unaware that a pedestrian may be located in the right-of-way and preparing to cross.

## Possible Solutions

### Crosswalk

The simplest option would be to place a crosswalk on the pavement. The challenge with this solution is that non-motorized traffic is still at grade level with traffic and the safety of the pedestrians are based upon the individual’s ability to estimate a gap in traffic. To help establish the presence of a crosswalk for vehicles and pedestrians, a safety, or rest, island would have to be installed. The rest island would also allow individuals the ability to cross without walking in a snowy or muddy median. Additionally, with the installation of a crosswalk and center pedestrian island, an active warning device signaling a pedestrian’s presence



Figure 19 - Minnesota State Highway 23 and 5th Avenue near Downtown Saint Cloud



Figure 20 - Minnesota State Highway 23 and HAWK Pedestrian System near Downtown St. Cloud

should also be installed. A traffic and pedestrian signal and/or street lighting would also provide drivers on US 10 additional warning that pedestrians are present and ready to cross. The best location for a crosswalk, would be to align it with 4th Street SE.

According to the 2013 Traffic Control Device Handbook, Chapter 13 recommends not installing a crosswalk even with additional treatments on this type of roadway. The actual text reads if, “the roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater” a crosswalk should not be installed.

## Midblock Signals and HAWK

In the Crosswalk solution above it was discussed that additional treatments would be required based upon the high vehicle volume and current speed limit. Other additional measures that should be taken with a crosswalk could be the introduction of a midblock signal or High Intensity Activated Crosswalk (HAWK) system. The HAWK is a pedestrian-activated beacon located at the roadside and on mast arms over the major approaches to an intersection. The HAWK head consists of two red lenses over a single yellow lens. It appears red to drivers when activated and creates gaps during which pedestrians can cross the major street. It also transitions to a flashing red phase to allow vehicles to proceed as soon as the pedestrians have passed. Most St. Cloud area residents are familiar with the HAWK system because of the current HAWK located on MN 23 adjacent to the Great River Regional Library in Saint Cloud. A 2010 research project sponsored by

the Federal Highway Administration (FHWA) found from previous research that drivers yield to pedestrians over 95% of the time for the HAWK treatment, even on major streets with multiple lanes or higher speeds. Additionally, the study determined a HAWK system could reduce total crashes by 29% and reduce pedestrian crashes by 69%.

## Pedestrian Bridge

One of the safest solutions for all non-motorized users in the area would be the construction of an overpass or pedestrian bridge. Pedestrian bridges separate pedestrian traffic from motor vehicle traffic, allowing pedestrians to cross busy streets by eliminating potential conflicts. However, pedestrians are often reluctant to use them, either because of the extra time it would take, or because of security concerns. Additionally, pedestrian overpasses above highways can be expensive, especially when elevators or long ramps for wheelchair users are required. Without



Figure 21 - Minnesota State Highway 15 Pedestrian Bridge

elevators or ramps, people with mobility handicaps will not be able to use the structure. Another explanation for lack of use of overpasses is because they are narrow, enclosed structures, that can result in the user perception of low personal security. Wider structures and good lighting can help reduce these perceptions.

If a pedestrian bridge is to be built in this location it will become even more vital that bicycle and pedestrian infrastructure is built up leading to the entrance of either side of the bridge. This will help make sure users know the locations of the bridge entrances and help to discourage individuals from continuing to cross at-grade because it may be quicker or easier. Similarly, after the bridge is completed additional measures, including fencing, should be considered to ensure individuals do not avoid using the pedestrian bridge and continue to cross the highway at-grade.

## Conclusion

Due to the numerous challenges and the lack of a clear solution the APO has chosen not to recommend a single solution. What is for certain is even without the presence of the Salvation Army Emergency Shelter, there is a considerable need for improvement of the non-motorized infrastructure. Even if no improvements are made with MnDOT's 2022 project, people will continue to cross the corridor either for a lack of access to a motorized vehicle or to make simple trips to a store for food.

The Saint Cloud APO suggests further investigation and consideration of options by the City of Saint Cloud and MnDOT.