

CENTRAL AVENUE & WHITE STREET CORRIDOR STUDY

Final Report

City of Dubuque | January 10, 2025



Real People. Real Solutions.

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Certification

Corridor Study Report

For

Central Avenue and White Street

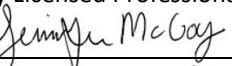
City of Dubuque, IA

OT4.133000

January 10, 2025

PROFESSIONAL ENGINEER

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Signature: 

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Date: 1/10/2025 License Number: P20614

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I. Executive Summary

The purpose of this study is to evaluate the existing one-way pair of Central Avenue and White Street between 4th Street and 22nd Street to identify roadway improvements that can mitigate safety, multimodal, and traffic flow issues. The City Council expressed the desire to calm traffic in these corridors to produce more livable neighborhoods and increase economic development while maintaining reasonable traffic flows through downtown.

Central Avenue which carries 8,000 vehicles/day and White Street which carries 5,000 vehicles/day are part of a larger transportation system supporting downtown. Connections to different districts within downtown and travel across these two streets are as important as connections along their lengths. The corridor should be considered as twenty-two blocks, not two roads, where the character of the roads can vary according to surrounding land use needs if desired.

All the corridor connections contemplated by the city; the 14th Street Bridge, 18th Street Plaza, and Pine Street connection, play a vital role in achieving the goals and vision for Central Avenue and White Street.

Truck impacts on the corridor can be reduced without impacting mileage or access for freight companies if the 14th Street overpass and 16th Street interchange can be better utilized via an established truck route in downtown.

The selection of a preferred design alternative for Central Avenue and White Street is just one part of accomplishing Council's vision. The design should be combined with specific policies and side streets better utilized to meet the goals of revitalization of the corridor. The side streets provide an opportunity to support the corridor: more parking, more green space, more sidewalk space, bike parking, bike lanes, or plaza space.

Several combinations of lanes and directionality were considered for the corridor. The preferred option, determined through extensive community and stakeholder engagement along with detailed data analysis, is Alternative 1 – the Multi-Modal Focused Alternative.

As shown in the table to the right, Alternative 1 meets most of the top priorities identified by the community. The only one it doesn't meet is the desire to maximize parking. This alternative meets the desires of the Central Avenue Corridor Master Plan and the goals of the Central Avenue Revitalization.

The inclusion of a two-way cycle track on White Street provides a bike route that spans the entire length of the corridor. The cycle track on White Street completes the connection between many existing and planned bike facilities meeting the recommendations of the city's Imagine Dubuque Comprehensive Plan and the MoveDBQ Mobility Solutions along with Dubuque County's Regional Bike and Pedestrian Plan by providing a bike network in downtown Dubuque.

Alternative 1 | Multi-Modal Focused



- Central and White one-way, two lanes
- Parking removed on one side of Central and one side of White
- Wide sidewalk, outdoor dining, and landscaping on Central
- Two-way cycle track on White

Priorities (by order of Importance)	How Multi-modal Alternative 1 Addresses Priorities
✓ Improve Safety for Ped Crossings	Enhances pedestrian crossings with bump-outs Limits intersections to two travel lanes, reducing crossing complexity
✓ Add Landscaping/Trees	Expands opportunities for landscaping and trees along both streets.
✓ One Way Streets	Retains One-Way Streets. Provides two lanes for passing and maintains good signal progression for EMS, police, and freight.
Maximize Parking	Reduces on-street parking on one side of Central and White. Allows for loading zones on-street Seeks additional on-street parking on the side streets
✓ Wider Sidewalks	Allows for wider sidewalks for outdoor dining, additional landscaping, and pedestrian space to support local businesses.
✓ Reduce Speeds	Includes narrowed lanes, landscaping, and intersection bump-outs to reduce speeds, addressing resident concerns.
✓ Dampen Noise	Includes landscaping/trees to slow speeds and dampen noise.
✓ Safer Cycling Options	Establishes a dedicated cycle track on White Street, meeting residents' desires for safer cycling options.

II. Introduction

A. Study Area Overview

The Central Avenue and White Street corridors are significant north-south roadways in Dubuque and provide access to key areas of the city like the Millwork District, the Port of Dubuque, Prescott Elementary School, Dubuque City Hall, and the core downtown neighborhoods.

The two corridors form a one-way pair between 4th Street and 22nd Street, with Central Avenue carrying southbound traffic and White Street carrying northbound traffic.

B. Study Purpose

The purpose of this study is to evaluate the existing one-way pair to identify roadway improvements that can mitigate safety, multimodal, and traffic flow issues. The City Council expressed the desire to calm traffic in these corridors to produce more livable neighborhoods and increase economic development while maintaining reasonable traffic flows through downtown. This corridor was the main route from the north part of Dubuque to US 20 and US 61. In 2021, jurisdiction of this corridor changed from a state-owned highway to a city street. This, combined with the completion of the Northwest Arterial project in 2023 connecting US 20 to the north part of the city, provides an opportunity to re-envision the corridor to function more as a complete street. This study looks beyond the typical traffic analysis to also focus on the corridor through the lenses of mobility, placemaking, community, safety, and economy.

Study Vision:

Central Avenue and White Streets will become a valued and vibrant place in Downtown Dubuque – a place for businesses to thrive, people to live, and for the unique identity of the City to shine.

Guiding Principles:

Safety

Economic Development

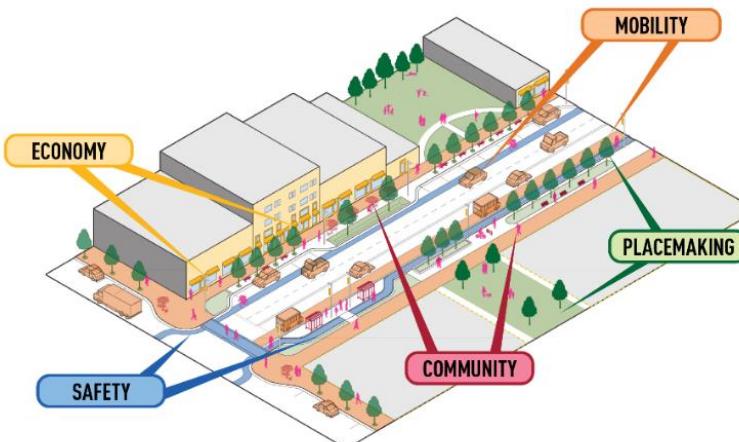
Connectivity

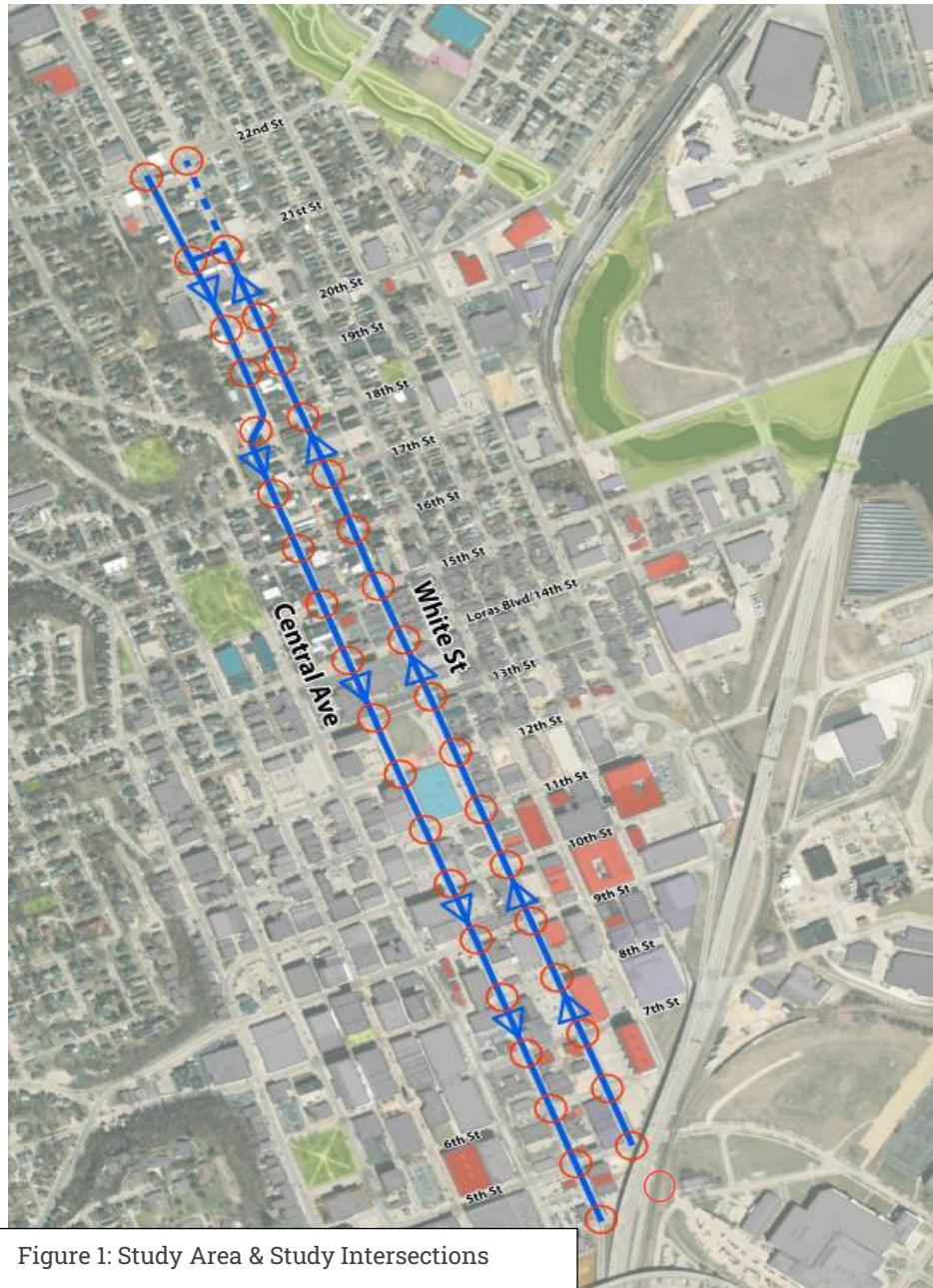
Equity

One component of the corridor study is to assess the impact of converting the one-way pair to two-way operations, and the impacts that such a change would have on corridor users, freight, and area residents and businesses. While the conversion is a component of this study, other improvement options, including maintaining the existing one-way pair and adding bicycle and pedestrian facilities were also considered.

C. Study Area

The corridor is located in downtown Dubuque and serves a diverse range of vehicle traffic, including cars, trucks, buses, pedestrians, and bicycles. The study area includes 38 study intersections and 44 city blocks. To provide equitable transportation recommendations, the analysis documents existing conditions and identifies needs for vehicles, bicyclists, and pedestrians to recommend roadway improvements that serve all users.





D. Related Studies

The Central and White Study is a continuation of the family of plans that includes the Central Avenue Streetscape Plan and STREETS Plan. The different planning efforts and how they relate to this corridor study are summarized below.

Central/White Corridor Study

Central Ave Streetscape Plan

Spring Fling

2023-2025
Council High
Priority

Dubuque
Regional
Bike/Ped
Plan

S.T.R.E.E.T.S.

Imagine
Dubuque

Move DBQ

Historic
Millwork
Plan

Central Ave Streetscape Plan

This document, completed in January 2023, summarizes the process and results of a master plan-level design of Central Avenue between 11th Street and 22nd Street. The goals of this plan include creating a vision that will support the transformation of this portion of Central Ave into a more pedestrian-friendly city street. Through the development of the Central Avenue Corridor Master Plan, the public expressed a desire for pedestrian-friendly streets, emphasizing that safety is paramount. The council also expressed the desire to calm traffic in these corridors to produce more livable neighborhoods and increase economic development while maintaining reasonable traffic flows through downtown.

STREETS Plan

The *Smart Traffic Routing with Efficient and Effective Traffic Systems* (S.T.R.E.E.T.S.) plan was completed in June 2018. Area leaders came together to describe a future smart traffic signal system that leverages advances in technology to create the next generation of integrated traffic signal systems based on real-time data. The goal is to help reduce congestion and reroute traffic to balance delay while reducing crashes and harmful pollutants. This plan will influence the design of traffic signals and overall traffic calculations along the roadway. An integrated traffic signal system creates widespread improvements to traffic patterns throughout the City, especially in areas with higher intersection density such as Central Avenue and White Street.

Spring Fling

In April 2019, Local business owners who would be affected by the corridor's redevelopment were notified and encouraged to attend a separate business roundtable discussion. The purpose of this gathering was to present the draft Central Avenue Streetscape Plan, receive feedback, and address the concerns. The public expressed interest in two-way traffic conversion, concerns over the removal of parking, the need for ongoing semi-truck delivery accesses, and questioned potential funding opportunities. These considerations should be carried forward as part of all design efforts along the corridors.

Council High Priority

The revitalization of Central Avenue has been identified as a high priority for the years 2023-2025. This study is directly related to the city council's prioritization of this revitalization effort. Additionally, the consideration of traffic along White Street is included to generate a cohesive understanding and solution for the transformation of Central Avenue.

Dubuque Regional Bike/Ped Plan

The Dubuque Regional Bike and Pedestrian Plan completed in July 2023 will help the Dubuque region and surrounding communities improve their trails, on-road bike routes, sidewalks, and pedestrian crossings. The plan maps out a general strategy for future bike and pedestrian network development and identifies specific projects that can be constructed to expand and enhance the existing network. This plan identifies existing and proposed trails throughout Dubuque County. This plan identifies signed-on-road trails for both Central Avenue and White Street, as well as existing and planned trails across crossing streets.

Imagine Dubuque

Completed in September 2017, the Imagine Dubuque comprehensive plan serves as a guide for the community's physical, social, and economic development. The plan is organized into 10 sections: "Introduction", "Community Engagement", "Economic Prosperity", "Environmental Integrity", "Social and Cultural Vibrancy", "Housing", "Community Facilities", "Transportation and Mobility", "Land Use", and "A Call to Action". The "Transportation and Mobility" section is especially relevant to this study; however, this full document is important to understand the community today and the vision for how Dubuque should function by the year 2037. Imagine Dubuque outlines several key recommendations for improving transportation and mobility in downtown Dubuque. These recommendations aim to create a more accessible, efficient, and sustainable complete transportation network in Dubuque.

Move DBQ

This plan focusing on "Ride, Park, Walk, and Roll" in Downtown Dubuque was completed in 2024 and is split into two main parts: Smart Parking Management Plan and Mobility Solutions since parking and walkability influence each other.

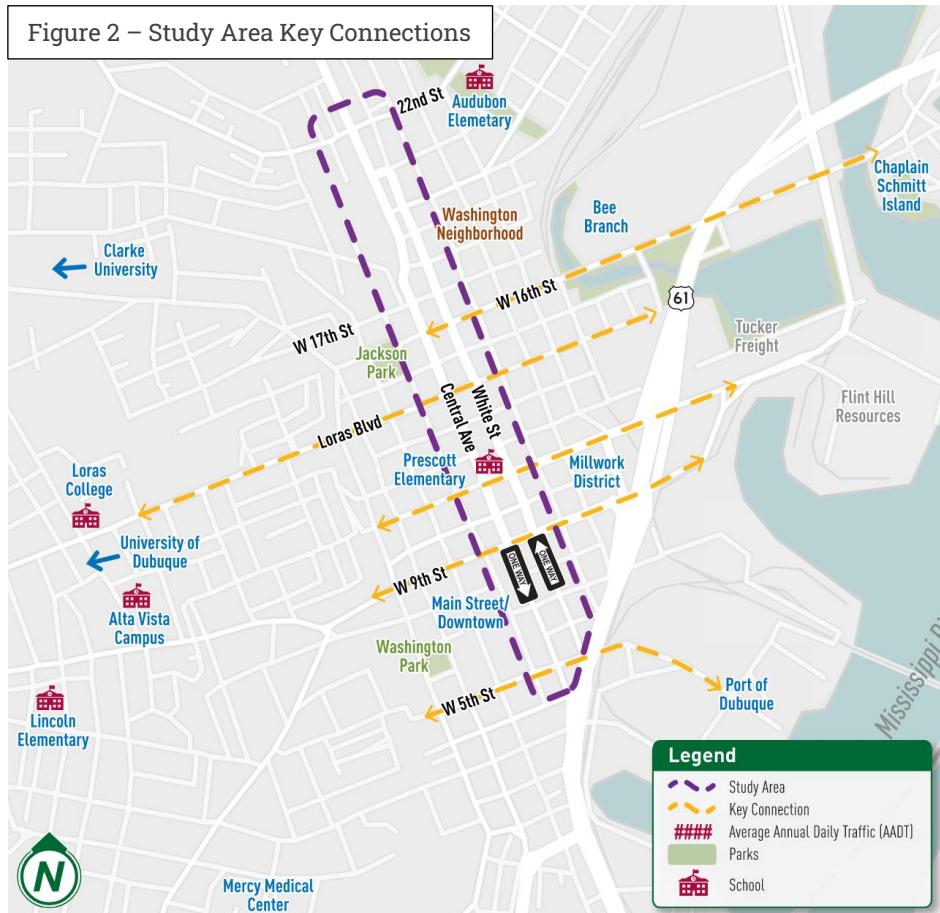
Recommendations include:

- Upgrading parking ramp gate equipment to improve monitoring and management of parking ramp occupancies
- Upgrading on-street meters to credit card-enabled kiosks and pay-by-space or pay-by-plate systems
- Consideration of removal of on-street meters in low occupancy areas
- Improved wayfinding and branding of all parking system assets
- Properly implemented, lighting design for wayfinding, safety, and an enhanced user experience. Including adding security lighting in alleys.
- Implementation requirements for blue light emergency phones
- Developing a signage and wayfinding master plan for all signage for districts, bike facilities, pedestrian destinations, etc.
- Sidewalks min 7' width with 9' width preferred
- Crosswalks should not be less than 6' and in urban areas should be marked and bump-outs used. RRFBs and HAWKS should also be considered.
- Shared-use trails should be at least 10' wide and include a center stripe
- Design details for striped on-street bike lanes are provided for conventional and buffered bike lanes
- Desire by the community to have scooters or bike share program and a parklet program is also included

Historic Millwork Plan Update

Completed in 2024, this plan identified a need for a connection from districts like the Millwork to other downtown districts like Main Street or the Bluff Street area. It identified Central Avenue and White Streets as a barrier to cross connections as the city has reoriented.

Figure 2 – Study Area Key Connections



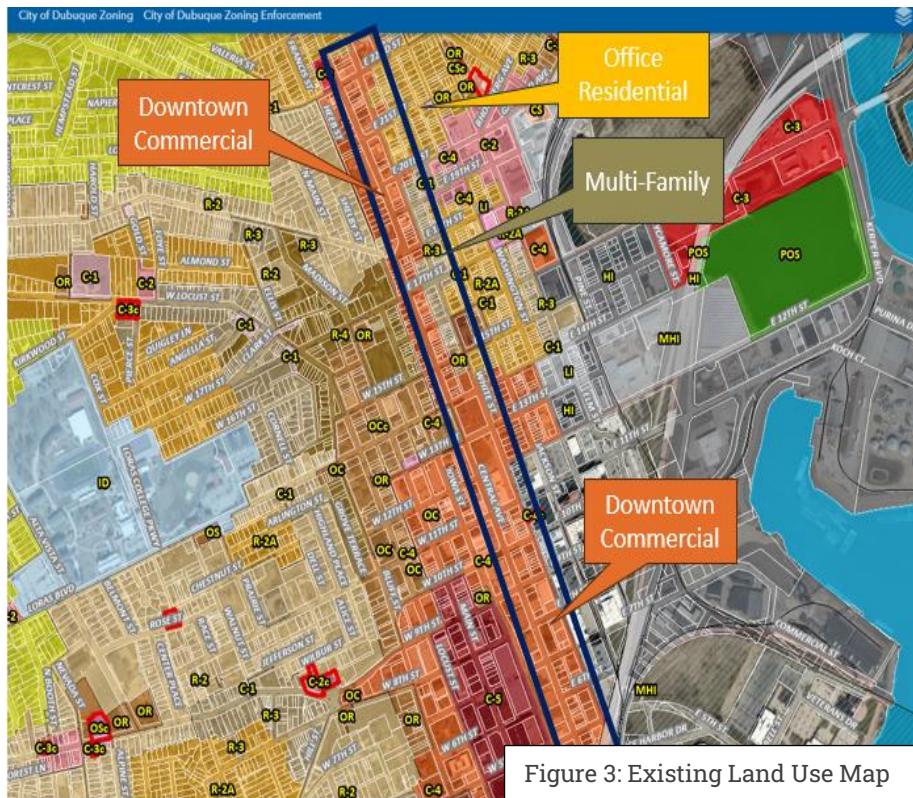
E. Reorienting Downtown Dubuque

Whereas this study area serves as a north-south transportation corridor, it is also a conduit for all modes traveling along and across it, connecting several downtown destinations and districts. As downtown Dubuque has continued to re-orient itself east-west, travel across the corridor is just as important as travel along it. This corridor is a part of a larger urban fabric, and enhancements to this corridor provide a higher quality of life for residents, visitors, and businesses that interact with these spaces.

III. Land Use

Central Avenue and White Street traverse some of Dubuque's most historic neighborhoods. The combination of community age, network functional classification, and land use along the corridors is some of the most diverse in the city.

The corridor features a diverse mix of several distinct districts and uses. The existing land use map classifies Central Avenue as Downtown Commercial from 4th Street to 22nd Street. White Street surrounding land use is Downtown Commercial from 4th Street to 14th Street and Multi-Family and Office/Residential from 14th Street to 22nd Street.



The surrounding character of the uses along these two corridors changes within the study area with a mix of commercial and residential on the north end, a concentration of civic uses and Prescott Elementary in the middle, and more traditional downtown uses on the southern end.

Central Avenue and White Avenue bisect three important subdistricts within the downtown, each with their own character: Mixed Use, Civic, and Downtown. Central Avenue and White Street can serve as the zipper that pulls together all these important subdistricts.

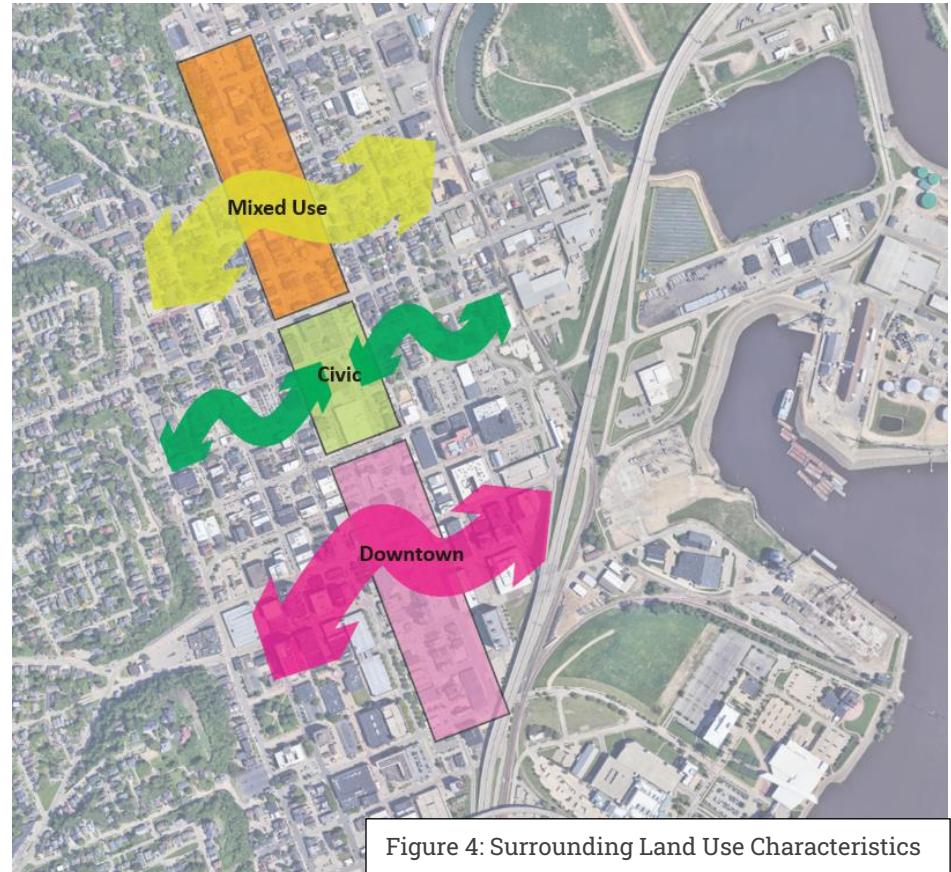


Figure 4: Surrounding Land Use Characteristics

A. Mixed Use

The north end of the study area stretches from north of 13th Street to 22nd Street and bisects a mixed use district consisting of the Washington Ave Neighborhood and a commercial node at 18th Street. This area is a mix of single-family and multi-family residential properties and commercial businesses. Many small businesses occupy the first floor of multi-tenant apartment homes. Notable uses on the north end of the study area include the Voices Building, Key City Creative, Steeple Square, Dream Center, and the Dubuque Office of Shared Prosperity. Commercial uses along these corridors primarily utilize the alleys for loading activities. Both residents and businesses rely on on-street parking in this area, as no city parking ramps are available nearby.



Central Mixed Use



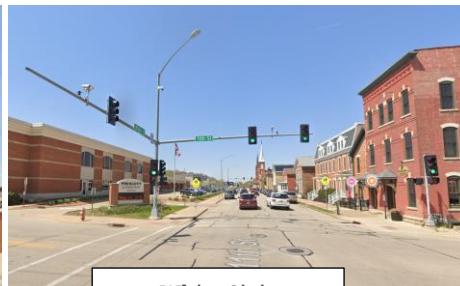
White Mixed Use

B. Civic

Between 13th Street and 11th Street, land uses are primarily civic-focused. Notable uses in this center portion of the study area include Prescott Elementary, the Multi-Family Center, and Dubuque City Hall.



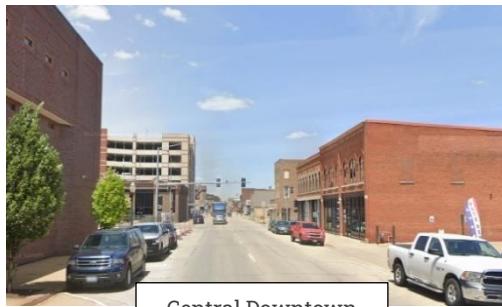
Central Civic



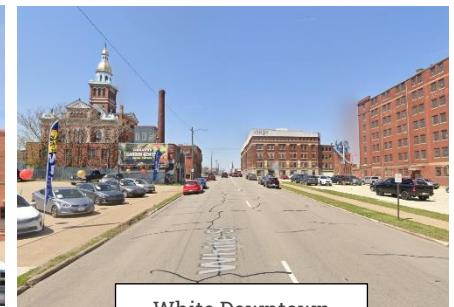
White Civic

C. Downtown

The southern portion is the Downtown section. This area serves as a gateway to the city from US 61. Running between 4th Street and 11th Street, adjacent land uses are office, courts, retail, and commercial. Notable uses include the Dubuque County Courthouse, Dubuque City Fire Station, Dubuque County Jail, and Central Ave Parking Ramp (at 10th). This section of Central and White also lies in between the core of Downtown (Clock Tower Square) and the Millwork District.



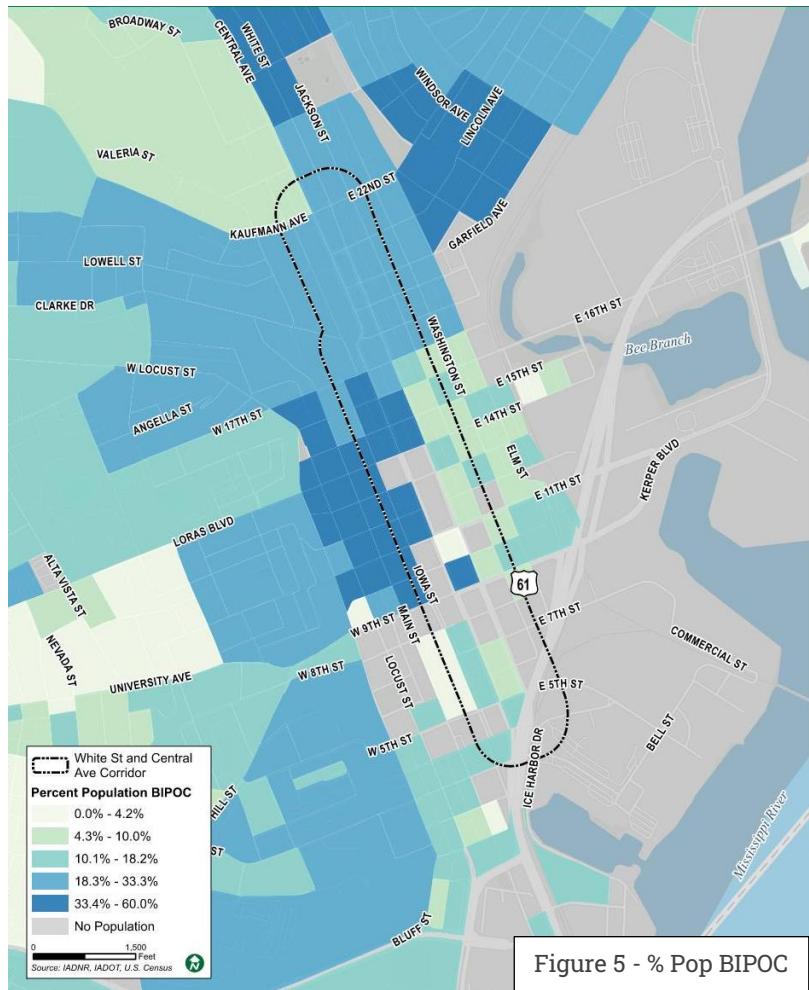
Central Downtown



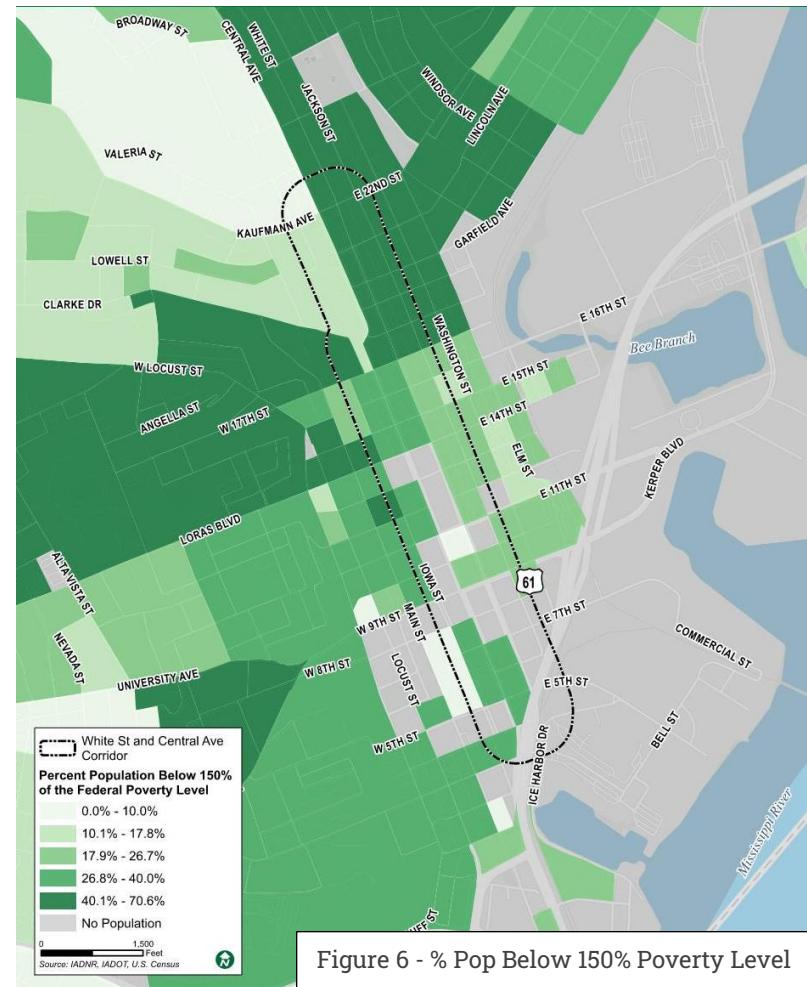
White Downtown

IV. Corridor Demographics

The population of the study area is just under 2,000 people with 905 total households (45%) with a mean income of \$45,000. 560 of the households (28%) are rentals. The population in the study area is diverse with a larger portion of Black, Indigenous, and People of Color (BIPOC) households north of 14th Street, see **Figure 5**. Employment is 2/3 white-collar and 1/3 blue-collar or service-type jobs.



Census data shows that within the study area, 25% of households are below the poverty level, compared to 12% city-wide. Additionally, 24% of households in the study area receive food stamps, compared to 11% city-wide. Vehicle ownership is 75% in the study area on average, with a high concentration of households with less than 50% vehicle ownership located between 14th Street and 17th Street along the corridor. With lower vehicle ownership and income, these households rely heavily on alternative transportation modes such as transit, walking, or biking. The percentage of the population below 150% of the Federal Poverty Level in the study area is shown in **Figure 6**.



V. Existing Roadway Infrastructure

A description of the existing corridor roadway infrastructure follows.

A. Central Avenue

- Two-lane, one-way southbound traffic between 4th Street and 21st Street, and transitions to a two-lane two-way undivided roadway north of 21st Street.
- The street is posted at a 25-mph speed limit.
- Central Avenue is functionally classified as a Minor Arterial, meaning the route is intended to be a major traffic-carrying route. However, the corridor provides a significant amount of direct property access, a feature not typical of most arterial roadways.
- Traffic signals are present at higher-volume intersections, with lower-volume intersections under side street stop control. There are 9 traffic signals in the 1.1-mi project area, which is a higher-than-average signal density. Signals are coordinated from 22nd Street to 4th Street.
- Two lanes for traffic throughout the study area.
- The corridor generally lacks landscaping and vegetation
- Sidewalks are present along the entire corridor, with most segments having no separation between pedestrians and moving traffic. Sidewalks range from 7 to 10 feet.
- Pavement conditions along the corridor are generally good.
- Most intersections along the Central Avenue corridor have standard marked crosswalks for pedestrian traffic.
- On-street parking is present on both sides of the street through most of the corridor
- Existing typical sections include two 12-14' wide travel lanes with 7' parking lanes on each side of the roadway.

Figure 7: Central Avenue Typical Roadway Sections



B. White Street

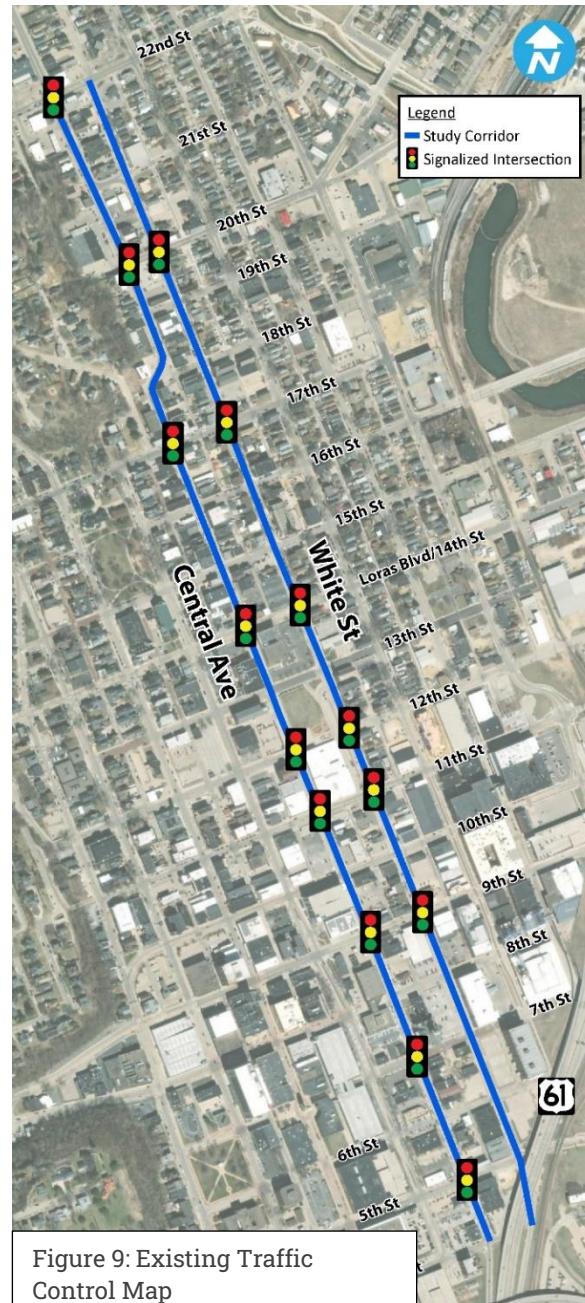
- Two-lane, one-way northbound traffic between 4th Street and 21st Street, and transitions to a two-lane two-way undivided roadway north of 21st Street.
- The street is posted at a 25-mph speed limit.
- White Street is functionally classified as a Minor Arterial, but like Central Avenue, the corridor provides a significant amount of direct property access, a feature not typical of most arterial roadways.
- Traffic signals are present at higher-volume intersections, with lower-volume intersections under side street stop control. There are 6 traffic signals in the 1.1 mi project area, which is a higher-than-average signal density. Signals are coordinated from 22nd Street to 4th Street.
- Sidewalks are present along the entire corridor, with most segments having a grass boulevard to provide some separation between pedestrians and moving traffic. Sidewalks range from 5 to 8 feet. The east side of the roadway has more consistent boulevards. The boulevards, where they appear, are typically 3 to 5 feet wide.
- Trees are limited on White Street; however, more are present on White Street than on Central Avenue.
- Pavement conditions are generally good.
- Most intersections along the Central Avenue corridor have marked crosswalks for pedestrian traffic.
- On-street parking is present on both sides of the street through most of the corridor
- Existing typical sections include two 12' wide travel lanes with 6-7' parking lane on each side of the roadway.

Figure 8: White Street Typical Roadway Sections



C. Existing Traffic Control Map

Existing traffic control is shown in **Figure 9**. There are 9 signalized intersections on Central Avenue and 6 signalized intersections on White Street. All other intersections are side street stop with the side streets stopping for Central Avenue or White Street traffic.



VI. Existing Transportation Technologies

An assessment of the existing signal system and ITS infrastructure was conducted along the Central Avenue and White Street one-way pair. The assessment included a field review as well as discussions with city traffic engineering to better understand the history of the corridor's signal system.

A. Traffic Signals

The 15 traffic signals within the project area are owned and operated by the City of Dubuque. Most of the signal cabinets are equipped with Siemens controllers that utilize Siemens' TACTICS advanced transportation management system (ATMS) software. The City plans to switch to Parsons' ATMS software once Phase 2 of the Dubuque STREETS project is implemented.

Signal operations utilize pre-timed, 60-second cycle lengths; 30 seconds to serve mainline traffic and 30 seconds to feed the side streets. This method of operation minimizes wait times for pedestrians crossing the mainline while maintaining coordination along Central Avenue and White Street due to a proper combination of cycle lengths and roadway geometry.

Some intersections are equipped with countdown timer pedestrian heads. There is currently one audible pedestrian push button station installed in Dubuque, but the City turned down the volume due to noise complaints. The City anticipates audible pedestrian push button stations will not be desired in residential communities like those along this corridor, however, requirements for new signals are changing per Public Right-of-Way Accessibility Guidelines (PROWAG) and may be required in the future.

The City currently utilizes Opticom equipment in all signal cabinets for emergency vehicles and snow plow preemption.



Traffic Signal with Pedestrian Heads

B. Detection and Surveillance

The City deploys both intrusive and non-intrusive detection. Intrusive detection in the form of inductive loops, and non-intrusive detection in the form of Wavetronix detectors. A few intersections are equipped with video detection, but the City has indicated a desire to move away from this method due to poor performance during winter weather events.

Each signal in this corridor is equipped with fixed-view Axis cameras. Additionally, pan/tilt/zoom cameras have been installed at key intersections. The City's extensive camera network is used for traffic surveillance and post-incident investigation for matters related to safety and security. Once the video is recorded it is stored for 30 days before being discarded. Specific events can be archived permanently, as needed.



Observation Cameras on Mast Arm

C. Communication Infrastructure

The city has made great strides in expanding its fiber optic infrastructure to meet the demands of the Dubuque STREETS project, which requires reliable, high-speed communications to be successful. As such, all signal cabinets in the corridor have been connected with fiber optic cable and Cisco switches.



CISCO Switches in Cabinets

VII. Parking Characteristics

The on-street public parking supply was assessed along these two streets as part of the existing conditions review. Parking occupancies collected in September 2022 as part of the MOVE DBQ plan by Bolton & Menk were utilized for the on-street and off-street parking areas. Occupancies for Non-metered On-Street parking areas in the north end of the study, not included in the original occupancy study, were collected in May 2024. This review included observations of on-street parking for two different periods: midday and evening during a weekday; 11 am to 1 pm and 4 pm to 6 pm.

A. On Street Parking & Utilization

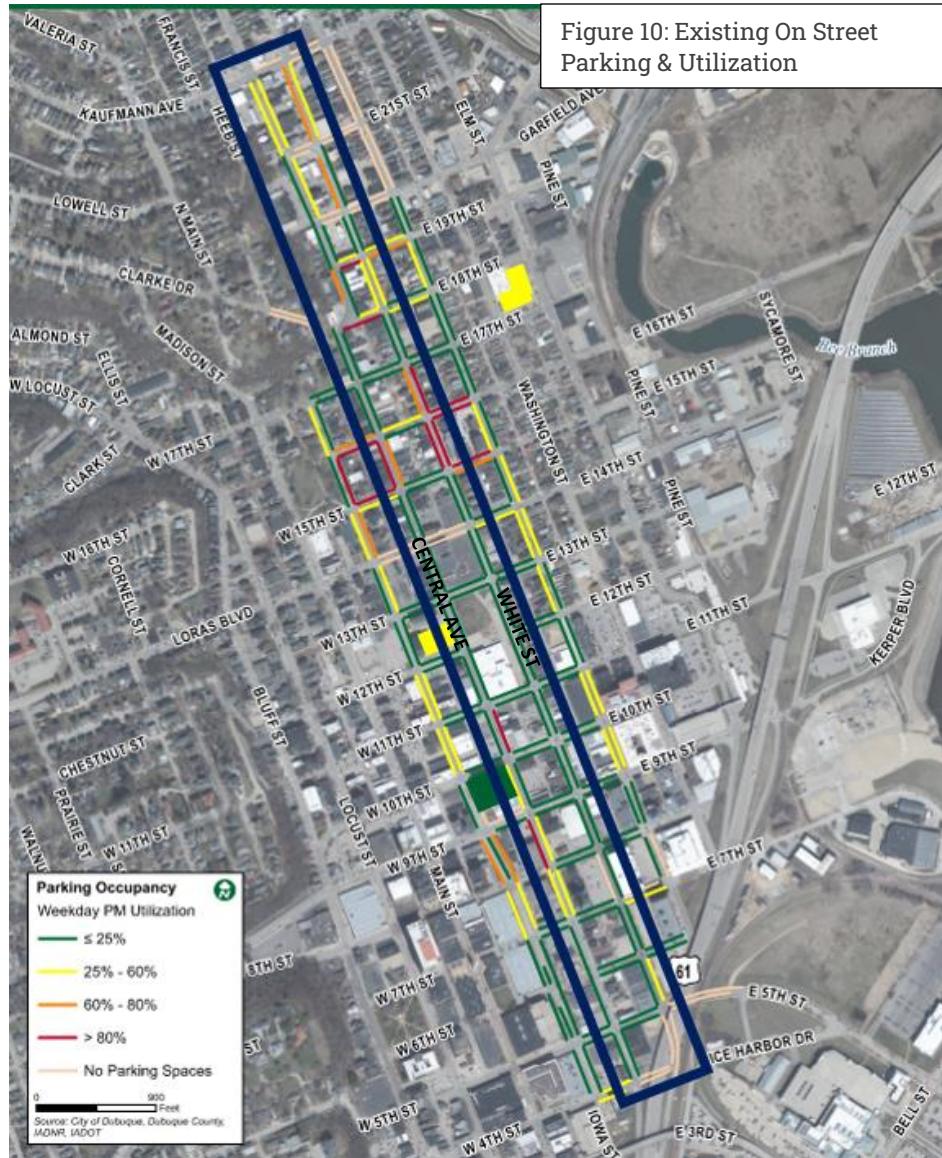
For those non-metered areas along the street curb, a 22-ft space length was used to determine the number of available parallel parking spaces. There are 256 total on-street parking spaces on Central Avenue and 247 on-street spaces on White Street.

The equation below was used to determine the % parking utilization for each block:

$$\# \text{ parked vehicles} / \# \text{available spaces} = \% \text{ parking utilization}$$

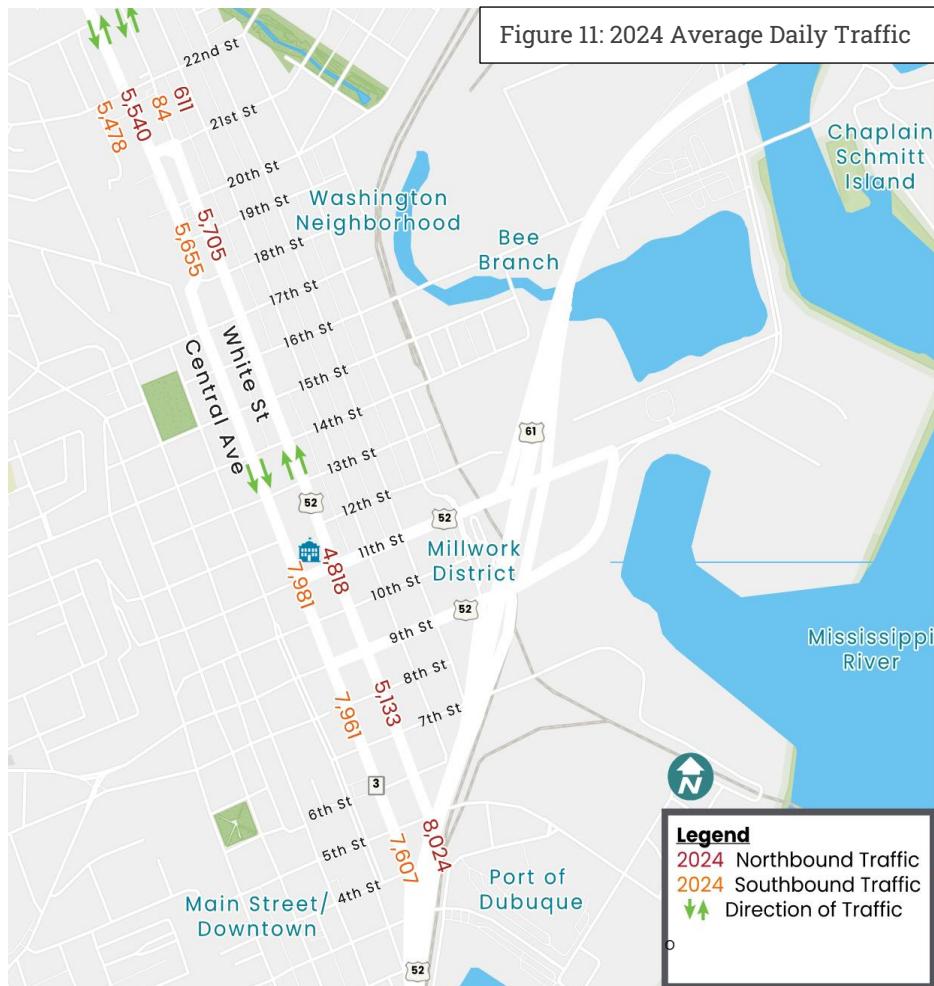
The highest use of on-street parking in the study area was found to be weekday evenings.

During the weekday evening, 24% of the on-street spaces on Central Avenue are utilized and 21% of the on-street spaces on White Street are utilized. This is an average along the entire street and some areas experience higher utilizations than this as shown in red in **Figure 10**. On-street parking greater than 80% represents the inability to find at least one open space on the block. In areas where red is shown in **Figure 10**, open spaces are often available on an adjacent block or side street.



VIII. Vehicle Volumes

Vehicle volumes were collected using the City of Dubuque's extensive network of traffic observation cameras. Counts were collected for weekdays in April 2024. The resulting counts Average Daily Traffic (ADT) at different points along the corridor are shown in **Figure 11**. From the counts collected, trucks make up an average of 6-7% of the ADT, or approximately 500 vehicles per day on each street.



A comparison of ADT counts on the corridor collected in 2024 versus the historical counts collected by the Iowa DOT on the corridor is provided in **Table X**. The NW Arterial was completed at the end of 2023. This data shows that volumes have changed on Central Avenue and White Streets since the completion of the NW Arterial.

Table 1: ADT Comparison (before and after NW Arterial Completion)

	Average Daily Traffic (vehicles/day)		
	2024	2021	2017
Central Avenue N. of 10 th	8,000	6,500	8,300
Central Avenue S. of 20 th	5,700	8,000	Not available
White Street N. of 10 th	5,000	5,700	7,400
White Street S. of 20 th	5,700	6,700	Not available

A. Traffic Peaking Characteristics

Traffic peaking was determined based on the April 2024 counts. The AM Peak Hour was determined to be 7:15 am to 8:15 am while the PM Peak Hour is 4:30 pm to 5:30 pm.

- Traffic volumes see a sharp increase around 6:30 am and increase until the AM Peak from 7:15 am to 8:15 am. Volumes drop after the AM Peak until 9:00 am, at which point they gradually increase throughout the day until reaching the PM Peak from 4:30 pm to 5:30 pm. After this PM Peak, traffic volumes see a drastic decrease.
- Approximately 7% of daily traffic occurs in the AM Peak and 9% of daily traffic occurs in the PM Peak.

B. Origin-Destinations (all traffic)

StreetLight was used to collect origin-destination data for all traffic volumes. Total traffic O-D destinations are shown in **Figure 12**. Analysis of O-D data found the following:

Of the traffic entering the study area northbound on US 61 to White Street;

- Nearly half (46%) travel the length of the project area and exit at 22nd Street or further north.
- 12% immediately exit the study area by turning right on 5th Street to the Port of Dubuque.
- All other east-west streets account for 35% of traffic, with the most common destinations being westbound 5th Street and eastbound 9th Street.

Of the traffic entering the study area southbound on Central Avenue;

- 28% travel the length of the project area and exit onto US 61 (23% or westbound 4th Street (5%).
- 22nd Street, 20th Street, and 14th Street are the three most used east-west roads for southbound Central Avenue traffic (14%, 12%, and 8% respectively).
- Aside from the north and south ends of the project area, the most used east-west roads are 14th Street and 9th Street, with about 13% and 10% of total traffic using the roadways to enter or exit the study area.
- Destinations within the study area, instead of trips through the study area, account for only 3% of total trips.

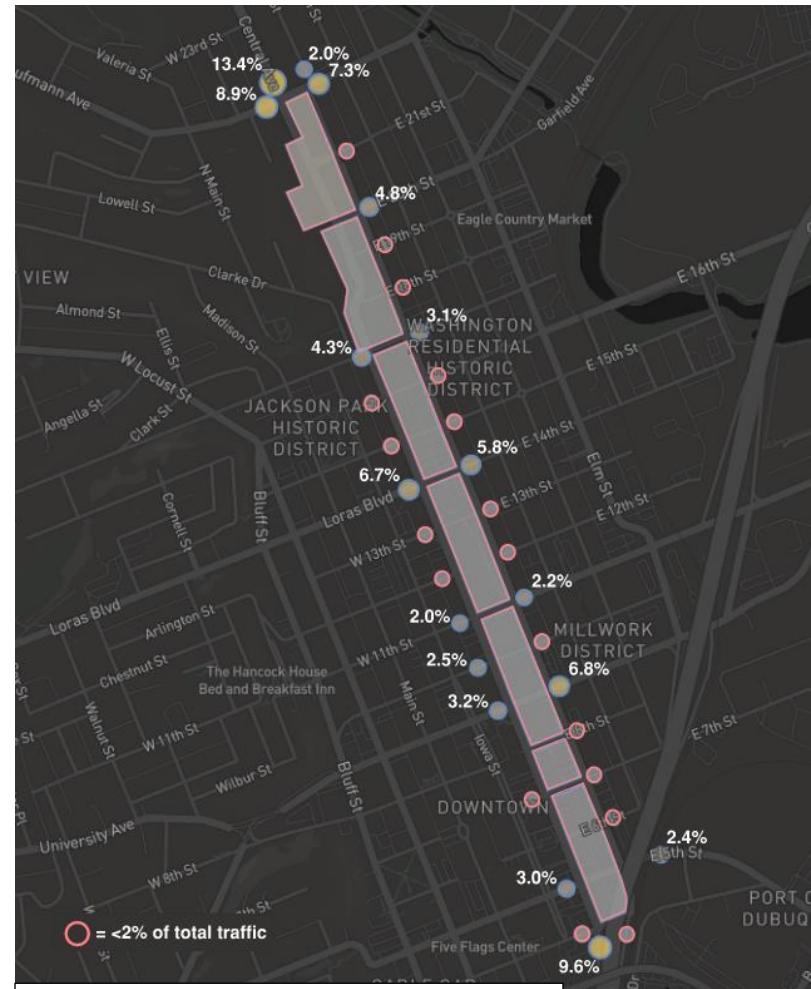


Figure 12. Total Traffic O-D Destinations

C. Origin-Destination (pedestrians)

Analysis of pedestrian-specific trips in the study area showed that pedestrian presence dramatically increased in the northern end of the study area.

- 54% of all pedestrians have destinations at or north of 17th Street.
- 21% of pedestrians had destinations within the study area.
 - The highest number of pedestrians within the study area is seen between 20th Street and 22nd Street (7%).
- 10% of pedestrians exited the study area to the north.
- The most used east-west roadways by pedestrians were 22nd Street, 17th Street, and 9th Street (20%, 6%, and 6% respectively).

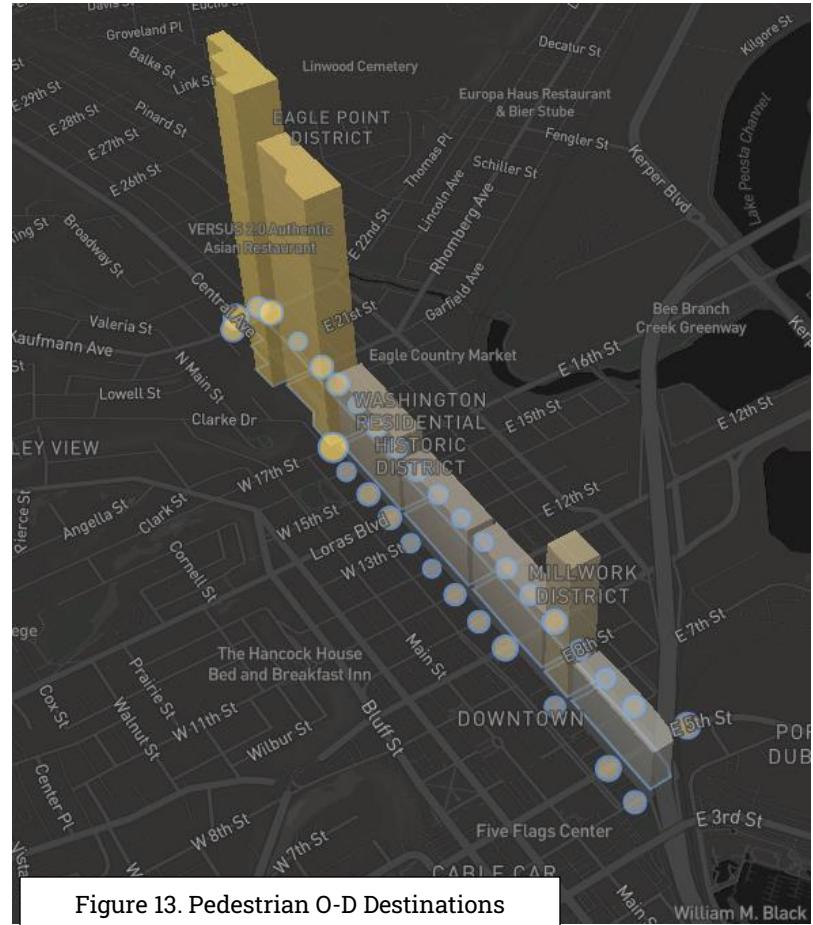


Figure 13. Pedestrian O-D Destinations

D. Freight Traffic Volumes

StreetLight analysis of freight traffic on the Central Ave and White St corridors determined an average weekday ADT freight traffic per month, calibrated to the collected counts, see **Figure 14**. Truck traffic is highest July to September.

Based on collected traffic counts in the study area:

- On White Street, Trucks range from 4 to 10% of the total traffic volumes in the AM Peak and 1 to 3% in the PM Peak.
- On Central Avenue, Trucks range from 4 to 7% of the total traffic volumes in the AM Peak, And 1 to 2% in the PM Peak. Truck traffic appears to peak in the morning hours, 8 am to 11 am. See **Figure 15**.
- Overall, the study area sees an average of 6% freight traffic in the network.

Figure 14: ADT of Freight Traffic Per Month

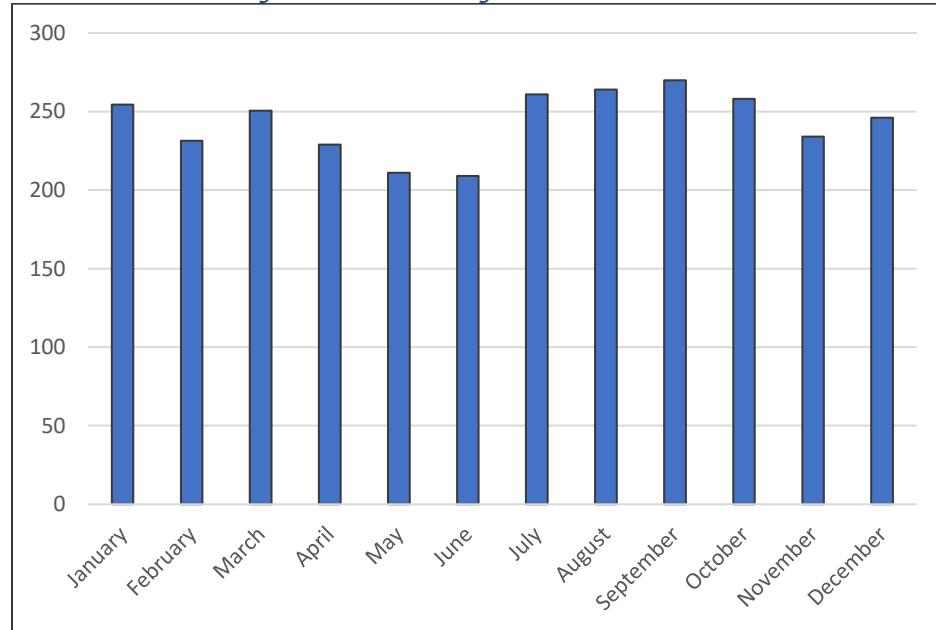
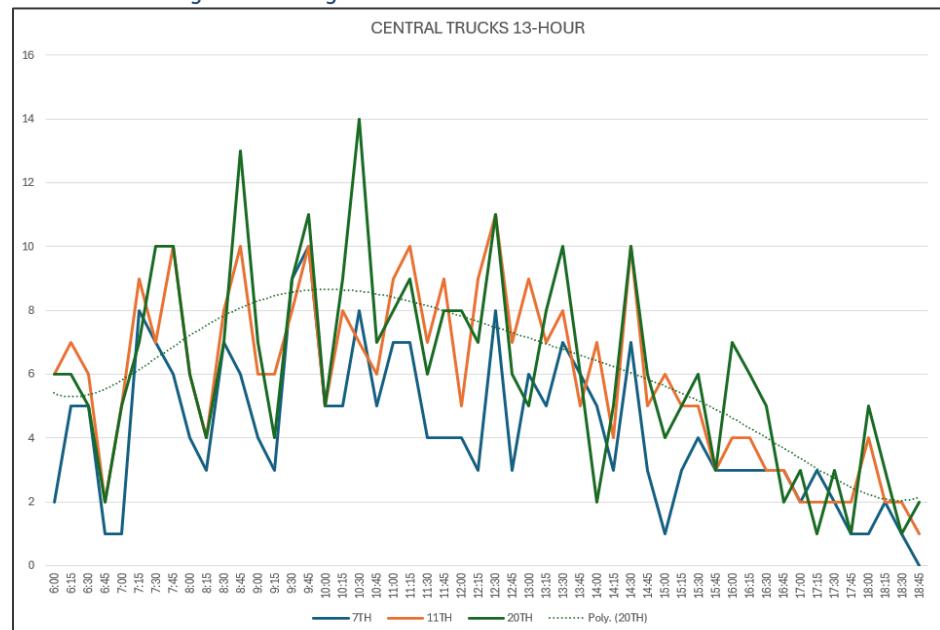


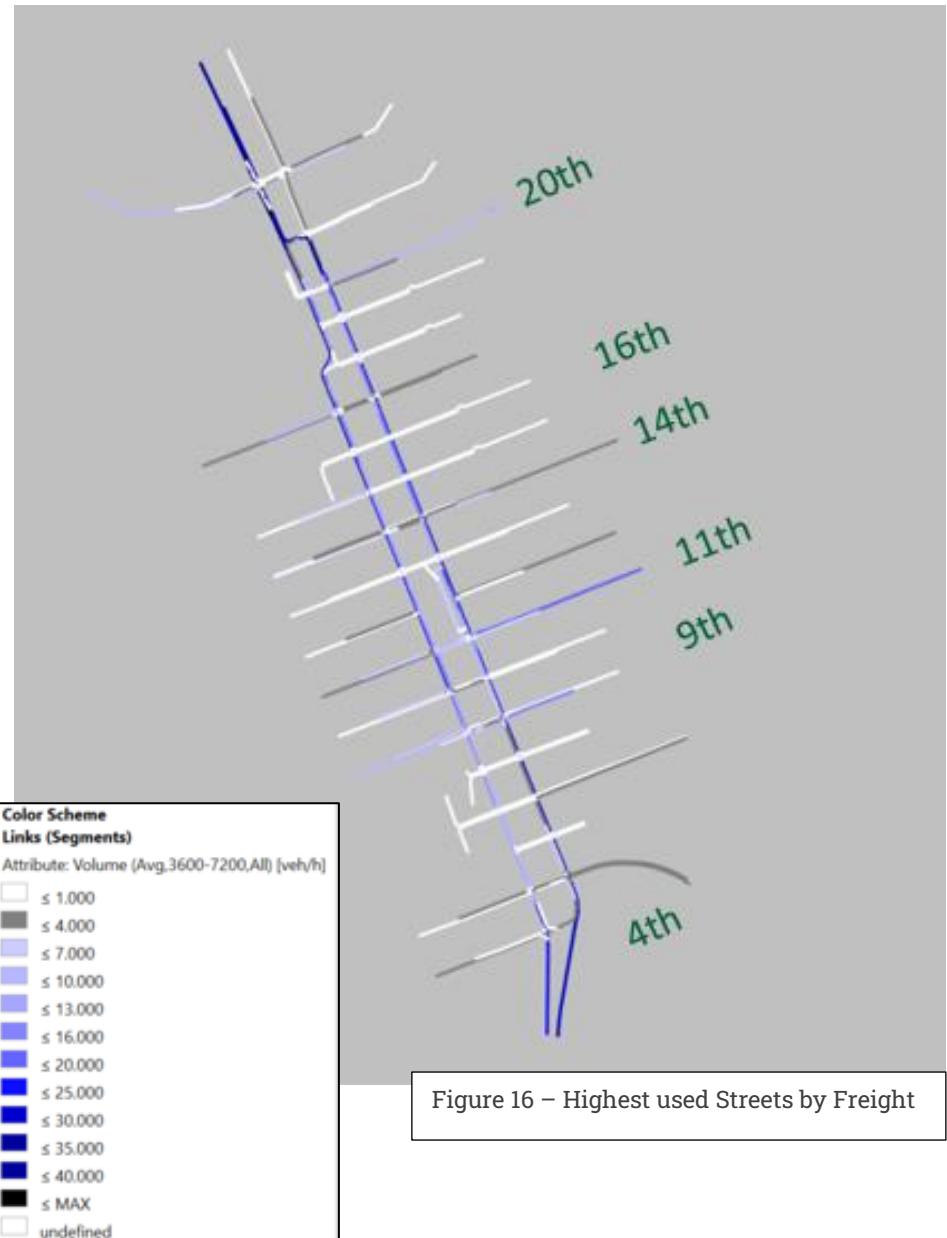
Figure 15: Freight Traffic on Central in 15-Min Intervals



E. Origin-Destinations (Freight Traffic)

Origin-destination analysis of StreetLight data for freight-specific traffic found the following:

- The majority of truck traffic entering the network enters either southbound on Central Ave (27%) or northbound on White St (26%) and stays on those roadways until they exit the study area. An even higher amount of freight traffic exits the model on Central Ave and White St (53%).
- Industrial sites east of the project area on Kerper Blvd result in 9th St and 11th St serving 14% of freight traffic entering the network. Other east-west side streets besides 9th and 14th see a small percentage of freight traffic, with only Elm St and 22nd St seeing more than 3% of total freight traffic.
- Figure 16** shows the highest-used streets by freight in the corridor area. The darker blue the line, the more trucks present. Today trucks rely on 4th Street, 9th Street, and 11th Street as these roadways connect directly to the freeway. Traffic calming on 16th Street prevents them from using 16th Street to easily access Central Avenue and White Street.
- Per freight companies, the ability to make turns at key intersections like 4th Street, 9th Street, and 11th Street on Central Avenue and White Street is most important.
- An overpass over the railroad track is planned to be constructed at 14th Street east of the corridor which will likely change freight patterns downtown once constructed.



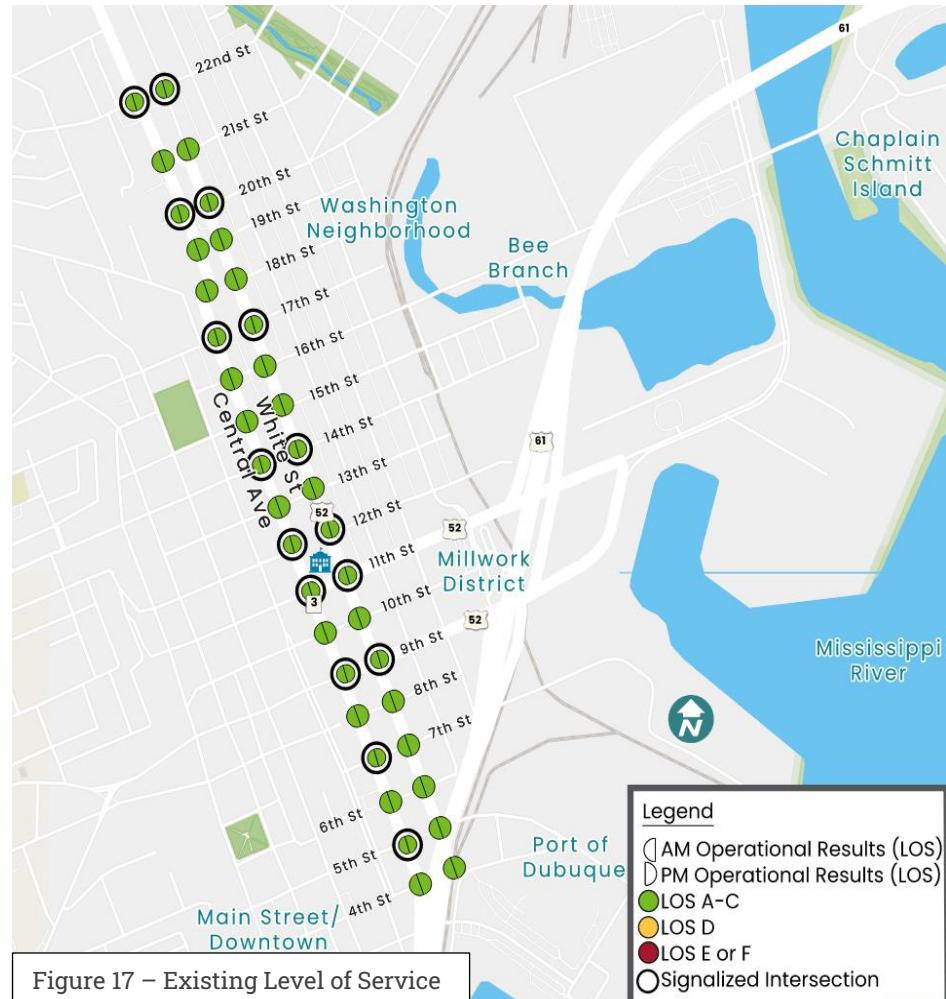
IX. Existing Operations

A. Level of Service

Level of service (LOS) is a metric designed to gauge efficiency, comfort, and frustration. LOS is a letter grade between "A" and "F" that is assigned to transportation infrastructure to describe its performance related to the safe, comfortable, and efficient movement of people. For vehicle traffic, the level of service is typically a function of the amount of delay experienced as a result of traffic control.

The level of service was determined using the traffic analysis software PTV Vissim. The AM Peak Hour and the PM Peak Hour were modeled with a one-hour seeding period.

- Specific movement delays were high on some unsignalized side streets during peak hours, which is common for local streets intersecting with arterial roadways. Given the well-connected grid network, signals are in close proximity and can be used for traffic to re-route and use signalized intersections during peak hour traffic.
- The LOS for 2024 Existing Conditions is shown in **Figure 17**. Levels of service for vehicle traffic are generally good on both corridors, with acceptable levels of service present throughout the day (LOS C or better). While not serious, some minor delays do occur during peak hours.
- One-way corridors are far simpler to maintain effective operations. Signal timing has reduced signal phases, and progression is a simple distance and speed calculation.



B. Travel Speeds

Speed data was collected in November 2024 using three speed collectors placed near the intersection mid-blocks of: White Street & 8th Street, Central Avenue & 8th Street, and Central Avenue & 13th Street. As shown in **Table 2**, the data revealed that average speeds on Central Avenue were consistent, with both locations averaging around 29 mph. In contrast, average speeds on White Street were lower, averaging 26 mph.

However, the data collected also shows that the 85th percentile speeds recorded are 6-10 mph higher than the posted speed limit. The 85th percentile speed represents the speed at which 85% of the vehicles are traveling at or below. Speeding on the corridor is a significant concern with 25% of total injury crashes being speed related.

Table 2: 2024 Speeds

	Speeds (mph)		
	Average	85 th Percentile	% Vehicles > 25 mph
Central Avenue N. of 8 th	28	34	85%
Central Avenue S. of 13 th	29	35	94%
White Street N. of 8th	26	31	68%

C. Travel Times

In addition to measuring travel speeds, a travel time analysis was completed in StreetLight. Travel times were compared between Central Avenue and White Street and were analyzed for weekdays vs weekends. The findings are shown in **Table 3** below. The travel times were found to be lower on weekends compared to weekdays.

Table 3: Corridor Travel Times

	Travel Time	
	Weekday	Weekend
Central Avenue	SB	3 min
White Street	NB	2.9 min

X. Walkability

Pedestrian facilities are present on both sides of each street and the Central Avenue and White Street corridors are significantly used by pedestrians. From the counts, over 6,000 pedestrians utilize Central Avenue and over 3,000 pedestrians utilize White Street during the day.

A. Pedestrian Activity by Location

Pedestrian counts were collected in April 2024 along with the vehicle counts. Pedestrian activity is twice as much on Central Avenue compared to White Street. A table displaying the 13-hour pedestrian volume at each intersection, including travel along Central Avenue and White Streets and travel across, is provided in **Appendix A**. The intersection areas of highest pedestrian activity on Central are 20th Street, 16th Street, 15th Street, 11th Street, 8th Street and 7th Street. On White Street, the areas of highest pedestrian activity are 18th Street, 17th Street, 16th Street, 11th Street, 12th Street, and 7th Street. See **Figure 18**.

B. Pedestrian Level of Service

Pedestrian Level of Service (LOS) was assessed using the Highway Capacity Manual 7th Edition (HCM7), which emphasizes pedestrian comfort and satisfaction more than previous versions that exclusively relied on delay. The assessment found:

- The pedestrian LOS at existing signalized intersections is at LOS B.
- The pedestrian LOS at the existing two-way stop-controlled intersections is LOS F for the uncontrolled leg, whereas, the stop-controlled leg is LOS A.

C. Mode Share

Vehicle ownership is 75% in the study area on average, with a high concentration of households with less than 50% vehicle ownership located between 14th Street and 17th Street along the corridor. Many residents rely on walking, biking, and transit to move around the city. Community demographics show 8% walking to work, compared to 1% for the Dubuque region.

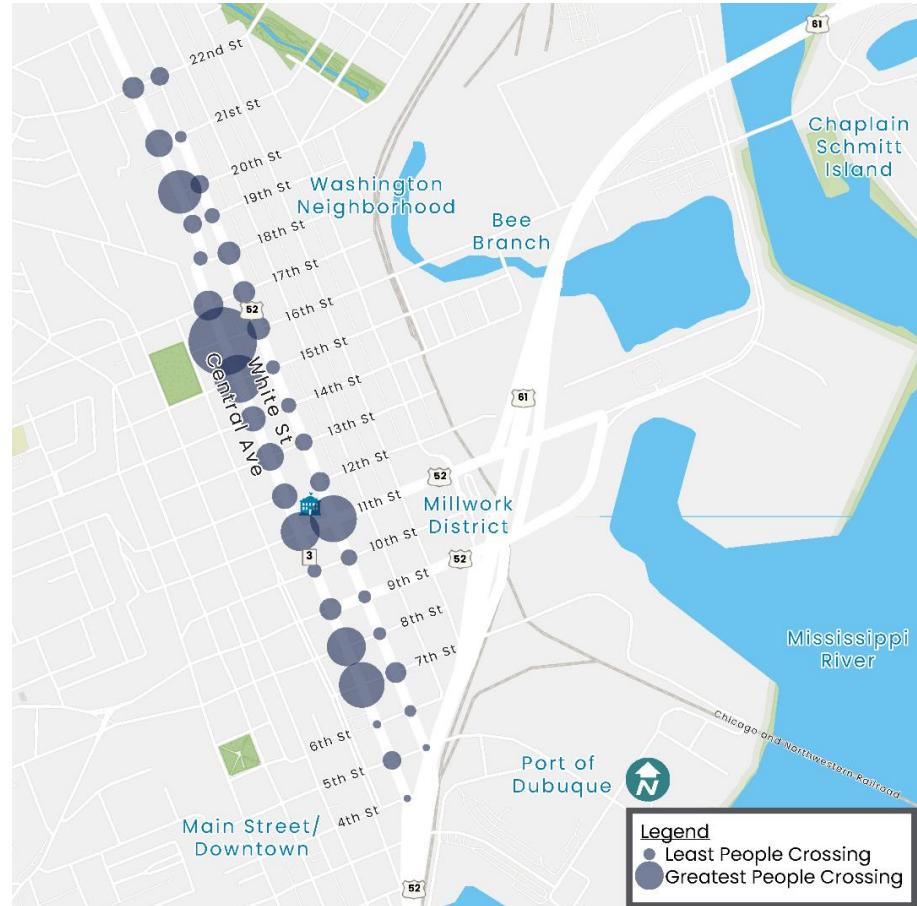
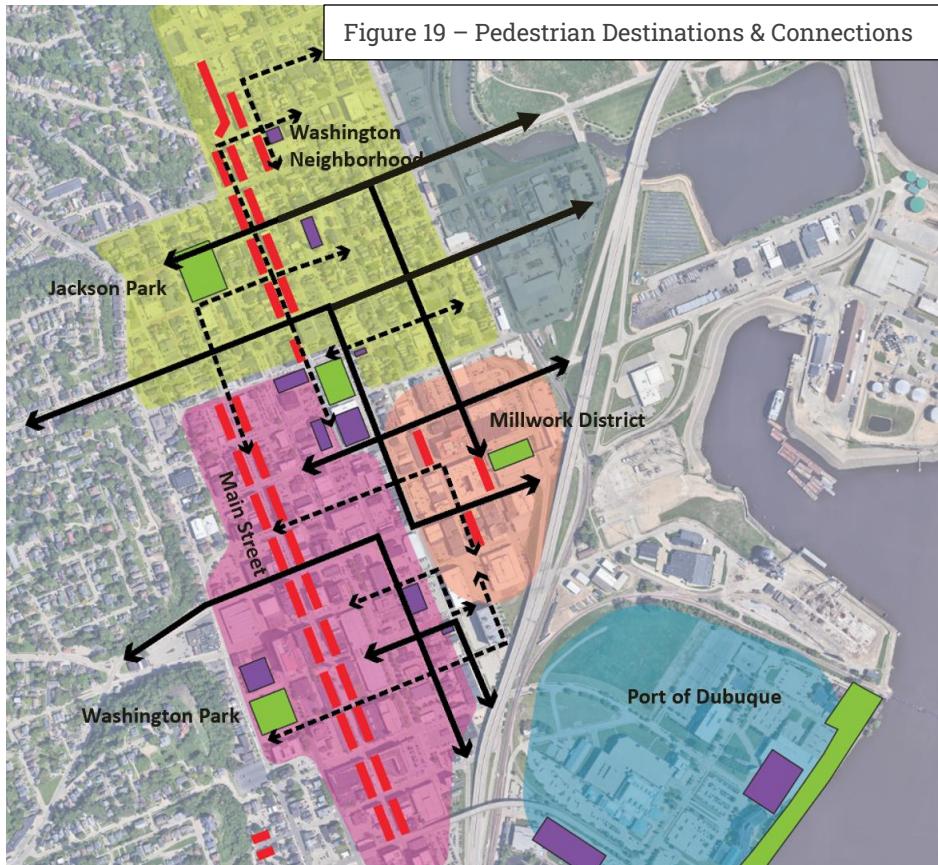


Figure 18: Pedestrian Activity by Intersection

D. Latent Pedestrian Demand

Crossing the Central Avenue and White Street Corridor is just as important to walkability as traveling along its length. Central Avenue and White Street serve as connectors, linking destinations on the east and west sides of the corridor. Although crossing activity is currently high at specific intersections, it can be anticipated that improving the comfort and safety of crossing Central Avenue and White Street would increase walkability, encouraging more people to walk to and from destinations on both sides of the corridor.



E. Pedestrian Crash History

There is a history of pedestrian/bicycle crashes, with 9 pedestrian crashes reported between 2019 and 2023. The majority of these pedestrian crashes occurred on Central Avenue. All 9 Pedestrian related crashes resulted in injury (no fatalities). From the crash data, vehicle-only crashes resulted in 27% likelihood of injury, whereas, 100% of all pedestrian crashes resulted in injury.

Safety research shows that pedestrians have a 90 percent chance of surviving a crash involving a vehicle at speeds under 20 mph, but this probability is reduced to 60 percent at 30 mph and further reduced to 20 percent at 40 mph.

F. Pedestrian System Deficiencies

A mobility conditions assessment was completed in 2023 as part of MOVE DBQ. Additional information was collected in April 2024 to supplement the previous mobility data collected. This additional data collected including information on lighting, ADA pedestrian ramps, and street tree presence.

Lighting is generally good and consistent through the corridors. Sidewalks are present along both sides of these corridors, however, there is often little to no separation with a limited grass buffer and a lack of street trees in the study area. The sidewalks have cracks that are narrow and can often be partially obstructed with signs or other street furniture.

Crossings lacked signage and high visibility crosswalks. There was a general lack of midblock signals and RRFBs to facilitate crossings of Central Avenue and White Street at non-signalized intersections. Bumpouts are present at 10th Street on Central Avenue and White Street but not at other intersections along the corridor.

Detectable warning panels are present at most intersections along the Central Avenue and White Street corridor.

G. Controlled Pedestrian Crossings

Pedestrians are provided many controlled crossing locations via traffic signals, with signals spaced an average of two to three blocks from one another. The longest gap between traffic signals is on White Street where there is no controlled crossing for five blocks between 4th and 9th Street.

H. Schools

Prescott Elementary School is located between Central Avenue and White Street between 11th Street and 13th Street. This school provides education for children that reside from 32nd Street to 4th Street and the east side of the



Bluff to Kerper/Elm due to the closure of Fulton Elementary School and subsequent consolidations. Students in the area from 22nd Street to 4th Street and Bluff Street to Kerper/Elm are in the walk zone. The Principal stated most students feel comfortable walking up to 2 blocks, but are otherwise driven by parents or they take the city bus. The school provides bussing for those areas outside the walk zone but also relies heavily on the city bus to transport students. The established traffic flow pattern for the school provided to parents on the Prescott Elementary website is shown in Figure 20.



The Office of Shared Prosperity on the corner of 18th Street and Central Avenue and Steeple Square on the corner of 12th Street and White Street provide early childhood education centers in the corridor.

A midblock signalized crossing is provided just north of Steeple Square for access across White Street.

I. Children Aged 14 and Under

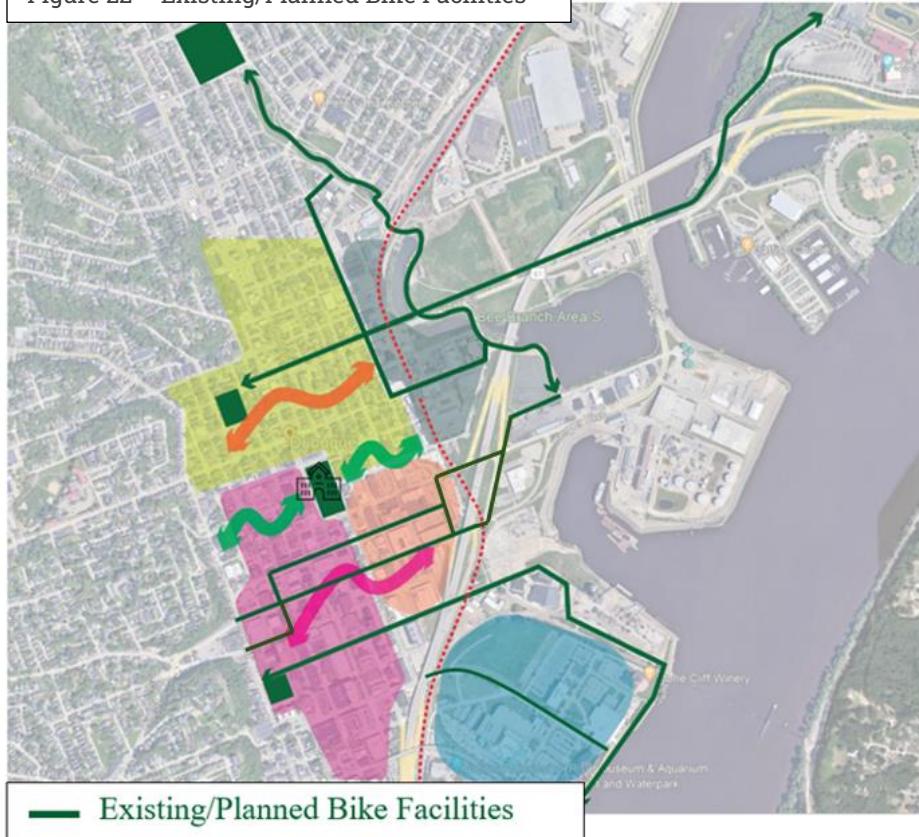
School-aged children who walk or bike to school should have safe and comfortable sidewalks and bike facilities to get to and from school. Per the 2020 Census, the north end of the study area has a high concentration of children under age 14, see **Figure 21**.



XI. Bicycling

There is a general lack of bike facilities throughout most of downtown. The green lines on the map below show the on-street bike lane, paths, and trail connections existing or planned leading to downtown and out to regional trails and recreation areas. The downtown lacks connection amongst many of these facilities. There is also a lack of bike related amenities such as bike racks throughout downtown.

Figure 22 – Existing/Planned Bike Facilities



A. Study Area Bicycle Level of Service

Bicycle level of service is a function of the level of comfort and safety experienced by cyclists. It is affected by the type of facility provided, adjacent traffic volumes and speeds, the degree of separation between cyclists and traffic, and whether on-street parking is provided or not.

Many of the streets downtown are two lanes and 25 mph so often bicycle riders will share the road with motorists. This can work for those riders who have a

higher stress tolerance and are highly confident riders, but for those with a lower stress tolerance or of younger age, like elementary school students, this is often unacceptable and a

deterrent to riding a bicycle to get around downtown.



B. Mode Share

The 2023 Dubuque Regional Bicycle and Pedestrian Network Plan was developed by the Dubuque Metropolitan Area Transportation Study (DMATS). DMATS is the metropolitan planning organization (MPO) for the Dubuque metro area. In the DMATS area, 81% of workers drive themselves to work and 6% carpool. About 2% walk to work and less than 1% bike or ride the bus. About 8% work from home. The majority of the bike facilities in the DMATS region consist of paved shoulders, signed on-road routes, and multi-use trails. The region lacks higher-level on-street bike facilities such as striped bike lanes and cycle tracks, even though, these types of facilities provide lower-stress experiences for bike users and capture the usage from low-stress tolerance users.

C. Bike Volumes

Bicycle activity represents 8-10% of the total bike/pedestrian crossing volumes on the north end of the corridor and 4% on the south end. The following list provides bike volume numbers at specific locations on the north and south ends of the corridor based on April 2024 counts collected:

- Central/20th St = 28 Bikes in 13 Hours
- Central/16th St = 79 Bikes in 13 Hours
- White/16th St = 10 Bikes in 13 Hours
- White/7th St = 6 Bikes in 13 Hours

D. Latent Cycling Demand

With only 75% average car ownership in the study area, many residents have to rely on other forms of transportation to move around downtown. This suggests that there are opportunities to increase non-motorized mode shares through improvements that enhance comfort and convenience for cyclists. As the bicycle network is further established in downtown as desired by the Dubuque Regional Bicycle Plan, the bike volume numbers on the corridor will likely increase as well.

E. Bicycle Crashes

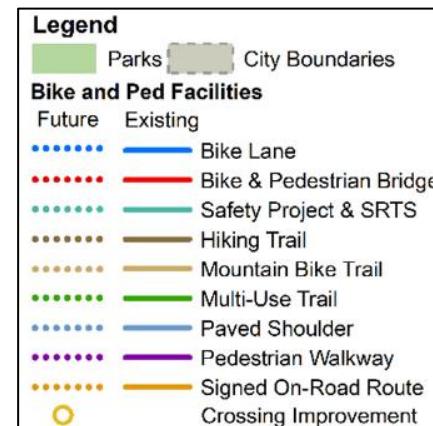
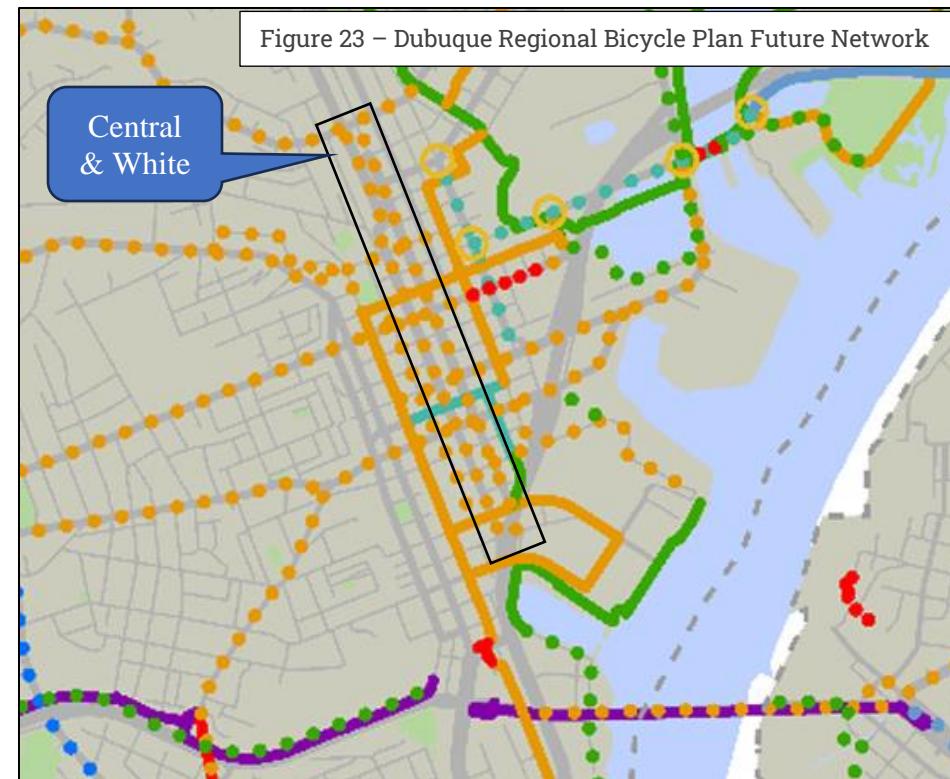
Two bicycle-related crashes were reported between 2019 and 2023. Both bicycle-related crashes resulted in injury (no fatalities). One crash occurred on Central Avenue at 22nd Street and the other occurred on White Street at 5th Street. Vehicle-only crashes resulted in 27% likelihood of injury, whereas, 100% of all bicycle crashes on the corridor resulted in injury.

F. Bicycling System Deficiencies

A mobility conditions assessment was completed in 2023 as part of MOVE DBQ. No on-street or off-street bike facilities are present on these two streets; however, the city launched a bike lane pilot project on 9th Street and 10th Street in 2024 which crosses Central Avenue and White Street.

G. Desired Bicycle Network

The 2023 Dubuque Regional Bicycle and Pedestrian Network Plan calls for connectivity in downtown Dubuque. The map for downtown Dubuque from the plan is provided in **Figure 23**. Dashed lines are displayed for on several streets in the downtown showing the desire for additional future bike facilities in downtown. This plan identifies signed-on-road trails for both Central Avenue and White Street.



XII. Transit

The City of Dubuque provides The Jule bus service throughout the city. Fixed route service runs Monday to Friday 4:45 am to 6:45 pm and Saturday 8:15 am to 5:45 pm.

As shown in **Figure 25**, The Pink Line runs on White Street and the Green Line runs on Central Avenue. Major transfer points occur on 11th Street and 9th Street connecting to the Intermodal Center. Transit riders in the study area have access to several bus routes that provide service to key locations in the city.

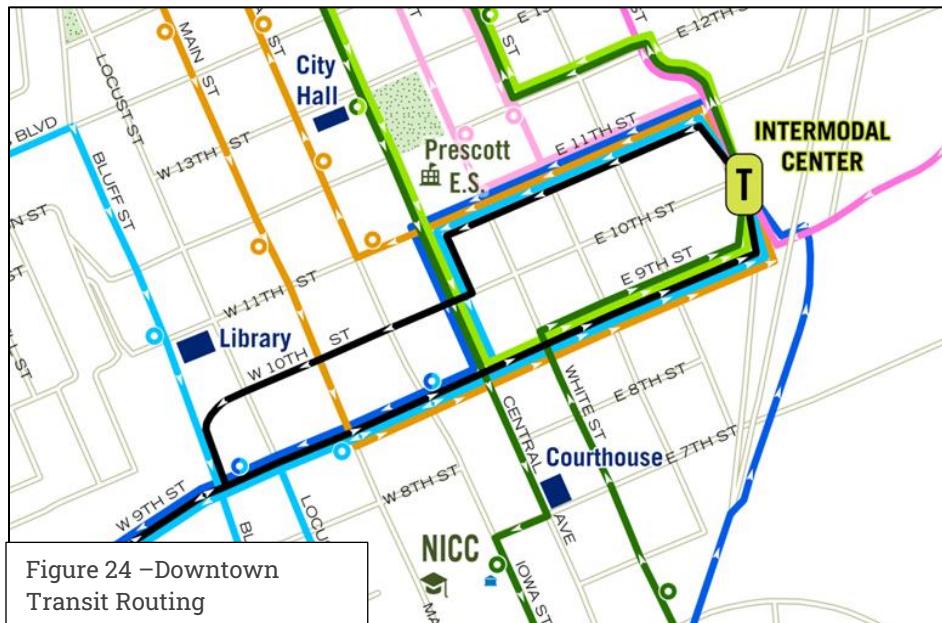


Figure 24 –Downtown Transit Routing

A. Transit System Deficiencies

Transit stops and amenities were reviewed with the mobility conditions assessment completed in 2023 as part of MOVE DBQ. It was noted that transit stops are often defined by signage only. The placement of transit stops is frequent, providing good accessibility with minimal out-of-way travel for riders. However, the one-way streets cause riders to walk a block over to catch their return trip, resulting in some extra travel.

In 2024, the city launched a program to add benches and trash cans at select transit stops along Central Avenue and White Streets. Some transit stops received these upgrades.

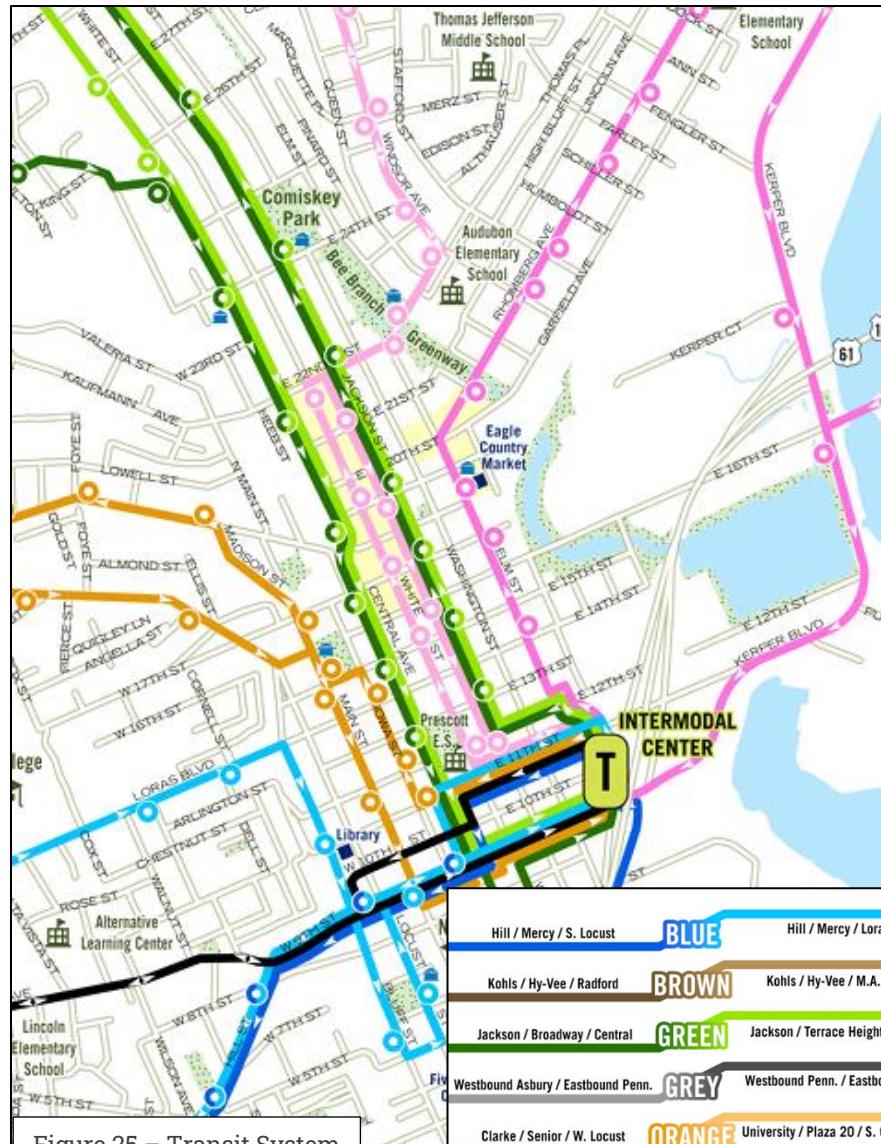


Figure 25 – Transit System

Blue	Hill / Mercy / S. Locust
Brown	Kohls / Hy-Vee / Radford
Green	Jackson / Terrace Heights / Central
Grey	Westbound Penn / Eastbound Asbury
Orange	University / Plaza 20 / S. Grandview
Pink	Windsor / Jackson
Purple	Mall / Hobby Lobby / Walmart
Express	Intermodal and JFK transfer centers

B. Transit Mode Share

Around 3% of study area residents use transit to commute to work, compared to the Dubuque County average of 1%.

C. Traffic Impacts from Buses

Under existing roadway conditions, traffic is generally unimpeded by bus stops on Central Avenue or White Street since drivers will pull out of the travel lane and to the curb at each stop and two travel lanes are available for passing when needed.

D. Ridership

Ridership information for each Jule fixed route from July 2023 to June 2024 was received from the city. Based on the information shown in **Figure 26**, the total ridership for all Jule fixed routes over a year is 343,314. The Green Line and Pink Lines which operate on Central Avenue and White Street in the study area carry a combined 90,138 passengers. This represents 26% of the total ridership on the city's fixed-route lines.

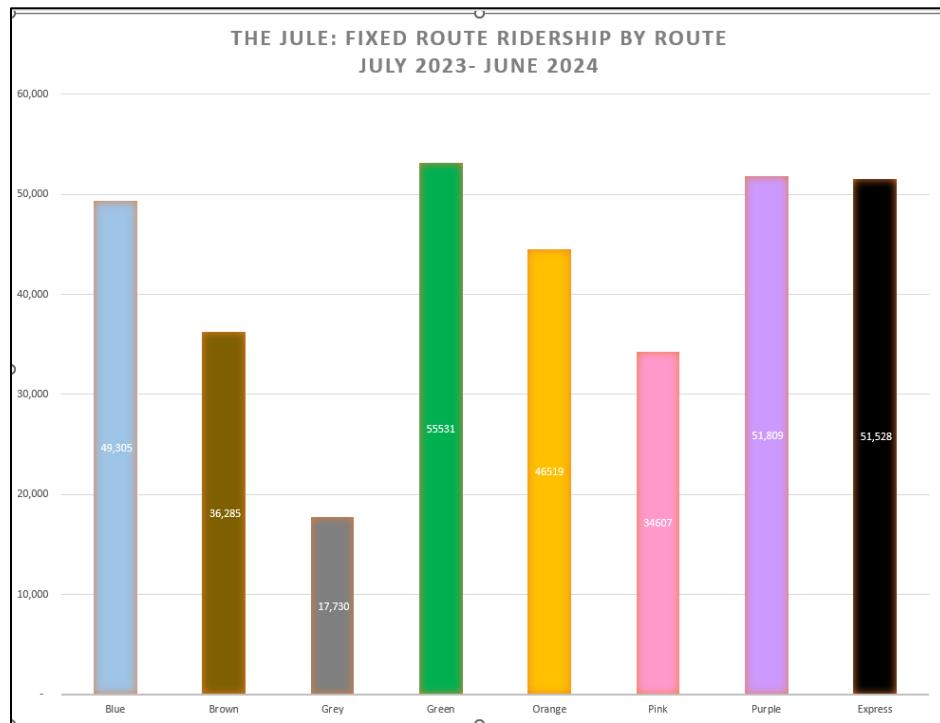


Figure 26: The Jule: Fixed Ridership by Route (July 2023 - June 2024)

XIII. Crash History

Five years of crash data from ICAT (Iowa Crash Analysis Tool) 2019-2023 were analyzed to assess study area crash patterns and identify potential safety issues that can be mitigated with roadway improvements. Full crash report tables are available in [Appendix B](#).

A. General Crash Trends

General trends in crash data are as follows:

- There were a total of 474 intersection-related crashes in the corridor during the analysis period. 75 crashes occurred outside the intersection zone of influence.
- The number of intersection crashes on Central Avenue and White Street is relatively the same even though White Street has 25% less traffic than Central Avenue.
- 60% of the crashes occurred at intersections
- 27% of the total crashes were speed-related
- 7% involved trucks
- 2% were pedestrian or bicycle-related
- Of the 38 intersections on the corridor, 8 of the intersections had more than 20 crashes over the 5 years and 22 of the intersections had more than 10 crashes in the same period.
- The intersection with the most crashes, Central Avenue and 14th Street had 34 crashes, 15 of which were broadside and 8 were sideswipe in the same direction.
- White Avenue and 14th Street was another crash intersection with 33 crashes, 12 of which being broadside and 9 crashes being angle collisions.
- The highest crash types were broadside and sideswipe same direction. These crash types accounted for 61% of total crashes. Rear end was the 3rd highest crash type experienced.
- Of the broadside crashes, most occurred at the intersection of 16th Street and White Street with 17. Similarly high rates of broadside crashes were present at the intersections of White St at 5th Street and Central Avenue at 14th Street, with 16 and 15 crashes, respectively.
- One fatality that occurred during the study period, a broadside crash at Central Avenue and 5th Street.
- A notable trend is that 25% of total injury crashes are speed-related.
- Although low in numbers, pedestrian/bike crashes result in injury every time.

- 9 crashes involved pedestrians

- No fatalities
- 78% involved turning left (remainder all moving straight)
- 57% failed to yield ROW to non-motorist
- 7/9 occurred at intersections (1/9 at driveway access)

- 2 crashes involved a bicyclist

- Both involved a left-turning vehicle

B. Manner of Collision

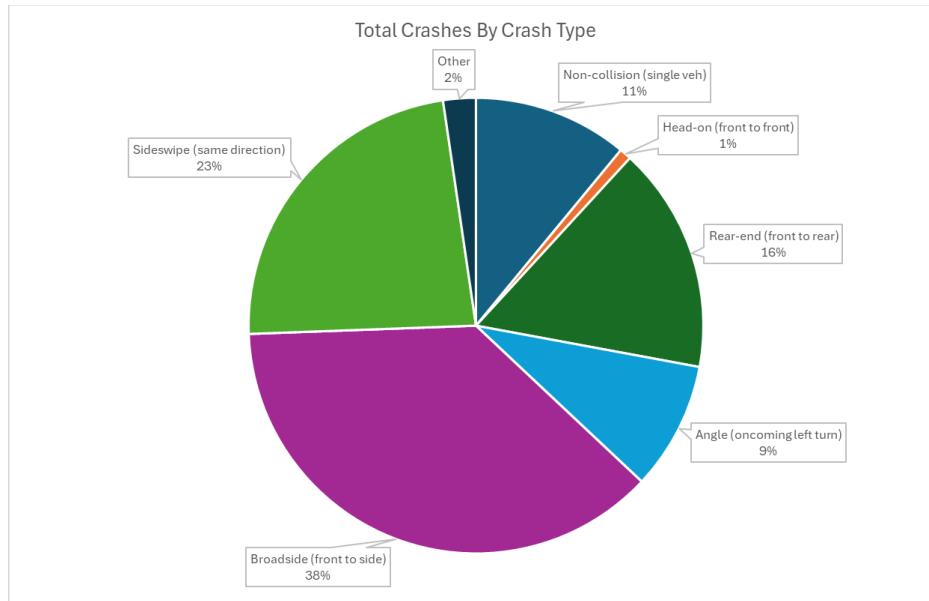
Crash data was analyzed to determine the trends in crash types for the corridor.

Table 4 presents the intersection crashes by manner of collision or crash type.

Table 4: Intersection Crashes by Manner of Collision

Crash Type	Central Ave	White Street	Total
Non-collision (single veh)	33	19	52
Head-on (front to front)	2	2	4
Rear-end (front to rear)	48	28	76
Angle (oncoming left turn)	17	26	43
Broadside (front to side)	69	108	177
Sideswipe (same direction)	59	51	110
Sideswipe (opposite direction)	1	0	1
Rear to rear	0	0	0
Rear to side	0	0	0
Not reported	0	0	0
Other	5	6	11
Unknown	0	0	0
Total	234	240	474

Chart 1: Intersection Crashes by Manner of Collision



C. Crash Severity

A review of crash severity was conducted. 24% of total crashes resulted in injury, see **Table 5**. There was one fatal crash and three serious injury crashes.

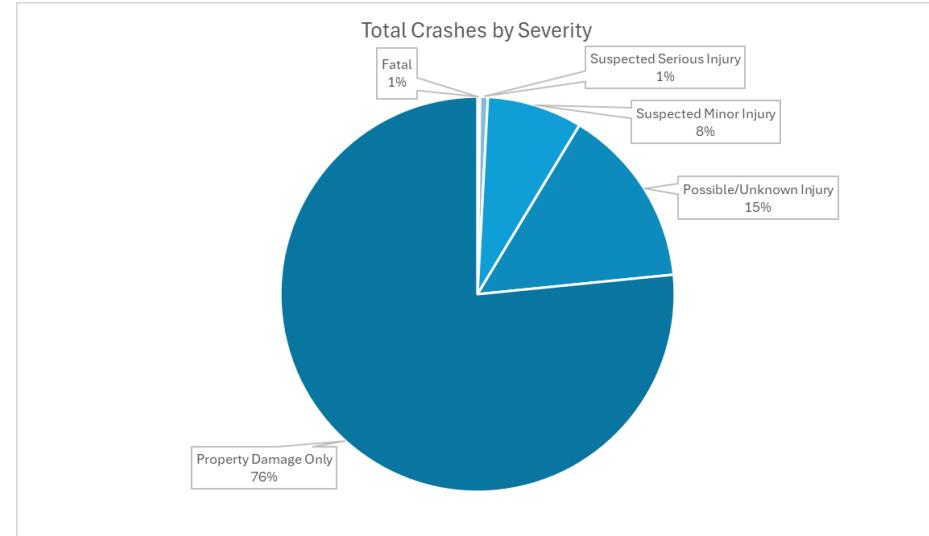
- The fatal crash occurred at the intersection of Central Avenue and 5th Street. The driver was under the influence when this broadside collision occurred.
- One serious injury crash was a single-vehicle crash that occurred at the intersection of White Street and 5th Street.
- The second serious injury at Central Avenue and 10th Street was when a passenger car and a cargo van were involved in a head-on collision. According to the crash detail report one vehicle was driving in the wrong direction and speeding.
- The third serious injury crash occurred at the intersection of Central Avenue and E 18th Street when a speeding motorcycle sideswiped a semi-truck.
- Of the remaining 470 total intersection crashes along the corridor, there were 37 minor injury crashes and 70 possible injury crashes. The remaining, 363 crashes were property damage-only crashes along the corridor.

Table 5: Total Crashes by Severity



Crash Severity	Central Ave	White Street	Total
Fatal	1	0	1
Suspected Serious Injury	2	1	3
Suspected Minor Injury	21	16	37
Possible/Unknown Injury	30	40	70
Property Damage Only	180	183	363
Total	234	240	474

Chart 2: Total Crashes by Severity



D. Potential for Crash Reduction (PCR)

The potential for crash reduction was considered. The Iowa DOT Potential for Crash Reduction (PCR) examines total crashes and their severity. PCR is based on traffic volumes, speeds, and intersection characteristics. These are calculated using regression equations that estimate crash frequency as a function of traffic volume. A high PCR indicates a poorly performing intersection.

Per the Iowa DOT website, the different PCR levels are defined as follows:

- Intersections with a PCR value greater than 1 will qualify as a High PCR Level. Projects at these intersections and segments will likely qualify for safety funds and will require a consultation with the Traffic and Safety Bureau to determine potential safety improvements.

- Intersections with a PCR value greater than or equal to 0.2 but less than 1 qualify as a Medium PCR Level. Medium PCR Level intersections have room for improvement and may qualify for safety funds.
- Intersections with a PCR value less than 0.2 qualify as a Negligible PCR Level. Negligible PCR Level intersections are performing better than expected.

Figure 27 shows the PCR at each intersection location provided by the Iowa DOT.

As shown in **Figure 27**, 15 intersections in the corridor are at a high PCR level (>1.0) for all crashes (KABCO). 5 intersections are at a high PCR level (>1.0) for injurious crashes (KAB).

- 1) Central Avenue & 20th Street
- 2) Central Avenue & 17th Street
- 3) Central Avenue & 14th Street
- 4) White Street & 9th Street
- 5) White Street & 5th Street

This indicates that these five intersections are experiencing higher-than-expected injury crashes. Detailed information about these five intersections follows:

Central and 20th St

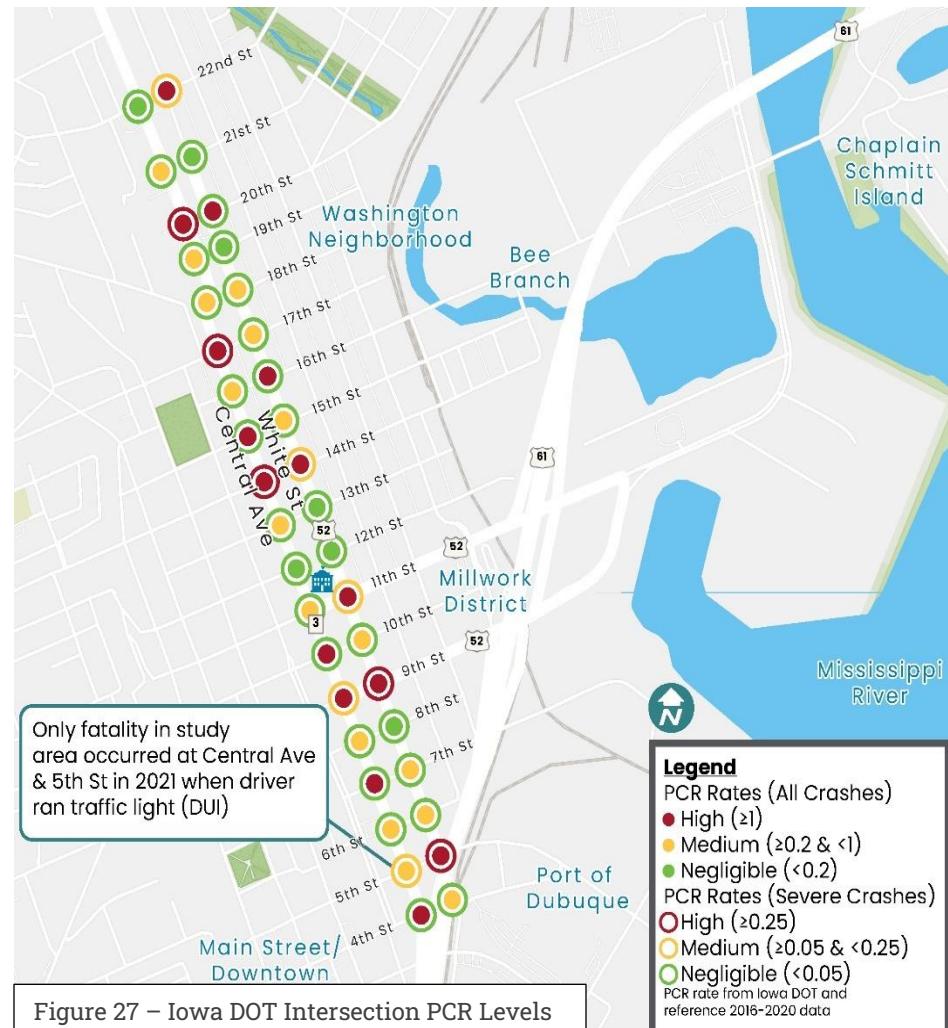
- 22 total crashes in the five years analyzed
- 8 were Speed-related
- 9 were Rear-end
- 17 were Property damage only
- The majority of crashes occurred north of the intersection

At the intersection of Central Avenue and 20th Street, crash data reveals a variety of incidents. Out of 22 recorded crashes, approximately 36% were speed-related, and about 41% were rear-end collisions. Notably, 77% of these crashes resulted in property damage only. The majority of crashes occurred north of the intersection.

Central and 17th St

- 26 total crashes in the five years analyzed
- 10 were due to a vehicle running a stop light
- 12 were Broadside crashes
- 18 resulted in Property Damage only
- 10 crashes involved a Westbound vehicle hitting a southbound vehicle

At the intersection of Central Avenue and 17th Street, crash data indicates several types of incidents. Out of 26 recorded crashes, approximately 38% involved vehicles running a stop light, and about 46% were broadside collisions. Additionally, 38% of the crashes involved westbound traffic hitting southbound vehicles. Notably, 69% of these crashes resulted in property damage only.



Central Avenue and 14th Street

- 34 total crashes in the five years analyzed
- 15 were Broadside crashes
- 16 Ran Traffic Signal
- 21 were Property damage only
- Broadside crashes consisted of an Eastbound or westbound vehicle hitting a southbound vehicle.

At the intersection of Central Avenue and 14th Street, a significant number of traffic incidents have been recorded. Out of 34 total crashes, 44% were broadside collisions, with these crashes predominantly involving eastbound and westbound vehicles striking southbound traffic. Additionally, 47% of these incidents were attributed to drivers running the traffic signal. Notably, 62% of the crashes resulted in property damage only.

White Street and 9th Street

- 16 total crashes in the five years analyzed
- 9 were Broadside Crashes
- 8 caused by a vehicle running the traffic signal
- 50% property damage only
- Half of the crashes involved an Eastbound vehicle hitting a northbound vehicle

At the intersection of White Street and 9th Street, various traffic incidents have been documented. Out of 16 total crashes, 56% were broadside collisions, with half of these involving eastbound vehicles striking northbound traffic. Additionally, 50% of the incidents were due to drivers running the traffic signal. Notably, 50% of the crashes resulted in property damage only.

White Street and 5th Street

- 22 total crashes in the five years analyzed
- 14 were Property damage only
- 9 were the result of vehicles running the stop sign
- 8 were FTYROW: from stop sign
- 16 of the 22 were Broadside
- 14 of the 16 broadside crashes involved an eastbound vehicle colliding with a northbound vehicle

At the intersection of White Street and 5th Street, various traffic incidents have been documented. Out of 22 total crashes, 64% resulted in property damage only. Additionally, 41% of the incidents involved drivers running the stop sign, while 36% were due to failure to yield the right of way from the stop sign. Broadside collisions accounted for 73% of the crashes, with 64% of these involving eastbound traffic hitting northbound vehicles.

XIV. Public Outreach and Stakeholder Engagement

A. Project Communication Plan

Early in the study process, it was recognized that there were several key stakeholder groups with a strong interest in the future of this corridor. A project communication plan was developed that included an overall strategy for engagement goals, stakeholder engagement, outreach tools, and an engagement schedule. Development of this communication plan was led by Bolton & Menk with input from the City of Dubuque.



The engagement strategy consisted of:

- Project Management Team (PMT) Meetings
- Project Advisory Team (PAT) Meetings
- Freight Focus Group Meetings
- Business Focus Group Meetings
- Resident Focus Group Meetings
- Door Knocking for Corridor Residences and Businesses
- Attending Area Neighborhood Meetings
- Pop-up Events
- Project Webpage
- Social Media Posts
- INPUTiD™ Interactive Comment Map
- Online Surveys
- Open House
- Council Work sessions
- Project Handouts/Factsheets



B. Project Engagement Summary

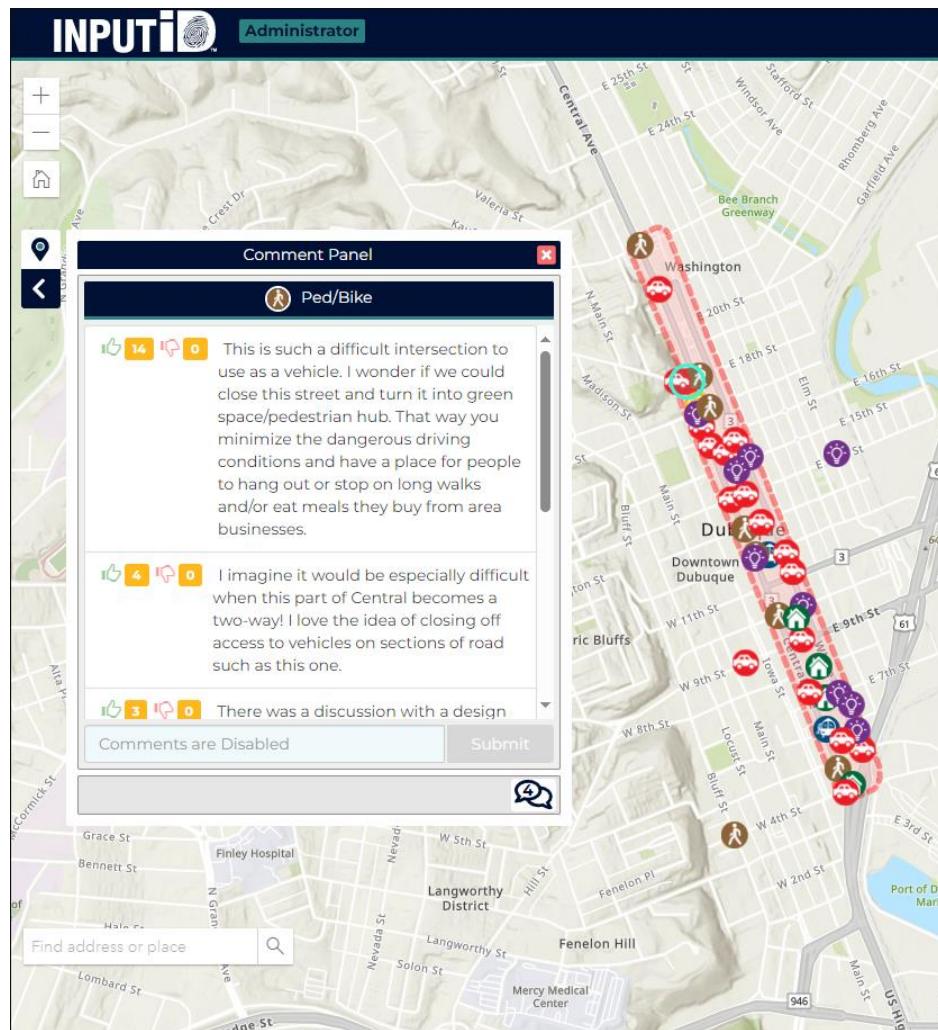
A summary of engagement follows. A full report summarizing each phase of the communication and outreach conducted throughout the study is available in [Appendix C](#).

- Door Knocking – 461 Corridor Residents and Businesses visited.
- Online InputID Public Comment Map (April) - 380+ comments, reactions, and replies.
- Public Survey on Amenities (July) – 827 submissions received



Events

- Prescott Elementary Carnival (April)
- Downtown Farmer's Market (April & July)
- City Life and Downtown Neighborhood (April)
- Central Avenue Neighborhood Meeting (July)
- National Night Out (August)



C. Stakeholder Groups Representation

The public and stakeholders were engaged throughout the project. Various perspectives were represented through the focus groups, PMT, and PAT groups. These meetings provided the opportunity to address questions and concerns of businesses and organizations in the project area and to share pertinent information of the project, gather feedback from their unique perspectives, build trust, and inform study alternatives. The stakeholders invited to engage in the study process through the focus groups, PMT, and PAT groups included:

- Central Business Association
- Key City Creative
- Corridor Residents
- Dubuque Initiatives
- Dubuque Main
- Dubuque Forward
- Dubuque Chamber
- Tucker Freight
- Prairie Farms
- John Deere
- North End NA
- Dream Center
- Steeple Square
- Greater Dubuque
- Welu Printing
- Lenz Monument
- Rainbo Oil
- Klauer Manufacturing
- Lime Springs/Pepsi
- Hirshbach
- Standard Forwarding
- Prescott Elementary
- Fire/EMS
- County Sheriff
- Public Works/Engineering
- Office of Shared Prosperity
- City Police Department
- Transit/Parking
- Community Planning
- Economic Development

D. Community Engagement Takeaways

Overall

- Retain one-way streets
- Reduce speed and dampen noise.
- Add landscaping and trees along both streets
- Improve safety for pedestrian crossings
- Provide a consistent street layout

Businesses

- Provide wider sidewalks, loading zones
- Maintain on-street parking on Central Avenue

Residents

- Safer cycling options
- Address parking needs
- Complete more investment in the neighborhood

Police/EMS/Freight

- Two lanes for passing and signal progression desired
- Turns at intersections are important
- Most important intersections for turning are 9th, 11th, 14th, and 16th Streets



XV. Future Year Volumes

The future land use provided in the city's Imagine Dubuque Comprehensive Plan shows that growth in the city will occur primarily in the west and southern portions of the city with some growth anticipated north the point where the Northwest Arterial connects with Central Avenue. The majority of this growth is anticipated to be single family residential with portions of commercial and multi-family anticipated in areas along the Northwest Arterial.

A. DMATS MPO Volumes

Dubuque Metropolitan Area Transportation Study & Regional Planning Affiliation (DMATS) models the projected traffic growth for the region based upon project land use from the city of Dubuque and the County's comprehensive plans. DMATS provided volume projections from their transportation model for five scenarios:

- No Build (two lanes in each direction)
 - No bridge
 - No train
- No Build (two lanes in each direction)
 - 14th Street Bridge
 - Traffic on Elm Street but no access to bridge
 - No train
- No Build (two lanes in each direction)
 - 14th Street Bridge
 - Traffic on Elm Street but no access to bridge
 - Train blocking 9th, 11th, 15th, 16th
- Full Two-Way Conversion (one lane in each direction on each roadway)
 - 14th Street Bridge
 - Traffic on Elm Street but no access to bridge
 - No train
- Full Two-Way Conversion (one lane in each direction on each roadway)
 - 14th Street Bridge
 - Traffic on Elm Street but no access to bridge
 - Train blocking 9th, 11th, 15th, 16th

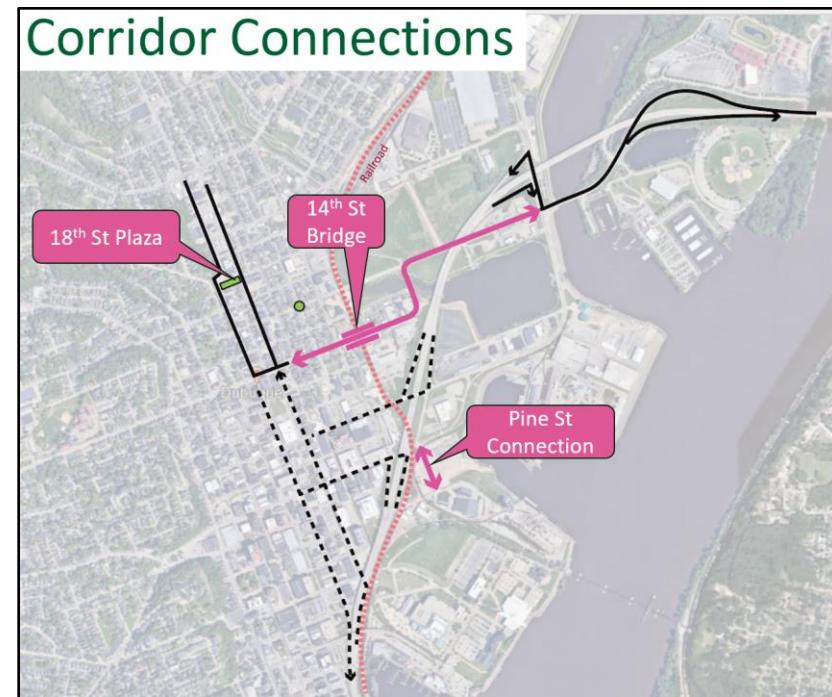
Each scenario contained projected volumes in the years 2017 and 2050. To generate a future volume set that was best representative of typical traffic patterns in the area, scenarios that included a train were not utilized. However, the impact of trains was considered throughout the analysis.

The data provided by DMATS provided general information on how traffic is expected to grow along these corridors. Because the data comes from a regional model and is not intended to provide specific estimations on a small downtown area, an overall growth rate was chosen to be applied to the 2024 counts. Each DMATS scenario was shown to use a consistent growth rate of 0.8% annually. To project existing turning movements to 2050 volumes for alternatives analysis, 0.8% per year (or multiplier of 1.23) was applied.

B. Future Corridor Connections

In all alternatives analyzed, it was assumed that the following planned improvements would be completed (see **Figure 28** for connection locations):

Figure 28. Future Corridor Connections



14th Street Overpass

A bridge over the railroad is to be constructed on 14th Street to the east of the study area. The primary purpose of the bridge is to serve as a railroad overpass. As train frequency increases in the area, this will provide an opportunity for vehicles to avoid waiting for trains to pass. While this will make 14th Street more desirable, it is not expected to cause a drastic shift in overall traffic patterns other than when a train is present.



Image of Future 14th Street Overpass

18th Street Plaza

18th Street between Central Avenue and White Street was proposed to be closed to private vehicles at Central Avenue and a pedestrian only plaza created to serve as a neighborhood gathering space.



Image of 18th Street Plaza Concept from Central Avenue Streetscape Plan

Pine Street Connection

To the east of the study area, Pine Street is to extend from 9th St/Kerper Boulevard to 7th Street east of US 6. This expansion allows heavy vehicles coming from US 61 to reach East Commercial Street/Port area without having to traverse through Central Avenue and White Street.

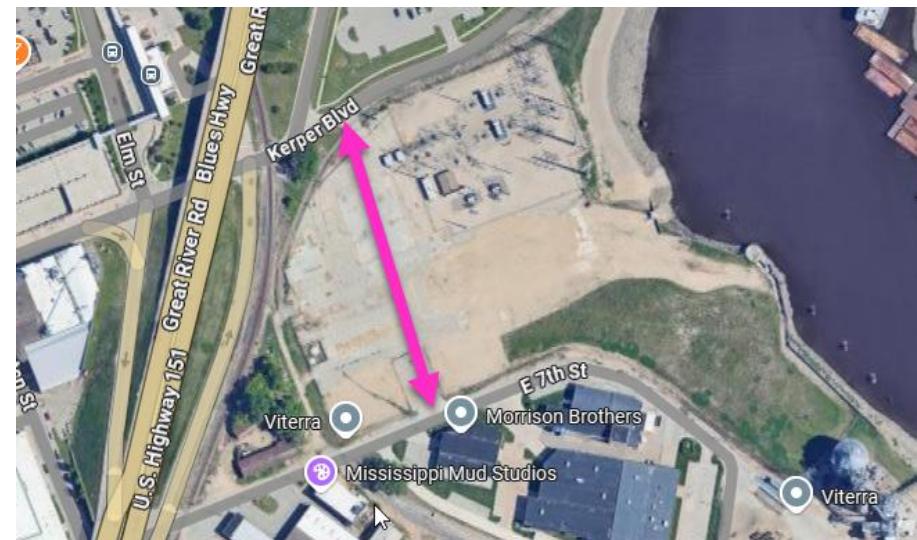


Image Showing Proposed Location of new Pine Street Connection

C. One-Way to Two-Way Volume Conversion

To redistribute the existing one-way turning movements into a two-way network, Streetlight, DMATS models, and the April 2024 counts were all used.

- April 2024 Counts
 - From the counts, it was determined where vehicles were entering and exiting the network. These numbers were used as the number of vehicles expected to enter and exit at each corridor access point.
- Streetlight
 - A full origin-destination matrix was obtained using Streetlight, allowing the existing counts to be distributed from one entry/exit point to another. For this task, the traffic analysis software PTV Vistro was used.
- DMATS Models
 - Once the trips were distributed in PTV Vistro, the specific route between each origin and destination was determined by looking at the DMATS models and analyzing how trips are split between Central Avenue and White Street as well as where significant shifts from one main corridor to another occur. For example, a vehicle may enter northbound White Street with an intended destination that is north of 22nd Street on Central Avenue. DMATS models provided projections of when a vehicle would shift from northbound White Street to northbound Central Avenue.

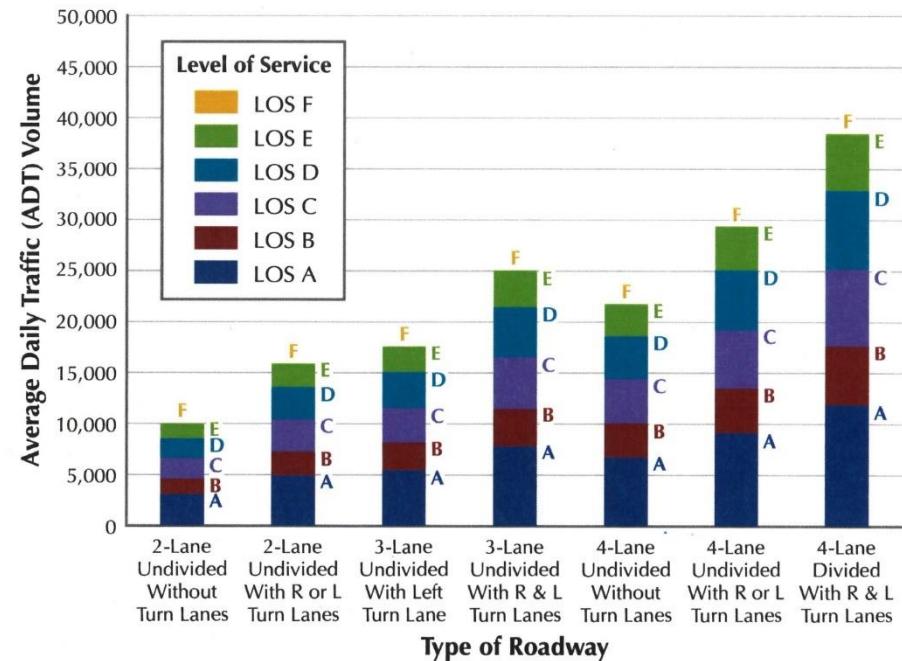
D. North End Changes

Regardless of which alternative is preferred for Central Avenue and White Street, the intersections of Central Avenue at 22nd Street and White Street and 22nd Street will likely fail before 2050. North of the study area, Central Avenue continues providing access to the Northwest Arterial. White Street continues through a low speed residential neighborhood for a few blocks north of 22nd Street before eventually reaching a dead end. All vehicles traveling between downtown Dubuque and the northern neighborhoods and Northwest Arterial must use Central Avenue, which is causing it to exceed its capacity as traffic grows in the future.

Figure 29 provides a planning-level estimate of roadway capacity. Based on the characteristics of Central Avenue (two-lane undivided without turn lanes), the roadway operates at LOS D at traffic volumes of 7,000 vehicles per day. LOS E is experienced as volumes grow above 8,000 vehicles per day and higher.

Figure 29. Planning Level Estimate Level of Service

Planning Level Estimate of Level of Service (LOS)



Capacity Assumptions*

Through Only Lane	800 vph
LT/TH Lane	600 vph
TH/RT Lane	700 vph
TH/RT/FT Lanes	600 vph
Turn Lanes	350 vph

* Assumes 1/4 mile signal spacing. For less than 1/4 mile signal spacing, roadway becomes too volatile to determine LOS by ADT.

Peak Hour Percentages

Arterial Roadway	10%
Directional Orientation	60/40

Note: Approximate values based on highly dependent assumptions. Do not use for operational analyses or final design.

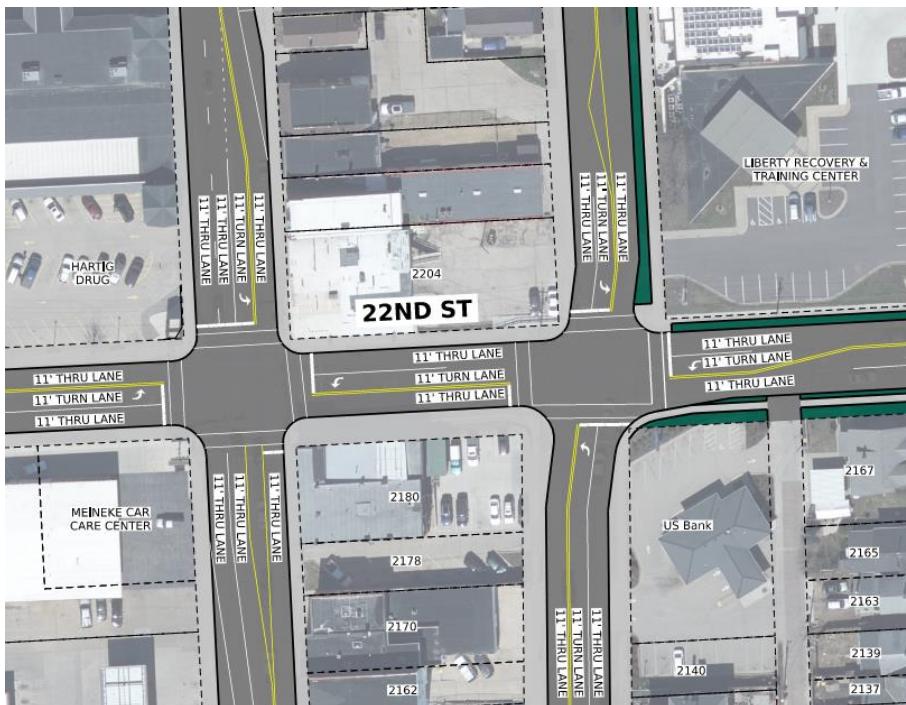
Based on the existing turning movement counts and the growth rate taken from the DMATS models, Central Avenue will exceed 8,000 vehicles per day by 2050. A sensitivity analysis found that the roadway is expected to hit the threshold of 7,000 vehicles per day by 2033 and reach 8,000 vehicles per day by 2049.

Based on this, two travel lanes are needed in each direction on Central Avenue, however, due to right-of-way constraints, only one additional lane was able to be added to the network for analysis immediately to the north and south of 22nd Street. The April 2024 counts showed that at the intersection of Central Avenue

and 22nd Street, the southbound movement was consistently higher than the northbound.

For the alternative analysis, an additional lane was added in the southbound direction. The intersection of Central Avenue at 22nd Street has minimal space, so a northbound left turn lane was removed to accommodate a second southbound through lane. At this intersection, northbound left turns are now prohibited. The intersection of White Street at 22nd Avenue is currently unsignalized, but a signal is recommended. The northbound left turning vehicles that have been removed from Central Avenue are rerouted to White Street. Both intersections along 22nd Street are coordinated to allow the northbound left turning vehicles on White Street to proceed through the signal at Central Avenue without stopping and creating a queue. **Figure 30** provides the proposed layout.

Figure 30. North End Layout (Central Ave at 22nd St / White St at 22nd St)



E. Future Volume Sets

Different volume sets were used in the analysis of alternatives:

- Full One-Way
- Full Two-Way

Today, Central Avenue carries 8,000 vehicles per day and White Street carries 5,000 vehicles per day. **Figure 31** shows the projected 2050 average daily traffic (ADT) if the corridors are to remain one-way, Central Avenue gains an additional southbound through lane at 22nd Street, and all future corridor connections are completed. **Figure 32** shows the ADT after the redistribution of 2024 traffic if all the changes mentioned above are completed as well as the full conversion from a one-way pair to each roadway becoming two-way. **Figure 32** shows ADTs of the two-way in the year 2050. Full turning movement counts can be found in **Appendix D**.

Figure 31. 2050 One-Way ADT

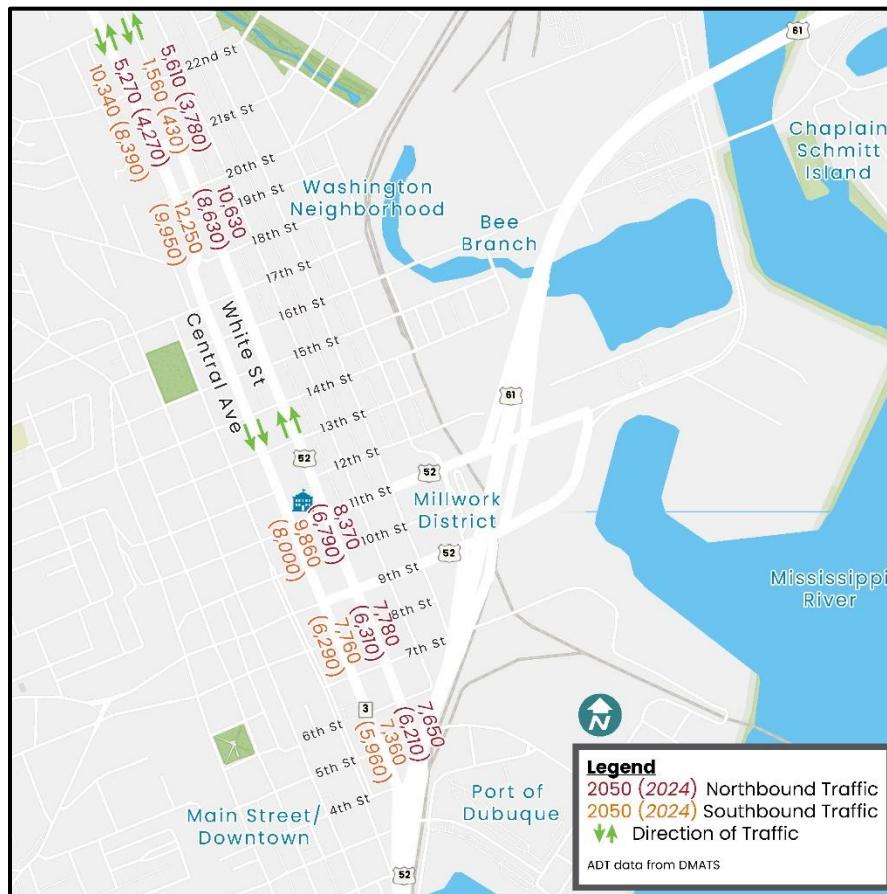
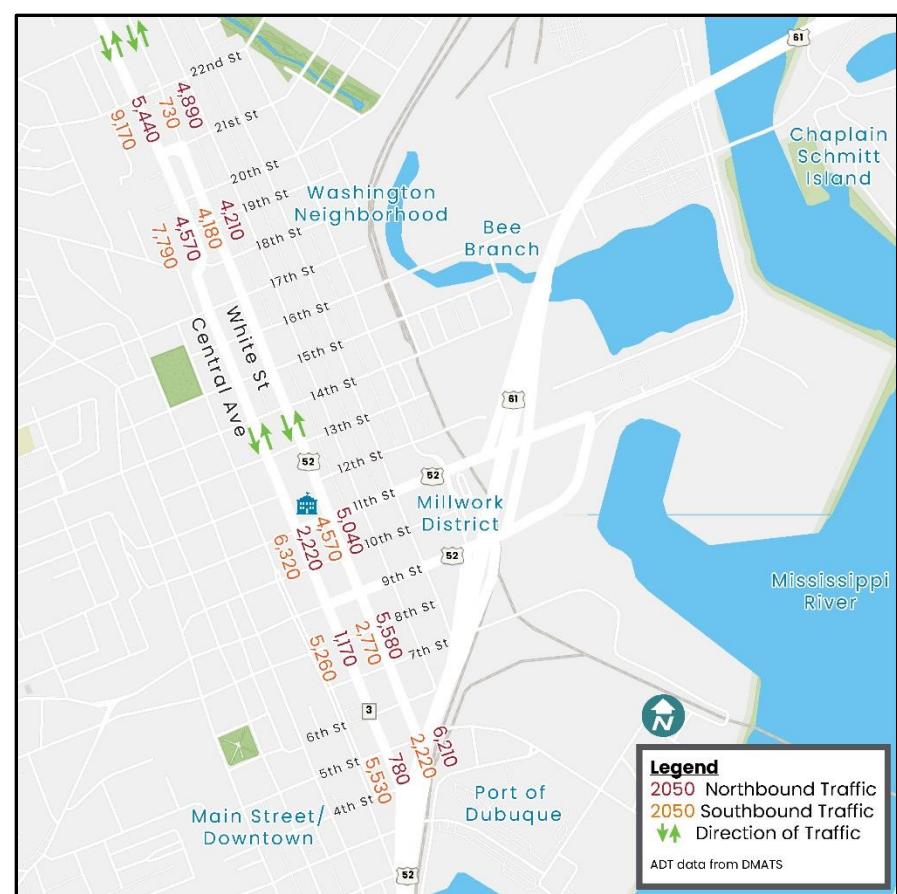


Figure 32. 2050 Two-Way ADT



F. Future 2050 No Build Operations

Figure 33 shows the intersection operations during both the AM and PM peak hours for all study intersections using the projected 2050 volumes if the corridors are to remain one-way, Central Avenue gains an additional southbound through lane at 22nd Street, and all future corridor connections are completed.

Figure 33. 2050 No Build Operations

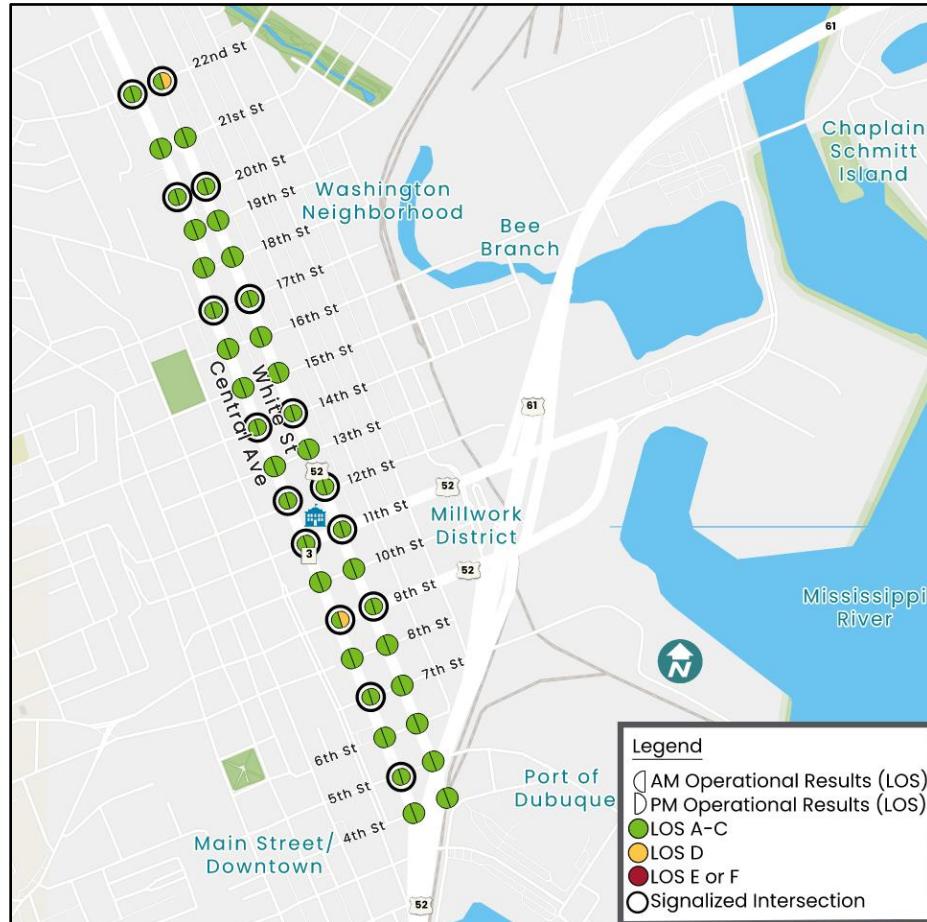


Figure 33 shows that all intersections operate at LOS C or better in the AM Peak Hour. In the PM Peak Hour, the intersections of Central Avenue at 9th Street and White Street at 22nd Street operate at LOS D. All other intersections operate at LOS C or better. No major operational concerns are present in this 2050 No Build scenario.

XVI. Alternatives Exploration

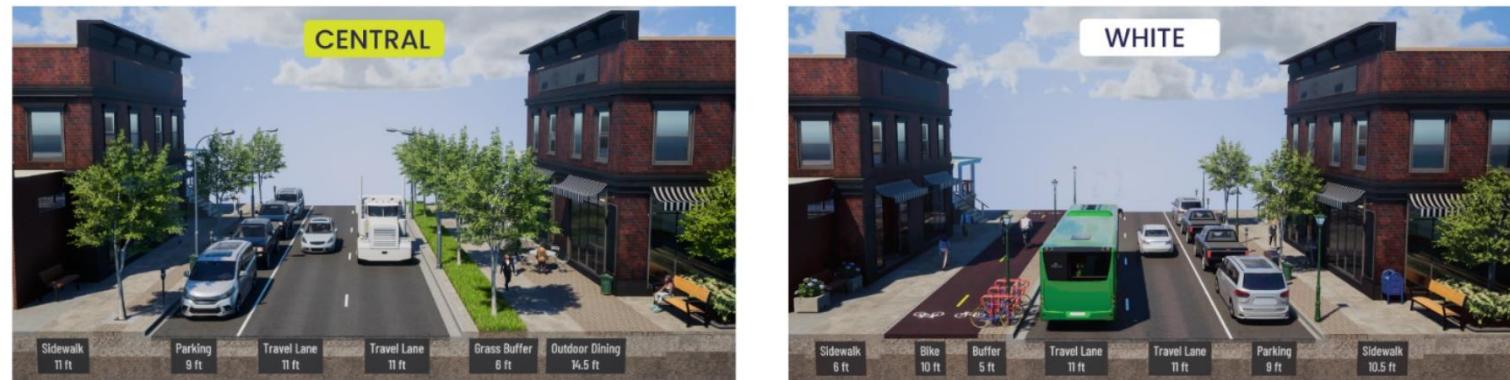
A. Alternatives

Several combinations of lanes and directionality were considered. Four alternatives rose to the top to explore in more detail.

Multi-Modal Focused

Alternative 1 is a multi-modal focused option. Both Central Avenue and White Street currently have parking on both sides, but this option removes one side of parking on each street. The extra space allows for a wide sidewalk on Central Avenue. Landscaping and outdoor seating for restaurants along Central Avenue are also able to be added with the extra space. On White Street, the removal of parking on one side allows for a two-way cycle track to be added. This cycle track provides a bike route that spans the entire length of the corridor. Both Central Avenue and White Street have the same roadway configurations as today (both roadways are one-way with two travel lanes in each direction for the entire length of the corridor). This allows for the existing signals to remain coordinated as they are. This is the option preferred by residents of the area as it provides an improved pedestrian experience as well as non-vehicular transportation options. **Figure 34** shows the typical cross-section of both Central Avenue and White Street with this option.

Alternative 1 | Multi-Modal Focused



- Central and White one-way, two lanes
- Parking removed on one side of Central and one side of White
- Wide sidewalk, outdoor dining, and landscaping on Central
- Two-way cycle track on White

Figure 34. Alternative 1 Typical Cross-Sections

Getting To and Sticking Around

Alternative 2 prioritizes vehicles having access to the entire corridor regardless of the direction they are traveling from. This is done by converting both roadways entirely to two-ways. Parking will be present on both sides of Central Avenue and White Street to provide vehicles traveling into the area with easy access to businesses in the downtown area. All intersections that are currently signalized are to remain signalized, but retiming is needed to accommodate new movements. At all signalized intersections, left turn lanes will be needed to prevent queues from backing up on the main roadways. These left turn lanes will remove parking on one side of the road for a short stretch. Due to the close spacing of signals between 8th Street and 12th Street a two-way left turn lane would be needed and parking would be removed on one side of each roadway to accommodate the two-way left turn lane in this area. This alternative provides the most parking and provides more direct routes – no rerouting due to one-ways is required.

Figure 35 shows the typical cross-section of both Central Avenue and White Street with this option.

Alternative 2 | Getting To and Sticking Around



- Central and White are changed to two-way
- Parking is maximized and present on both sides of the roadway
- Left turn lanes are needed at all signalized intersections
- A two-way left turn lane is needed from 8th to 12th, removes parking on one side

Figure 35. Alternative 2 Typical Cross-Sections

Slow and Flow

Alternative 3 looks to keep the corridors operating as is while lowering vehicular speeds to improve safety to both drivers and pedestrians. From 9th Street to 22nd Street, both corridors look as they are today – one-way roadways with two travel lanes and parking on each side of the street. South of 9th Street, Central Avenue and White Street remain one-way but are reduced to one travel lane and parking on one side of each street. The additional right-of-way allows for large sidewalks with improved landscaping, outdoor dining options, and other pedestrian accommodations. An analysis of traffic volumes showed that south of 9th Street, the volumes are low enough to utilize one travel lane without exceeding the roadway capacity. When vehicles travel on overbuilt roadways with little to no congestion, they are more susceptible to exceeding speeds limits, creating an unsafe situation. This option will result in vehicles traveling at lower speeds, creating a safer situation for both drivers and pedestrians, without a significant increase in vehicular delay at intersections. **Figure 36** shows the typical cross-section of White Street with this option.

Alternative 3 | Slow and Flow



- Central and White remain one-way pairs with two lanes in each direction from 22nd to 9th
- Parking on both sides from 22nd to 9th
- Travel lanes change to one from 9th to 4th
- Parking is removed on one side from 9th to 4th

Figure 36. Alternative 3 Typical Cross-Sections

Different Roads, Different Roles

Alternative 4 looks to combine different aspects of Alternative 1 and Alternative 2. South of 13th Street, both Central Avenue and White Street are one-way roadways with two travel lanes in each direction and parking on both sides of each street. The existing signals remain and provide coordination up and down the corridor. At 13th Street, both roadways are converted to two-way streets. Parking remains on both sides of the street except for where left turn lanes exist at signalized intersections. This change occurs at 13th Street because of the lower amount of traffic volume. The conversion here allows for signal coordination to focus on shifting traffic volume without adding delay to a major east-west street. North of 13th Street vehicles are able to travel the corridors without rerouting due to one-ways. **Figure 37** shows the typical cross-section of Central Avenue with this option.

Alternative 4 | Different Roads, Different Roles



- Central and White are one-way pairs with two lanes in each direction from 4th to 13th
- At 13th, Central and White change to two-way streets
- Parking remains on both sides of the street

Figure 37. Alternative 4 Typical Cross-Sections

B. Alternative Operations

The different one-way and two-way volume sets were used to analyze the four alternatives for 2024 and 2050.

Multi-Modal Focused

Alternative 1 has the same roadway characteristics and lane configurations as the no build scenario. **Figure 38** shows the intersection operations of this alternative with 2024 volumes. **Figure 39** shows the intersection operations of this alternative with 2050 volumes. Detailed operations can be found in **Appendix E**.

Figure 38. 2024 Alternative 1 Operations

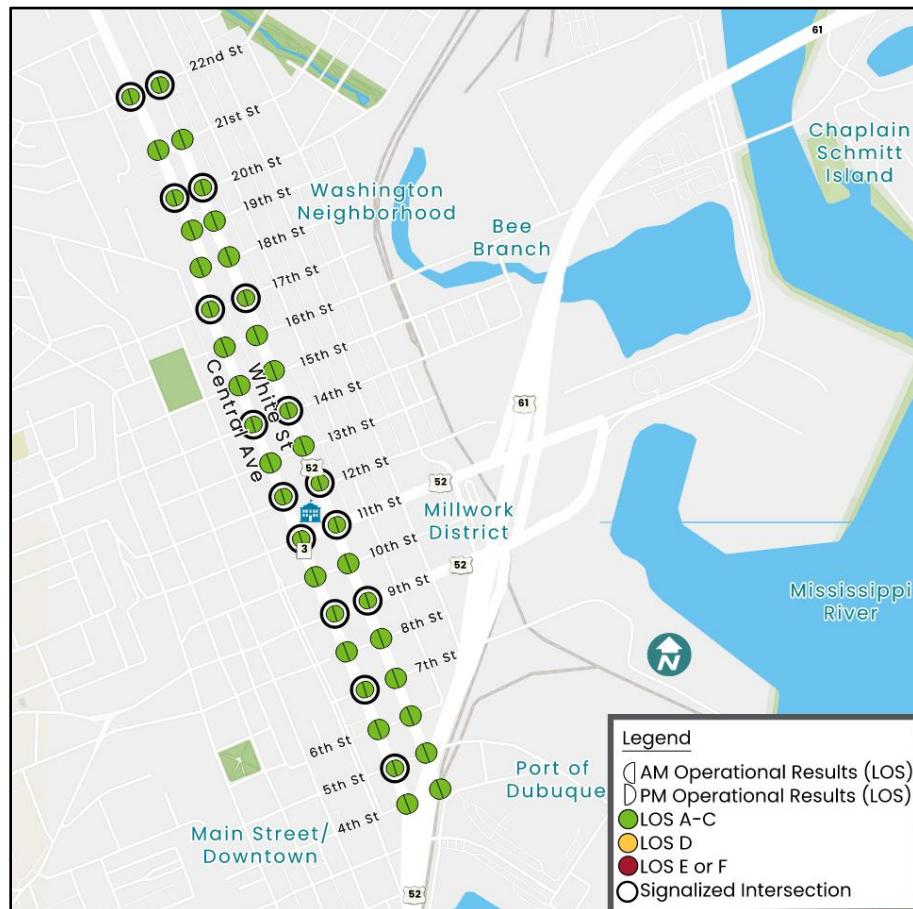


Figure 39. 2050 Alternative 1 Operations

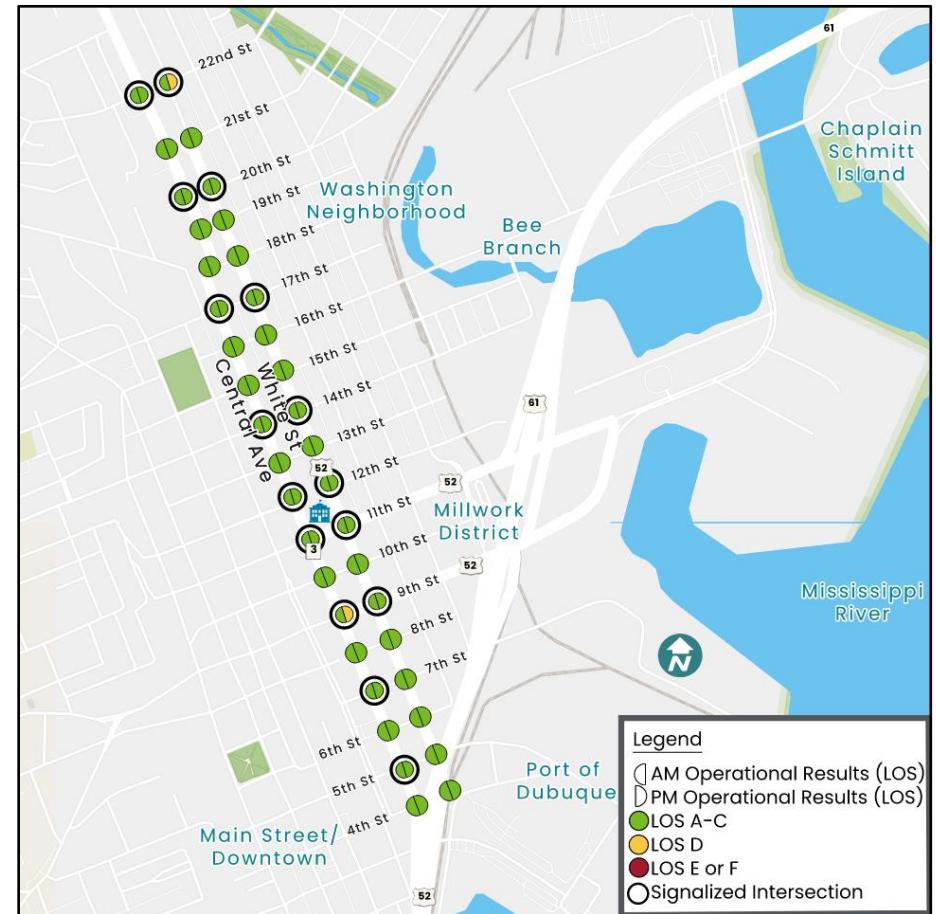


Figure 38 shows that all intersections operate at LOS C or better in both the AM and PM Peak Hours in 2024. **Figure 39** shows that in 2050 all intersections operate at LOS C or better in the AM Peak Hour. In the PM Peak Hour, the intersections of Central Avenue at 9th Street and White Street at 22nd Street operate at LOS D. All other intersections operate at LOS C or better. No major operational concerns are present in this scenario.

Getting To and Sticking Around

Alternative 2 utilizes the projected traffic volumes that have been fully converted to two-way. **Figure 40** shows the intersection operations of this alternative with 2024 volumes. **Figure 41** shows the intersection operations of this alternative with 2050 volumes. Detailed operations can be found in **Appendix E**.

Figure 40. 2024 Alternative 2 Operations

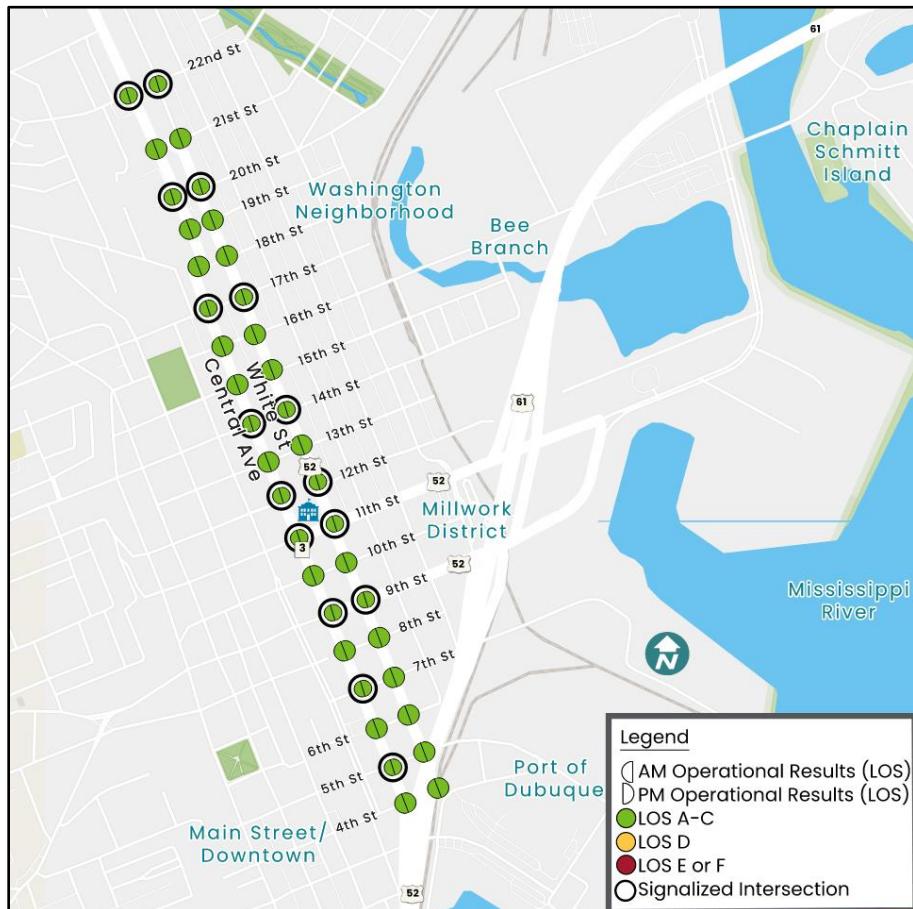


Figure 41. 2050 Alternative 2 Operations

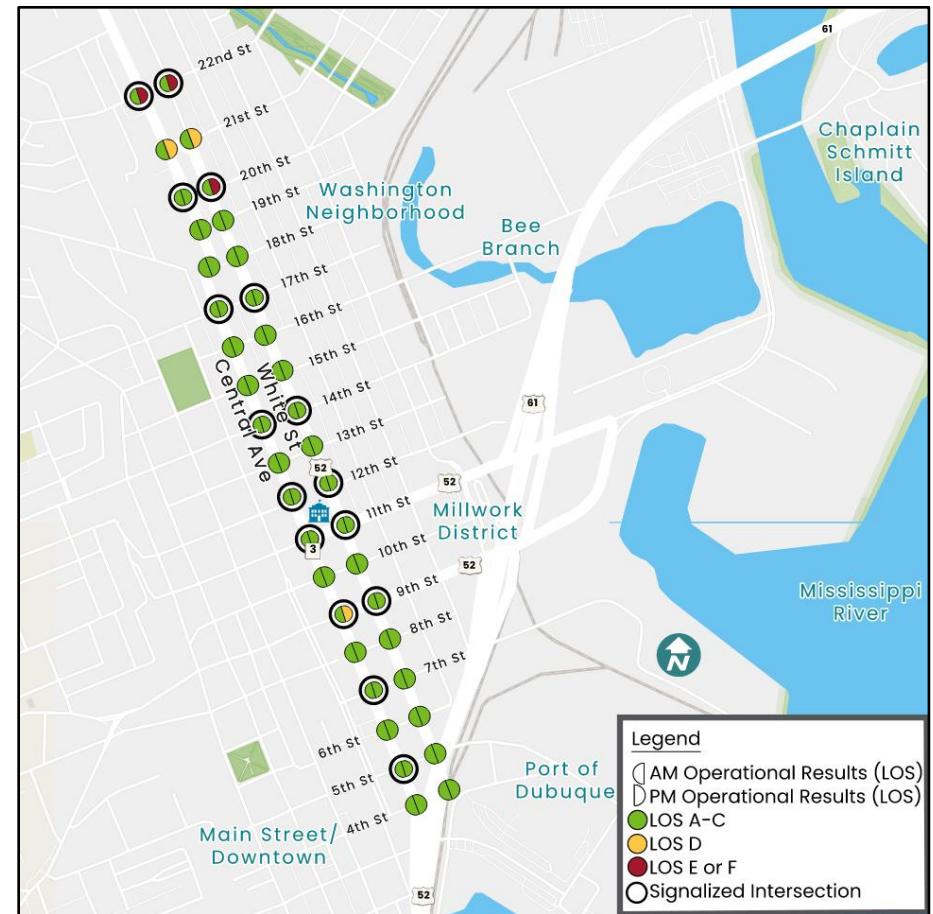


Figure 40 shows that all intersections operate at LOS C or better in both the AM and PM Peak Hours in 2024 with two-way roadways. **Figure 41** shows that in 2050 several intersections fail in the PM Peak Hour despite LOS C or better in the AM Peak Hour. Three study intersections operate at LOS D. One intersection operates at LOS E, and two intersections operate at LOS F:

- Central Avenue at 22nd Street
- White Street at 22nd Street

Based on these intersection operations, the north end near Central Avenue and 22nd Street is experiencing more delay in a fully two-way network than in a one-way network.

Slow and Flow

Alternative 3 uses the same traffic volumes as the no build scenario and Alternative 1, but the roadway reduces from two travel lanes per direction to one travel lane per direction south of 9th Street. **Figure 42** shows the intersection operations of this alternative with 2024 volumes. **Figure 43** shows the intersection operations of this alternative with 2050 volumes. Detailed operations can be found in **Appendix E**.

Figure 42. 2024 Alternative 3 Operations

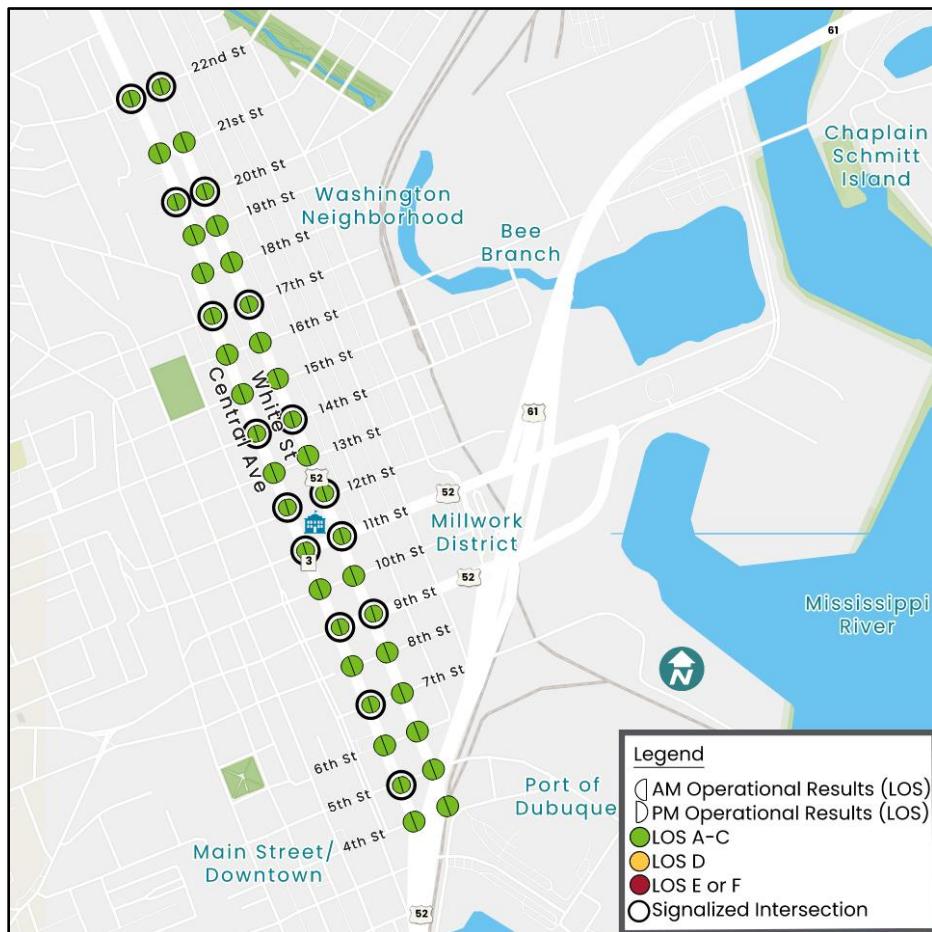


Figure 43. 2050 Alternative 3 Operations

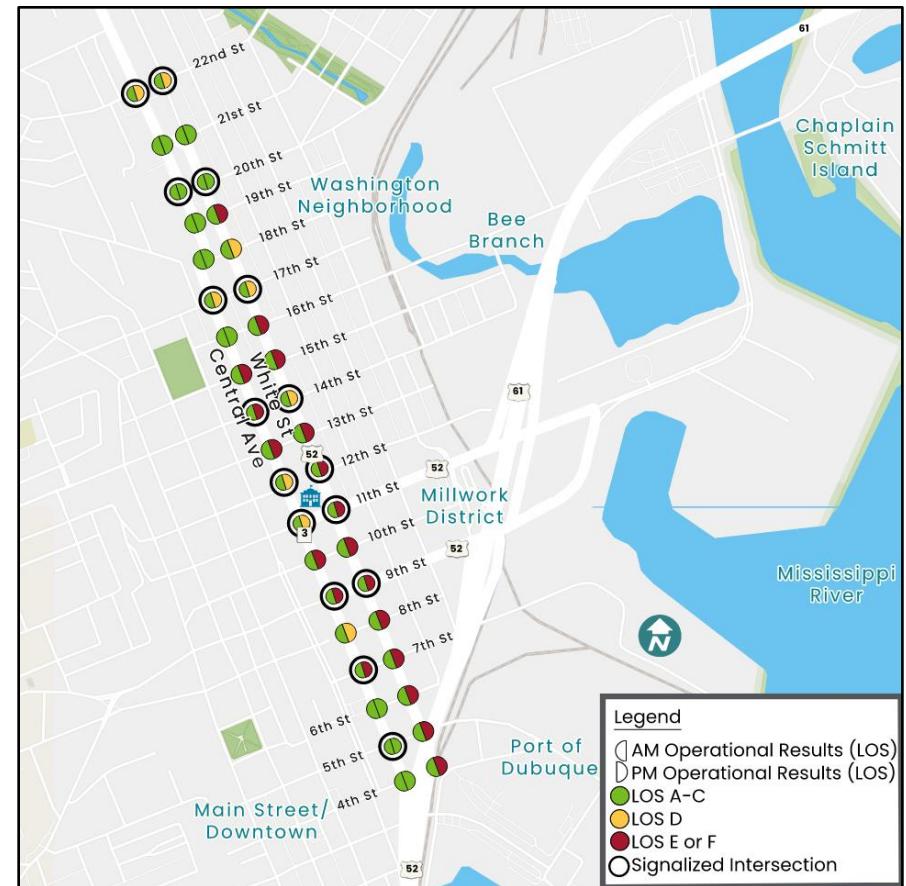


Figure 42 shows that all intersections operate at LOS C or better in both the AM and PM Peak Hours in 2024. **Figure 43** shows that in 2050 several intersections fail in the PM Peak Hour despite LOS C or better in the AM Peak Hour. From 4th Street to 13th Street, White Street fails at every intersection. This is not because the roadway is over-capacity, but rather because vehicles stop at signals and are limited to one lane for queueing. This causes the queues to build up twice as fast while also preventing it from clearing as quickly. On Central Avenue, intersections struggle as they approach the lane reduction. Southbound vehicles must merge into the lane that continues south, which causes significant congestion and several intersections begin to fail. In total, 9 intersections operate at LOS D, 8 intersections operate at LOS E, and 11 intersections operate at LOS F in the 2050 PM Peak Hour with this alternative.

Different Roads, Different Roles

Alternative 4 uses a volume set with one-way traffic south of 13th Street and a two-way traffic north of 13th Street. **Figure 44** shows the intersection operations of this alternative with 2024 volumes. **Figure 45** shows the intersection operations of this alternative with 2050 volumes. Detailed operations can be found in **Appendix E**.

Figure 44. 2024 Alternative 4 Operations

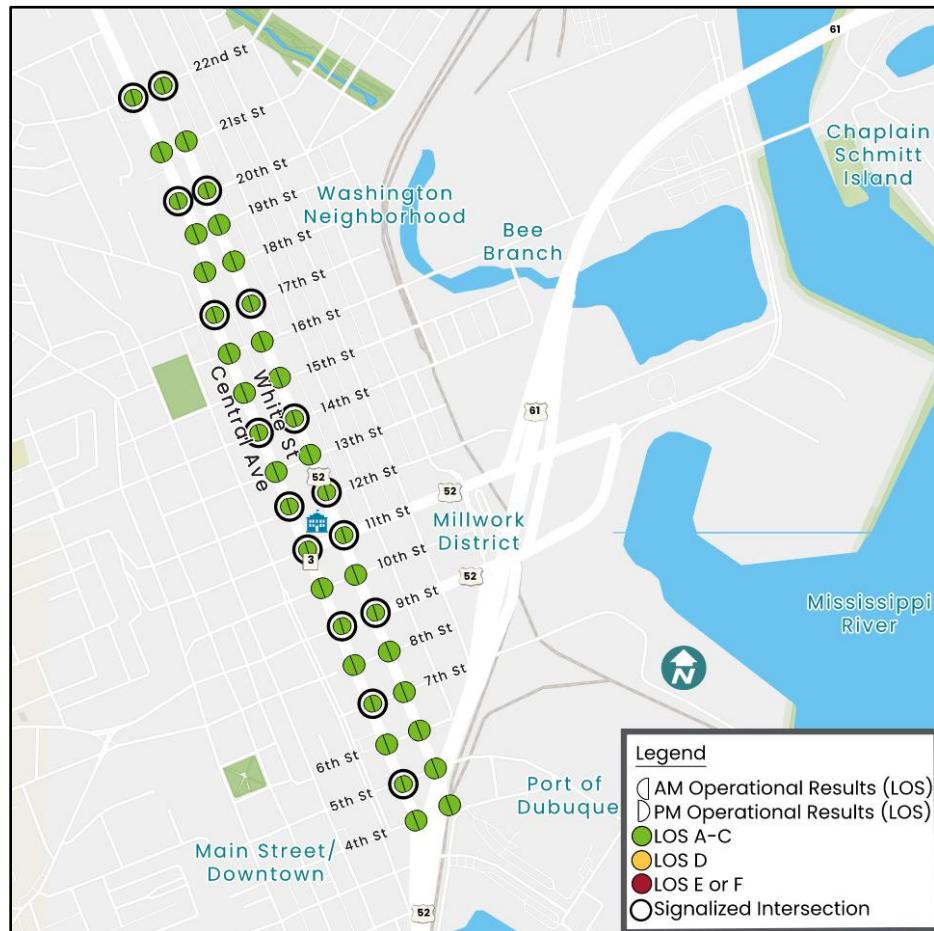


Figure 45. 2050 Alternative 4 Operations

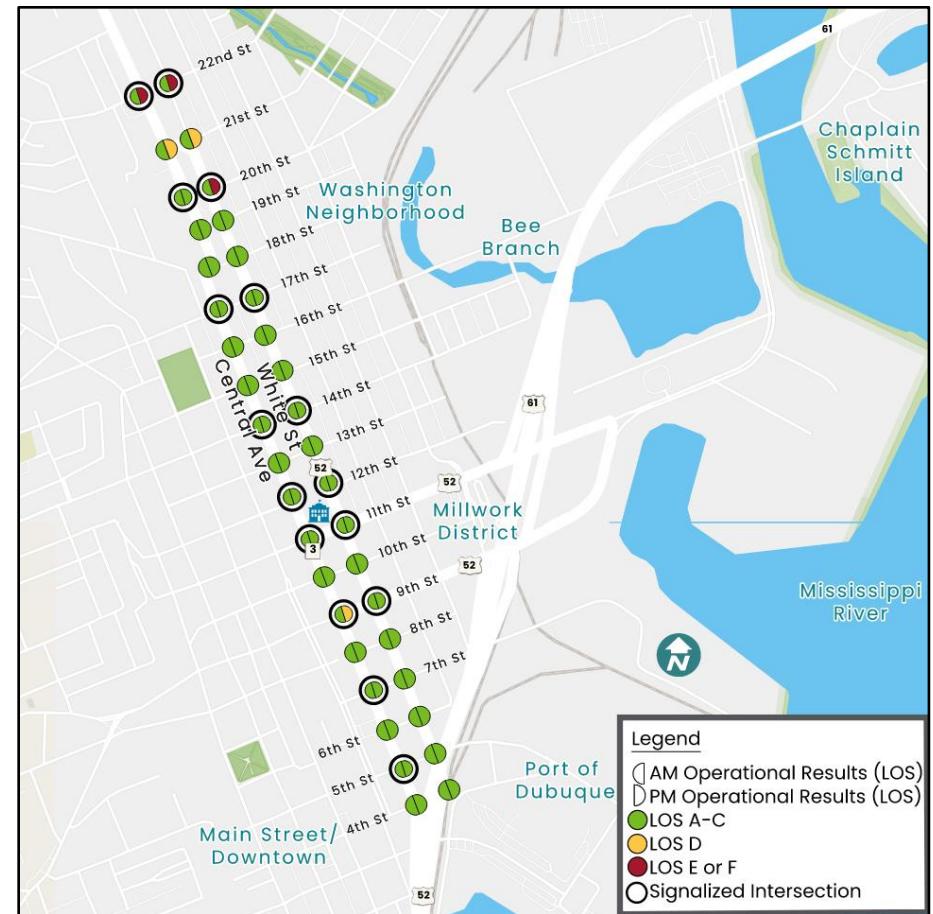


Figure 44 shows that in 2024 all intersections operate at LOS C or better in both the AM and PM Peak Hours. **Figure 45** shows that in 2050 several intersections fail in the PM Peak Hour despite LOS C or better in the AM Peak Hour. Three study intersections operate at LOS D. One intersection operates at LOS E, and two intersections operate at LOS F. Like Alternative 2, the north-end fails in the 2050 PM Peak, experiencing large delays and queues when the surrounding network is two-way.

C. Evaluation Matrix

An evaluation matrix was used to compare the alternatives based on the guiding study principles developed through this project process:



Safety

- Create a place that is comfortable, safe, and welcoming to all – regardless of how one is coming to, using, or passing through.
- Design recommendations should be focused on ensuring real and perceived safety across all modes of transportation through vitality, activity, lively streets and public spaces, and shared sense of ownership.



Economic Development

- Design recommendations should be focused on ensuring proposed improvements that will preserve or improve upon existing business operations and economic activity.
- Create an attractive place for new brick and mortar businesses in Downtown Dubuque.
- Central Avenue and White Street should be celebrated as opportunities for downtown gateways.
- Minimize impacts of construction on existing businesses.
- Encourage investments at all scales including small scale incremental investments for existing local businesses and larger investments for redevelopment.



Connectivity

- Create a place that inspires people to travel across neighborhoods, throughout downtown, around the city, and from the region.



Equity

- Create a place that is informed by the people and voices that use it on a regular basis.
- Foster an identity that represents and is created by the communities and cultures of the past, current, and future.
- Ensure travel along, and to, Central Ave and White Street is not dependent on a private vehicle.
- Implement high quality street furnishing and multi-modal transportation amenities.
- Reference and evaluate past input and plans.

The evaluation matrix shown in **Figure 46** took these guiding principles and assigned specific performance measures to each one to measure the overall effect on each guiding principle with each alternative explored.

Some of the metrics that were used for comparison were:

- Safety
 - Conflict Points
 - Predictive Crashes
- Equity
 - Pedestrian Amenities
 - Bicycle Facilities
 - Transit Enhancement
- Connectivity
 - Travel Times
 - Impact on Heavy Vehicles including Freight/Fire/EMS
- Economic Development
 - On-street parking impacts
 - Landscape/vegetation additions
 - Sidewalk widths/enhancements

Figure 46. Evaluation Matrix

Evaluation Matrix		Safety		Equity			Connectivity			Economic Development			Alternative Preference from Community
		Conflict Points	Predictive Crashes/year	Pedestrians	Bicycles	Transit	Through Travel Times (min)	Heavy Vehicles / EMS	On Street Parking	Landscape	Sidewalk		
Do Nothing	Both Central & White Remain One-Way	531	94	Status quo	facility on parallel street	Status quo	4	5	Prefer two lanes to allow passing	parking both sides	limited trees. Most on white now	Status quo	-
Multi-Modal Focus	Both One-Way Cycle Track on White	523	94	Wider sidewalks	Facility Present on White	Enhanced bus stop	4	5	Prefer two lanes to allow passing	50% loss in parking	6' Grass Blvd, additional tree wells	12' sidewalk, 16' dining	1
Getting to and Sticking Around	Both Two-Way Parking on Both Sides	976	40	bumpouts	facility on parallel street	stops on both sides of street	5	5	Only one lane for travel each direction	40% loss in parking	Additional tree wells	12' sidewalk	2
Slow and Flow	Remain One-Way One Lane: 9th to 4th	503	94	wider sidewalks & bumpouts	facility on parallel street	Room for enhanced stops	13	25	Transition down to 1 lane at 9th	10% loss in parking	large landscape area 9th to 4th	Regular SW 22nd to 13th, 12' SW 9th to 4th	3
Asymmetry: different roads, different roles	Two-Way: 22nd to 13th; One-Way: 13th to 4th	757	61	bumpouts	facility on parallel street	Status quo	5	5	Transition at 13th, more turns needed	No loss in parking	Additional tree wells	12' sidewalk	4

LEGEND

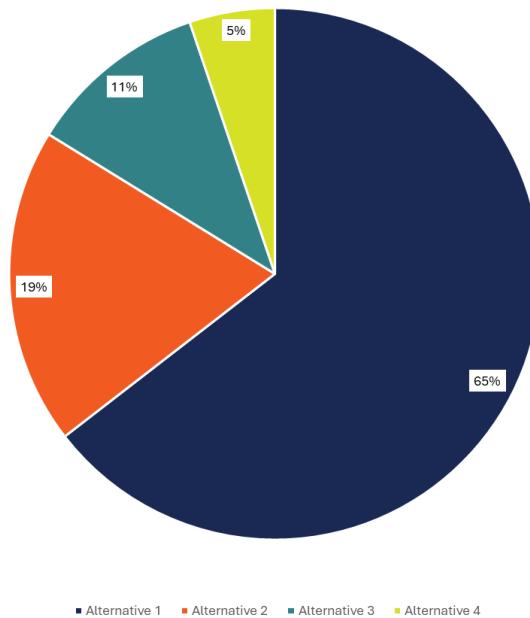
Negative Effect	Neutral Effect	Positive Effect
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XVII. Preferred Alternative

A. Public Outreach Survey results

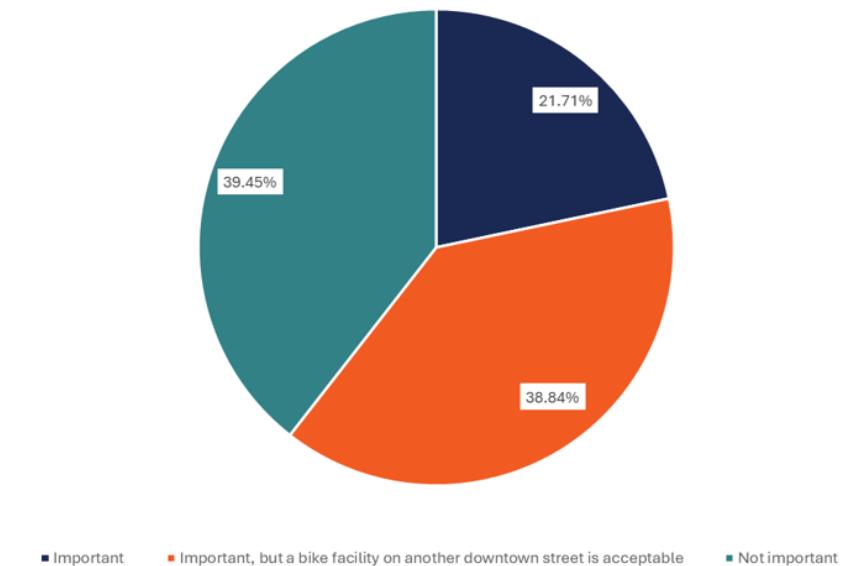
As part of the determination of the preferred alternative, the four proposed alternatives were presented to the public via a survey. This survey asked which alternative they preferred, if they desired a bike facility in downtown, and their top three priorities for the corridor. 327 total responses were obtained. 65% of respondents selected Alternative 1 – the Multi-Modal Focused Alternative.

Chart 3: Preferred Alternative Survey Results



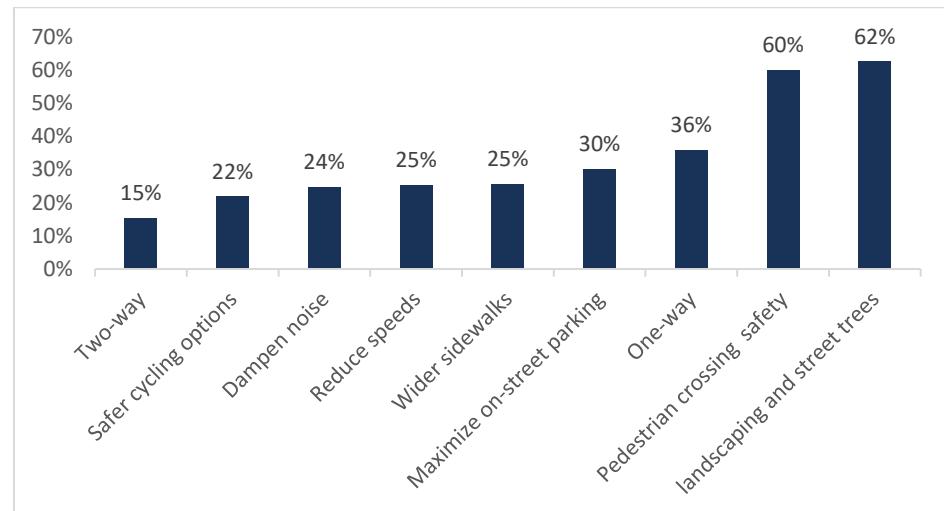
When asked how important a cycle track is on White Street. 60% stated that a bike facility is important, however, 39% stated it could be on another street.

Chart 4: Bike Facility Importance Survey Results



When asked what the top three priorities were for the corridor, landscaping/street trees, improving safety for pedestrian crossings, and one-way streets were the highest community priorities.

Chart 5: Community Preferences Survey Results



The alternative preference ranking from the community survey is shown along with the evaluation matrix measures in **Figure 46**.

B. Description of Preferred Alternative

Alternative 1 is the Multi-Modal Focused option. As shown in **Table 6**, Alternative 1 meets most of the top priorities identified by the community. The only one it doesn't meet is the desire to maximize parking. Both Central Avenue and White Street currently have parking on both sides, however, this option removes one side of parking on each street. The extra space allows for a wide sidewalk on Central Avenue and a cycle track to be placed on White Street. This alternative meets the desires of the Central Avenue Streetscape Plan and the goals of Central Avenue revitalization.

Table 6. How Alternative 1 Addresses Community Priorities

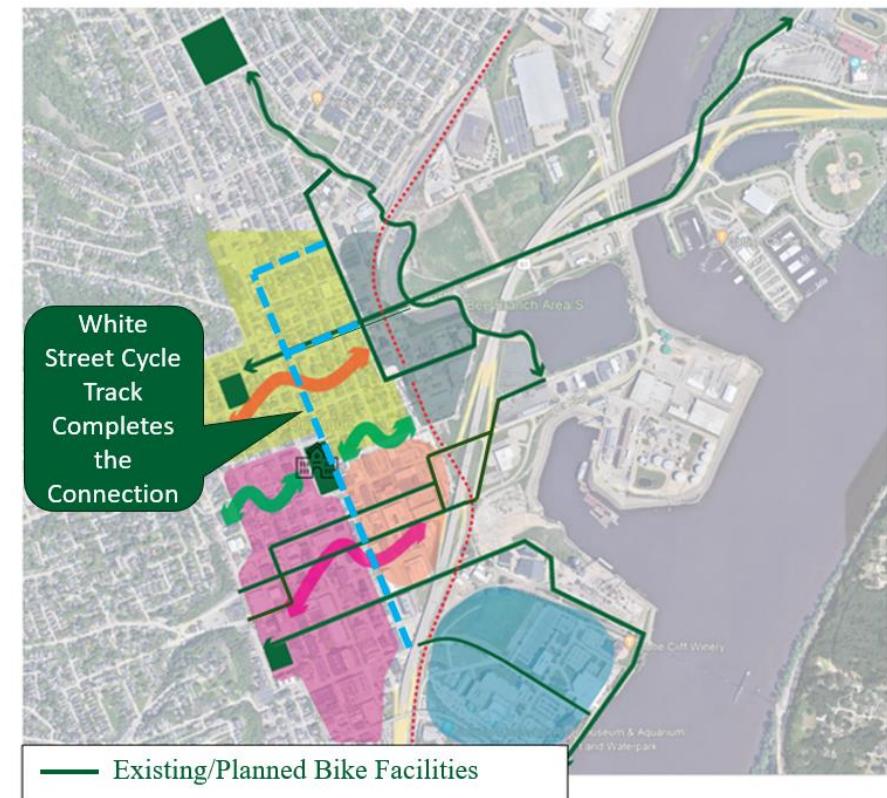
Priorities (by order of Importance)	How Multi-modal Alternative 1 Addresses Priorities
✓ Improve Safety for Ped Crossings	Enhances pedestrian crossings with bump-outs Limits intersections to two travel lanes, reducing crossing complexity
✓ Add Landscaping/Trees	Expands opportunities for landscaping and trees along both streets.
✓ One Way Streets	Retains One-Way Streets. Provides two lanes for passing and maintains good signal progression for EMS, police, and freight.
Maximize Parking	Reduces on-street parking on one side of Central and White. Allows for loading zones on-street Seeks additional on-street parking on the side streets
✓ Wider Sidewalks	Allows for wider sidewalks for outdoor dining, additional landscaping, and pedestrian space to support local businesses.
✓ Reduce Speeds	Includes narrowed lanes, landscaping, and intersection bump-outs to reduce speeds, addressing resident concerns.
✓ Dampen Noise	Includes landscaping/trees to slow speeds and dampen noise.
✓ Safer Cycling Options	Establishes a dedicated cycle track on White Street, meeting residents' desires for safer cycling options.

Cycle Track

The cycle track on White Street provides a bike facility that spans the entire length of the corridor. The cycle track on White Street completes the connection between many existing and planned bike facilities meeting the recommendations of the city's Imagine Dubuque Comprehensive Plan and the MoveDBQ Mobility Solutions along with Dubuque County's Regional Bike and Pedestrian Plan by providing a bike network in downtown Dubuque.

The cycle track will serve as a transportation facility, not just a recreation facility, connecting users from where they live to areas of work and commerce. Bicyclists desire to access the same businesses, schools, and residential areas that drivers do. Whereas other parallel north-south routes could be considered for the bike facility, they do not provide the same direct connection from neighborhoods on the north end to key destinations in downtown like Prescott Elementary School, Steeple Square, Dubuque County Court House, and the Port of Dubuque.

Figure 47. White Street Cycle Track Connection



Parking with Preferred Alternative

Today 503 on-street spaces exist. From occupancy counts collected, the highest parking peak is Weekday Evening with a utilization of 24%

Parking will be removed on the east side of Central and the west side of White with the preferred Multi-Modal Focused Alternative. When parking is removed with this alternative, parkers that are on the east side of Central Avenue or west side of White Street will be able to move to the other side of the street or up one block or to the side street to other parking spaces that are open. With parkers moving to other areas due to the removal of parking spaces, on-street parking utilization increases to 52% overall. This is still less than the 80% standard when on-street parking is considered full. **Figure 48** presents a map showing the utilization on the different blocks with removal of one-side of on-street parking along Central Avenue and White Street.

From Dubuque's Smart Parking and Mobility Plan, on-street parking should be utilized for short term stays, longer-term parking to support area business employees and residents, should occur in off-street parking lots and ramps. The Central Avenue Parking Ramp at 9th and Central has 515 spots and is 23% occupied, so capacity exists to take on additional parkers. Off-street public parking also exists at the City Hall Lot at 13th/Central and the Healthcare Municipal Lot at Washington/17th Street.

Some on-street blocks experience utilizations above 80%, however, several blocks remain with open spaces available although patrons may have to walk a block or two to access a business along the corridor. Dubuque's Smart Parking and Mobility Plan states an acceptable walking distance from a parking space to a driver's destination in downtown Dubuque is up to three (3) city blocks, or 1,000 feet. Parkers may accept longer walking distances if the walking experience is comfortable and pleasant.

The Plan stated that observation and stakeholder coordination as part of the development of the Plan indicated that *"those visiting and parking in Dubuque have a relatively low tolerance for walking from parking facilities to destinations, and walking can be uncomfortable in certain parts of the city. In many cases, though, the urban environment discourages walking. Focus should be placed on creating an inviting, welcoming, and comfortable walking environment and experience throughout Dubuque. This includes ensuring that sidewalks and walking routes are well-marked, visually appealing, interesting, well-maintained, well-lit, and have visible and comfortable places to cross at intersections."*

The improvements included with the preferred alternative will provide a more comfortable, safe, and interesting walking experience in the corridor and will support longer walking distances to parking spaces improving utilization of parking and supporting continued growth and redevelopment in the corridor.

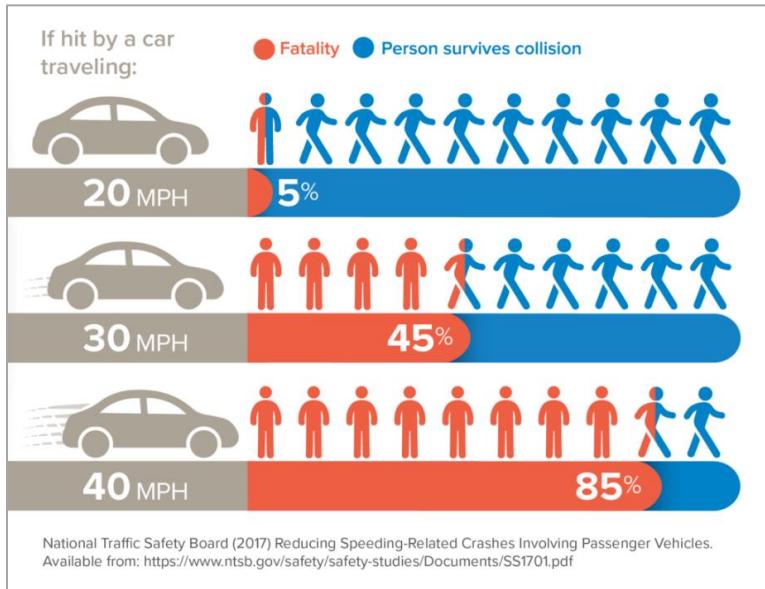


XVIII. Design Guidance

The City Council expressed the desire to calm traffic in these corridors to produce more livable neighborhoods and increase economic development while maintaining reasonable traffic flows through downtown. Imagine Dubuque laid out a vision for complete streets that are welcoming and supportive of all modes of travel. Complete streets are designed to prioritize the safety, comfort, and convenience of non-motorized users, such as pedestrians and bicyclists by slowing vehicle speeds and improving crossings.

Speed data collected on Central Avenue and White Streets revealed that up to 90% of vehicles are travelling above the 25 mph speed limit on Central Avenue and up to 70% of vehicles are travelling above the speed limit on White Street. In an urban setting, when cars go faster, the likelihood of crashes and injuries increases, see **Figure 49** from the 2017 National Traffic Safety Board Study. A review of crashes on this corridor shows that, although a low number, 100% of pedestrian and bicycle crashes on Central and White are resulting in injury.

Figure 49. Pedestrian Crash Survivability at Different Speeds



One of the top priorities from the public survey, was the need to improve pedestrian crossing safety. Traffic calming features like trees, bump outs, and narrowed travel lanes help to slow down vehicle traffic making streets safer for pedestrians.

As Central Avenue and White Street are no longer under the jurisdiction of the Iowa DOT, the Iowa Statewide Urban Design and Specifications Manual (SUDAS) is the guiding document utilized in the proposed cross section and design of the corridor improvements. **Table 7** shows the proposed design guidance for the design of corridor improvements.

Per SUDAS, the standard lane width on urban city streets is typically 10 feet. This width is considered appropriate for urban areas as it promotes safety without negatively impacting traffic operations. For roads with heavy trucks or buses, a slightly wider lane of 11-feet may be used and is proposed for this corridor.

Table 7. Alternative 1 Design Elements

	SUDAS	Used in Design
Travel Lane Width	10 ft to 12 ft for Arterials	11 ft
On-Street Parking Width	7ft to 10ft	9 ft
Sidewalk Widths	6ft to 8ft with planting buffer	6 ft min with buffer
	8ft to 10ft when next to curb	10 ft min
Cycle Track Width	10ft to 12ft	10 ft
Sidewalk & Cycle Track Elevation		Should be kept at same elevation level and driveways slope up to meet
Curb Radius	Based on Design Vehicle	Bumpout at regular traffic intersections
		No bumpouts at Freight focused intersections (9 th , 11 th , 14 th)
Trees	Allowed 2' from curb and cycle track	Use Columnar Trees in tree wells or grass buffer area

Curb offset is not required in SUDAS for roadways with a posted speed of 35 mph or less or where on street parking is present, however, to address concerns received from the freight community regarding 11-foot lane widths, a 2-foot curb offset is recommended. In addition to the 11-foot travel lane, a curb offset of 2-feet (measured from gutter line to back of curb) is part of the proposed design for the lane not adjacent to the parking lane. The curb offset increases driver comfort and roadway safety. This is an additional distance outside of the travel lane width. The left most lane on both streets would be 12.5-feet from the lane line to the face of curb plus a 6 inch curb (11-foot lane+1.5-feet gutter+0.5-feet curb), see **Figure 50**.

The cycle track should be 10-feet in width to allow for adequate passing and ample width in a downtown setting where other sidewalk activities occur. A 10-foot cycle track will provide the necessary width for the anticipated demand while still allowing room for an adequate adjacent sidewalk in this constrained right-of-way corridor.

Figure 50. Curb-Offset



XIX. Urban Streetscape and Side Streets

A core principle to the design of Central and White Streets is a recognition that the role they play in Downtown Dubuque today (and tomorrow) is different than the role they have played in the past. As the City has evolved away from a river industrial city and towards a more economically diverse City with Downtown at the core and the river as an amenity, movement east west (across the Central / White) corridors is just as important than movement along it.

This phasing of the project establishes a general cross section for the two roadways through Downtown. The final design of Central and White Streets will reflect the generalized cross section, however it should evolve to respond to the needs and character of the three distinct districts described in Section III Land Use.

- The southern portion, the Downtown section, serving as a gateway to Highway 61, is the first and last impression of the city for people coming to and leaving downtown. Important considerations include:
 - Reinforcing the Tower to Tower Connection proposed in the Millwork District Plan along 7th Street.
 - Creating a strong gateway at 3rd Street with landscaping and public art
 - Maintaining a civic frontage to the county courthouse
 - Consideration to reducing the cross section to one lane to slow speeds and add more pedestrian scale amenities
- The middle portion, the Civic portion, is home to schools, City Hall and other important local institutions. Considerations include:
 - Accommodation for accessible drop off to local churches and public buildings
 - High quality transit waiting areas
 - Adjusting landscape standards in front of civic buildings to maintain viewsheds to historic facades
 - Safe pedestrian crossings to schools at intersections through additional marking, lights, lower speeds, or other techniques that ensure safe crossings.
 - Consolidation of driveways and curb cuts wherever possible in order to reduce conflict points between vehicles, pedestrians and bicyclists.

- Enhanced intersections to create additional landscaping and pedestrian amenities where on street parking is less critical to residents and businesses.
- The northern portion, a mixed-use district, has the most pedestrian activity. Considerations include:
 - Provision of high-quality transit rider facilities – including bump outs for easier boarding and better transit service.
 - Enhanced bumpouts to provide additional seating and placemaking at key intersections where there is a lot of pedestrian activity.

A. Urban Streetscape

Urban streetscapes are functional spaces that do more than facilitate transportation of vehicles, people, bicyclists, and public buses. These corridors define the **sense of place, safety, economic vibrancy, opportunity to foster community, and public mobility**. The following are physical elements of a streetscape that influence the functionality and character of urban places. The design of these elements will be developed as part of the final design process.

- **Sidewalk** – Primary path of pedestrian travel. Width of sidewalks are required to follow the ADA Standards for Accessible Design (Americans with Disabilities Act). This guide includes regulations on sidewalk design including width, grading, and spatial requirements for obstructions. The goal of the sidewalk is to provide a safe and accessible route for people of all abilities.
 - Materiality: Sidewalks are generally paved in concrete for its durability and constructability. Concrete can also be decorative through the use of integral color or stains. Examples of this can be found in the Main Street District. Sidewalks, while primarily functional, can also be stamped to create a pattern or include decorative jointing.
- **Streetscape Amenity Zone** – located between the edge of the sidewalk and the curb this space serves as a visual and spatial separation between the sidewalk and street. This area is included within the dimensions for sidewalks in the preferred alternative cross sections and will be further defined during final design. This space provides a location for various streetscape amenities including grass buffer, street trees, benches, trash receptacles, lighting, bike racks, and public art. This space is not a primary path of pedestrian travel and may exceed cross slope grading

requirements for accessible routes to eliminate or mitigate non-accessible steps at building entries.

- Materiality: Integral color concrete, stained concrete, salvaged pavers, concrete pavers, and clay pavers. Often the materiality of the streetscape amenity zone coordinates with the materiality of bumpouts.
- **Bumpouts or Curb Extensions** – located at intersections and designed to shorten the distance required for a pedestrian to cross a roadway. Bumpouts also indicate to vehicular traffic that people are active in the area. The change in curb alignment also tends to slow vehicle speeds down at intersections. These features typically include the sidewalk and contrasting paved areas to highlight the crosswalk and support placemaking. Like the streetscape amenity zone, many streetscape amenities can also be located at bumpouts, however their increased visibility at intersections makes these locations particularly well suited for lighting, public art, and wayfinding signage provided they do not obstruct the vision triangle at an intersection.
 - Materiality: Integral color concrete, stained concrete, salvaged pavers, concrete pavers, and clay pavers.
 - Additional Design Considerations regarding bumpouts:
 - Bumpouts should be scaled to respond to the planned volume of pedestrian traffic at an intersection. Large bumpouts at major road intersections and planned trails should be considered for increased pedestrian and bicyclist safety. Small bumpouts are more appropriate in less populated intersections. Some intersections may not be a good candidate for a bumpout if there are irregularities such as wide freight traffic turning movements, immediate off-street parking, or severe changes in grade.
 - Bus stops should allow for a bus to park next to a curb. Bumpouts may be expanded to connect to a bus stop. These elongated bumpouts are called bus bulbs and are typically located near an intersection.
 - Mid-block crossings are another version of a curb extension that should be considered in commercial and mixed-use areas where more direct access from on-street parking to the opposite side of the street is a high

priority. Mid-block crossings also have a traffic-calming effect.

- **Buffer space** – located between the cycle track and drive lane, the buffer space primarily serves as a physical barrier between vehicles and bicyclists. This space may also accommodate placemaking through the inclusion of decorative pavement, plant beds and may include stormwater management practices.
 - Materiality: Integral color concrete, decorative pavers, lawn, plant bed, bioretention, and columnar trees
 - Additional Design Considerations regarding buffer space:
 - Driveways interrupt the continuity and efficacy of buffers. Next steps in design should study how the quantity and width of driveways may be reduced to create a more continuous buffer.



Image of buffer space along a separated cycle track

- **Landscaping** – one of the highest priorities that came out of the public input process, green spaces along a corridor have a significant impact on the quality of a public space. Street trees, shrubs and perennials have

numerous benefits that soften the harsh urban environment. Plant beds are opportunities to not only locate decorative plantings, but also locate utilities, signage and other streetscape fixtures that can otherwise create a sense of irregularity and visual clutter along a streetscape. Landscape areas can also be integrated with stormwater management practices to layer multiple environmental benefits into a small space. While landscaped areas do require long term maintenance, they are one of the most significant tools to indicate that space is designed for people, not vehicles. Elements like curbs, raised beds, and concrete banding behind the curb can all help to mitigate the effects of salt, sand, and foot traffic along plant beds.

A list of approved street tree species is available here: [Recommended-Street-Trees-final-2020](#). Additional planting location suggestions are included in the Central Avenue Corridor Streetscape Master Plan and should be referenced during final design.

- **Crosswalks** – crosswalks are a visual indicator for both pedestrians and vehicles. Creating a highly visible crosswalk is not only a safety consideration, they are another opportunity to continue the use of materials that lead to a cohesive sense of place. Materials can include decoratively patterned traffic paint, thermoplastic stamps, and integral color concrete.
- **Lighting** – in addition to the typical roadway lighting pedestrian scale fixtures can be included in the streetscape to provide a smaller, pedestrian-scale to a space. These shorter fixtures may include post-mounted fixtures, catenary fixtures, and decorative landscape lighting within plant beds. Decorative lighting can also include holiday string lights, architectural accent lighting, and illuminated site furnishings to further activate a streetscape after dark. Street lights, pedestrian lights, and illuminated bollards are included in the Central Avenue Corridor Streetscape Master Plan and should continue to be included in the final design process. Lighting and landscaping can often occupy similar spaces. It is important to coordinate the locations of landscaping, especially street trees, and lighting fixtures for effective lighting of public spaces.
- **Cycle track** – clearly defined extents of a cycle track are a requirement for the creation of a safe and socially sustainable system. When a cycle track abuts a sidewalk, a change in the pavement material such as concrete to asphalt is a low cost and highly visible means of delineating between the two areas. A dashed centerline separating two-way travel is another important requirement. A tactile strip on the sidewalk along the track

further increases the edge of track for differently abled people. See opposite column for precedent imagery of a cycle track example.



Image of cycle track featuring contracting pavements

- **Wayfinding** – columns, signs, banners, and signage enforce a sense of place when designed and installed in a coordinated plan. In addition to these wayfinding fixtures, flush graphic elements such as decals, embossed pavement, and murals are opportunities to encourage people to travel through a place.
- **Public Art** – these corridors are already enhanced by the inclusion of numerous murals. In addition to murals, public art can be located on the pavement, within the streetscape amenity zone and at bumpouts. In addition to traditional sculptures, three-dimensional public art can also be incorporated in functional features like the custom metal planter fencing included in the Central Avenue Corridor Streetscape Master Plan.

B. Side Streets

The side streets will play an important role in the overall design of the Central Ave. and White St. corridors. Currently all side streets are treated similarly, most are two-way streets with on-street parking. In recent years the City has begun to explore and pilot the conversion of some side streets to contain bike lanes. Given the different needs of each District, and the broader function of the network, this report offers a menu of considerations for different designs of the cross streets. These options, together with modifications to the recommended street section, will help reinforce the different character areas, Mixed Use, Civic, and Downtown described in Section III. The goal of this section is to highlight how each street serves a different function based on location and context within the larger transportation patterns of Downtown Dubuque. While parking and through-connections are important transportation considerations, each street should also be evaluated for potential to create a more welcoming and functional pedestrian network.

Existing Conditions

Many side streets in the study have parking on both sides of the street and often include on-street parking near to the intersection. While this approach maximizes parking, it limits the opportunity for pedestrian-oriented amenities.



Typical side street design

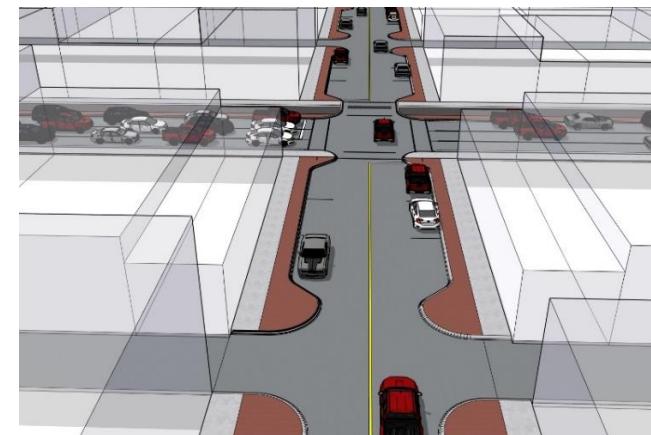


Typical existing side street design

Recent Improvements

Streetscape improvements were made in 2012 in the Historic Millwork District and Bee Branch and include bumpouts at driveways and intersections along the cross streets of 9th, 10th and 11th St.

These bumpouts highlight the increased walkability associated with the narrowing of pedestrian crossing locations.



Typical cross street design with recent bumpout improvements

Street Trees

Future side street improvements should also consider the inclusion of street trees at bump out locations to create a more comfortable and functional urban environment. Refer to "Landscaping" in the previous Urban Streetscape Section for additional information about planting considerations.



Typical cross street design with bumpouts and street trees

Additional Urban Design Considerations

Additional considerations at side streets should include bike routes, stormwater infiltration, vegetation, curb extensions or bumpouts, and the potential for temporary street closures in pedestrian-oriented spaces.

- Stormwater Infiltration

Stormwater can be infiltrated in permeable pavement systems like pavers and in vegetated spaces with a curb cut connection to the street. In addition to the environmental benefits, stormwater improvements can also support placemaking.

- Bike Network

In final design, the city should advise which east west streets are going to be included in the bike network. This past year, the City has piloted bike lanes on 9th and 10th Streets by removing parking on one side. Whether they remain on 9th and 10th or are located elsewhere, the side streets should be designed as a part of that network.

- Wider Sidewalks

Another option for side streets is to enhance the pedestrian environment by widening sidewalks and creating planting zones between the curb and sidewalk. Given the narrow existing ROW, most likely this can only be accomplished if parking on one side of the street is removed (like adding bike lanes) and the curb is moved to create a wider pedestrian environment. This approach would make sense in key pedestrian corridors such as 7th Street and 14th Street intersections. The approach may also be appropriate in the northern mixed-use area where café seating could be created near the buildings.

- Temporary Street Closure

Closing streets permanently, or temporarily, is a strategy to create additional high quality public space. Rather than sitting vacant or underutilized, roadways with low vehicle traffic may be utilized for seasonal or event-driven plaza space. This approach was recommended for 18th Street in the Central Avenue Streetscape Plan several years ago and can be applied to other areas along the corridor as warranted.



Example of a temporary street closure with removable seating, planters and public art

XX. New Technology Considerations

The roadways will remain a one-way pair therefore the current coordination of the traffic signals should suffice to maintain adequate traffic flow for vehicles.

Flashing Yellow Turn Arrows

A flashing yellow turn arrow means you can make a turn, but you must first yield to pedestrians or bicyclists before proceeding with caution; essentially, it indicates that you should only turn when it is safe to do so and that you do not have the right-of-way. In December 2009, after extensive testing, the Federal Highway Administration authorized use of flashing yellow arrows nationwide. A study conducted by the National Cooperative Highway Research Program determined that drivers had fewer crashes with flashing yellow left-turn arrows than with traditional yield-on-green signal configurations.

For bicyclists utilizing the new cycle track on the west side of White Street, a flashing yellow left turn arrow for the left turning movements that could conflict with the new cycle track on White Street should be considered.



Flashing Yellow Arrow

At high pedestrian locations, as shown in **Figure 18** on page 22, the MUTCD also allows the use of flashing right turn arrows. This can be combined with a sign like that shown below to further emphasize the need for drivers to yield to pedestrians when turning.



MUTCD Sign R10-15

Audible Pedestrian Signals (APS) push buttons and Countdown Pedestrian Heads

As stated in Section V, some intersections are equipped with countdown timer pedestrian heads, however, no APS push buttons are present in downtown. As of this report, there is no official guidance from the Iowa DOT in regards to the requirement to install APS push buttons at traffic signals. However, as the state moves to adopt the latest MUTCD, clearer guidance could be provided to reflect the changing rules per Public Right-of-Way Accessibility Guidelines (PROWAG). At a minimum, midblock signals should be considered to be equipped with APS push buttons so that vision impaired pedestrians can find the midblock crossing and better utilize it. Finding the right volume for the operations of these buttons is key in built up areas like downtown where the city could receive noise complaints.

Midblock HAWK Signal

A HAWK beacon, or High-Intensity Activated Crosswalk beacon, offers several advantages over traditional midblock signals such as enhanced safety, higher visibility, reduced traffic delays, and flexibility.

The HAWK beacon's unique light sequence (flashing yellow, steady yellow, then steady red) grabs drivers' attention more effectively than traditional signals, making it easier for them to notice and respond to pedestrians versus a traditional pedestrian crossing signal that rests in green at Steeple Square, north of 15th Street on White Street.

Unlike traditional signals that operate on a fixed cycle, HAWK beacons remain dark until activated by a pedestrian. The unique sequence of the beacon allows

drivers to continue on the flashing red if the pedestrian or bicyclist has cleared the crosswalk, minimizing overall traffic delay at the crossing.

HAWK beacons are particularly useful at midblock crossings or locations that do not meet the criteria for a traditional traffic signal but still require enhanced pedestrian safety measures, such as the midblock location at Steeple Square which will serve as a main crossing point for the new cycle track bike facility.



HAWK Beacon Pedestrian Crossing

Train Activated Warning Signs

Train activated warning signs could be used at major crossing and congestion points to inform traffic to utilize an alternate route. For example, train activated beacons could be placed on the existing warning signage on the off-ramp south of 4th Street to encourage motorists to turn right on 5th Street and use the 3rd Street overpass to access the Port of Dubuque when a train is blocking the tracks. As the new overpass is installed on 14th Street, these signs could also prove useful at major intersections such as the interchanges at 9th Street, 11th Street, or 16th Street to help drivers make better routing decision when the train is blocking the tracks.

A system like this is tied into the railroad crossing gate arms and works by providing a call into the beacon to tell it to flash when the gate arms go down. The

beacon continues to flash until the gate arms raise again. Coordination with the railroad is required for this system, but the real-time notification that the train activated beacon provides drivers has been proven to be effective in helping re-route traffic and lessen queues at crossings in cities like Des Moines, Iowa. The image below is from an assembly placed on University Avenue to notify turning drivers of a train crossing the tracks just west of the sign on Hubbell Avenue. Drivers can then make the choice to continue on University Avenue and utilize a different route and avoid being stopped by the train.



Train Activated Beacon Warning Sign Example

On-Street Parking Technologies

The Smart Parking and Mobility Plan included implementing new technologies in Downtown Dubuque to better find and utilize on-street parking. Parking navigation app tools are available on the market to collect and distribute information to users above parking resources, rules, regulations, and availability. These tools leverage cameras, sensors, and artificial intelligence technology. The plan recommends the city seek opportunities to add this technology in the future as the need arises.

The Plan calls for the installation of new technology to extend the capabilities of parking staff, and improve customer service. This plan recommends transitioning to multi-space meters and a pay-by-plate approach for on-street operations. Multi-space meters are less likely to break down, and enable credit card payments and mobile payment integration.

Removing the individual meters will allow for more space for other streetscape related amenities along the street. As Central Avenue and White Street are reconstructed, the city should consider upgrading the on-street parking technologies on the street at the same time.



Example Parking Payment Kiosk

XXI. Layout

The full layout of the corridor is provided in **Appendix F**. Perspectives for what the improvements could look like on Central Avenue and White Street follow in **Figure 49**.

Figure 49. Central Avenue & White Street Perspectives



XXII. Phasing and Preliminary Cost Estimate

The proposed phasing and implementation plan is proposed to be broken into six phases to be completed over 10 years for the improvements recommended.

Phase 1 includes restriping both Central Avenue and White Street from 4th Street to 22nd Street. Grant funding would be pursued in 2025 for this initial phase. **Figure 51** presents a representation of this proposed restriping. This will allow for immediate impacts to be seen throughout the corridor while the construction phases are implemented over the next 13 years.

Phases 2 to 6 are construction phases on both Central Avenue & White Street and include:

- Construction from new curb line to ROW + 2" street overlay
- Storm sewer realignment
- Signal modifications or signal pole relocations on White Street
- Flashing yellow arrows for cycle track conflicts
- Side street changes not currently included, but could be considered as designs are further developed

Figure 51. Central Avenue & White Street Phase 1 - Restripe

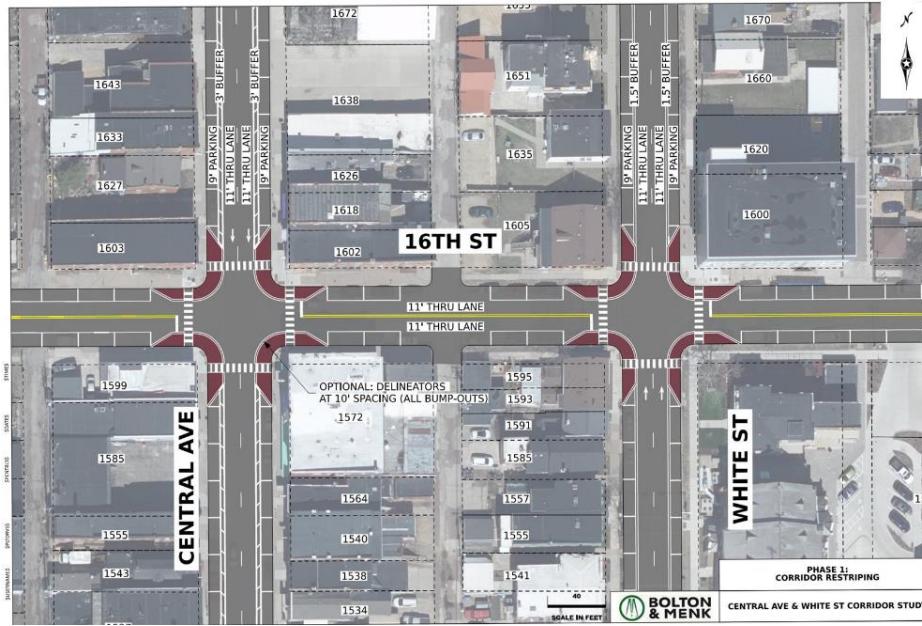


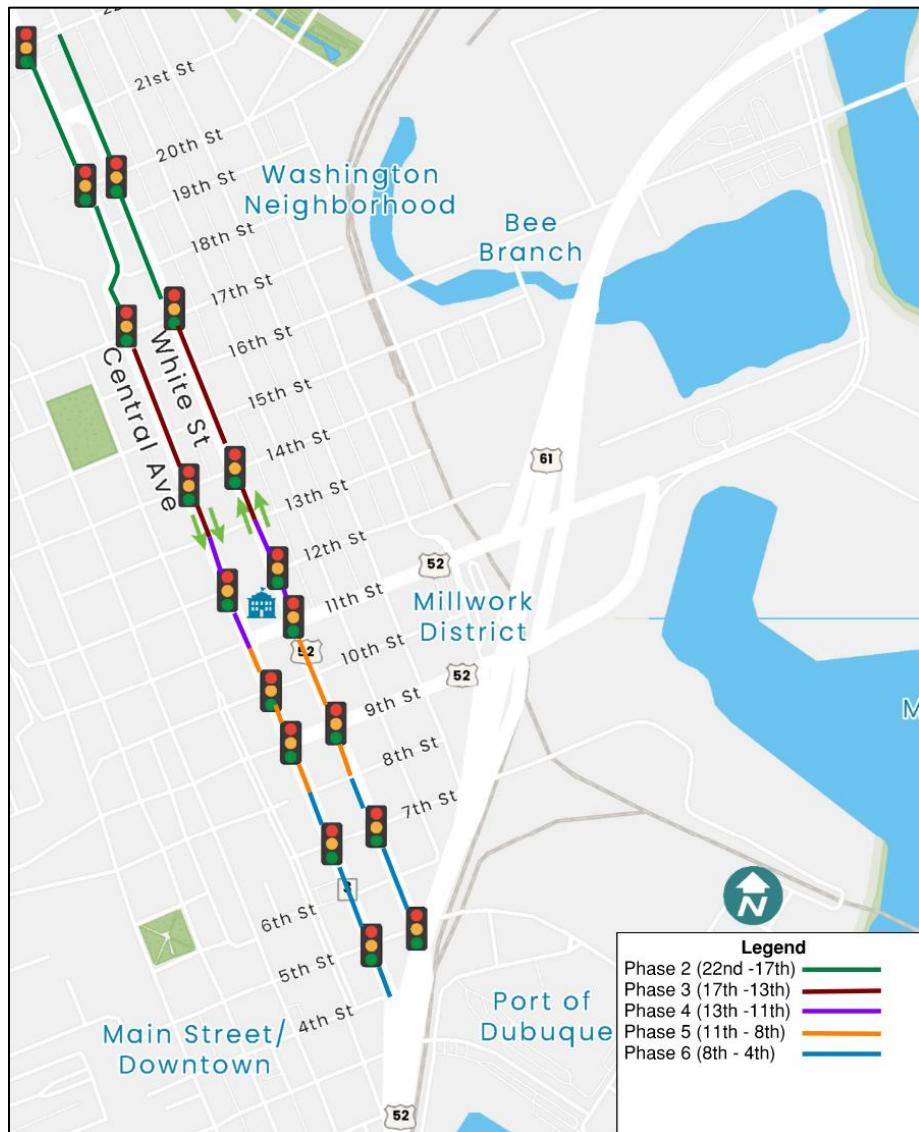
Table 8 presents the implementation and phasing plan for the entire corridor reconstruction including which years the city should seek grant funding to fund each phase. **Figure 52** shows the phases in visual format.

*Table 8: Central Avenue & White Street Project Phasing**

Phase	2026-2027	2028-2029	2030-2031	2032-2033	2034-2035	2036-2037
1	Restripe Central & White from 4 th St to 22 nd St					
2	Apply for Grants for Phase 2	Const. 22 nd St to 17 th St				
3		Apply for Grants for Phase 3	Const. 17 th St to 13 th St			
4			Apply for Grants for Phase 4	Const. 13 th St to 11 th St		
5				Apply for Grants for Phase 5	Const. 11 th St to 8 th St	
6					Apply for Grants for Phase 6	Const. 8 th St to 4 th St

*Phasing will be influenced by grant timelines and council's priorities for funding of these improvements with other capitol project needs.

Figure 52. Central Avenue & White Street Project Phases



Preliminary Cost Estimate

Planning level cost estimates were prepared for the proposed project improvements for each phase. As these phases will be spread over 10 years, a 4% per year inflation percentage for price increases is included. Details are provided in [Appendix G](#).

Table 9 summarizes these overall costs. These costs include all reconstruction elements, plus engineering, traffic control, and mobilization. These costs do not include maintenance related items related to markings, signage, decorative pavement, snow removal, or additional staffing and equipment needs.

Table 9: Central Avenue & White Street Project Cost By Phase

Phase	Description	Estimated Cost
1	Restripe Central & White from 4 th St to 22 nd St	\$330,000
2	Construction 22 nd St to 17 th St	\$5,750,000
3	Construction 17 th St to 13 th St	\$4,950,000
4	Construction 13 th St to 11 th St	\$2,450,000
5	Construction 11 th St to 8 th St	\$3,450,000
6	Construction 8 th St to 4 th St	\$4,050,000
TOTAL		\$20,500,000

XXIII. Other Items to Consider

In addition to physical changes, the design should be combined with specific policies and programs to support the goals for the corridor.

City Policy Changes

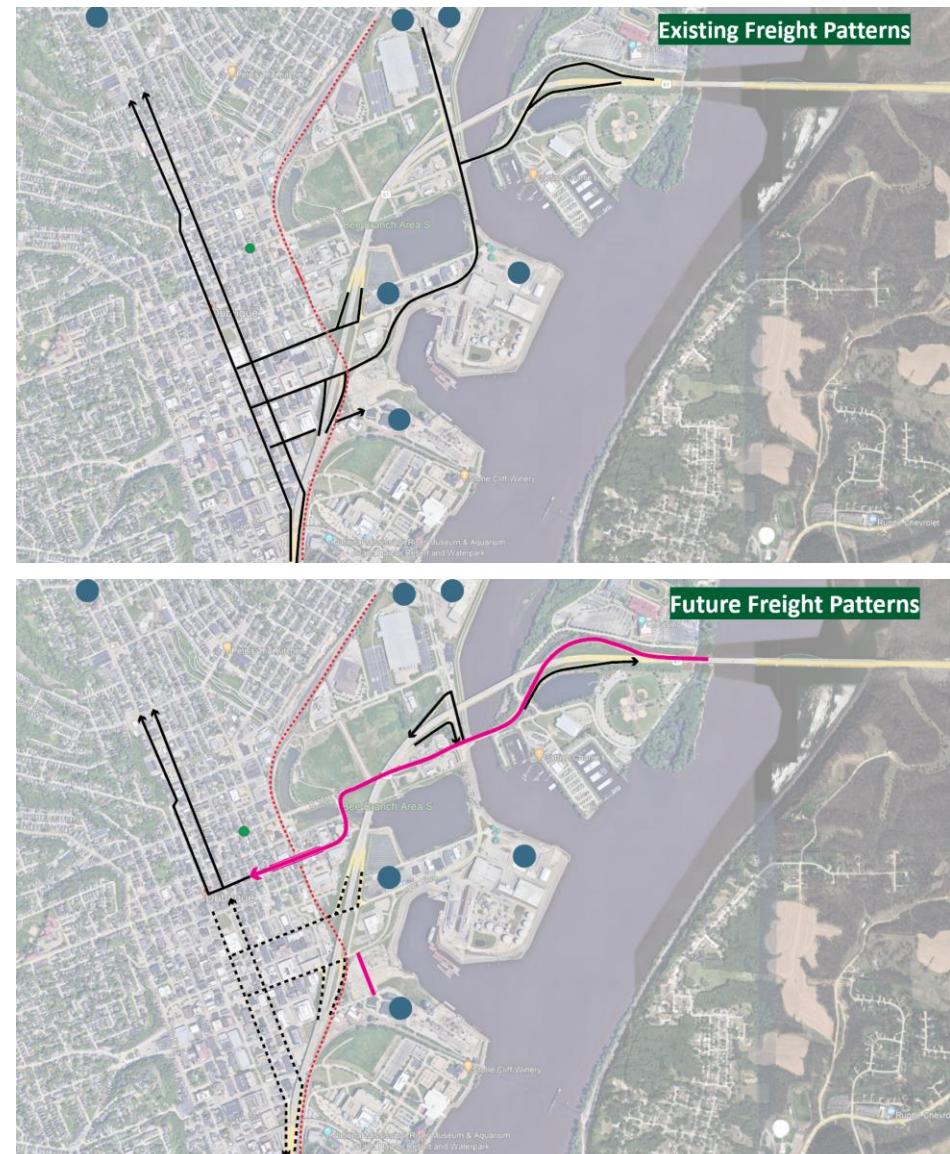
Establish a Truck Route in Downtown

Section 9-16-321.901: MOTOR TRUCK ROUTES of the Dubuque City Code designates motor truck routes for Motor trucks registered for a gross weight limit exceeding ten thousand (10,000) pounds (5 tons) on marked highways and allows for them to not depart said routes unless to make except to make a stop at a destination and then proceed directly to such destination. The code currently restricts motor trucks on some specific streets in the city. The code also states that Motor trucks whose trips originate within the city must travel by the most direct route to that point on a marked highway nearest to such point of origin. For Central Avenue and White Street, the city code specifically states that motor trucks originating in Dubuque County or with a destination located in Dubuque County shall be authorized to drive on Central Avenue and White Street.

This code provides the city manager the authority to designate and establish alternate motor truck routes and post signs limiting motor trucks to specific streets.

As the 14th overpass is constructed, the city manager should consider executing this authority to establish a truck route requiring trucks not making local downtown stops to utilize the 14th Street overpass and the 16th Street interchange to access Highway 61. **Figure 53** presents the existing freight patterns and the proposed future freight patterns. Requiring non-local deliveries to utilize the new 14th Street overpass and 16th Street interchange would lessen the number of trucks substantially in the area along Central Avenue and White Street from 14th Street to 4th Street.

Figure 53. Existing and Future Freight Patterns



Parking Policies – meter changes, shared parking arrangements, free parking areas

Continue to implement the recommendations of the Smart Parking and Mobility plan by implementing new technologies which will allow the city to collect key performance measures for each on-street parking space such as utilization and payment information.

The reconstruction of Central Avenue and White Street will remove one side of on-street parking. It is recognized that parking is a key ingredient for keeping the downtown economically viable, therefore, the recommendations of the Smart Parking and Mobility Plan should continue to be pursued.

The Smart Parking and Mobility Plan suggests adopting management best practices that strive for on-street parking facilities that are consistently 60 – 80% utilized. The plan provides guidance to look to remove meters that are below 20% occupancy. The new meter technology can be utilized so the city can monitor existing parking utilization and availability to see where low usage on-street parking spaces are. These low usage spots could be considered for changing from paid spaces to signed time restricted parking or free parking areas.

Parking needs to be a partnership between the public and private sectors. The plan states that the city should seek and facilitate shared parking relationships between the public and private sector, as well as between private sector entities. The plan found that there is ample parking downtown, with several off-street parking options available. To best serve the businesses and residences along Central Avenue and White Streets, the city should continue to look at shared parking or joint parking arrangements as blocks redevelop or they enter into development agreements for new properties. Shared parking allows multiple users to utilize the same parking spaces at different times reducing the need for excessive parking infrastructure. Different land uses peak at different times. Both on-street and off-street parking need to be leveraged to best support the revitalization of the corridor.

Resources:

- The City of Buffalo Minnesota Sec. 50-265. - Joint facilities.

https://library.municode.com/mn/buffalo/codes/code_of_ordinances?nodeId=COOR_CH50ZO_ARTVPALO_DIV2OREPA_S50-265JOFA

- Metropolitan Area Planning Council, Shared Parking article:

<https://www.mapc.org/resource-library/shared-parking/>

- Urban Land Institute's, Shared Parking, Third Edition, *By Mary Smith*

<https://urbanland.uli.org/inside-uli/uli-releases-new-edition-of-shared-parking>

Low Cost Changes – Parklets and Art Pilot Project Programs

As part of Phase 1 – Restriping, the city could consider installing parklets on a pilot project basis. Some examples follow. Parklets offer numerous benefits for urban areas by transforming parking spaces into vibrant public areas which foster social interactions and community events. These areas provide additional outdoor seating opportunities drawing more customers. Installing the pilot parklets as part of the Phase 1 – Restriping on the east side of Central Avenue would allow businesses and residents to realize the benefits of the wider sidewalk areas sooner than waiting for the full construction. These parklets can incorporate green elements, desired by the community, to enhance the visual appeal of the corridor.



Gaslamp District San Diego, CA



Riverfront Drive Mankato, MN

Public art pilot project programs offer a range of benefits that can enhance urban environments and community well-being as public art projects often involve local residents and artists in the process creating a sense of ownership and pride in the community. Whether installed by the city or through a program with a local partner, public art elements can be relatively low cost and added to sidewalk, parklet, or bumpout areas to enhance the area and provide a sense of place.

