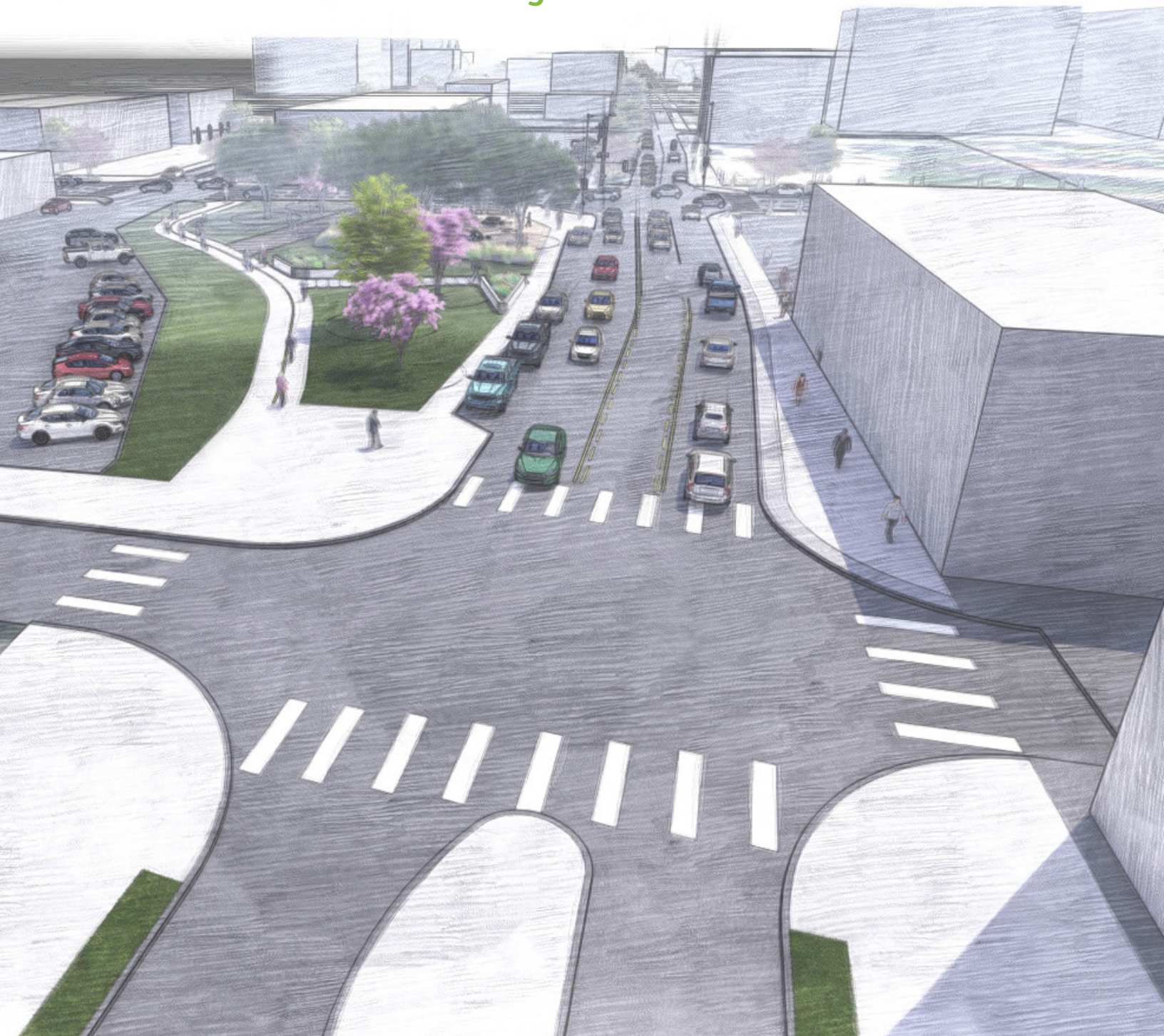
CENTRAL 24TH STREET

Multimodel Transportation Corridor Study

August 2021



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Prepared by:

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1 Introduction

The Central 24th Street Multimodal Transportation Corridor Study is an effort to review the existing configuration of the project area with the goal of identifying the ultimate cross-section and operational configuration of the corridor. Several plans and visioning efforts have identified this portion of 24th Street as a key link to improving multimodal transportation options throughout Omaha. The project is located along 24th Street from Cass Street to Mason Street (inclusive of the one-way pair from Dodge Street to St. Mary's Avenue).

Recent efforts north and south of the project area have repurposed existing right-of-way to provide additional active transportation options. The project area is effectively a gap in this active transportation network. That said, a thorough review of the operational characteristics of the corridor was necessary to determine how best to include additional modal options within the right-of-way.

It should be noted that data collection and site visits for this project were conducted during the global COVID-19 pandemic. During the time of data collection, many Omaha businesses were encouraging employees to work from home. Additionally, Omaha Public Schools was operating under remote learning protocols, negating any school traffic. Finally, numerous restaurants, coffee shops, and bars had either halted operations entirely or moved to a delivery or carry-out based business model. These factors impacted the analysis of transit, pedestrian, and bicycle travel as well as the turning movement counts for vehicular travel. Where possible, pre-COVID-19 data was leveraged to support analysis.

2 Background

Central 24th Street is a critical minor arterial that provides local connections in the urban core. Within the eastern portion of Omaha, I-480 and U.S. 75 provide higher speed regional connectivity for longer distance trips. The 24th Street corridor is one of a limited number of north-south arterials that provides unbroken connectivity throughout Omaha. Recent revitalization efforts in north and south Omaha along the 24th Street corridor provide the impetus to examine the operation and opportunities for central 24th Street.

Within this section the following topics are examined:

- Project Location
- Review of Existing Plans and Studies
- Adjacent Land Use Context Zones
- Multimodal Transportation Network Characteristics
- Traffic Analysis
- Crash Analysis
- Parking Inventory

Following the development of existing conditions documentation and the completion of the initial round of stakeholder and public outreach, the consultant team began developing alternatives for the corridor within the existing right-of-way. During the evaluation of alternatives, additional traffic analysis was conducted. This traffic analysis leveraged vendor data to better understand transportation demand within the study area, providing additional context to the alternatives analysis.

3 Project Location

The Central 24th Street project area is in east, central Omaha. The project is bounded by Cass Street to the north and Mason Street to the south. Currently, most of the corridor operates as a one-way pair, with northbound traffic using 24th Street from Leavenworth Street to Dodge Street and southbound traffic using 25th Street/24th Avenue from Dodge Street to Leavenworth Street. North of Dodge Street, the corridor consolidates two-way operation on 24th Street through the project limits at Cass Street. Similarly, south of Leavenworth Street, the corridor is consolidated again on the 24th Street alignment.

4 Review of Existing Plans and Studies

The project area has been developed for at least 100 years and is subject to many of the decisions and plans that have been made since that time. To promote consistency with past decisions and current programs, the project team reviewed available planning documents or studies that impact the area. A coordination meeting was conducted with responsible parties from Creighton University to gain an understanding of their vision for the corridor. Additional outreach was also conducted with representatives of the Omaha Urban Core Committee. At the time of writing, the Urban Core Committee had not developed a cohesive plan for the midtown/downtown area but are exploring options and will develop a strategic plan soon.

The following documents were reviewed for potential impacts to the 24th Street corridor and for any future projects or programs within or adjacent to the study area:

- MAPA Regional Bike and Pedestrian Plan
- Downtown Parking Needs Assessment
- Central Omaha Transit Alternatives Analysis & Current ORBT Plans
- Proposed Omaha Transit Oriented Development Zoning
- Complete Streets Policy
- Complete Streets Design Guide

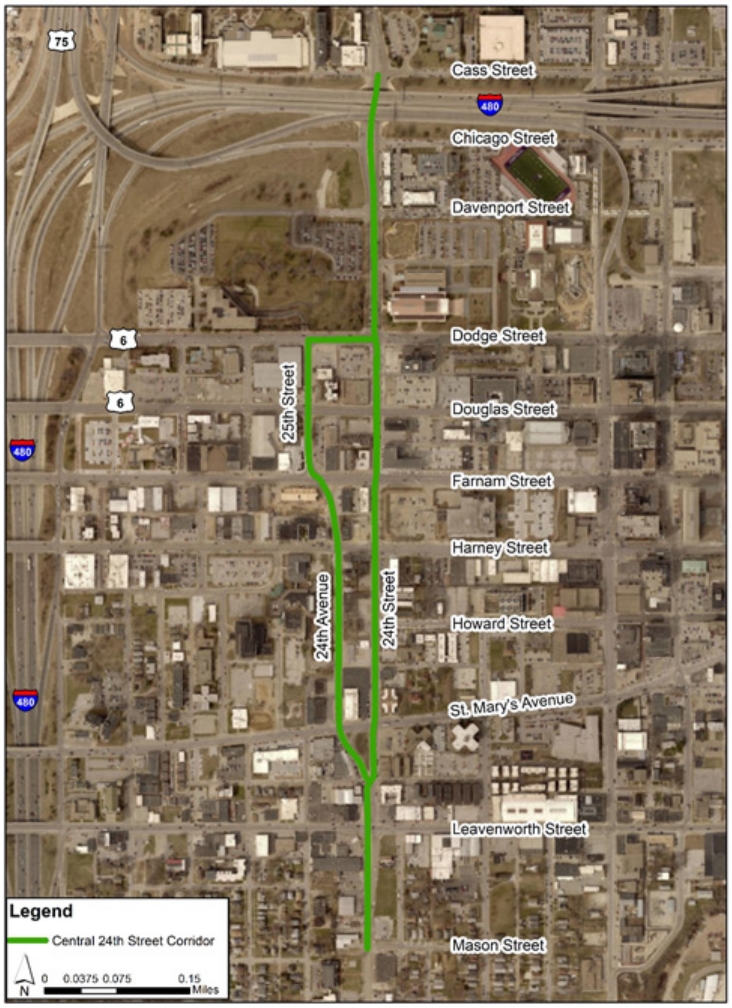


Figure 1 Project Location Map

- Destination Midtown Plan
- Downtown Omaha 2030 Master Plan
- Creighton University Master Plan
  - Coordination as noted above
- Joslyn Neighborhood Development and Housing Study
- Omaha Urban Core Committee Strategic Plan
  - Coordination as noted above
- Harney Mobility Lane Project (Metro Smart Cities)

4.1 MAPA REGIONAL BIKE AND PEDESTRIAN PLAN (JUNE 2015)

MAPA's Regional Bicycle and Pedestrian Plan sets the comprehensive bicycle and pedestrian vision for the metropolitan area. The plan seeks to promote mobility by expanding connectivity of and amenities for active modes of transportation. In lieu of a specific

City of Omaha developed bicycle and pedestrian plan, the MAPA regional plan serves as a guide.

Within the Plan, the project area is identified as a part of the 24th Street/Fort Crook Connector. According to the methodology used within the plan, a high demand for cycling is indicated within the project area. Pedestrian demand was assessed as medium-high at the time of the study's development. Central 24th Street was assessed as Level of Service D ('Poor' or 'may be acceptable [only] to experienced cyclists') in the Bicycle Level of Service Analysis. The Plan also identified the Central 24th Street area as 'somewhat walkable' to 'very walkable.' The project area serves as the border between the 68102, 68105, 68108 and 68131 zip codes. With walk scores of 78, 53, 60, and 69 respectively.

Just north of Dodge Street, the Plan identified the project area as priority location for repurposing traffic lanes into designated bicycle lanes to create safe paths for the large potential markets in the area (northwest downtown and Creighton University). Recommendations for Central 24th Street include the development of on-street bicycle lanes via a road diet. The south 24th Street Complete Streets projects were identified as the second highest priority within the Bicycle & Pedestrian Plan.

4.2 DOWNTOWN PARKING NEEDS ASSESSMENT (MAY 2015)

The Downtown Parking Needs Assessment (completed in 2011) generally focused on the Old Market area, but its principles may be applicable in any urban area of Omaha. The impetus for the parking needs assessment was the volume of complaints made concerning a perceived lack of parking within the Old Market. Upon review, public parking was only 51 percent utilized. In short, the issue was not the lack of parking, but how the parking system was being managed. The needs assessment identified several recommendations to improve the management of the overall parking system, both on-street and in off-street City-owned garages.

The plan recommended a three-part parking management system.

1. Balance parking rates for both on- and off-street parking.
   - Previously, on-street parking had been priced significantly cheaper than off-street parking. The recommendations made in the needs assessment were to extend hours of parking enforcement to increase hourly rates for on-street parking while reducing the garage rates.
2. Incentivize through design and monetary means alternate modes of transportation (walking, biking, public transit, park, and ride).
3. Use parking revenue from the designated area to fund sidewalk repairs, lighting, greenery, and other improvements that encourage alternate forms of transit.

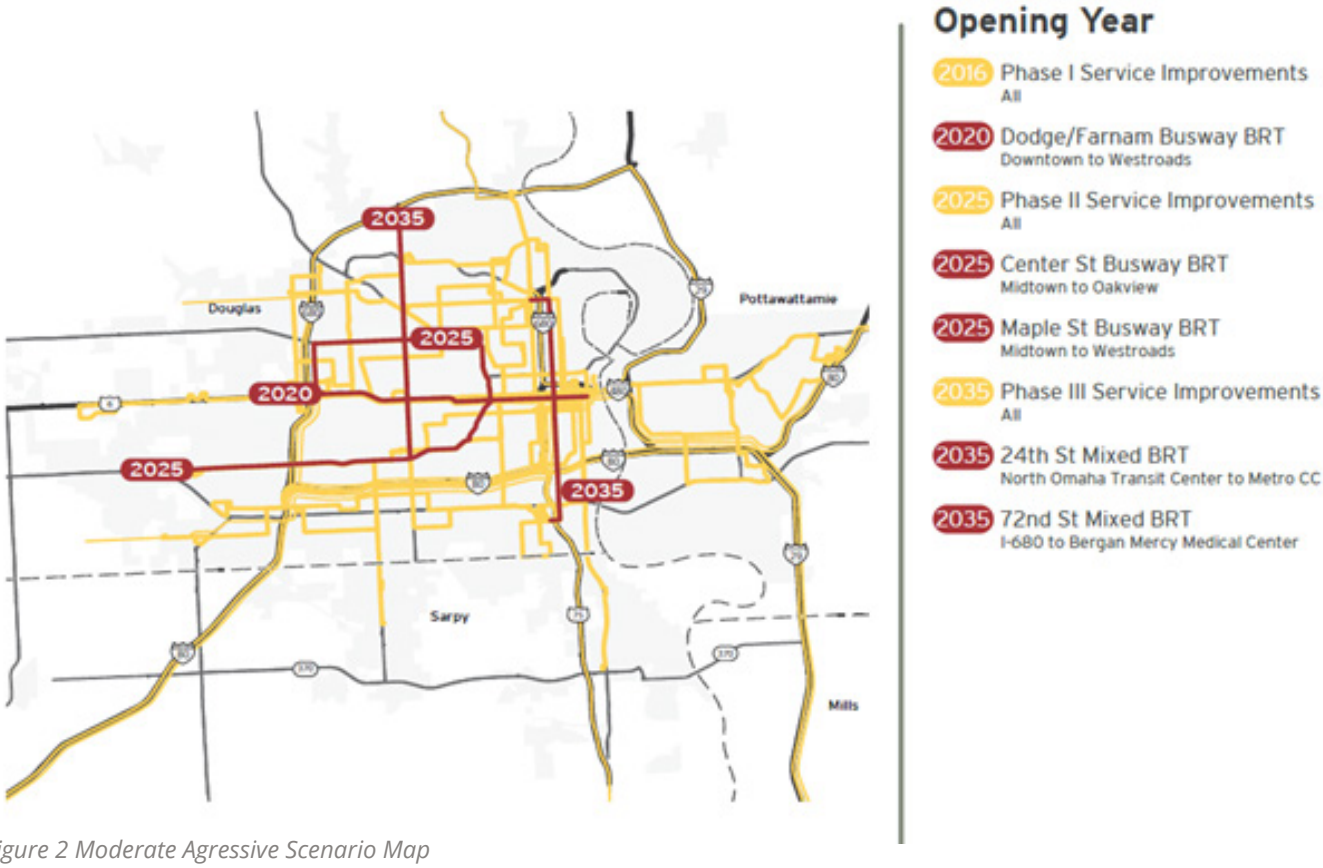


Figure 2 Moderate Agressive Scenario Map

4.3 REGIONAL TRANSIT VISION (2013)

MAPA and Metro's Regional Transit Vision was developed in 2013 to examine opportunities to modernize and upgrade the Omaha area transit system. The document includes short- and long-term recommendations for reviewing route structures and operational characteristics of the transit system. Proposed operational improvements include increasing frequency within the core network and the addition of mixed-traffic and busway bus rapid transit (BRT) routes within the region.

Within the document, the long-term vision is most applicable to today's examination the central 24th Street corridor as shown in Figure 2. As identified within Regional Transit Vision's 'Moderate' and 'Aggressive' scenarios, a busway BRT would be constructed and operating along the 24th Street corridor from the North Omaha Transit Center to the Metropolitan Community College South Campus.

4.4 CENTRAL OMAHA TRANSIT ALTERNATIVES ANALYSIS (APRIL 2014) & CURRENT ORBT PLANS[1 2]

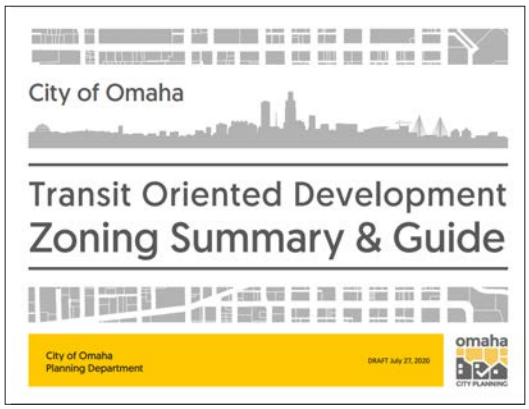
The Central Omaha Transit Alternatives Analysis addressed the need to evaluate transit options along the Dodge Street corridor. Several alternatives were examined, including various alternative transit modes. The preferred alternative within the report was a bus rapid transit (BRT) line along Dodge and Douglas Streets, from Westroads Transit Center to Downtown (10th Street / Farnam Street), and a modern streetcar line from 12th Street and Fahey to 42nd Street and Farnam Street.

Since the study's completion, Metro secured a $15 million TIGER Grant from the US DOT to assist in funding the construction and development of the BRT. At the time of writing, the BRT recommendation, known as ORBT (Omaha Rapid Bus Transit), had recently reached construction completion, and began operations November 18, 2020. Following the route designed in the plan, the ORBT operates from Westroads Transit Center to 10th and Douglas.

The 24th Street corridor intersects with the new BRT line at Douglas Street for eastbound travel, and Dodge Street for westbound travelers. The proposed streetcar line would intersect 24th Street at Farnam Street and Harney Street. To date, there is no definitive schedule for the development and operation of the modern streetcar.

4.5 PROPOSED OMAHA TRANSIT ORIENTED DEVELOPMENT (TOD) ZONING

The Proposed TOD Zoning updates the design standards for sidewalks, streetlighting, and general street design within the City of Omaha. The new zoning increases



pedestrian access and encourages alternative forms of transit use through improving standards for safety, expanding amenities, and increasing density of uses. Figure 3 shows the 24th Street corridor study area is within the proposed TOD-1-MX sub district (north of Leavenworth Street) and TOD-2-MX sub district (south of Leavenworth Street) classifications. These zone types are the densest in terms of types of development allowed. They include sidewalks with a buffer of 5-10 feet from the street and additional availability of bicycle stalls on any new project in the area.

[1]ORBT Twitter https://twitter.com/rideORBT/status/1312446830609797120/photo/1
[2]ORBT Website http://www.rideorbt.com/orbt-vehicles/

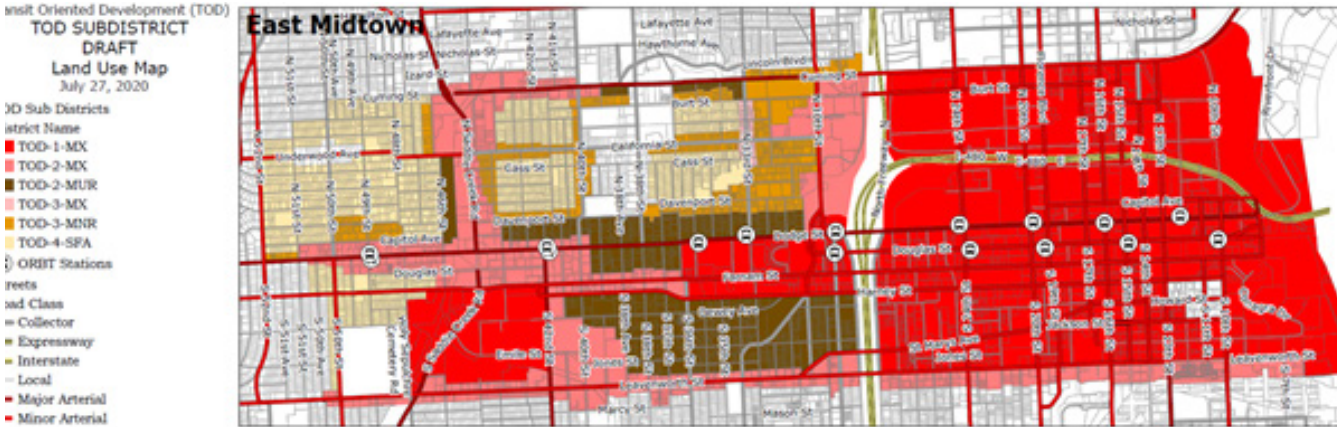


Figure 3 TOD Subdistrict Land Use Map

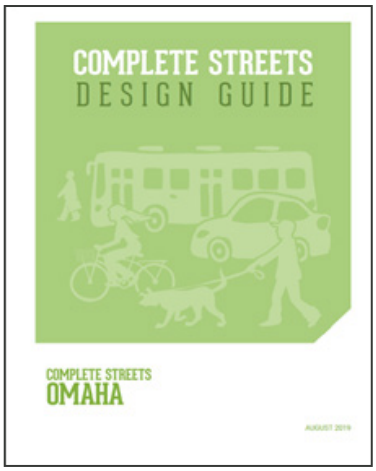
The TOD zoning code amendments were adopted October 27th, 2020 and can be found in Sec. 55-570 to 55-578 in the Municipal Code. The City encourages developers/property owners to opt into the new zoning requirements as the districts redevelop.

4.6 OMAHA COMPLETE STREETS POLICY

The Complete Street Policy goal outlines how to "enhance the quality of life" through a "well-balanced and connected transportation system that provides for economically sound and connected development patterns, public health and safety, livability, equity, affordability, economic activity, and excellence in urban design and community character." (page 1) The guide outlines this goal through six principles listed below:

1. Complete Streets serve all users and modes
2. Complete Streets require connected travel networks
3. Complete Streets require best-practice design criteria and context-sensitive approaches
4. Complete Streets are the work of all City departments
5. Complete Streets include all roadways and all projects and phases

These new design guidelines become part of the transportation network and should be considered in every new roadway and development project for applicability.



4.7 COMPLETE STREETS DESIGN GUIDE

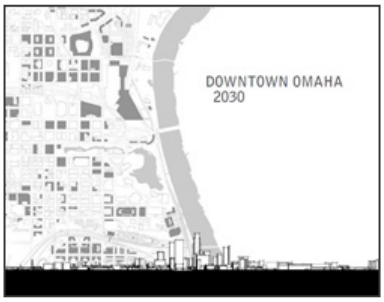
The Design Guide is a workbook for streetscape projects that categorizes streets based on usage and land use and gives parameters for design based on these criteria. The Guide includes a checklist for a project to ensure the new design guidelines are implemented.

The 24th Street corridor is designated a minor arterial but is intersected by several principal and other minor arterial roads. In the Design Guide, these roadways would be categorized as General Urban, Urban Connector, Main Street, depending upon adjacent context zones describing the character of the nearby land uses. Multimodal amenities vary by street type and context zone but are included as appropriate.

4.8 DESTINATION MIDTOWN PLAN

This plan outlines the vision for the Midtown area by identifying key factors for the revitalization and growth

patterns. The Midtown study area included South 24th Street as its eastern boundary. The priority within the plan included measures to "enhance the corridors connecting the neighborhood business districts and adjacent neighborhoods", as well as establishing corridor and district design guidelines[3]. Within the transportation priority section, studies to expand transit options and converting Farnam and Harney to two-way traffic were suggested.



4.9 DOWNTOWN OMAHA 2030 MASTER PLAN

The Downtown Omaha 2030 Master Plan was created to continue investment and growth throughout the downtown area. A key principle identified for downtown Omaha is to strive toward a non-car centric growth pattern and make efforts to promote other forms of transportation, including expanded transit (both in terms of frequency and technology). Corridors within downtown should offer other forms of active mobility such as walking, biking, and transit in a more viable way.

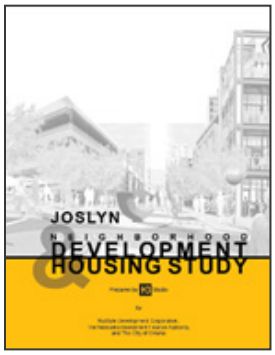
Three conditions are to be applied when considering transit within the downtown service area.

1. A person should be able to easily get anywhere in the downtown on foot.
2. A person should be able to get within two blocks of any location downtown on a designated bike lane or path.
3. A person should be able to easily get within four blocks of anywhere in the Downtown by using mass transit[4]..

4.10 CREIGHTON UNIVERSITY MASTER PLAN

Creighton University is located north of Cass Street, spanning 24th Street. The Jesuit institution is actively expanding and redeveloping parcels and streets within northeast Omaha. As many pursuits and opportunities are actively being capitalized, Creighton does not make their campus masterplan public information in an effort to prevent the increase in costs for acquisition and redevelopment.

A video call was held with Creighton representatives on October 29, 2020 to discuss the corridor study and identify Creighton's plans for the area. Following the completion of the roundabout gateway to campus at 24th and Cass Streets, Creighton's plans for 24th Street and the adjacent land uses have limited impact to the project. In the future, Creighton may pursue additional beautification of the large, triangular shaped island on 24th Street immediately south of the I-480 bridges.



4.11 JOSLYN NEIGHBORHOOD DEVELOPMENT AND HOUSING STUDY

This study reviewed areas between downtown Omaha and Midtown Crossing for implementation strategies to increase development and livability. The study identified a need for a strong north/south pedestrian connection throughout the neighborhood with walkable streets. It also stated the need for a reconfiguration of 25th Street, as well as the addition of bike lanes crossing east/west. The final report mentioned throughout a need to create density and alternate forms of transit to handle the greater number of persons living and working within the area.

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[3] **Destination Midtown Plan, 2003, pp. 1 https://urbanplanning.cityofomaha.org/images/stories/Area%20Plans/Destination-Midtown_Part%20One.pdf**
[4]**Downtown Omaha Master Plan, pp. 64 https://urbanplanning.cityofomaha.org/images/stories/Master%20Plan%20Elements/downtown_omaha_2030_web.pdf**

Improvements on 24th Street were also recommended, including "wayfinding street trees, tree grates, raingardens, landscape elements, streetlights, benches, and bike racks." A final recommendation in the report included the street be considered for two-way conversion[5].

4.12 OMAHA URBAN CORE COMMITTEE STRATEGIC PLAN (UNDER DEVELOPMENT)

The Omaha Urban Core Committee is a function of several organizations within the Omaha metropolitan area, including the City of Omaha, Metropolitan Events and Convention Authority (MECA), and the Omaha Chamber of Commerce (among others). The committee is tasked with identifying growth strategies to improve Omaha's urban core, supporting economic growth, employee retention, travel, and tourism.

The Urban Core Committee is in the early stages of identifying the strategic framework for the improvement of the urban core area within Omaha. Members of the Urban Core Committee were contacted as a part of the stakeholder outreach effort for this project.

4.13 HARNEY MOBILITY LANE PROJECT (OMAHA BY DESIGN / BIKE WALK NEBRASKA)

As part of the Omaha Transportation Master Plan, the Harney Street Bikeway ranked #1 of 266 possible street, trail, or other transportation projects. The Harney Mobility Lane Project was a follow-up detailed plan that stemmed from the work completed in the Omaha Transportation Master Plan. The revitalization of Omaha by Design and the growth of the Smart Cities initiative has reactivated the project.

The Market to Midtown Bikeway pilot project calls for converting one eastbound lane of the current four vehicular lanes of traffic from 33rd Street to 10th Street to a trail, set off by delineator posts and on-street parking, and designated for bikes and scooters to connect from the Old Market (10th & Harney) to Midtown (approx. 32nd & Harney). The Harney Street project has now been designed and is deployed in pilot form at the time of writing.

5 Adjacent Land Use Context Zones

In the development of context sensitive approaches to multimodal transportation projects, it is important to understand the character and nature of the land uses adjacent to a transportation facility. Within the Complete Streets Design Guide, the adjacent context is one of two factors in identifying potential street types for implementation. The project area lies within the urban core of the Omaha metropolitan area, about 4 or 5 blocks west of Omaha's downtown office core. Figure 4 shows the identified context zones.

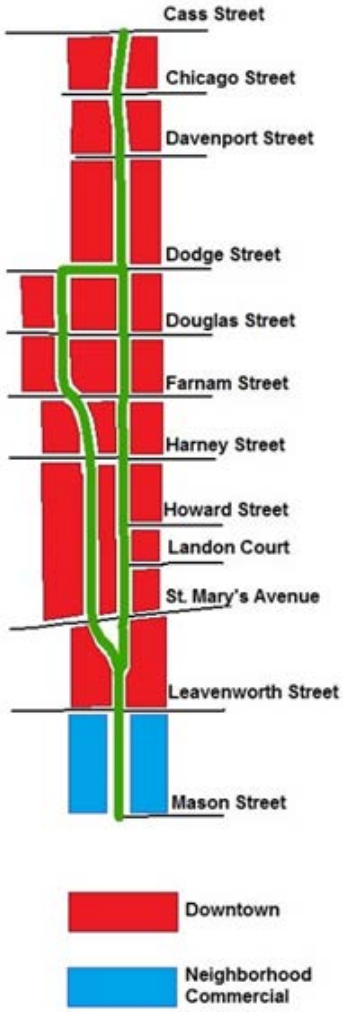


Figure 4 Adjacent and Use Context Zones

Building stock along the corridor is a mixture of newly developed and legacy structures. The oldest of these buildings

[5] **Joslyn Neighborhood Development and Housing Study, pp. 54 https://urbanplanning.cityofomaha.org/images/stories/Master%20Plan%20Elements/Joslyn_Neighborhood_Development_and_Housing_Study.pdf**

were constructed early in the last century and remain as quality architectural examples. Recent development of new hotel space within the corridor's footprint brings modern elements into view. Apartment buildings of varying age and construction are also present. Near the northern end of the corridor, a building strip contains numerous uses, ranging from insurance brokerage to early childhood education, to a small grocery store and two restaurants. Near the southern end of the corridor, human service agencies are flanked by a veterinary clinic and cat-friendly coffee shop. Finally, several automotive dealerships, service centers and other commercial/retail centers line teh corridor.

Photo 1 Kellogg Hotel Building Along 24th Avenue

Photo 2 Architectural example along 24th Avenue

The Joslyn Art Museum is located near the northern end of the corridor, between Dodge Street and Davenport Street, just west of Central High School. Across from the Joslyn Art Museum is the headquarters of Physicians Mutual Insurance Company. These two parcels are unique within the corridor due to the large amount of green space (grass lawns, trees, ornamental plantings, etc.). North of the Joslyn Art Museum, Creighton University spans both sides of the corridor. Creighton University (in partnership with the City of Omaha) recently installed a new roundabout gateway at 24th Street and Cass Street to provide traffic calming and additional multimodal amenities including expanded sidewalks and a raised cycle track style bike lane.

The majority of the project is located within the urban core/ downtown area of Omaha. From Cass Street to Leavenworth Street the identified context zone clearly matches with the 'downtown' category as shown in the Complete Streets Design Guide.

At the southern end of the project area, a clear transition in land use context occurs south of Leavenworth Street. While the land area fronting the corridor continues to be composed of commercial and human service uses, the area beyond this frontage transitions to traditional neighborhoods. From Leavenworth Street to Mason Street, the recommended land use context zone is identified as 'neighborhood commercial.'

6 Multimodal Transportation Network Inventory

The corridor is composed of two one-way streets: 24th Street and 24th Avenue/25th Street which functions as a single street but transitions in its naming at Farnam Street. 24th Street serves northbound one-way traffic while 24th Avenue/25th Street serves southbound one-way traffic. 24th Street functions under two-way operation north of Dodge Street and South of Leavenworth Street. The one-way pair exists between Dodge Street and Leavenworth Street.

These streets have been designated as urban minor arterials within the federal functional classification system. The project corridor (and 24th Street in general) is not a part of the National Highway System. Additionally, both routes have been designated as truck routes from Mason Street to Dodge Street. Throughout the project area, the posted speed limit is 35mph.

Photo 3 Architectural example along 24th Street

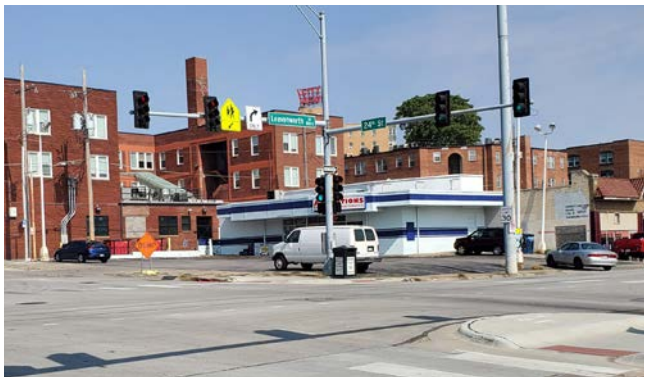


Photo 4 Leavenworth and 24th Street

Generally, the corridor is composed of a 4-lane, divided north of Dodge St, a pair of 3-lane, one-way roadways between Dodge St & Leavenworth St, and 2-lane with a two-way left turn lane and bike lanes south of Leavenworth St.. Adjacent to the roadway, a mature sidewalk system exists that varies from a minimum of 4-feet of pavement to a maximum of 20 ½ feet of pavement within the pedestrian zone. The location of the sidewalk varies from directly adjacent to the curb to a buffered sidewalk, separated from the curb by a greenscape/furnishing zone (sometimes by as much as 20 feet). Throughout the corridor, the frontage zone is generally less than 1 foot, as the pedestrian zone extends to the building face in most locations.

Except for the beginning of the South 24th Street Complete Streets project (just south of Leavenworth Street, there is no dedicated space for bicycle infrastructure within the roadway or pedestrian zones. North and south of the project area, dedicated, on-street bicycle facilities exist as a part of the North 24th Street bike lanes from Cass to Franklin and the South 24th Street Complete Streets project. The project area intersects east/west bicycle lanes at Leavenworth Street and St. Mary's Avenue. A BCycle station is located on the northeast corner of the 24th Street and Farnam Street intersection, adjacent to the EVEN Hotel and at the northwest corner of 24th Avenue and Harney Streets, adjacent to Greenstreet Cycles.

The project team performed a site visit on September 23, 2020. The following sections summarize the information found during that effort.

6.1 BICYCLE AND PEDESTRIAN LEVEL OF COMFORT

The existing conditions within the project area do not provide dedicated space for bicycles to operate within the right-of-way. The 2017 edition of Omaha Metropolitan Area Bicycle Map identifies 24th Street as suitable for experienced riders only, noting that streets with this designation exhibit moderate traffic volumes and are generally suitable for experienced cyclists comfortable mixing with traffic.

To assess pedestrian level of comfort (PLOC), the project team adopted a methodology used by the Montgomery County (Maryland) Planning Department[6]. This qualitative analysis evaluates pedestrian comfort within a three-tiered range:

- High Quality: enabling parents with young children to walk with a moderate level of supervision. Taken to mean that the children would be walking within sight of their parents, but not holding hands.
- Acceptable: characterized by an environment that can be used by families, but parents would feel the need to hold the hands of their children.
- Unacceptable: identified as environments in which walking is uncomfortable or where most adults would walk only if they had no other option available.

Using this methodology, sidewalks are classified based upon their weakest condition. An example along the 24th Street Corridor would be the western pedestrian zone of Harney Street, in which a step-up to a utility vault is present, greatly limiting the mobility of persons using wheelchairs or with other mobility

[6]Montgomery County Planning Department PLOC Description https://montgomeryplanning.org/wp-content/uploads/2018/10/Pedestrian-Level-of-Comfort-Description.pdf

issues. In this location, the pedestrian level of comfort has been deemed to be unacceptable due to the step in the vault as paired with the lack of sidewalk buffer.

Intersections throughout the corridor contain tactile ADA pads and ramps. Crossing distances vary but are generally not onerous based upon the level of traffic observed through the traffic study and site observations. However, it must be understood that the traffic volumes were collected, and site visits occurred during times of reduced traffic due to the COVID-19 pandemic. While traffic volumes are estimated to be within 10 percent of the annual average for Douglas County, the peaks of traffic seem to have shifted[7].

6.2 EXISTING STREET TYPE AND CONFIGURATION

Within the framework developed under the Complete Streets Design Guide, arterial streets within the downtown context zone may be developed as urban connector streets, general urban streets, or main streets. Understanding that these classifications may not apply directly to the existing street configuration, the street type within the project area has been classified as urban connector throughout. While there are certain blocks that begin to exhibit main street features, the minimal pedestrian zone throughout the corridor tends more toward the urban connector street type. Relative location throughout the corridor is shown in a location reference map, an example of which is shown in Figure 5 Ascertaining the exact right-of-way dimensions without a complete survey of the corridor is problematic. In terms of the configuration of the existing corridor and its associated street cross-sections, the project team leveraged available aerial imagery, coupled with site observations to develop the dimensions of the existing configurations. The aooendix contains a series of cross section images, developed through open-source software, that provide the general configuration of the roadway and pedestrian zone throughout the corridor by segment. There is a great deal of variation in the approximate right-of-way throughout the corridor due to the multiple configurations of its streets.

Photo 5 24th Avenue at approximately Howard Street

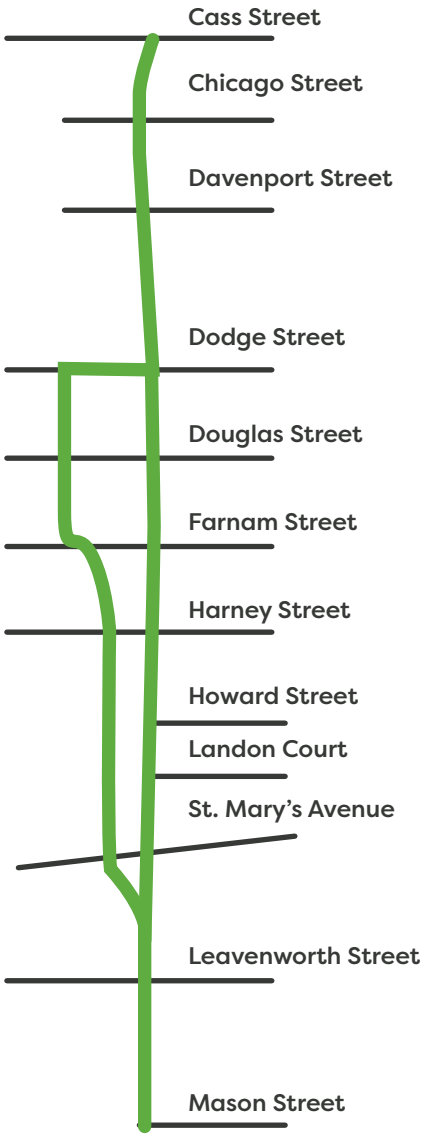


Figure 5 Location Reference Map

[7]NDOT COVID-19 Traffic Count Dashboard https://gis.ne.gov/portal/apps/opsdashboard/index.html#/4473552a18f34645ad0dede3ae1105ce

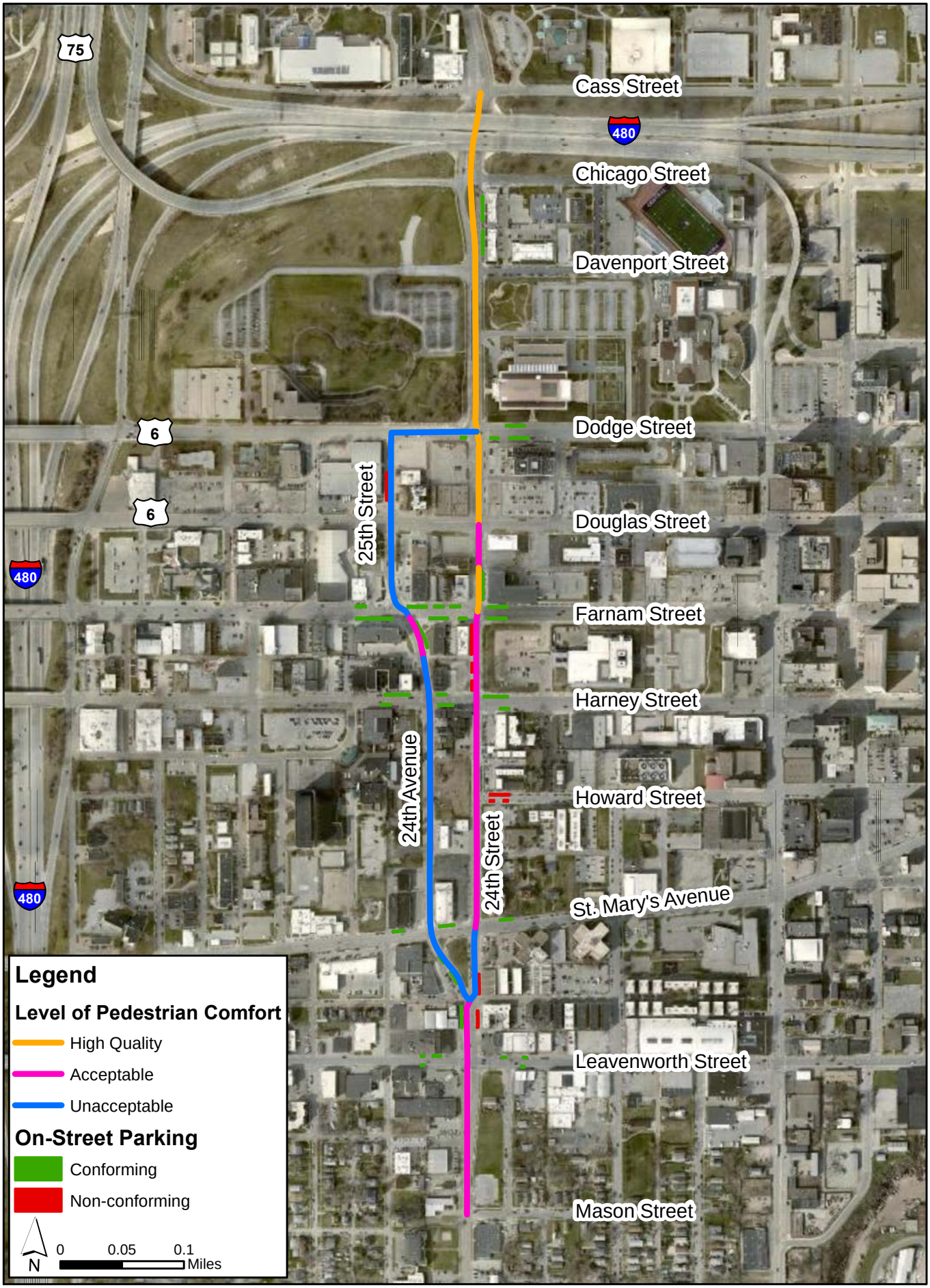


Figure 6 Existing Conditions Summary Map

The map shown in Figure 6 summarizes the minimum pedestrian level of comfort found in each segment as well as displaying the location of conforming and non-conforming on-street parking throughout the project area. It should be noted that in some locations, the pedestrian environment has been improved on one side of the street while limitations exist on the other. The figure notes the lowest level of pedestrian comfort within a segment in these cases. A detailed analysis of existing conditions is contained within the Appendix.

7 Traffic Analysis

Existing traffic conditions were evaluated to identify current vehicular operations along the corridor. AM and PM peak hours of the intersections were analyzed. 2020 turning movement counts were provided by the City of Omaha at the following intersections:

- 24th Street & Cass Street (10/15/2020)
- 24th Street & Chicago Street (10/13/2020)
- 24th Street & Dodge Street (10/14/2020)
- 24th Street & Douglas Street (10/14/2020)
- 24th Street & St Mary's Avenue (10/13/2020)
- 24th Street & Leavenworth Street (10/6/2020)

These counts were compared to 2017, 2018, and 2019 turning movement counts procured through the City of Omaha GIS traffic volume database. Some turning movements from the updated 2020 counts are a decrease of 50% compared to the historical turning movement volumes, a direct effect of the COVID-19 pandemic. Therefore, the 2017, 2018, and 2019 turning movement volumes along the corridor were used in the analyses as they are considered to represent long-term travel conditions more accurately.

The existing peak hour turn-movement and ADT volumes used for the analysis are illustrated in Figure 1 and found in the Appendix.

Capacity analyses were performed for all signalized study intersections utilizing the existing lane configurations and traffic control. Analyses were conducted using Synchro, Version 11 which is based on the Highway Capacity Manual 6th Edition delay methodologies. For simplicity, the amount of control delay is equated to a grade or Level of Service (LOS) based on thresholds of driver acceptance. The amount of delay is assigned a letter grade A through F, LOS A representing little or no delay and LOS F representing very high delay. Table 1 shows the delays associated with each LOS grade for unsignalized and signalized intersections. Existing signal timings were provided by the City of Omaha at signalized intersections and were incorporated into the analysis. Non-NEMA phasing is required for non-standard intersections, like 24th Street & Dodge Street, where one-way and two-way intersections converge. Current HCM 6th Edition methodology does not address this phasing, so it is necessary to rely on previous versions of the HCM methodology (HCM 2000) to approximate operations. Results of the analyses indicate that all signalized intersections operate at LOS C or better in both peak hours. All individual movements operate at LOS D or better in both peak hours. The 95th percentile queue lengths for all movements do not queue through adjacent public intersections. Vehicles queue through closely spaced private drives along the corridor but that is not expected to negatively impact traffic operations.

Generally, volume-to-capacity (v/c) ratios, which are an indication of how much of the available capacity for a movement is being used, are below 0.30 for through movements along 24th Street. There are isolated incidents of turning movements seeing V/C ratios up to 0.65, but for the most part it appears that there is more capacity along 24th Street today than what is needed. This suggests a reduction in through capacity, by way of a road diet for example, would be possible. This would need to be checked against impacts to movements on intersecting streets as well as anticipated traffic growth as part of subsequent analysis for this study.

The Existing Conditions capacity analysis summary is illustrated in Figure 1 found in the Appendix. Detailed results may also be found in the Appendix.

Table 1 Intersection LOS Criteria

Level-of-Service	Average Control Delay (seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50
Highway Capacity Manual (HCM 6th Ed.)		

8 Crash Analysis

The City of Omaha provided crash data for the study corridor for the previous five years (2015-2019). The data included crashes along the 24th Street corridor extending from Cass Street to Leavenworth Street as well as the 25th Street corridor from Dodge Street to Leavenworth Street. This data detailed the date and time of the crash, severity, direction, and crash type.

8.1 CRASH SEVERITY

A total of 506 crashes were reported, with 433 occurring at intersections. Of the 433 reported intersection crashes, there were two fatalities (FAT), 6 disabling injuries (INJ-A), 42 visible injuries (INJ-B), 141 possible injuries (INJ-C), and 233 property damage only (PDO) crashes. There were also 6 bicycle crashes and 4 pedestrian crashes reported. 73 crashes were reported along segments of roadways within the study area. Of the 73 reported segment crashes, there were no fatalities, 7 INJ-A, 1 INJ-B, 1 INJ-C, and 64 PDO crashes. The one fatal crash was an angle crash that involved a wrong way (southbound) and a westbound vehicle at 24th Street & St Mary's Avenue.

8.2 CRASH TYPES

Throughout the study corridor, Angle crashes were the most common, making up 55% of total crashes. Sideswipes (Same Direction) and Rear Ends were the next most, making up 21% and 11% of the total crashes, respectively. Statewide averages for Angle, Sideswipes (Same Direction) and Rear End crashes at intersections are 41%, 10%, and 32%, respectively. The intersections with the highest number of crashes and highest crash rates were 24th Avenue & St Mary's Avenue (76 crashes), 24th Street & Harney Street (61 crashes), and 24th Street & Douglas Street (58 crashes).

Table 2 shows the crash types along the 24th-25th Street corridors.

Of the 76 total crashes at 24th Avenue & St Mary's Avenue, 58 were angle crashes. 44 of the angle crashes involved a westbound vehicle that ran a red light. Another four angle crashes involved a southbound vehicle that ran a red light. Discussions with the city and stakeholders in the area have observed northbound left-turning vehicles at 24th Street & St Mary's Avenue continue westbound through 24th Avenue after completing their turning movement. This is likely due to the close intersection spacing (180 feet center-to-center) between 24th Street and 24th Avenue.

Table 2 Crash Summary by Type – 24th and 25th Street Corridors

Crash Type	Number of Crashes
Angle	279
Sideswipe Same Direction	105
Rear End	55
Left Turn Leaving	20
Ran Off Road	18
Fixed Object	11
Pedestrian	4
Bicycle	6
Other	8

Of the 61 crashes at 24th Street & Harney Street, 57 were angle crashes. Like 24th Avenue & St Mary's Avenue, 38 of the angle crashes involved a northbound vehicle running a red light. Another nine angle crashes involved an eastbound vehicle running a red light. There is a building on the southwest corner of 24th Street & Harney Street that blocks vision for eastbound vehicles and northbound vehicles to see oncoming traffic, limiting the reaction time for motorists entering the intersections. Of the 58 crashes at 24th Street & Douglas Street, 50 were angle crashes. 39 of the angle crashes involved a northbound vehicle running a red light. Another seven angle crashes involved an eastbound vehicle running a red light.

8.3 CRASH ANALYSIS

Crash data was analyzed by both crash type and crash severity at study intersections and segments. Crash rates at each intersection were calculated using the following formula:

$$R = \frac{(\text{number of crashes} \times 1{,}000{,}000)}{(\text{number of years} \times 365 \times \text{ADT})}$$

It should be noted the ADTs used for these calculations were based on 2018 or 2019 traffic counts from the City of Omaha GIS database. More recent counts were procured at six intersections along the corridor by the City of Omaha, revealing a decrease of up to 50%

for some peak hour turning movements from the 2018 and 2019 counts, a direct effect of the COVID-19 pandemic. As the crashes occurred before the pandemic, pre-COVID-19 daily traffic volumes were used in all calculations.

Critical crash rates were also calculated for each intersection using the following formula:

$$R_{cr} = R_a + k \times \sqrt{(R_a / m)} + (0.5 \times m)$$

Where k is a probability factor for a 95% confidence interval (1.642), Ra is the average crash rate for similar intersections, and m is the exposure. Vehicle exposure is calculated as number of vehicles entering an intersection over the data range (5 years in this case) per million entering vehicles. Note a separate average crash rate was calculated for signalized intersections (1.22 crashes/MV) and unsignalized intersections (0.16 crashes/MV) along the corridor.

Critical crash rates allow analysts to view the crash rates at intersections in the context of other intersections on the corridor by factoring vehicle exposure. An intersection with a critical crash rate greater than the average crash rate is flagged as a location to focus for improvements both for the high number of crashes and high vehicle exposure. Three intersections have been identified as having crash rates higher than the critical crash rates. The crash summary at these intersections is shown in Table 3 below:

9 Parking Inventory

While there are no city-owned parking lots or garages within the study area, on-street parking exists in various locations throughout the corridor as discussed within the existing conditions summary. Parking within the area is both metered and non-metered. On-street parking locations are shown in Figure 7. Figures 8 and 9 display the parking as metered or non-metered and conforming width or non-conforming width, respectively. During the site visit, the project team recorded parking occupancy. While the data was collected it should be noted that the site visit (and all project activities to-date) was conducted during the global novel coronavirus (Covid-19) pandemic of 2020. During the initial site visit during September and subsequent visits in October and November, limitations on in-person gatherings to combat the spread of Covid-19 have impacted travel patterns, building occupancy, and parking utilization throughout the nation in general and project corridor specifically.

On-street parking utilization was observed along the 24th Street and 25th Street corridors, including side streets, between Leavenworth and Dodge Streets on Thursday September 24 between 1:30pm and 4pm. Side street parking included the area approximately one-half block west of 25th Street to one half block east of 24th Street along east-west streets. The total parking capacity directly on 24th Street and 25th Street was found to be approximately 33 spaces and 9 spaces, respectively. The total parking capacity along side streets was found to be approximately 189 spaces.

Table 3 Crash Summary – Intersections with Crash Rate > Critical Crash Rate

Intersection	Rear End	Sideswipe - Same Direction	Angle	Fixed Object in Road	Pedestrian	Other	Total Crashes	ADT (vpd)	Crash Rate (per 1,000,000 vehicles)	Vehicle Exposure	Critical Crash Rate
24th St & Douglas St	2	4	50	1	1		58		1.79	32.49	1.55
24th St & Harney St	1	2	57			1	61		2.32	26.28	1.59
24th Ave & St Mary's Ave	2	15	58		1		76		3.56	21.35	1.64

Crash summary tables by type and severity at intersections and segments are included in Figure 2 and Figure 3 in the Appendix.

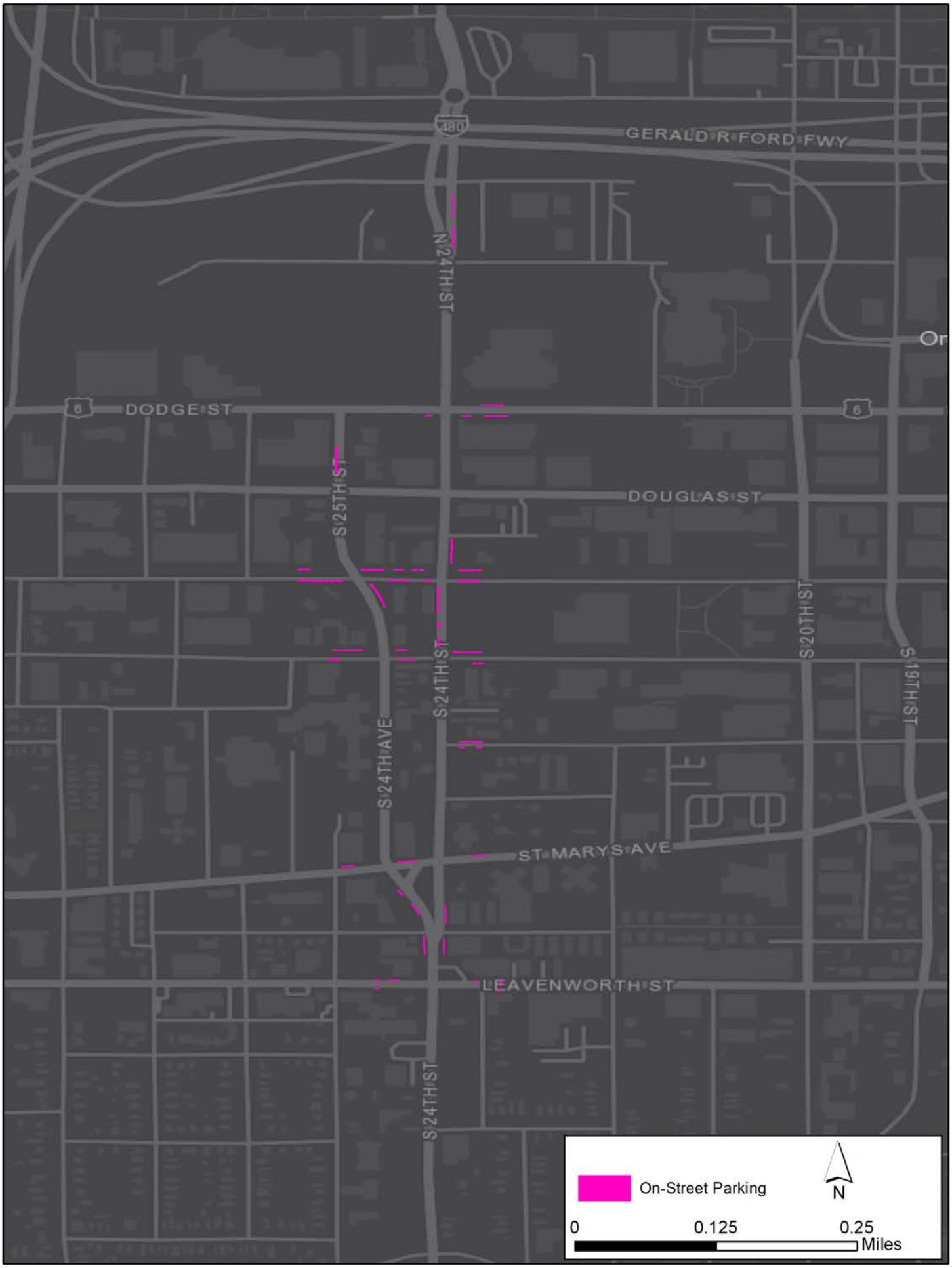


Figure 7 Street Parking Locations

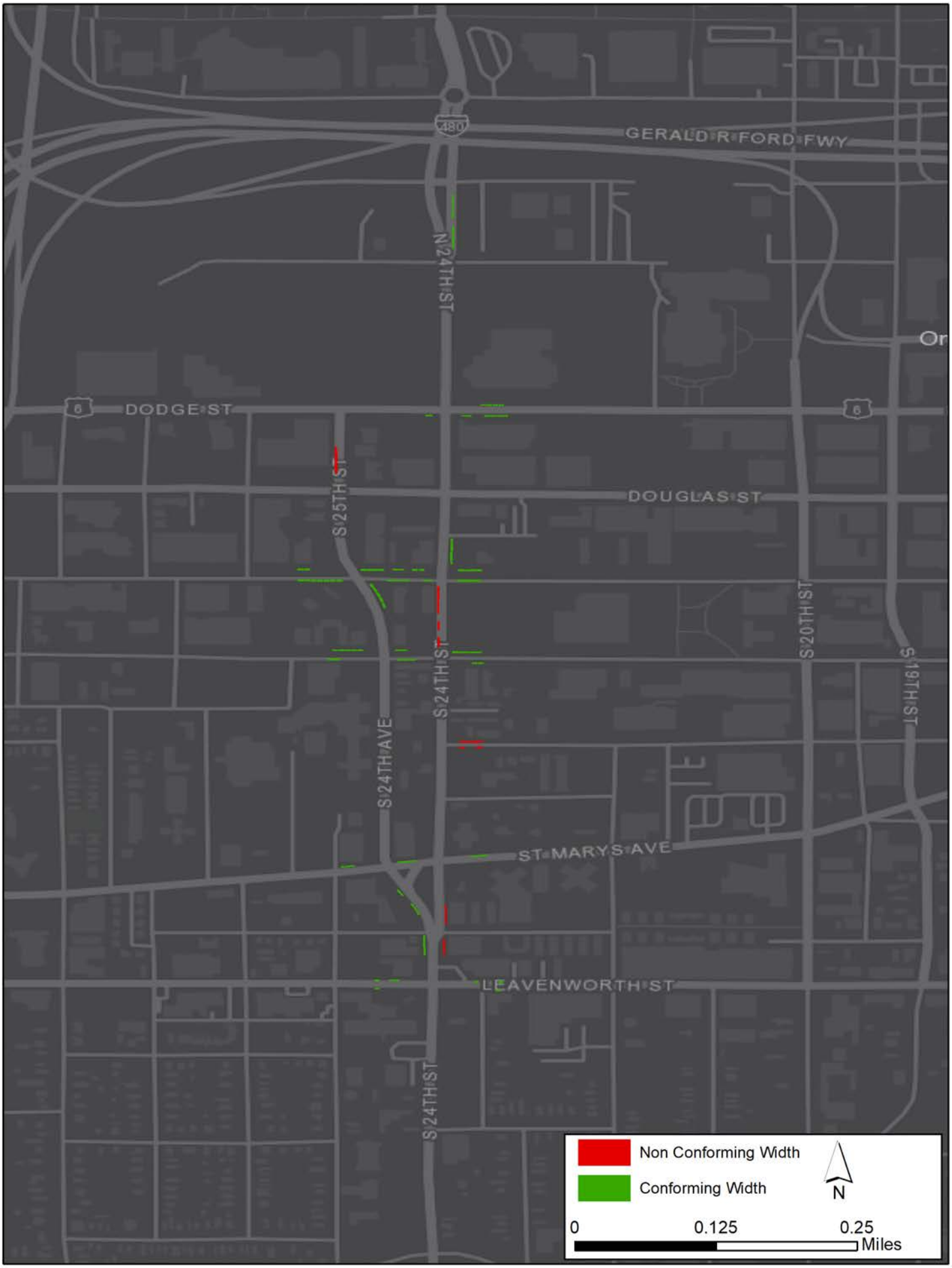


Figure 8 Street Parking Conforming

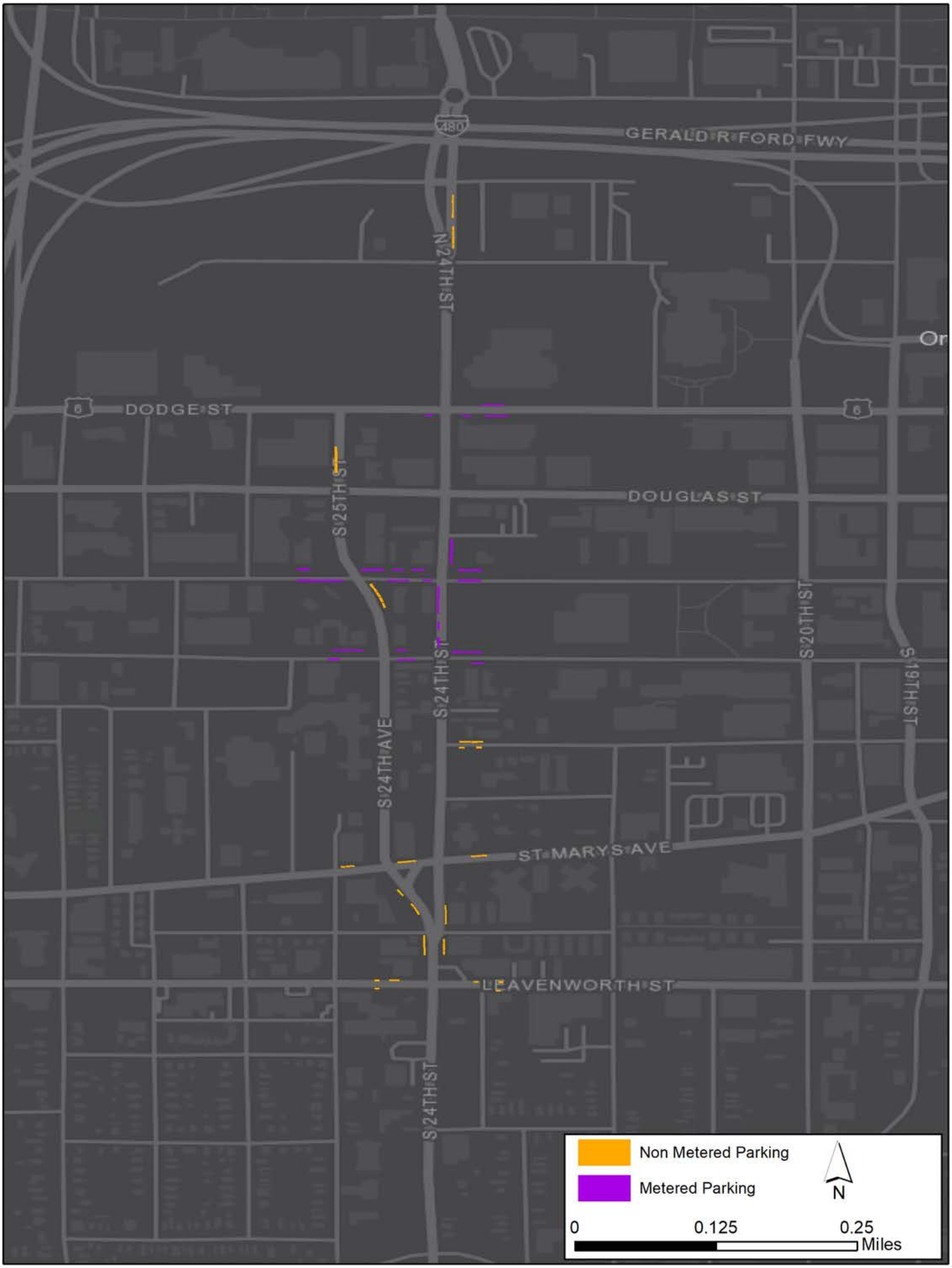


Figure 9 Street Parking Metered

During the weekday along the entire corridor, parking utilization directly on 24th Street was approximately 21%. The highest utilization on 24th Street occurred between Leavenworth Street and Landon Court at 60%. Several blocks along 24th Street had unused parking meters, such as between Harney and Farnam Streets as well as between Farnam and Douglas Streets. Parking utilization along 25th Street was similar, with approximately 33% utilization. On-street parking utilization along side streets was approximately 34%. The highest utilization occurred east and west of 25th Street along Harney Street, at approximately 68%. There are apartments west of 25th Street and multiple local businesses just east and west of 25th Street.

While no turnover data was recorded, it is anticipated that turnover would be low along most of the corridor. There are several restaurants located just west of 24th Avenue / 25th Street along Farnam and Harney Streets where higher turnover could be expected, however during data collection, most restaurants were open for carryout service only due to the COVID-19 pandemic. The Existing Parking Inventory is illustrated in Figure 5 found in the Appendix.

Due to the COVID-19 pandemic, the parking data collected may not completely reflect parking utilization along the corridor under ordinary circumstances.

10 Goals, Objectives, and Performance Measures

Preliminary goals for the study were developed from the initial responses from the first stakeholder committee meeting. Public safety goals were also included to ensure appropriate access and response to public safety issues such as structure fires, medical emergencies, or other public safety concerns. Following the development of goals, objectives were added to activate the goals. Performance measures to assist the City in evaluating the effectiveness of the alternative were developed directly from the objectives.

10.1 GOALS

The primary goal of this project is to identify the ultimate cross-section to improve the corridor's safety, efficiency, multimodal connectivity, livability, and support existing residents and businesses. In addition to identifying the cross section, the following goals have been identified:

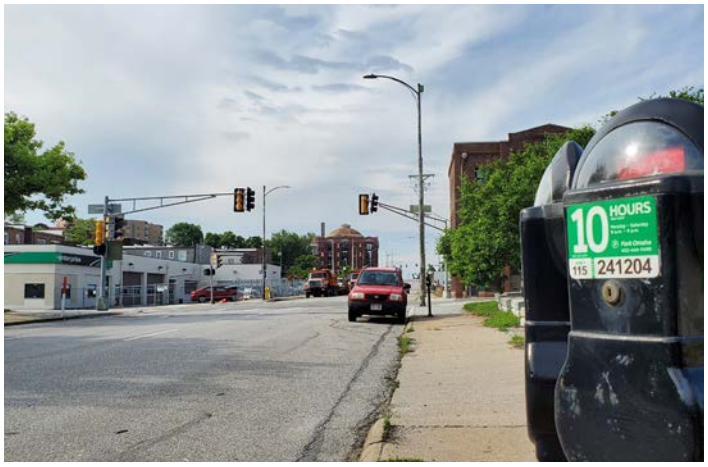


Photo 21 Metered on-street parking on 24th Street

1. Improve multimodal access and operation
2. Improve safety for all users
3. Speed reduction
4. Improve/retain on-street parking
5. Increase livability
6. Retain acceptable levels of traffic operation
7. Support existing business operations
8. Support public safety

Within each of the goals, one or more objectives have been identified and are contained within Section 2.2.

10.2 OBJECTIVES AND PERFORMANCE MEASURES

Activating the goals to assess the effectiveness of each alternative is the function of objectives. Tracking the effectiveness of these objectives through qualitative or quantitative means is the purpose of performance measures. Linking each of these factors together provides a clear and concise tool to evaluate the alternatives per the stated vision for this project and the corridor. Objectives and performance measures for the project are described below by goal area. As a planning effort, several of the below objectives and performance measures should be evaluated before and after the future construction of the corridor. Additionally, the scarcity of regionally available of quantitative data limits the proposed performance measures.

10.3 GOAL 1: IMPROVE MULTIMODAL ACCESS AND OPERATION

Existing corridor amenities exhibit acceptable pedestrian comfort for much of the corridor. Transit operates along the one-way pair, but the movements required to access southbound 25th Street/24th Avenue impact transit efficiency along the corridor. The existing corridor lacks dedicated bicycle infrastructure. It should be noted that bicycle lanes exist along Leavenworth Street

(eastbound) and St Mary's Avenue (westbound) on the south end of the corridor and Burt Street to the north.

Objective 1.1: Increase bicycle and pedestrian amenities through complete streets practices.
While the existing configuration provides an acceptable level of pedestrian comfort in most locations, repurposing existing right-of-way that is not needed for vehicular uses due to more than acceptable levels of traffic operation can provide additional space to increase the sidewalk width while also improving the buffer from the traveled way. Bicycle amenities may also be provided within the repurposed right-of-way.
Performance measures:
Net gain or loss in bicycle infrastructure; improvement in bicycle connectivity. Increase or decrease in pedestrian level of comfort.

Objective 1.2: Improve transit amenities and operation.
Existing transit service follows along the one-way pair. The turning movements required to access southbound 25th Street reduce route efficiency. Transit routes operating on one-way pairs exhibit inefficiencies for riders due to the increased distance to the route at one end of the trip or another. Riders also may not be able to efficiently access transit service in the opposing direction if they are not familiar with the route.
Performance measures:
Improvements to route efficiency. Transit stop/ shelter improvement or consolidation.

Objective 1.3: Repurpose excess roadway capacity.
Existing configuration of the roadway and the existing traffic volumes indicate the corridor is operating significantly under capacity. This means that the existing right-of-way may be repurposed to provide additional features not currently present within the right-of-way so long as the existing and future traffic volumes would be accommodated within acceptable levels of operation. Additional or expanded complete streets features should be evaluated to optimize the use of the right-of-way.
Performance measures:
Number of complete streets features within right-of-way.

Objective 1.4: Assess Freight Movement and Truck Routes.
South of Dodge Street, the corridor is shown as a City of Omaha Truck Route. Freight access is important to the vitality of industry and commercial enterprise depending upon the commercial activities within the adjacent land uses. Supporting freight movement as needed to support businesses along the corridor may be critical to improving the vitality of the corridor in the future.
Performance measures:
Truck traffic counts. Assessment of freight activities within the corridor. Shifts in commercial uses.

10.4 GOAL 2: IMPROVE SAFETY FOR ALL USERS

Improvements to the corridor should be made with the safety of all users in mind. The current corridor is auto centric in its characteristics. Pedestrians within the corridor must often walk immediately adjacent to the traveled way. Crossing distances at intersections are also significant due to the layout of the one-way pair with as many as four lanes of travel that must be traversed by a pedestrian.

Objective 2.1: Reduce the number of crashes for vehicular and active transportation users.
Improvements to the corridor should be made with the goal of increasing site distances, reducing speeds, and providing well recognized, safe areas for modal conflicts to occur. Examples of strategies could include reduction in the crossing width due to the inclusion of nodes at intersections, providing both a visual cue for the driver and a shorter, safer crossing opportunity for the pedestrian. With a high rate of angle crashes caused by red light runners identified in the existing conditions memo, safety measures should be considered, including extending clearance times, and improving signal timing coordination between the closely spaced signals along east-west crossing roadways.
Performance measures:
Number of injury and fatal crashes. Number of vehicular crashes. Number of bicycle collisions. Number of pedestrian collisions.

10.5 GOAL 3: REDUCE TRAVEL SPEED

With the excess vehicular capacity, motorists are more apt to drive at a higher speed. The existing wide, uncongested, multilane street can allow drivers to comfortably drive above the posted speed.. Introducing visual cues like reducing the number of through lanes (while while accommodating acceptable traffic operations) and can be supplemented by the addition of nodes at intersections and on-street parking which both assist in traffic calming.

Objective 3.1: Reduce travel speed along the corridor to improve multimodal comfort.
Reducing the speed of vehicles operating along the corridor has several safety implications. First, the reduction in speed provides additional response time for the operator of the vehicle to assess and respond to an unknown situation. Second,

the reduction in speed improves the distance required for the vehicle to come to a stop or slow sufficiently to miss an object, person, or other hazard within the driving lane. Third, a reduction in travel speed provides additional benefits for pedestrian and bicycle safety comfort, especially in constrained environments.

Performance Measures:

Mean traffic speed. Median traffic speed. 85th percentile traffic speed.

10.6 GOAL 4: IMPROVE AND/OR RETAIN ON-STREET PARKING ENVIRONMENT

Due to constraints, some of the existing on-street parking on the 24th Street Corridor does not meet current design standards and may need to be removed pending the ultimate configuration of the cross-section. Conversely, some on-street parking may be able to be added in select locations by repurposing right-of-way currently used for vehicular lanes or through redevelopment that dedicates sufficient right-of-way for additional on-street parking.

Objective 4.1: Establish proper parking conditions.

Within the alternatives, it is critical that proper parking conditions be developed if on-street parking is to be included. That is to say, the minimum parking requirements for parallel, diagonal, or perpendicular parking must be satisfied within the developed alternatives for on-street parking to exist.

Performance Measures:

Net gain/loss in conforming on-street parking stalls.

10.7 GOAL 5: INCREASE LIVABILITY

The livability may be defined as the conditions and factors that make an area a pleasant place to live. The American Association of Retired Persons' (AARP) livability index includes the following factors:

- Housing – affordability and access
- Neighborhood – access to life, work, and play
- Transportation – safe and convenient options
- Environment – clean air and water
- Health – prevention, access, and quality
- Engagement – civic and social involvement
- Opportunity – inclusion and possibilities

While this study is focused on the public right-of-way, alternatives may provide opportunities to directly improve the neighborhood, transportation, health, engagement, and opportunity factors as identified above. Additionally, environmental factors may also be improved indirectly through providing opportunities for increased greenspaces.

Objective 5.1: Increase Access to public greenspace to residents and users of the corridor.

Very little greenspace exists within the current corridor. The only public lawn within the project limits is located south of St. Mary's Avenue where 24th Avenue and 24th Street merge. Alternatives should be evaluated based upon the potential to increase publicly accessible greenspace along the corridor.

Performance Measures:

Net gain/loss in public greenspace area. Net increase/decrease in relative distance to public parks throughout the corridor.

Objective 5.2: Increase potential for street activities and street furniture.

Little or no street furniture exists on the corridor today. Alternatives should examine the potential to increase the greenscape/furnishing zone to allow for additional amenities to be added such as benches, tables, bicycle racks, street trees/landscaping, and bike share stations. These amenities encourage active modes of transportation, which benefits public health, economic development, and livability.

Performance Measures:

Net increase in the usable space within the greenscape/furnishing zone to provide additional amenities in the ultimate build out.

10.8 GOAL 6: MAINTAIN ACCEPTABLE LEVELS OF TRAFFIC OPERATION

When considering the repurposing of existing lanes to provide additional non-motorized amenities, it is critical that the roadway continue to provide for acceptable levels of operation for vehicular traffic.

Objective 6.1: Provide acceptable levels of service for automobile and freight movements.

Within the City of Omaha, with limited exeptions, acceptable traffic operations mean level of service D (LOS D) for links, LOS C for intersections and LOS D for individual intersection movements. Vehicular queuing will also be evaluated to ensure vehicles do not spill back through adjacent intersections. Proposed alternatives for the repurposing of existing vehicular lanes will be evaluated against these performance measures.

Performance measures:

Intersection LOS C, Individual movement LOS. Vehicle queuing.

10.9 GOAL 7: SUPPORT EXISTING BUSINESS OPERATIONS

With any change to a street, it is important to understand the needs and functions of the existing businesses, service providers, and residents along the corridor. The alternative roadway layouts should consider the needs of the existing users and support the activities that are occurring along the corridor.

Objective 7.1: Provide acceptable options for first mile/last-mile freight movements and deliveries.

During stakeholder meetings, the loading and unloading of delivery and freight vehicles was a key concern for several businesses, property owners, and City staff. The first mile/last-mile connection for freight origination and delivery is a critical economic link. Balancing these needs with the desire to provide additional active transportation amenities requires dedicating right-of-way space for on-street parking and loading zones.

Performance Measures:

Availability of on-street parking and loading zones to businesses/residences along the corridor.

10.10 GOAL 8: SUPPORT PUBLIC SAFETY

It is critical that adjacent property owners, residents, and users of the corridor have ready access to emergency services provided by law enforcement agencies, fire departments, and emergency medical personnel.

Objective 8.1: Provide appropriate access for police, fire, and emergency medical response to emergency situations.

Allowing for public access to adjacent properties by emergency vehicles facilitates efficient response to emergency situations.

Performance Measures:

Proximity of public right of way to private property, network continuity.

11 Alternatives

Four initial alternative cross sections were developed for the corridor study and presented to stakeholders and the public for review and comment. The alternatives represent a spectrum of options to accommodate the different travel modes within the existing right-of-way footprint of the corridor. Based upon the data available, each of the alternatives operate within the acceptable levels of traffic operations and are achievable, pending commitment of support and funding.

This section presents and describes the alternatives initially prepared and the fifth, modified alternative. The modified alternative was developed because of the stakeholder and public input. Included within the following section are images of the proposed cross sections for each alternative. Schematic layouts for each of the alternatives are included in Appendix A.

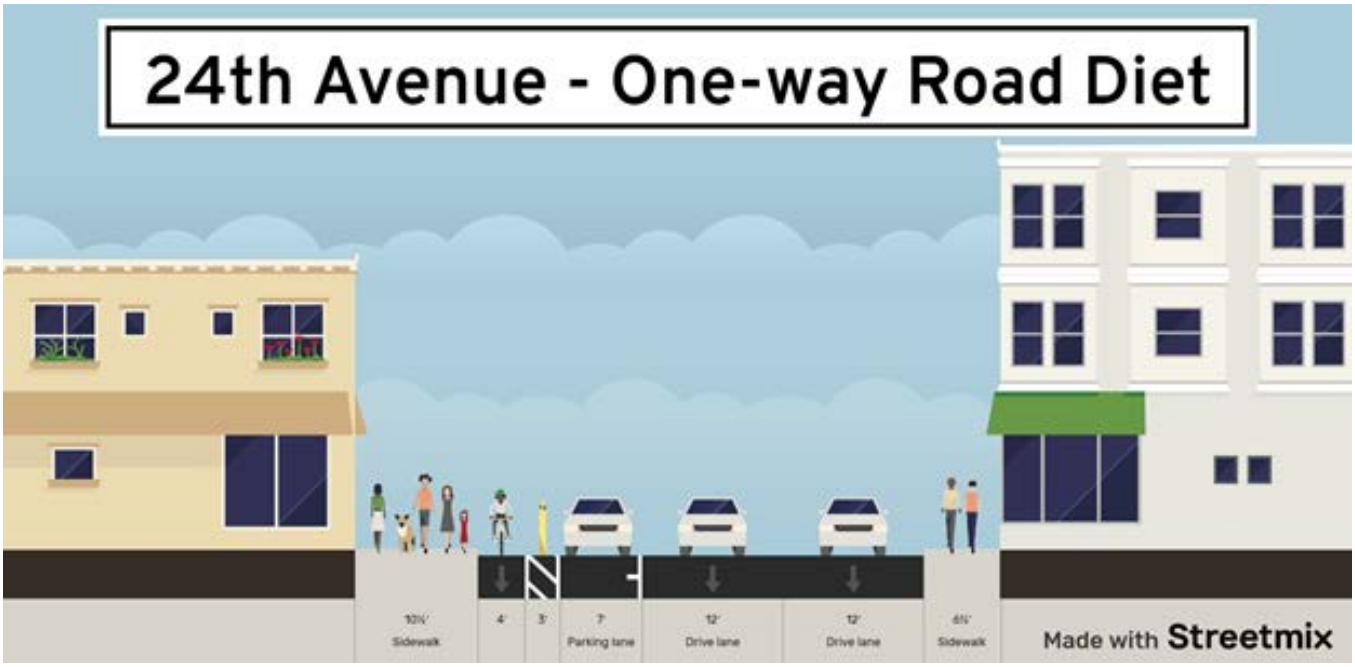
11.1: ALTERNATIVE 1- ONE-WAY ROAD DIET

The first alternative is a simple road diet reconfiguration of the corridor's operational characteristics. As the corridor currently operates under capacity, Alternative 1 retains the one-way pair, but repurposes one lane in each direction to provide for enhanced active transportation amenities.

Along 24th Street, a northbound one-way cycle track, potentially buffered by bollards, planters or other amenities would run along the east side of the street. The southbound pair would also include a one-way cycle track along the west side of 25th Street/24th Avenue. Transit operation would be like today's conditions, operating within the one-way pair's existing traffic lanes. On-street parking is expanded along the corridor to provide additional buffering for the cycle track.

11.2: ALTERNATIVE 2 - TWO-WAY CONVERSION

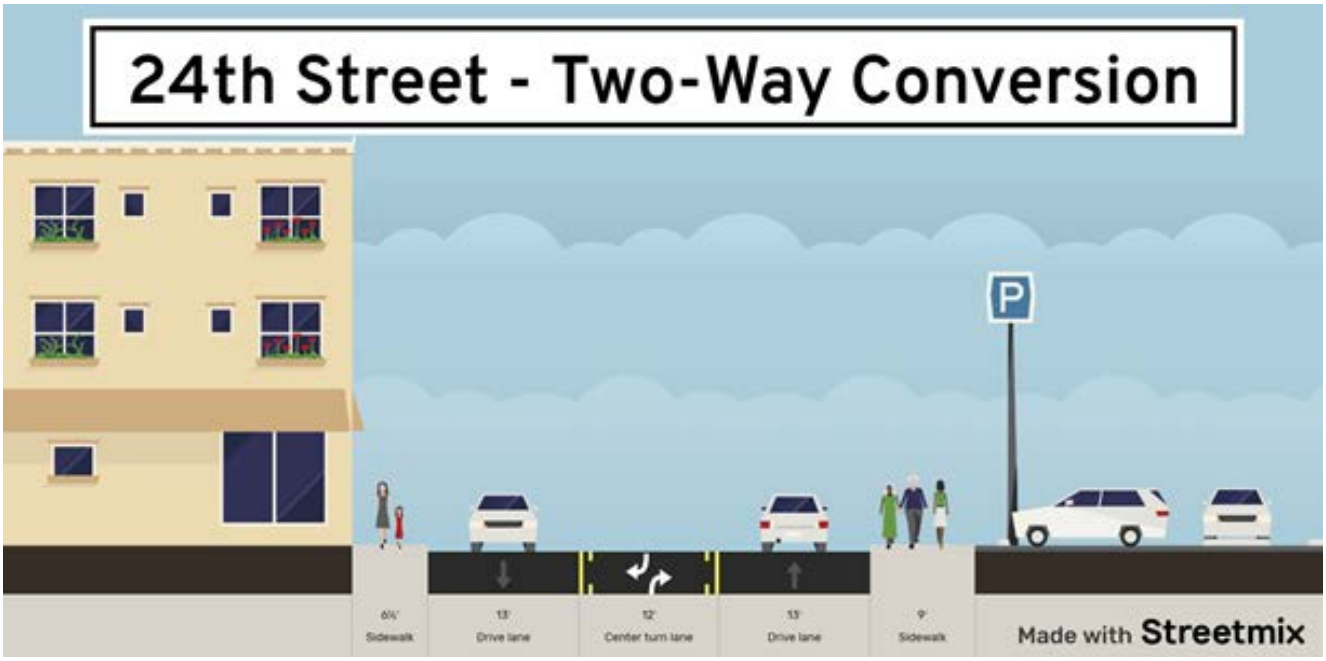
Figure 10 Alternative 1 - One-Way Road Diet

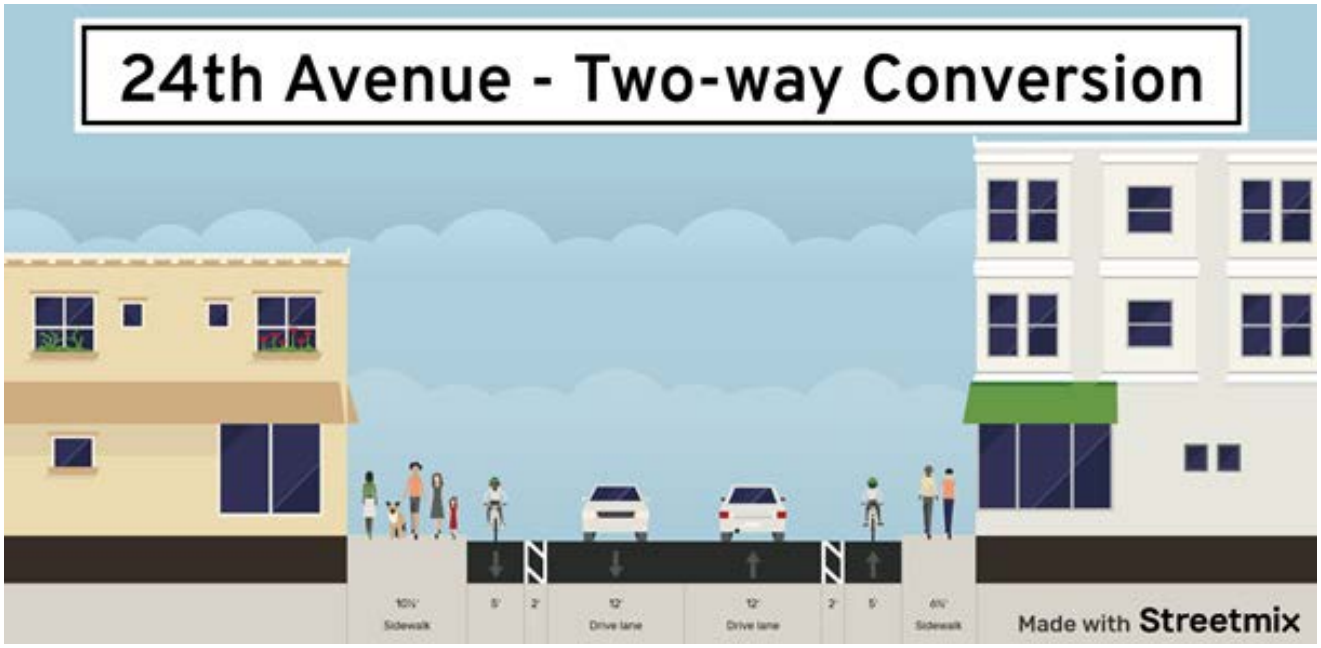


The second alternative contemplates a full conversion of the one-way pair to two-way operation, both along 24th Street and 25th Street/24th Avenue. Alternative 2 would consolidate vehicular and transit operations along 24th Street, providing for more efficient operation of the Metro system by removing the turning movements to access the one-way pair south of Dodge Street. Limited right-of-way and the desire to facilitate loading/unloading of freight within roadway necessitate the continuous center turn lane along 24th Street. On-street parking would be limited to its current configuration in locations where parking currently meets design standards.

Configuration along 25th Street/24th Avenue would change to support two-way operation but be targeted for local traffic rather than intraregional trip making. Whereas freight and transit traffic would be consolidated along 24th Street, 25th Street/24th Avenue would be targeted toward active transportation and local vehicular traffic. This alternative includes buffered bicycle lanes (that could be expanded or improved to cycle track standard assuming truck route designations could be removed, and the additional two feet of available lane width would be repurposed

Figure 11 Alternative 2 - Two-Way Conversion



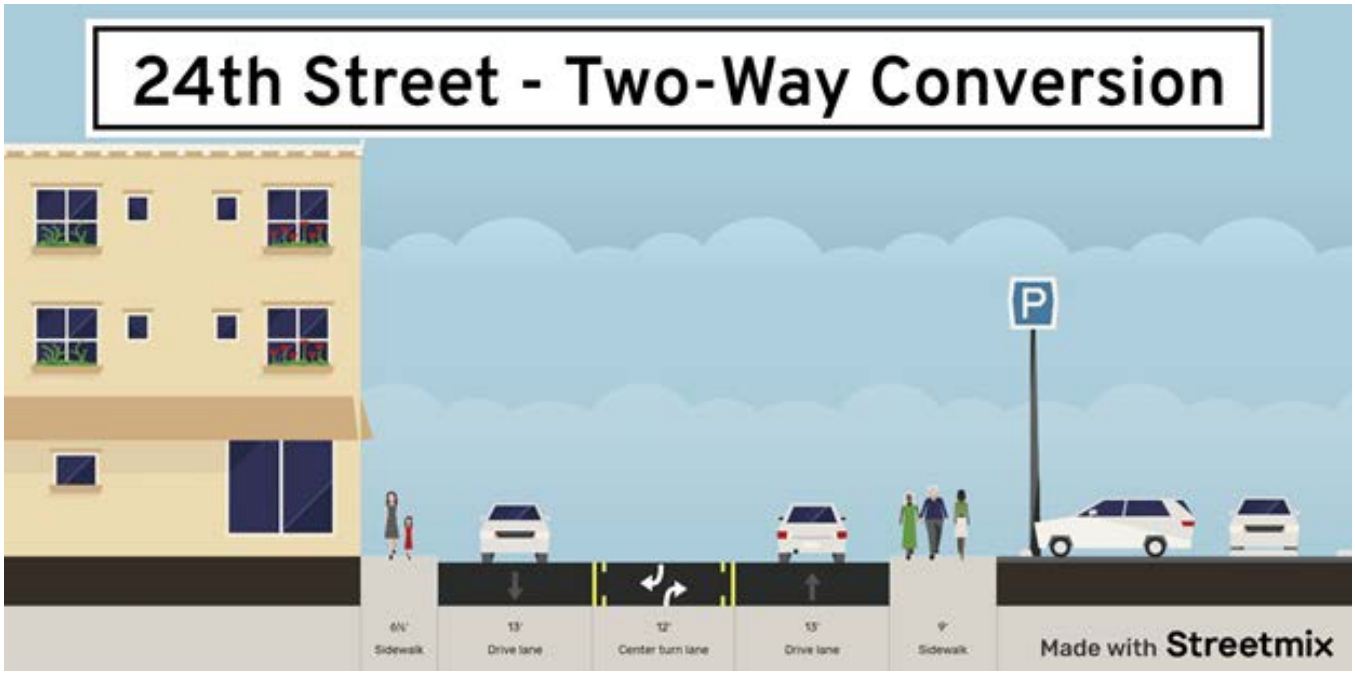


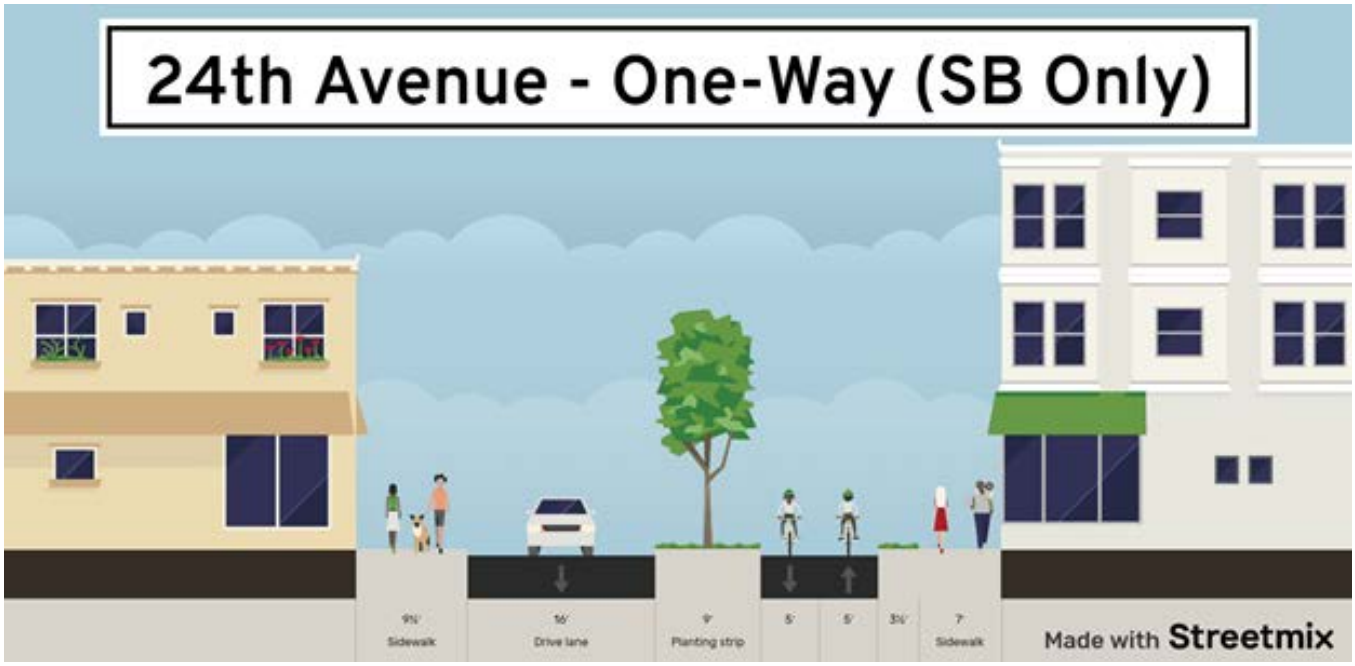
11.3 ALTERNATIVE 3 - HYBRID OPERATION

The third alternative takes a more aggressive approach to repurposing 25th Street/24th Avenue as an active transportation street. Largely, the configuration of 24th Street and its function remain the same from Alternative 2: transit operations, freight traffic, and vehicular through trips will be targeted to 24th Street under a two-way configuration.

The configuration of 25th Street/24th Avenue takes an aggressive approach to repurposing the existing right-of-way. A single southbound traffic lane is retained throughout the length of the corridor, facilitating vehicle traffic and localized access to adjacent businesses and residences. The remaining right-of-way is proposed to be repurposed to allow for additional greenspace and enhanced bicycle facilities.

Figure 12 Alternative 3 - Hybrid Operation



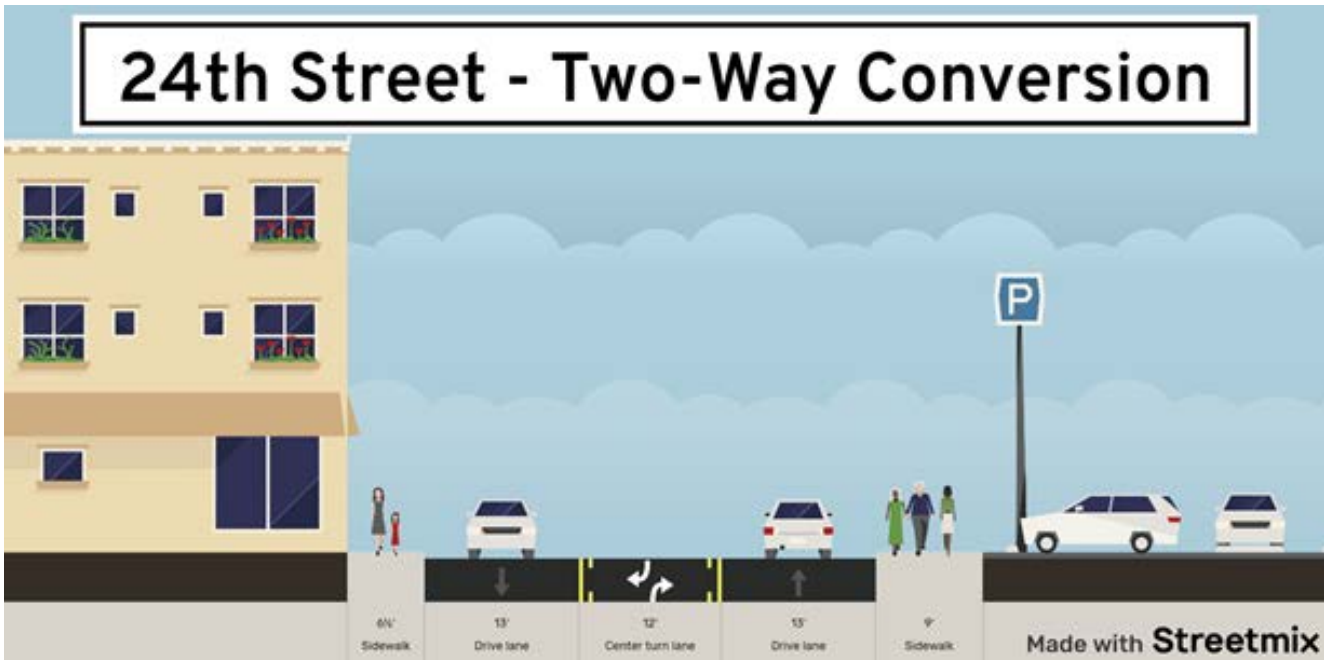


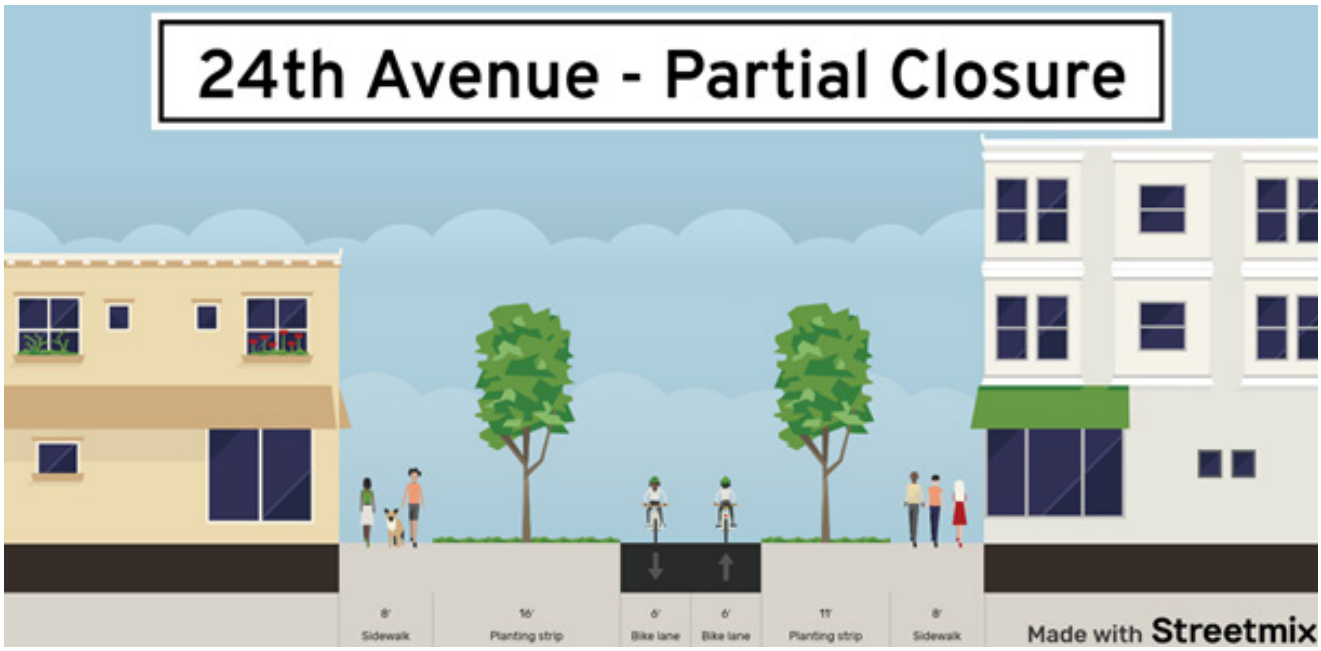
11.4 ALTERNATIVE 4 - PARTIAL CLOSURE

Alternative 4 enhances the approach of Alternative 3, going another step further to repurpose existing 25th Street/24th Avenue right-of-way into a linear park that would be closed to vehicular traffic in two locations. Bicycle and pedestrian amenities are maximized, and additional greenspace is provided to enhance the area's livability.

Like Alternative 2 and Alternative 3, 24th Street would operate as a two-way facility, providing mobility and access for vehicular, freight and transit modes.

Figure 13 Alternative 4 - Partial Closure



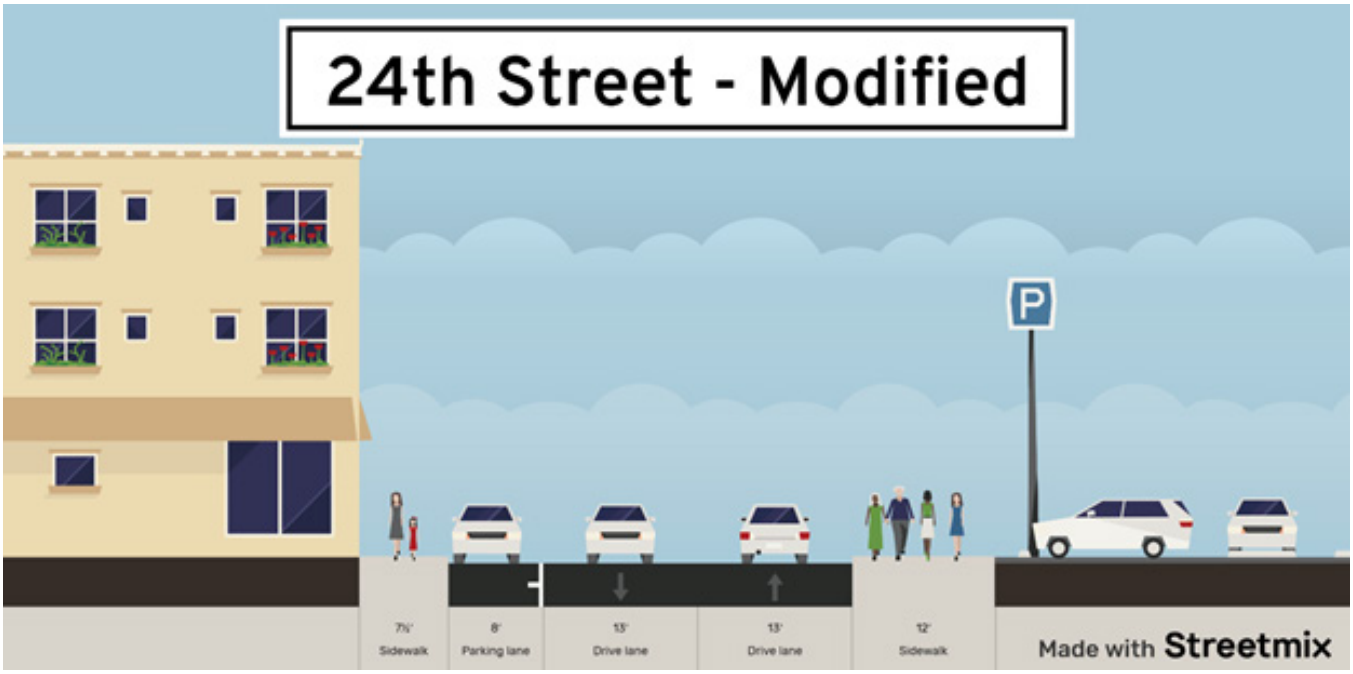


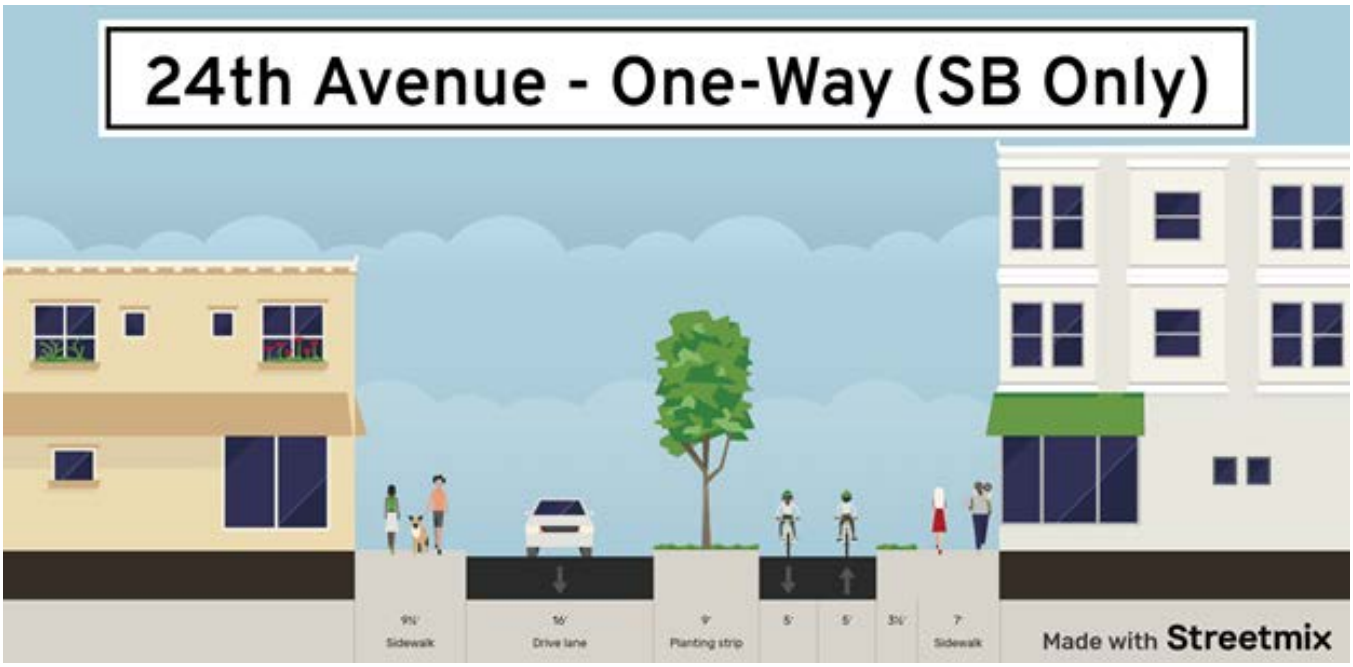
11.5 ALTERNATIVE 5 - MODIFIED

Alternative 5 was developed in response to stakeholder and public input as an alteration of Alternative 3. Demand for on-street parking on 24th Street between approximately Landon Court and Harney Street by adjacent properties prompted changes to the cross section in this location.

Alternative 5 retains the operational characteristics of Alternative 3 but removes the two-way center turn lane on 24th Street from St. Mary's Avenue to Harney Street. In this location, the center turn lane is not necessary as a left turn cannot be made in either direction due to the one-way nature of St. Mary's Avenue and Harney Street. The right-of-way is repurposed to provide on-street parking on the west side of 24th Street along with a loading zone to facilitate deliveries and residential moving.

Figure 14 Alternative 5 - Modified





12 Alternatives Analysis

In addition to gathering public and stakeholder input, alternatives were vetted against the goals, objectives and performance measures outlined previously. Like other projects recently completed within Omaha, the alternatives analysis uses a qualitative assessment of each alternative's ability to meet the project's goals and objectives.

Within each objective, the alternatives are rated on a good, better, best scale. These levels are communicated using Harvey Balls within the summary table. The open Harvey Ball communicates that the alternative does a good job of meeting the project objective. A half-shaded Harvey Ball means that the alternative does a better job of meeting the objective and a fully shaded Harvey Ball means that the alternative does the best job of meeting the objective.

12.1 ALTERNATIVES SUMMARY

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Improve multimodal access and operation	Increase bicycle and pedestrian amenities through complete streets practices	○	◔	●	●	●
	Improve transit amenities and operation/enhance transportation choices	○	◔	◔	◔	◔
	Repurpose excess roadway capacity	○	◔	◔	●	●
	Assess freight movements and truck routes	●	●	○	○	◔
Improve safety for all users	Reduce number of crashes for vehicular and active transportation users	◔	◔	◔	◔	◔
Speed reduction	Reduce average travel speed along the corridor to improve multimodal comfort	○	◔	◔	●	●
Improve and/ or retain on-street parking	Establish proper parking conditions and enhance current parking amenities	●	○	○	○	●
Increase livability	Increase access to public greenspace to residents and users of the corridor	○	○	◔	●	◔
	Increase potential for street activities/furniture	○	◔	◔	●	●
Retain acceptable levels of traffic operation	Provide acceptable levels of service for automobile and freight movements	○	◔	◔	◔	◔
Support existing business operations	Provide acceptable options for first mile/last-mile freight movements and deliveries	●	◔	◔	○	●
Support public safety	Provide appropriate access for police, fire, and EMT response to emergency situations.	◔	●	●	○	●

The previous table summarizes the alternatives analysis conducted for this corridor study. This section will identify the ability of each of the alternatives to meet the goals and objectives of the project. Detailed summaries of the ability of each alternative to meet the individual goal and objective are identified within the following sections.

12.2 GOAL 1 - IMPROVE MULTIMODAL ACCESS AND OPERATION

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Improve multimodal access and operation	Increase bicycle and pedestrian amenities through complete streets practices	○	◒	●	●	●
	Improve transit amenities and operation/enhance transportation choices	○	◒	◒	◒	◒
	Repurpose excess roadway capacity	○	◒	◒	●	●
	Assess freight movements and truck routes	●	●	○	○	◒

Under Goal 1, Alternatives 3, 4, and 5 best meet the first objective. While Alternative 1 improves the bicycle and pedestrian amenities through the addition of the one-way cycle track option, the split network reduces its ease of use. The two-way conversion under Alternative 2 provides a better option – allowing for enhanced amenities along a two-way 25th Street/24th Avenue that would be targeted for local traffic – ideally under a reduced travel speed scenario. The enhanced amenities provided under the Hybrid Operation, Partial Closure and Modified alternatives provide the highest level of pedestrian and bicycle amenities along the corridor.

Improvements to transit amenities are similar among the proposed alternatives. This is partially a function of the additional efforts that Metro may undertake soon concerning additional network modifications and amenities. From an operational standpoint, Alternatives 2, 3, 4, and 5 all provide an enhanced operational model for Metro within the corridor due to the reduction in turning movements and the consolidation of future routing along 24th Street. Right-of-way is repurposed to the greatest degree within Alternative 4 and Alternative 5. The added linear park within Alternative 4 provides the greatest amount of greenspace and opportunity for livability. Alternative 5 maximizes the amenities provided within Alternative 3 with the added opportunity for additional on-street parking along 24th Street. Regarding freight movements and truck routes, many adjacent uses are not industrial or heavy commercial in nature. At most, the corridor within the project area functions as a backup for freight traffic seeking to move north or south in the event of an incident on or closure of Interstate 480/US Highway 75. That said, delivery vehicles to support the commercial and residential activities within the corridor are necessary to support local economic vitality. Alternatives 1 and 2 provide the best level of freight access throughout the corridor while also supporting loading and unloading activities. The blended alternative provides a moderate improvement Alternatives 3 and 4 due to the enhanced on-street parking and loading areas reserved along 24th Street.

12.3 GOAL 2 - IMPROVE SAFETY FOR ALL USERS

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Improve safety for all users	Reduce number of crashes for vehicular and active transportation users	◐	◐	◐	◐	◐

Under Goal 2, Alternatives 1 through 4 all provide better conditions for user safety as each option will potentially slow travel speeds and provide additional safer areas for pedestrians and bicyclists to operate with appropriate separation. Alternative 5 is rated as the best option due to the reduced crossing distances for pedestrians on 24th Street from St. Mary's Avenue to Harney Street resulting from the removal of the two-way center turn lane and the addition of pedestrian nodes. The existing configuration of the one-way streets intersecting the corridor does not allow for the left-turn movements at St. Mary's Avenue or Harney Street that would necessitate a two-way center turn lane.

12.4 GOAL 3 - SPEED REDUCTION

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Speed reduction	Reduce average travel speed along the corridor to improve multimodal comfort	○	◐	◐	●	●

Speed reduction under Goal 3 supports both safety and livability within the corridor by creating a more comfortable environment for all users while also increasing reaction distance. One-way streets typically provide a more open environment for motorists. Even within the reduced capacity of the road-diet scenario, the facility would continue to operate at acceptable levels of service overall.

The reduction in through lanes and shift in right-of-way uses within Alternatives 2 and 3 provide a better option for reducing speeds along the corridor as channelized lanes with the side friction from on-street parking and bicycle facilities is expected to enhance traffic calming. Alternative 5 provides the best option for slowing speeds along the corridor within the options that provide complete connectivity due to the removal of the two-way center turn lane from St. Mary's Avenue to Harney Street.

Alternative 4's partial closure of 25th Street/24th Avenue provides the greatest opportunity to reduce speed along the corridor as the nature of that street would be substantively changed with traffic consolidated along 24th Street.

12.5 GOAL 4 - IMPROVE AND/OR RETAIN ON-STREET PARKING

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Improve and/ or retain on-street parking	Establish proper parking conditions and enhance current parking amenities	●	○	○	○	●

As noted within the existing conditions discussion, on-street parking throughout the corridor is a mixture of conforming and non-conforming width, metered and non-metered. Private surface parking lots and private parking garages exist throughout the corridor, serving residents and businesses but there are no public garages or surface lots within the

project area. On-street parking was not initially a critical factor that was identified during the preliminary stakeholder outreach but has increased in importance due to localized issues on the southern end of the corridor.
Alternatives 2, 3, and 4 were not focused on the addition or one-to-one replacement of existing parking (including existing non-conforming stalls) while on-street parking is a part of each of these alternatives, the net result would be a continuation of the existing conforming stalls rather than a net increase in total parking.
The cross section proposed within Alternative 1 allowed for additional on-street parking due to the ability to repurpose one of the through lanes along with the non-conforming parking stalls. Similarly, the removal of the two-way center turn lane from St. Mary's Avenue to Harney Street on 24th Street within Alternative 5 allows for additional on-street parking to be included within the corridor. Both Alternative 5 and Alternative 1 do the best job of providing additional on-street parking within the corridor.

12.6 GOAL 5 - INCREASE LIVABILITY

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Increase livability	Increase access to public greenspace to residents and users of the corridor	○	○	◒	●	◒
	Increase potential for street activities/furniture	○	◒	◒	●	●

Within the urban environment, it can be difficult to support additional greenspace and street furniture due to constrained right-of-way and existing building footprints. Within the project area, several opportunities exist to support additional greenspace and street activities. Most notably, the island area between Leavenworth Street and St. Mary's Avenue provides a natural opportunity to develop a pocket park if the area can be expanded and safe access provided. Alternative 1 and Alternative 2 make minor improvements to the accessibility of greenspace by improving access to the previously mentioned island. Alternative 2 would also expand the size of the island by removing the pavement and channelizing traffic on 24th Street. Alternative 3 and Alternative 5 improve on this model by adding additional planting areas on 25th Avenue/24th street within the repurposed right-of-way. Alternative 5 best meets this goal area and provides the opportunity to create two additional pocket parks – the largest of which would be immediately south of Harney Street due to a partial closure of 24th Avenue.

12.7 GOAL 6 - RETAIN ACCEPTABLE LEVELS OF TRAFFIC OPERATION

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Retain acceptable levels of traffic operation	Provide acceptable levels of service for automobile and freight movements	○	◒	◒	◒	◒

Traffic operations analysis was conducted for the corridor alternatives based upon 2040 horizon volumes as received from the MAPA regional travel demand model. As stated previously, the performance measures for meeting the goals and objectives for this criterion are a minimum intersection level of LOS C for the intersection and LOS D for individual movements. Results of intersection analysis is shown below. Year 2040 traffic volumes, capacity analysis summaries, and detailed synchro outputs for each alternative are included in Appendix B.

2040 Intersection LOS Summary Table

		Alternatives									
		1		2		3		4		5	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Intersections											
24th Street	Chicago	A	A	A	B	A	B	A	B	A	B
	Dodge	B	B	B	B	B	B	B	C	B	B
	Douglas	B	B	C	B	C	B	C	B	C	B
	Farnam	B	B	A	B	A	B	A	B	A	B
	Harney	C	B	C	B	C	B	C	B	B	B
	St. Mary's	B	B	A	B	A	B	B	B	A	C
	Leavenworth	C	B	B	B	B	B	B	B	B	B
25th Street/ 24th Ave	Douglas	B	B	B	B	B	B	x	x	B	B
	Farnam	B	C	B	C	B	C	x	x	B	C
	Harney	B	B	B	B	B	B	x	x	B	B
	St. Mary's	B	C	x	x	x	x	x	x	x	x

Alternatives 1 provides acceptable levels of traffic operation for the intersections throughout the corridor. All intersections are anticipated to operate at LOS C or better in the horizon year.
Alternatives 2, 3, 4, and 5 all provide better traffic operation throughout the corridor. With all intersections operating at LOS C or better in the horizon year. Queue lengths along 24th Street are not anticipated to extend through adjacent public intersections under all alternatives. As traffic volumes grow, modifying signal timings at 24th Street and 24th Avenue/25th Street will be required to maintain acceptable queuing and operations through the 24th Street corridor. Retiming east-west corridors to coordinate with 24th Street timings should also be performed.

12.8 GOAL 7 - SUPPORT EXISTING BUSINESS OPERATIONS

Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Support existing business operations	Provide acceptable options for first mile/last-mile freight movements and deliveries	●	◒	◒	○	●

It is important to note this goal relates directly to the freight and business access afforded to users within the corridor and should be separately considered from the previous objective relating to freight movement and truck routes under Goal 1.

Of the alternatives, Alternative 1 and alternative 5 provide the best option for first mile/last-mile connectivity and deliveries. The level of access provided throughout the corridor by providing direct access from both streets along with the added parking in both scenarios affords the highest degree of loading/unloading space.

Alternative 2 and Alternative 3 each provide access to the adjacent businesses throughout the corridor and continue with the minimum level of on-street parking and loading as noted previously. Alternative 4 provides the least viable option for business access due to the partial closure of 25th Street/24th Avenue.

12.9 GOAL 8 - SUPPORT PUBLIC SAFETY

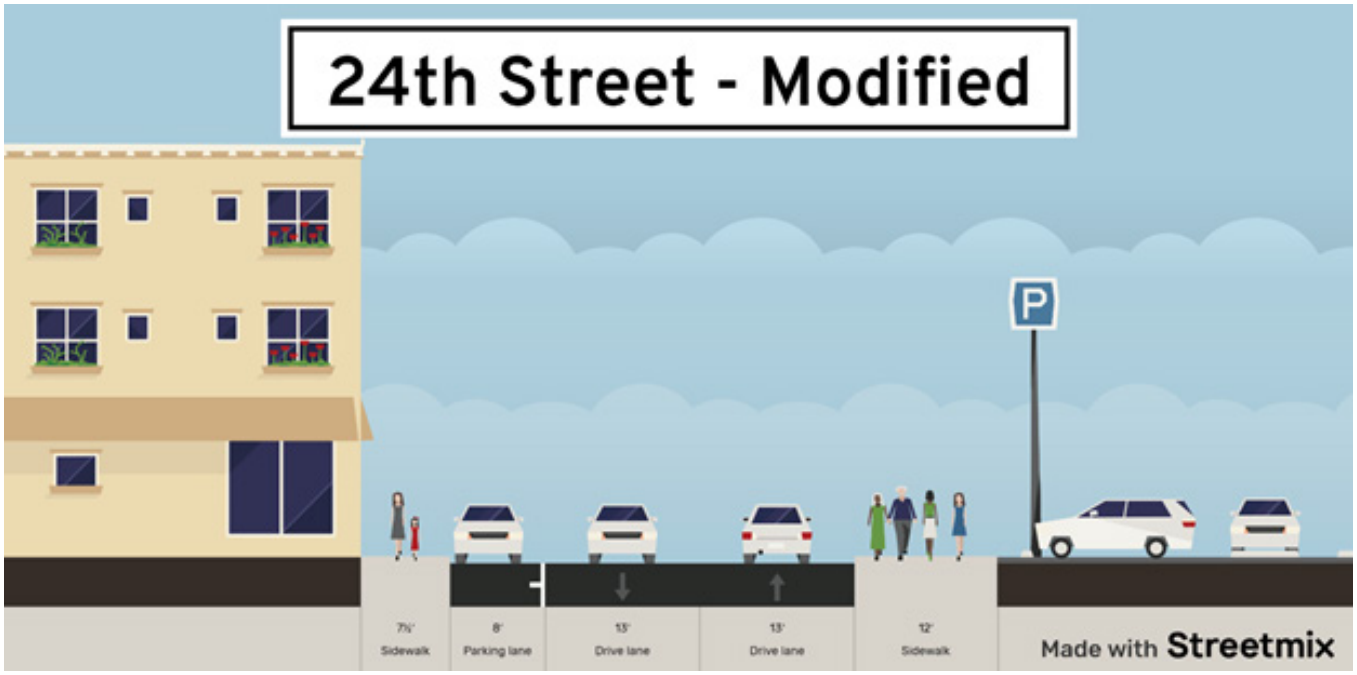
Goal	Objective(s)	Alt 1 - One Way Road Diet	Alt 2 - Two Way Conversion	Alt 3 - Hybrid Operation	Alt 4 - Partial Closure	Alt 5 - Modified
Support public safety	Provide appropriate access for police, fire, and EMT response to emergency situations.	◒	●	●	○	●

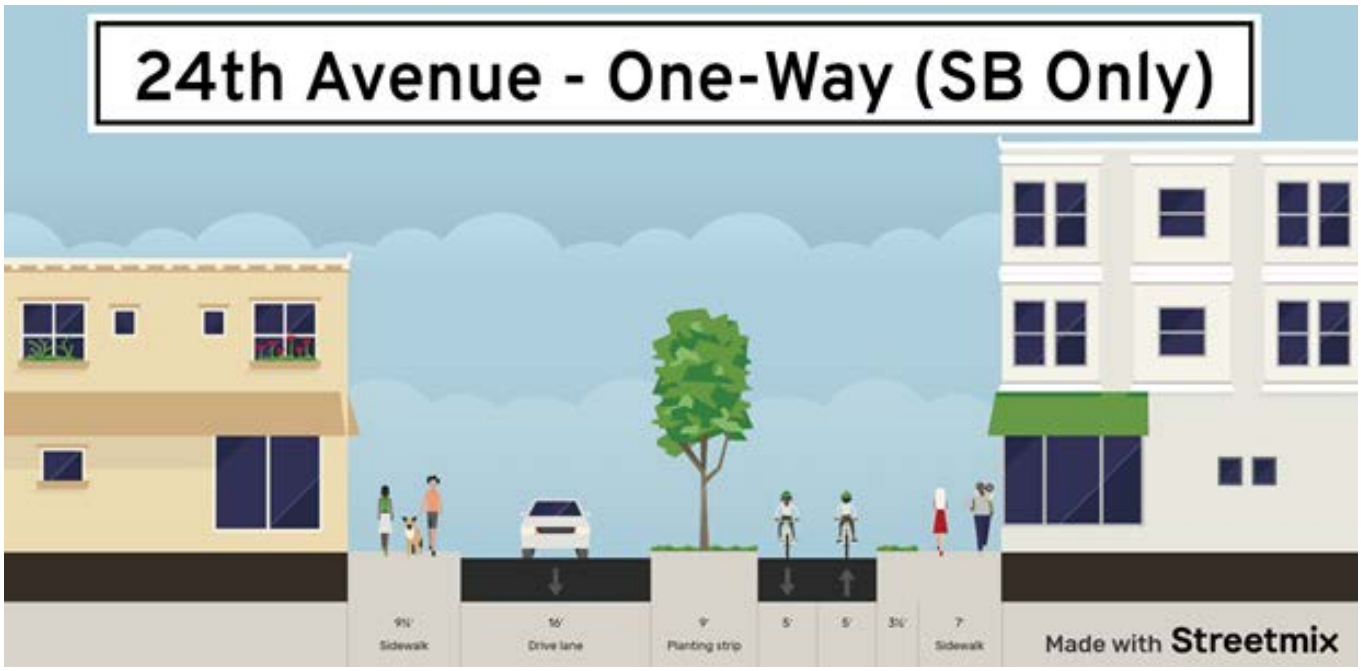
Public safety is a core function of government. Alterations to the transportation network should include an assessment of the impacts upon the ability of first responders to provide efficient assistance to residents, visitors, and property. When considering this goal and its objectives, the Alternatives would all improve the ability to respond to situations to some degree. However, the partial closures recommended in Alternative 4 may inhibit the ability of police, fire, and emergency medical personnel to respond along 25th Street/24th Avenue. Alternatives 2, 3, and 5 provide the best options for response as two-way traffic would be maintained along 24th Street for all situations, easing access to adjacent property. Alternative 1 is a net neutral as one-way traffic operations provide a continuation of the existing conditions.

13 Recommendations and Next Steps

13.1 RECOMMENDATIONS

Based upon the above analysis, Alternative 5 best meets the goals and objectives of the project. As noted previously, Alternative 5 is a modification of Alternative 3 based upon additional stakeholder input and discussion with city staff to allow for additional parking on 24th Street and the extension of Landon Court. This alternative provides the highest level of achievement for the goal areas within the available right-of-way constraints.





Within Alternative 5, it is recommended that the City evaluate the truck route network to remove the truck route designation from the 25th Street/24th Street linkage.

At minimum, through truck traffic will be accommodated along 24th Street under the two-way conversion. While truck volumes are low along the corridor, it may be beneficial to keep the existing truck route designation along 24th Street in the event of a closure or detour on Interstate 480. The existing truck route designation is dropped north of Dodge Street and should remain as such.

13.2 FUTURE TRANSIT IMPROVEMENTS

Near the end of the effort to finalize the Central 24th Street Corridor Study, Metro completed an internal screening of fifteen transit corridors in Omaha to evaluate their suitability for enhanced transit. This preliminary analysis identified the larger 24th Street Corridor (from the North Omaha Transit Center to the South Omaha Transit Center) as the best candidate for enhanced transit.

To partner and support enhancements to the regional transportation network, the project team worked with Metro to evaluate the potential for dedicated transit lanes within the existing limits of the public right-of-way. In the opinion of the project team, the potential exists to provide dedicated space for transit operation within the limits of the current study area. This analysis was shared with Metro to assist with a grant application for further corridor analysis and planning.

On July 22, 2021, Metro announced their intent to seek funding to conduct a planning study along 24th Street (with alternative alignments along 30th Street) to begin working toward the implementation of an enhanced transit corridor connecting the North and South Omaha Transit Centers.

As transit improvements are considered and analyzed further, it is recommended that Metro work together with city traffic engineering staff to analyze and quantify the impacts of transit stop locations on queuing and traffic operation within segments of the corridor where through lanes are limited to a single lane. Transit stops within these areas may cause challenges to both transit and traffic operation and stop locations should be limited to portions of the corridor outside of locations with single block traffic signal spacing.

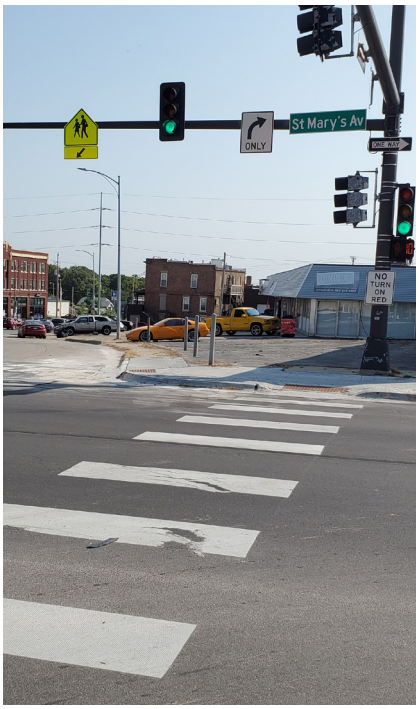
14 Implementation

Altering the built environment for approximately 1.5 miles (inclusive of 24th Street, 25th Street/24th Avenue, and the single block of Dodge Street) will require a sizeable investment in both time and funding (both public and private). To assist in the timely implementation of the

recommended ultimate cross-section, smaller projects of independent utility are proposed. When completed, these project segments will compose the recommended cross section as identified above. It should be noted that the proposed projects and the estimated costs assume a full reconstruction of infrastructure along the corridor. Implementation could also occur via pilot projects using less-permanent means (paint, temporary traffic control devices, bollards, etc.) replicating the ultimate cross section in a more temporary fashion.

The project team envisions four major projects of independent utility and two of smaller project packages on the connecting blocks of the corridor to assist with bicycle/pedestrian and parking operations. The projects are identified as follows:

- Project A – 24th Street, Dodge Street to Cass Street
  - Conversion to 3-lane section
  - Intersection improvements at Dodge Street to facilitate westbound traffic
  - Roundabout construction at Cass Street
  - Sidepath and sidewalk improvements
- Project B – 24th Street, Mason Street to Dodge Street
  - Segment 1 – Mason Street to Harney Street
    - Reconstruction of the 24th Street/Leavenworth intersection
    - Conversion of 24th Street to a bi-directional two-lane section with on-street parking/loading areas on the west curb line north of Leavenworth
    - Intersection reconfiguration at St. Mary's Avenue and Harney Street
    - Sidewalk improvements along 24th Street
    - Intersection pedestrian nodes
  - Segment 2 – Harney Street to Dodge Street
    - Conversion of 24th Street to a bi-directional two-lane section with continuous center-left-turn lane
    - Sidewalk improvements
    - On-street parallel parking improvements
    - Intersection pedestrian nodes
- Project C – 25th Avenue/24th Street, Dodge Street to St. Mary's Avenue
  - Add multiuse sidepath to south side of Dodge Street (24th Street to 25th Street)
  - Conversion to a single southbound traffic lane
  - Construction of buffered cycle track and sidewalk network and establishment of new east curb line



[9] https://www.aarp.org/livable-communities/livable-in-action/info-2019/activated-alleys-placemaking.html
[10] https://nacto.org/docs/usdg/activating_alleys_for_a_lively_city_fialko.pdf

- On-street parking additions
- Sidewalk improvements
- Intersection pedestrian nodes

- Project D – St. Mary's Avene/Leavenworth Street Pocket Park
  - Removal of southbound 24th Avenue lanes and conversion to greenspace/pocket park
  - Extension of cycle track to a multiuse path through the pocket park
- Project E – Landon Court Extension, 24th Street to 24th Avenue
  - Acquisition of right-of-way
  - Construction of bi-directional two-lane street
  - Sidewalk construction
- Project F – Cross Street Pedestrian Improvements
  - Sidewalk improvements
  - Pedestrian nodes
  - Parking improvements

Short term and interim improvements can be made to achieve many of the goals of the permanent conversion. Project A – 24th Street, Dodge Street to Cass Street, Project E – Landon Court Extension and Project F – Cross Street Pedestrian Improvements may occur in the proposed permanent configuration at any time.

Implementation of the two-way conversion of 24th Street (Project B) would need to occur prior to any implementation of the enhanced bicycle/pedestrian facilities along 25th Street/24th Avenue (Project C) could occur, or the pocket park (Project D) could be constructed. Splitting the implementation of Project B into two phases could allow for phasing of Project C to mirror the segmental installation of Project B. For example, Conversion of 24th Street from Mason Street to Harney Street would allow for the conversion of 24th Avenue from St. Mary's to Harney Street; also enabling the installation of Project D.

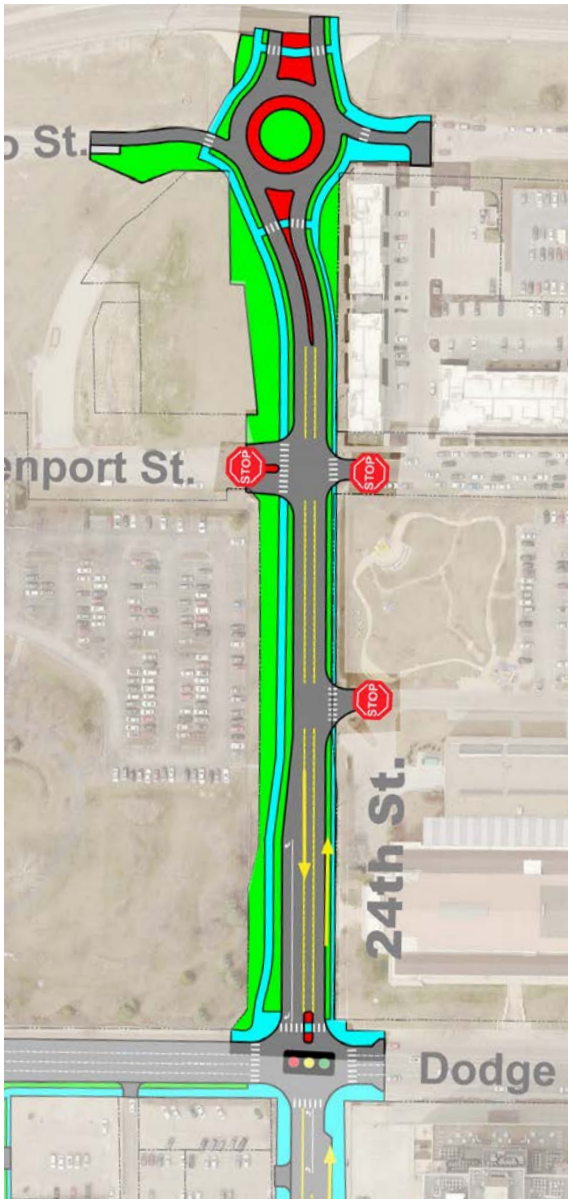
Other implementation scenarios could include the conversion of 24th Street to two-way operation (Project B) and pilot implementations of the Project C and Project D like the pilot deployment of the Market to Midtown Bikeway which opened in late July 2021. Costs shown in the summary table and following project tables have been inflated from nominal 2021 dollars to estimated 2028 dollars based upon a 3 percent annual inflation factor per local conditions as identified in the Draft FY2022 MAPA Transportation Improvement Program.

Summary Table

Project		Cost
Project A - 24th Street - Cass St to Dodge St		$ 2,457,595
Project B - 24th Street - Dodge St to Mason St		$ 5,048,214
Project C - 25th Street/24th Ave - Dodge St to St. Mary's Ave		$ 3,869,866
Project D - Pocket Park		$ 277,103
Project E - Landon Court Extension		$ 231,364
Project F - Cross Street Pedestrian Improvements		$ 1,447,685
Subtotal		**$ 13,331,827**
Contingency	**0.3**	**$ 3,999,548**
Construction Total		**$ 17,331,375**
Design Engineering	**10%**	**$ 1,733,137**
Construction Engineering	**10%**	**$ 1,733,137**
Right-of-way	**5%**	**$ 881,607**
TOTAL PROJECT COST		**$ 16,205,793**

PROJECT A – 24TH STREET – CASS STREET TO DODGE STREET

- Project A – 24th Street, Dodge Street to Cass Street
  - This project will repurpose the existing right-of-way to provide for enhanced active transportation options while providing appropriate capacity for vehicular traffic. The roundabout at Chicago Street is proposed as mirror image of the Cass Street roundabout, providing safe and efficient traffic operation with the opportunity to create a southern gateway to Creighton University.
  - Activities include:
    - » Conversion to 3-lane section
    - » Intersection improvements at Dodge Street to facilitate westbound traffic
    - » Roundabout construction at Cass Street
    - » Sidepath and sidewalk improvements

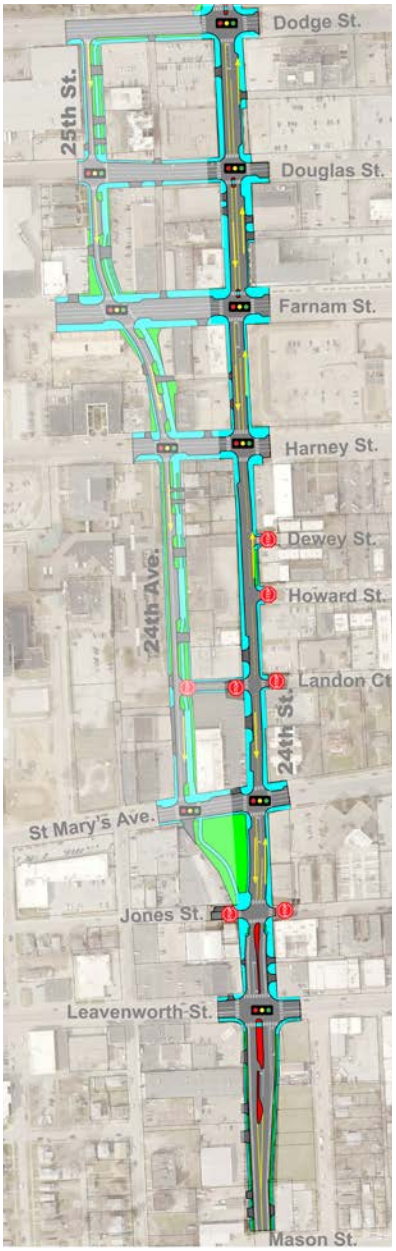


Project A - 24th Street - Cass Street to Dodge Street

Item	Quantity	Unit	Unit Price	Construction Cost
Remove Pavement	11,350.0	SY	$14.76	$ 167,509
Remove Sidewalk	12,150.0	SF	$3.69	$44,829
Remove Median Surfacing	5,500.0	SF	$2.46	$13,529
Construct Concrete Pavement	7,375.0	SY	$98.39	$725,626
Consturct Median Surfacing	7,180.0	SY	$12.30	$88,305
Construct Sidewalk	23,800.0	SF	$7.38	$175,626
Signing, Striping, Interconnect, and Signals	1.0	LS	$245,974.77	$245,974
Grading	1.0	LS	$92,240.54	$94,241
Traffic Control	1.0	LS	$92,240.54	$94,241
Erosion Control	1.0	LS	$153,734.23	$153,734
Drainage Items	1.0	LS	$307,468.47	$307,468
Clearing and Grubbing	1.0	LS	$43,045.59	$43,045
Mobilization	1.0	LS	$307,468.47	$307,468
Subtotal				**$2,457,595**
Contingency			**30%**	**$737,279**
Construction Total				**$3,194,874**
Design Engineering			**10%**	**319,487**
Construction Engineering			**10%**	**$319,487**
Right-of-way			**5%**	**$159,744**
TOTAL PROJECT COST				**$3,993,593**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

PROJECT B - 24TH STREET - DODGE STREET TO MASON STREET



- Project B - 24th Street - Dodge Street to Mason Street
  - This project dramatically alters the operation of 24th Street throughout the corridor, reestablishing bi-direction travel on a single street. Intersection improvements and traffic signal retiming will be necessary to maximize the ability of the corridor to provide acceptable traffic operation. Further examination of transit operations, especially considering the proposed enhanced 24th Street transitway should be undertaken. That said, preliminary examination of the potential for transit improvements along the proposed 24th Street reconfiguration show promise.
  - Segment 1 – Mason Street to Harney Street
    - » Reconstruction of the 24th Street/Leavenworth intersection
    - » Conversion of 24th Street to a bi-directional two-lane section with on-street parking/loading areas on the west curb line north of Leavenworth
    - » Intersection reconfiguration at St. Mary's Avenue and Harney Street
    - » Sidewalk improvements along 24th Street
    - » Intersection pedestrian nodes
  - Segment 2 – Harney Street to Dodge Street
    - » Conversion of 24th Street to a bi-directional two-lane section with continuous center-left-turn lane
    - » Sidewalk improvements
    - » On-street parallel parking improvements
    - » Intersection pedestrian nodes

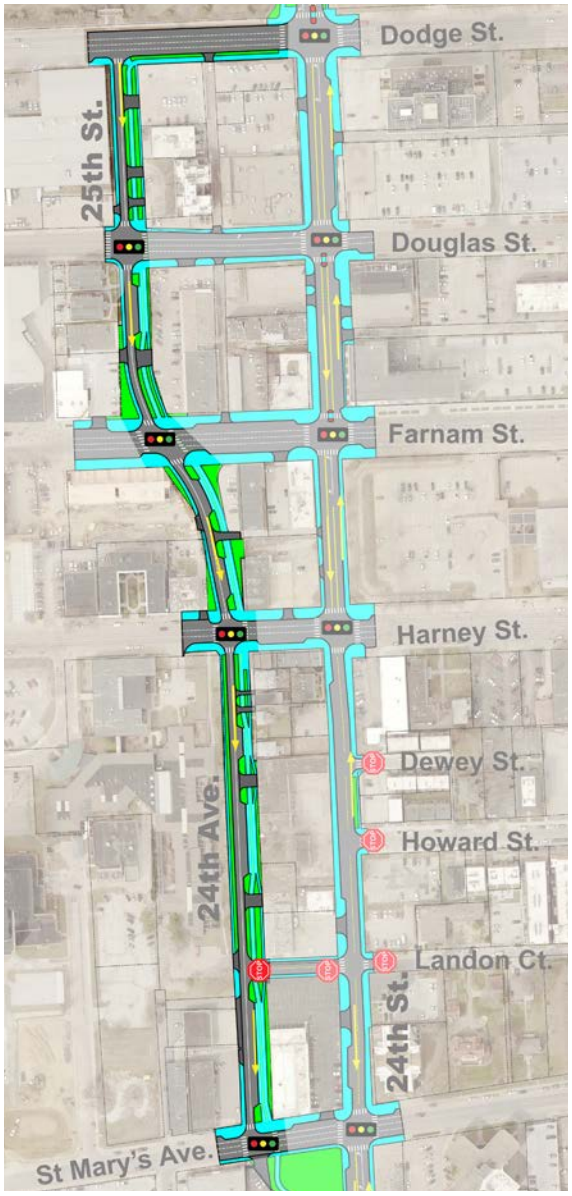
Project B - 24th Street - Dodge to Mason Street - Two-Way Conversion

Item	Quantity	Unit	Unit Price	Construction Cost
Remove Pavement	17,100.0	SY	$14.76	$ 252,370
Remove Sidewalk	42,410.0	SF	$3.69	$156,477
Remove Median Surfacing	2,540.0	SF	$2.46	$6,248
Construct Concrete Pavement	15,210.0	SY	$98.39	$1,496,511,
Consturct Median Surfacing	1,835.0	SY	$12.30	$22,568
Construct Sidewalk	59,500.0	SF	$7.38	$439,065
Signing, Striping, Interconnect, and Signals	1.0	LS	$1,229,874.87	$1,229,874
Grading	1.0	LS	$64,494.69	$61,494
Traffic Control	1.0	LS	$153,734.23	$153,734
Erosion Control	1.0	LS	$122,987.39	$122,987
Drainage Items	1.0	LS	$430,455.85	$430,456
Clearing and Grubbing	1.0	LS	$30,746.85	$30,747
Mobilization	1.0	LS	$645,684.78	$645,684
Subtotal				**$5,048,214**
Contingency			**30%**	**$1,514,464**
Construction Total				**$6,562,678**
Design Engineering			**10%**	**$656,268**
Construction Engineering			**10%**	**$656,268**
Right-of-way			**5%**	**$328,134**
TOTAL PROJECT COST				**$8,203,348**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

PROJECT C – 25TH AVENUE/24TH STREET, DODGE STREET TO ST. MARY'S AVENUE

- Project C – 25th Avenue/24th Street, Dodge Street to St. Mary's Avenue
  - Establishing a permanent, enhanced, bicycle and pedestrian improvement through Omaha's urban core is the focus of this project segment. Southbound vehicular operation is maintained to facilitate local connections to residences and businesses along with loading and deliveries.
  - Activities include:
    - » Addition of multiuse sidepath to south side of Dodge Street (24th Street to 25th Street)
    - » Conversion to a single southbound traffic lane
    - » Construction of buffered cycle track and sidewalk network and establishment of new east curb line
    - » On-street parking additions
    - » Sidewalk improvements
    - » Intersection pedestrian nodes



Project C - 25th Street/24 Avenue - Dodge to St. Mary's Avenue				
Item	**Quantity**	**Unit**	**Unit Price**	**Construction Cost**
Remove Pavement	11,695.0	SY	$14.76	$176,585
Remove Sidewalk	30,825.0	SF	$3.69	$113,733
Remove Median Surfacing	1,000.0	SF	$2.46	$2,460
Construct Concrete Pavement	8,100.0	SY	$98.39	$648,000
Construct Sidewalk	51,750.0	SF	$7.38	$381,876
Signing, Striping, Interconnect, and Signals	1.0	LS	$983,899.09	$983,899
Grading	1.0	LS	$245,974.77	$245,975
Traffic Control	1.0	LS	$61,493.69	$61,493
Erosion Control	1.0	LS	$215,557.93	$215,228
Drainage Items	1.0	LS	$368,962.16	$368,962
Clearing and Grubbing	1.0	LS	$30,746.85	$30,747
Mobilization	1.0	LS	$491,949.55	$491,950
			Subtotal	**$3,869,866**
			Contingency	**30%**	**$1,160,960**
			Construction Total		**$5,030,825**
			Design Engineering	**10%**	**$503,083**
			Construction Engineering	**10%**	**$503,083**
			Right-of-way	**5%**	**$251,541**
			TOTAL PROJECT COST		**$6,288,532**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

PROJECT D – ST. MARY'S AVENUE/LEAVENWORTH STREET POCKET PARK

- Project D – St. Mary's Avenue/Leavenworth Street Pocket Park
  - This project repurposes the existing island and southbound traffic lanes into public greenspace. Access to the existing parking lot and businesses will be maintained from St. Mary's Avenue and Jones Street. The repurposed right-of-way is proposed to be redeveloped into a pocket park.
  - Activities include:
    - » Removal of southbound 24th Avenue lanes and conversion to greenspace/pocket park
    - » Extension of cycle track and conversion to a multiuse path through the pocket park

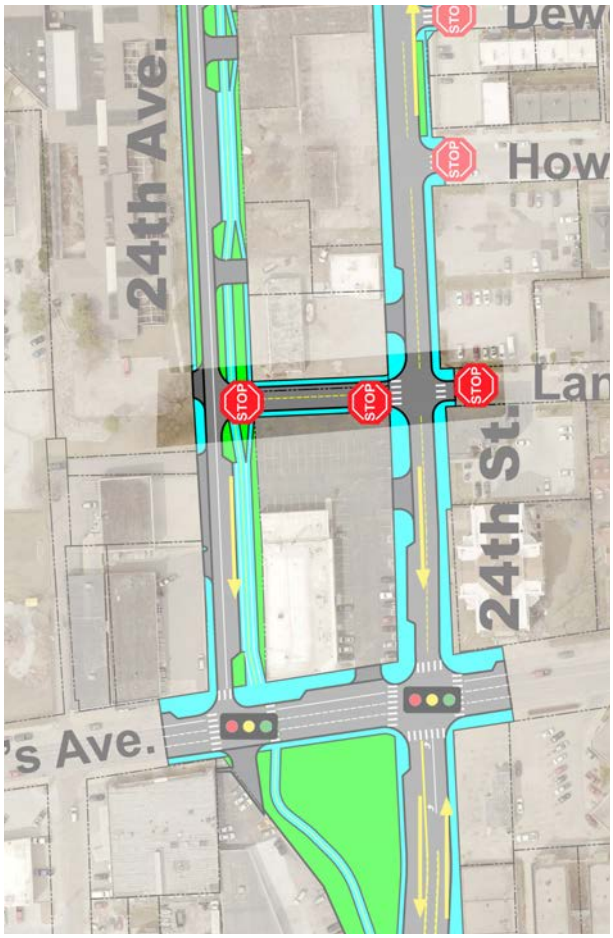
Project D – Pocket Park

Item	Quantity	Unit	Unit Price	Construction Cost
Remove Pavement	1,385.0	SY	$14.76	$ 20,441
Remove Sidewalk	3,500.0	SF	$3.69	$12,914
Construct Concrete Pavement	160.0	SY	$98.39	$15,742
Construct Sidewalk	7,565.0	SF	$7.38	$55,824
Signing and Striping	1.0	LS	$6,149.37	$6,149
Grading	1.0	LS	$18,448.11	$18,448
Traffic Control	1.0	LS	$6,149.37	$6,149
Erosion Control	1.0	LS	$61,493.69	$61,494
Drainage Items	1.0	LS	$24,597.47	$24,597
Clearing and Grubbing	1.0	LS	$18,448.11	$18,448
Mobilization	1.0	LS	$36,896.22	$36,896
Subtotal				**$277,103**
Contingency			**30%**	**$83,131**
Construction Total				**$360,234**
Design Engineering			**10%**	**$36,023**
Construction Engineering			**10%**	**$36,023**
Right-of-way			**5%**	**$18,012**
TOTAL PROJECT COST				**$450,292**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

PROJECT E – LANDON COURT EXTENSION, 24TH STREET TO 24TH AVENUE

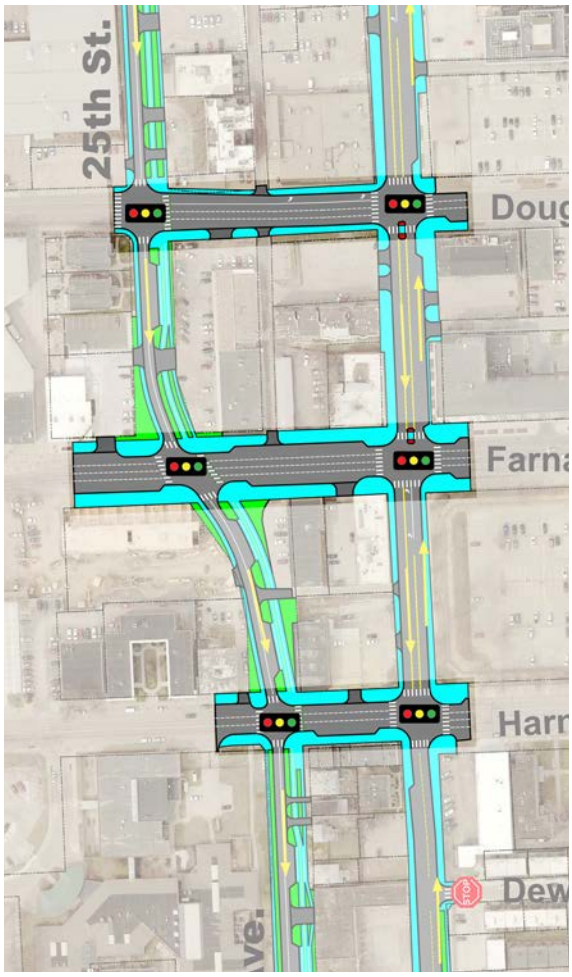
- Project E – Landon Court Extension, 24th Street to 24th Avenue
  - This project enhances the street grid within the project area to channelize cut through traffic that had been using the CASA Parking Lot to avoid the existing one-way pair.



Project E - Landon Court Extension, 24th Street to 24th Avenue				
Item	**Quantity**	**Unit**	**Unit Price**	**Construction Cost**
Remove Pavement	650.0	SY	$14.76	$ 9,593
Remove Retaining Wall	300.0	SF	$18.45	$5,534
Construct Concrete Pavement	450.0	SY	$98.39	$44,275
Construct Sidewalk	1,720.0	SF	$7.38	$12,692
Construct Retaining Wall	400	SF	$67.64	$27,057
Signing and Striping	1.0	LS	$6,149.37	$6,149
Grading	1.0	LS	$18,448.11	$18,448
Traffic Control	1.0	LS	$9,224.05	$9,224
Erosion Control	1.0	LS	$12,298.74	$12,299
Drainage Items	1.0	LS	$24,597.48	$24,597
Clearing and Grubbing	1.0	LS	$30,746.85	$30,747
Mobilization	1.0	LS	$30,746.85	$30,747
		Subtotal		**$231,364**
		Contingency	**30%**	**$69,409**
		Construction Total		**$300,773**
		Design Engineering	**10%**	**$30,077**
		Construction Engineering	**10%**	**$30,077**
		Right-of-way	**10%**	**$30,077**
			TOTAL PROJECT COST	**$391,005**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

PROJECT F – CROSS STREET PEDESTRIAN IMPROVEMENTS



- Project F – Cross Street Pedestrian Improvements
  - Enhancing/rebuilding the infrastructure within the aged pedestrian realm along with establishing improved on-street parking conditions (ensuring parking spaces meet the required dimensions, etc). Installation of pedestrian nodes where possible to reduce crossing distances.
  - Activities include:
    - » Sidewalk and curbside landscaping improvements
    - » Pedestrian nodes
    - » Parking improvements

Project F – Cross Street Pedestrian Improvements

Item	Quantity	Unit	Unit Price	Construction Cost
Remove Pavement	6,470.0	SY	$14.76	$ 95,487
Remove Sidewalk	20,920.0	SF	$3.69	$77,187
Construct Concrete Pavement	5,790.0	SY	$99.39	$569,678
Construct Sidewalk	29,750.0	SF	$7.38	$219,532
Signing and Striping	1.0	LS	$30,747.85	$30,747
Grading	1.0	LS	$24,597.48	$24,597
Traffic Control	1.0	LS	$61,494.69	$61,494
Erosion Control	1.0	LS	$73,792.43	$73,792
Drainage Items	1.0	LS	$92,241.54	$92,241
Clearing and Grubbing	1.0	LS	$18,448.11	$18,448
Mobilization	1.0	LS	$184,481.08	$184,481
Subtotal				**$1,447,685**
Contingency			**30%**	**$434,305**
Construction Total				**$1,881,990**
Design Engineering			**10%**	**$188,199**
Construction Engineering			**10%**	**$188,199**
Right-of-way			**5%**	**$94,099**
TOTAL PROJECT COST				**$1,759,765**

The costs in the tables are estimated for 2028 year of expenditure based upon a 3 percent annual inflation factor

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APPENDIX

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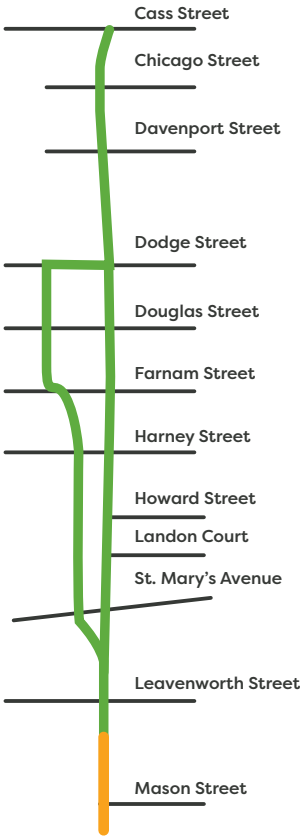
Existing Conditions Summary

This section will examine each of the approximate cross-sections of the corridor beginning from 24th Street and Mason and continuing along the northbound direction of travel through the project terminus at Cass Street. An examination of the southbound cross-sections on 25th Street/24th Avenue beginning near Dodge Street and proceeding southward through the St. Mary's Avenue intersection will complete the examination of the existing configuration in this section.

24th Street – Northbound at Mason Street

Figure 15 24th Street Cross-section at Mason Street



The existing configuration of 24th Street at the southern terminus of the project is shown in Figure 6. In this location, the right-of-way is assumed to be 70 feet wide. The roadway includes a 45-foot roadbed that has been recently repurposed to include six-foot bicycle lanes and a three-lane typical section (one through lane in each direction supplemented with a shared center turn lane).

The pedestrian zone is composed of a 4 ½ foot grass greenscape/ furnishing zone. The Pedestrian through zone is a 4-foot sidewalk and is backed by a frontage zone that is approximately four feet wide.

While the sidewalk does not meet the current standards for width (5 feet), the presence of a grass buffer separating the sidewalk from roadway adds to the pedestrian comfort. Additionally, the existence of bicycle lanes further separates vehicular traffic from the sidewalk adding to pedestrian comfort. Within this segment, pedestrian comfort is assessed as acceptable.

24th Street – Northbound (North leg @ Leavenworth Street)

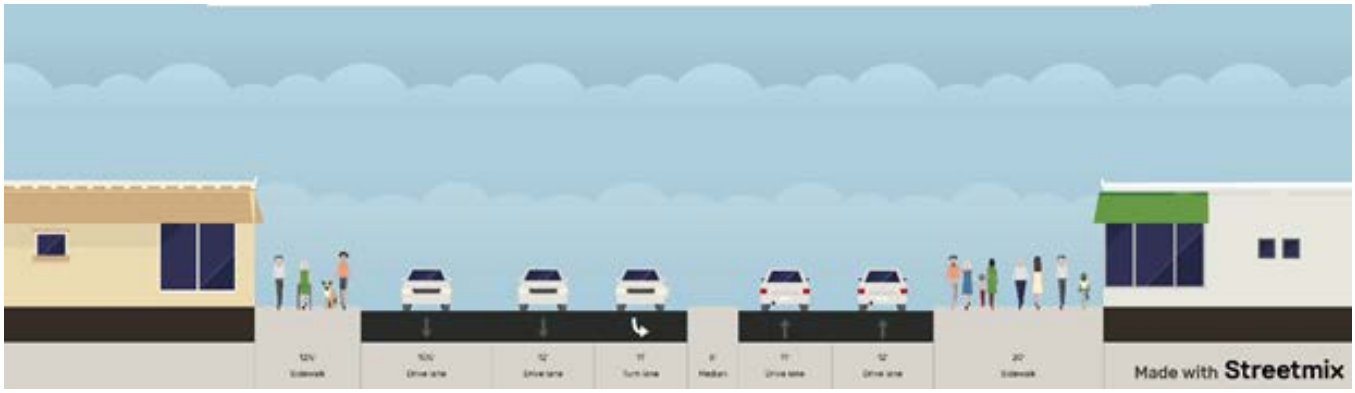
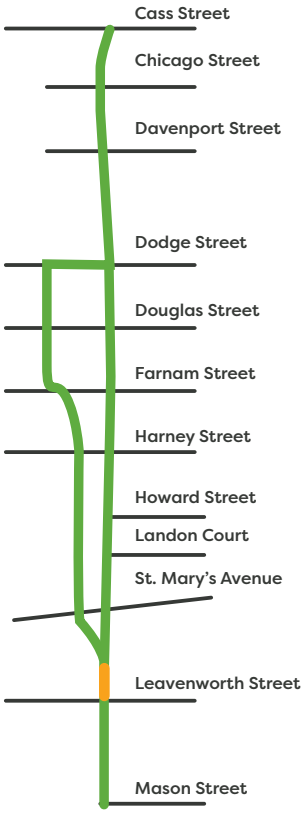


Figure 16 24th Street Cross-section, north leg of Leavenworth Street



As users continue north of Leavenworth Street on 24th Street, the right-of-way and cross-section of the roadway widens significantly. In this location, the right-of-way is approximately 100 feet wide. The roadway includes a 68-foot roadbed composed of four through lanes and a center turn lane with median. Lane widths vary in this location as shown in Figure 7.

The pedestrian zone in this location includes a 12 ½ foot, paved sidewalk encompassing the entire pedestrian zone on the west side and a 20-foot, paved sidewalk spanning the entire pedestrian zone on the east side. The sidewalk in this location is generally in good condition for its age with minimal heaving or separation.

Immediately north of the Leavenworth Street intersection, broad sidewalks directly abutting the curb adjacent to a travel lane have a balancing effect upon pedestrian comfort. The broad sidewalks (10-plus feet) are a net positive, however, the lack of a buffer directly adjacent to the relatively high-speed travel lanes and to adjacent parking lots equates to an acceptable level of pedestrian comfort.

Photo 6 East pedestrian zone, north of Leavenworth Street

24th Street – South Leg at St. Mary's Avenue

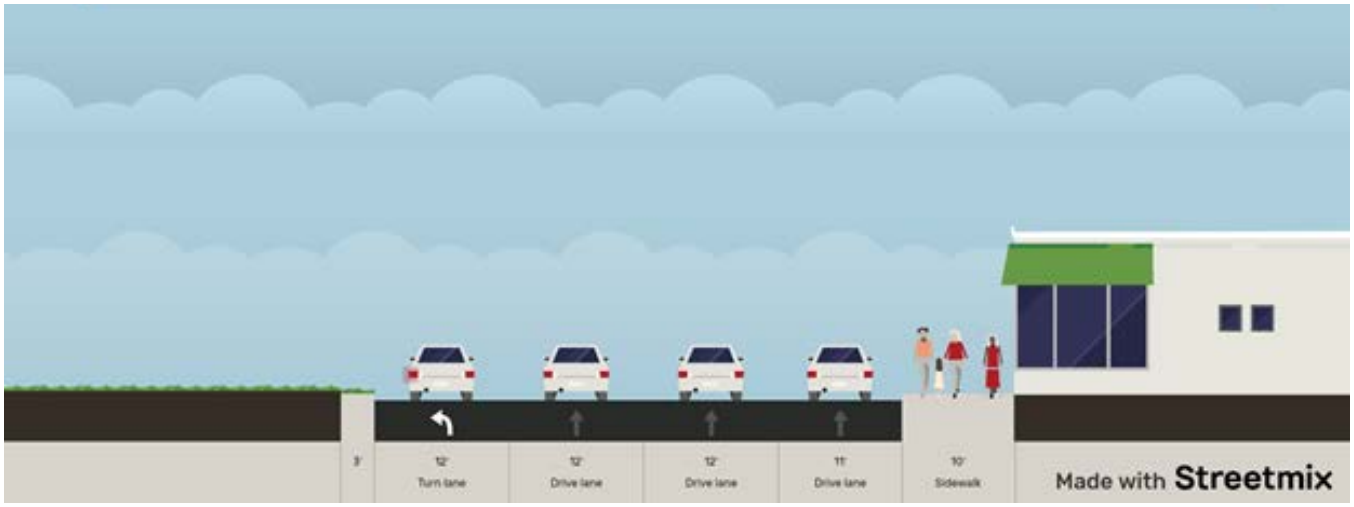
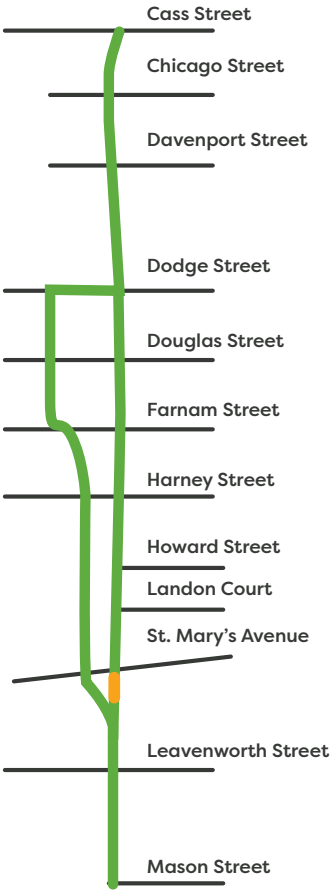


Figure 17 Existing 24th Street Cross-section, South Leg at St. Mary's



As 24th Street approaches St. Mary's Avenue, the corridor separates into its one-way pair. Northbound traffic remains on 24th Street and the pedestrian network is consolidated along the east side of the street. Between Leavenworth Street and St. Mary's Avenue, a triangular island provides the means to separate/combine the one-way pair into a single, two-way street on 24th Street. This island contains greenspace and plantings along with the Native American Stone Circle.

Photo 7 Island on the south side of St. Mary's Avenue

Assuming the island functions as an approximation of park space, the right of way in this location is approximately 60-feet wide. The roadbed contains three northbound through lanes and a northbound left-turn only lane, facilitating movement westbound on St. Mary's Avenue. A three-foot grass buffer transitions into the island/park area on the west. This area lacks pedestrian connectivity. The pedestrian zone on the east side of 24th Street is composed of a 10-foot paved area from the curb to the building face.

Pedestrian comfort within this segment is deemed to be acceptable on the east side of the corridor. However, the lack of pedestrian infrastructure in the island and the confusing signage within the network results in an unacceptable level of pedestrian comfort.

24th Street – St. Mary's Avenue to Harney Street

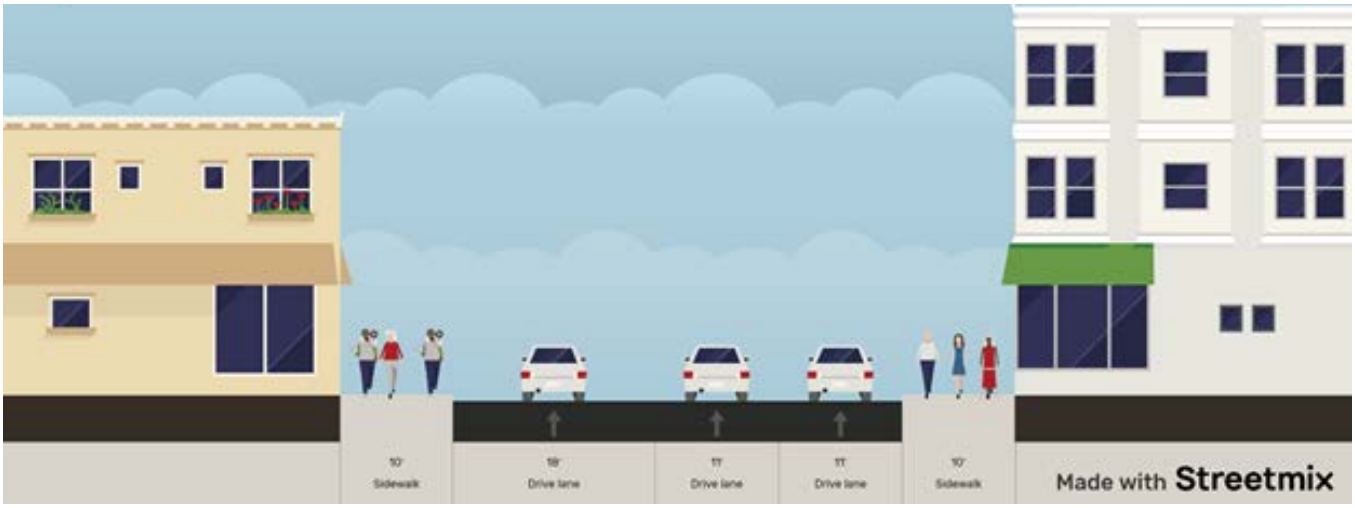
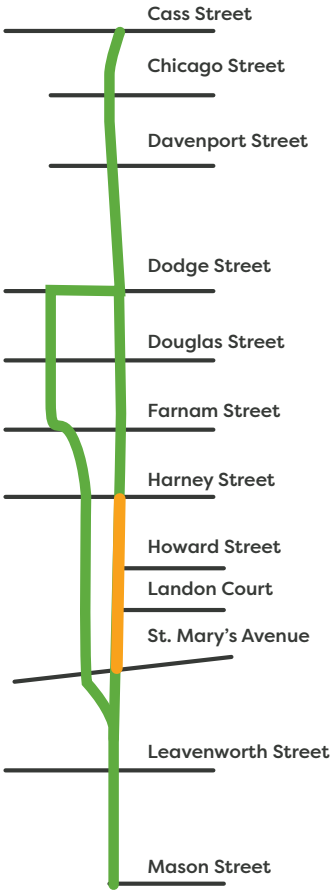


Figure 18 Existing 24th Street Cross-section, St, Mary's Avenue to Harney Street



Following the transition from two-way to one-way operation from Leavenworth Street to St. Mary's Avenue, the configuration of 24th Street remains relatively constant for three blocks. In this location, the right-of-way is assumed to be 60 feet wide. Three northbound lanes vary in width, with the westernmost lane occupying approximately 18 feet of the 40-foot roadbed.

On-street parking is designated along the westmost lane in certain locations but has not been defined with pavement markings. Assuming the through lane is intended to be 11 feet, the parking area would meet the minimum allowable width of seven feet (allowed in constrained environments only, eight feet is preferred[8]). Parking is not metered within this corridor segment.

The pedestrian zone on both sides of 24th Street varies. The typical pedestrian zone along this segment of 24th Street consists of attached sidewalks that vary from about 5 feet to 10 feet in width. Recently redeveloped properties have included improved pedestrian zones, such as the detached sidewalk with landscaped buffer

Photo 8 East pedestrian zone north of St. Mary's Avenue

on the east side between Howard Sreet and Dewey Avenue and the relatively wide attached sidewalk with curb extensions located along the west side in front of the Garage Lofts apartments..

Pedestrian comfort within this segment is deemed to be acceptable within this segment. While the pedestrian zone is directly adjacent to travel lanes (for the most part) the sidewalk is substantially wide enough to support walking. That said, the pedestrian environment could be improved.

[8]On-Street Parking, pp. 23. https://publicworks.cityofomaha.org/images/19-08-01_TFTC_Omaha_Complete_Streets_Design_Guide_AUGUST.pdf

24th Street – Harney Street to Farnam Street

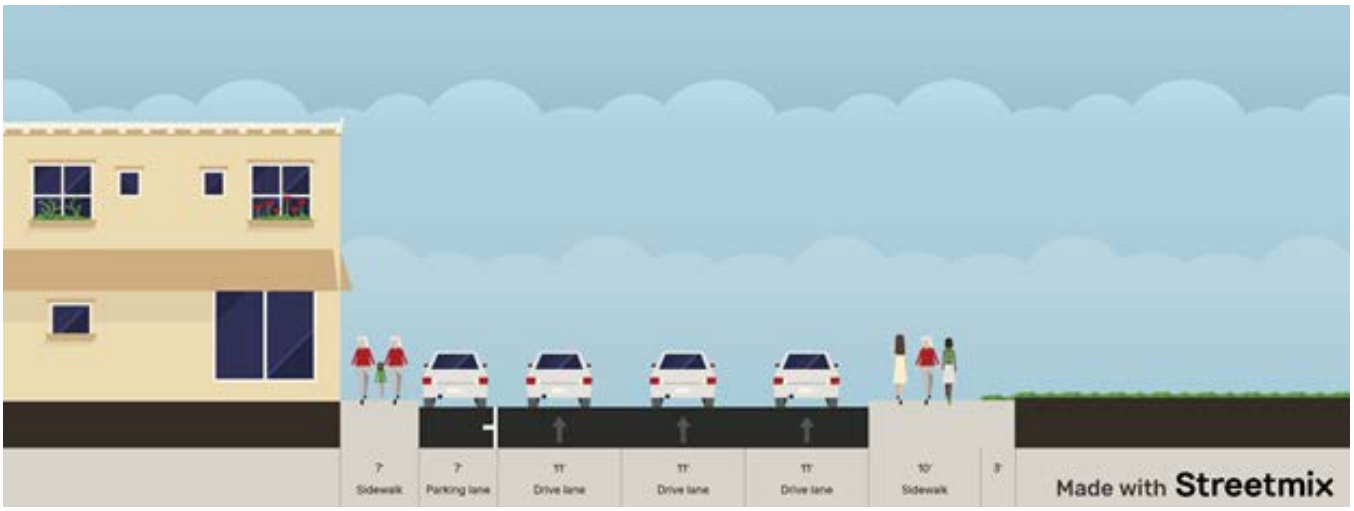
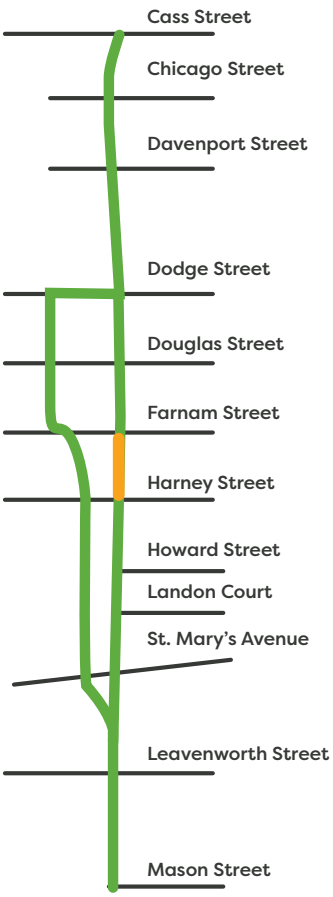


Figure 19 Existing 24th Street Cross-section, Harney Street to Farnam Street



Between Harney Street and Farnam Street, the roadbed again shifts to the east within the assumed 60-foot right-of way. Three northbound lanes are retained in this segment, with the addition of metered parking on the west side of the street. This is assumed to be seven feet wide due to the assumed 11-foot minimum travel lanes as required by Nebraska design standards.

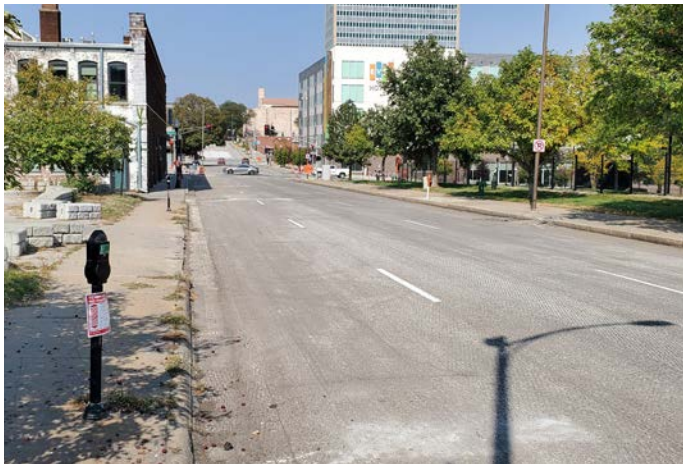


Photo 9 West pedestrian zone, north of Harney Street

The pedestrian zone on the west side of 24th Street is a seven-foot-wide, paved area from building face to back of curb. Along the east side of 24th Street, the pedestrian zone includes a 10-foot paved area extending from the back of curb. Under a 60-foot right of way, the furnishing zone beyond the sidewalk extends three feet. However, the U.S. Federal Reserve Bank's fence is located 16 feet beyond the edge of the sidewalk. Parcel data from the City's GIS system shows approximately 56 feet of right-of-way in this location, with most of the eastern pedestrian zone located on the U.S. Federal Reserve Bank property.

Pedestrian comfort within this segment is deemed to be acceptable in that the sidewalks on both sides of the segment are wide enough to support walking. The addition of parking spaces on the west side of the segment increases the buffer from the travel lane and reduce pedestrian stress. The eastern pedestrian zone's width supports walking although the sidewalk is directly adjacent to a travel lane.

24th Street – Unnamed Alley to Douglas Street

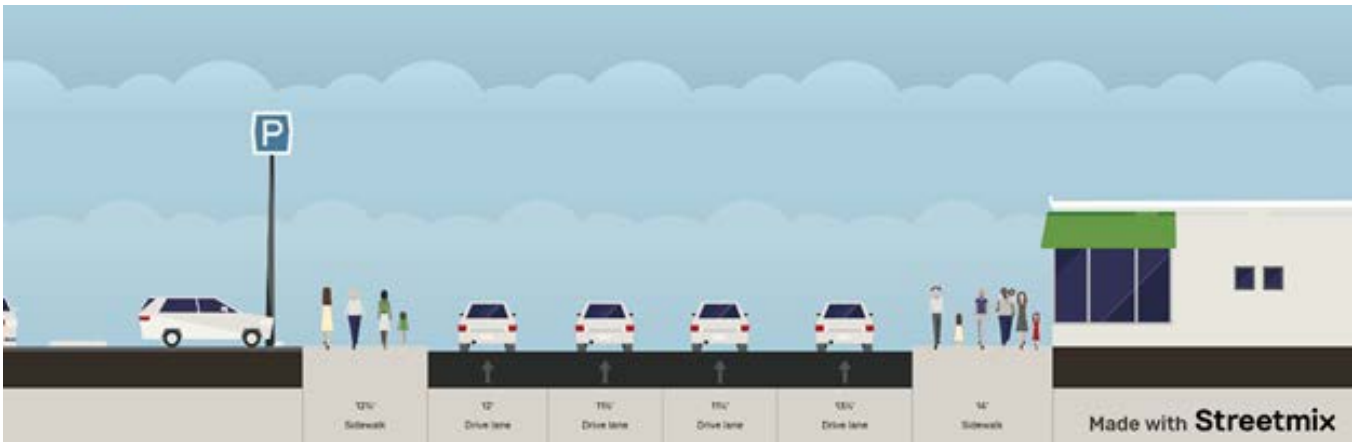
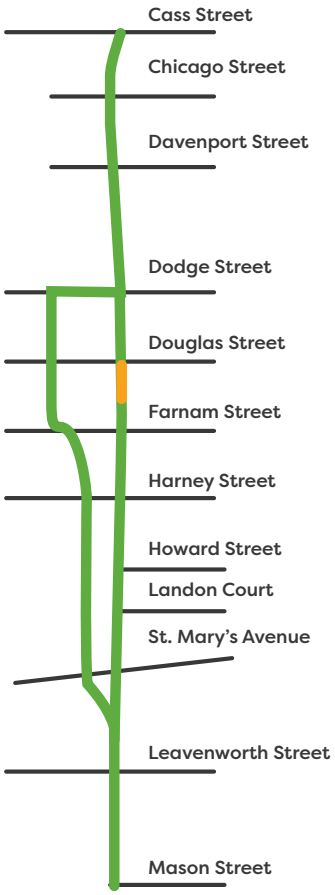


Figure 20 Existing 24th Street Cross-section, unnamed alley to Douglas Street



North of the unnamed alley, the parking bay is dropped in favor of an additional northbound through lane. The assumed right-of-way in this location is approximately 75 feet, as both the eastern and western pedestrian zones narrow. Curb extensions are not included at Douglas Street and the crossing distance increases to 50 feet.

The western pedestrian zone in this location is approximately 12 ½ feet wide. In front of the Hamilton Garden Apartments, the roots of two street trees have caused heaving of the pavement. The eastern pedestrian zone varies from 14 feet in front of the Fraternal Order of the Eagles' (FOE) lodge to approximately eight feet adjacent to the FOE parking lot. It appears that the pedestrian area may have been annexed into the parking lot area at some point during the past.

Pedestrian comfort within this segment is deemed to be acceptable. Broad sidewalks on both sides of the street provide some level of comfort to pedestrians. The lack of a buffer on both sides reduces the level of comfort.

24th Street – Douglas Street to Dodge Street

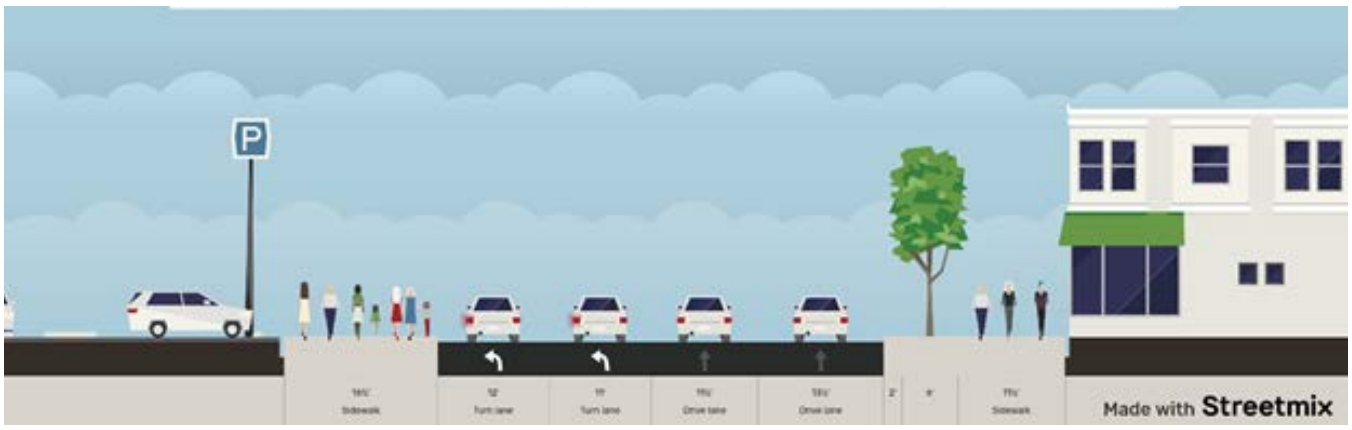
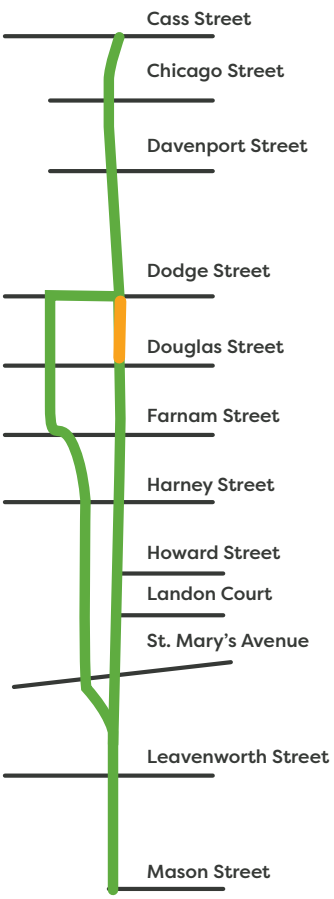


Figure 21 24th Street Cross-section, Douglas Street to Dodge Street



Between Douglas Street and Dodge Street, the assumed right-of-way again widens to approximately 85 (building face to building face). The westernmost two northbound lanes become dedicated left-turn lanes at the Dodge Street intersection, retaining two northbound through lanes.

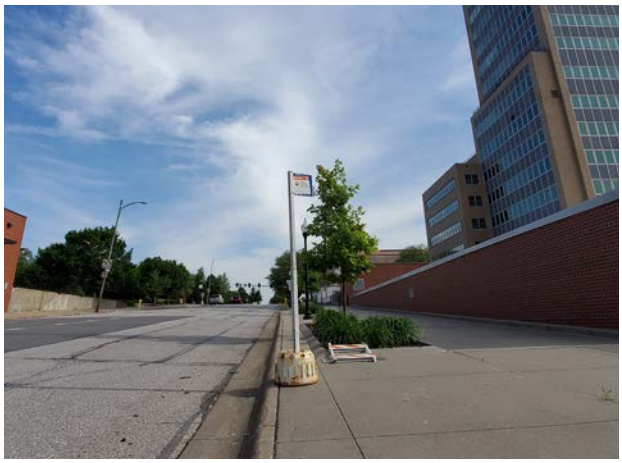


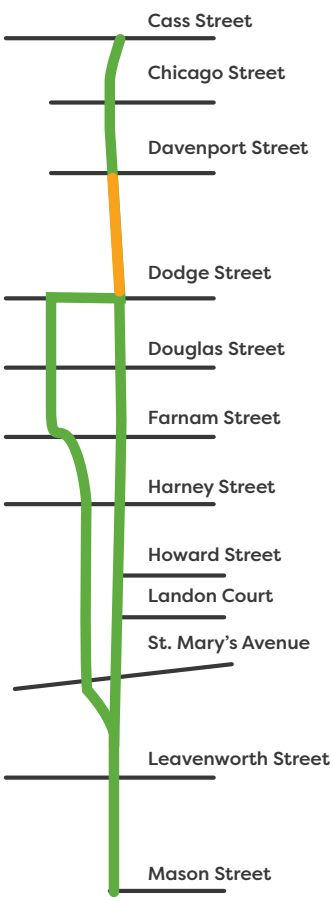
Photo 11 East pedestrian zone north of Douglas Street

The pedestrian zone on the west side of 24th Street expands to 16 ½ feet of paved area, from building face to the curb. The eastern pedestrian zone includes a three-foot paved buffer and six-foot wide planting boxes within the greenscape/furnishing zone. The pedestrian through zone is approximately 11 ½ feet of paved area from the planter boxes to the building face.

Pedestrian comfort within this segment is split. The west side of the segment exhibits an acceptable level of pedestrian comfort, broad sidewalks directly adjacent to travel lanes. The east side of the street exhibits high-quality pedestrian comfort. The greenscape/furnishing zone provides an appropriate buffer for pedestrian travel and is paired with a broad pedestrian through zone.

24th Street – Dodge Street to Davenport Street

Figure 22 Existing 24th Street Cross-section, Dodge Street to Davenport Street



North of Dodge Street, 24th Street returns to two-way operation, with two lanes in the northbound and southbound directions. The assumed right-of-way in this location expands to approximately 105 feet. Further, the character of the street changes with the addition of a boulevardlike island separating directional travel.

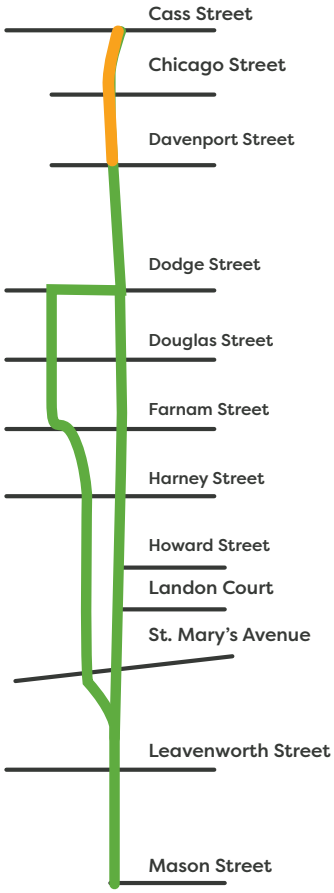
Photo 12 24th Street and Dodge Street intersection with pedestrian zones

The roadbed in this segment is approximately 62 feet, composed of four 12-foot through lanes (two northbound, two southbound) and the 14-foot boulevardlike median. The median itself contains an eight-foot planting area with dual three-foot paved buffers.

The pedestrian zone is varied within this segment. The western pedestrian zone includes a six-foot, meandering sidepath within approximately 29 feet of width. As the path meanders through this area, the width of the greenscape/ furnishing zone and frontage zone expand and contract, respectively. The cross-section shown in Figure 14 is a representative example of this segment.

Pedestrian comfort within this segment is high-quality. Broad buffers separate the pedestrian through zone from the roadway through lanes. While sidewalks are relatively narrow compared to most of the corridor, the enhanced distance from the through lanes provides additional comfort to pedestrians navigating the corridor.

24th Street – Davenport Street to Cass Street



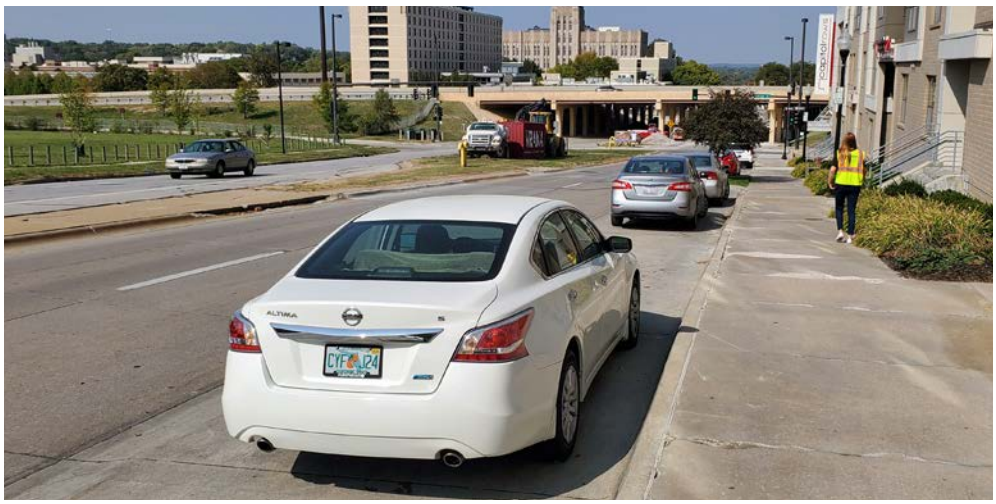


Photo 23 East pedestrian zone south of Chicago Street

North of Davenport Street, 24th Street exhibits a high degree of variability. Left turn lanes exist for both directions at the Davenport Street intersection, generally contained within the 14 feet that are used for the boulevardlike median south of Davenport Street. The southbound lanes of 24th Street shift to the west north of Davenport street to the intersection with Chicago Street and US 75 ramp terminal. This creates another large triangular island (like the island south of St. Mary's Avenue). In both directions, two 12-foot through lanes are maintained. Beneath I-480, the median island expands to approximately 33 feet.

On-street parking returns along the east side of 24th Street from Davenport Street to Chicago Street. Curb extensions protect the parking bays on both ends of the parking area. Parking is unmetered in this location.

The pedestrian zone is also varied within this segment. The western pedestrian zone includes an eight-foot grass greenscape/furnishing zone with a six-foot paved sidewalk. A two-foot frontage zone separates the sidewalk from the adjacent vacant parcel. North of the ramp terminal, the pedestrian zone retains this configuration until passing under the I-480 bridges. Beneath the I-480 bridge, the pedestrian through zone expands to 10 feet, while the greenscape/furnishing zone retains an eight-foot width.

The eastern pedestrian zone includes an eight-foot greenscape/furnishing zone with the curb extensions at both Davenport Street and Chicago Street. The pedestrian through zone uses a seven-foot paved sidewalk throughout. North of Chicago Street, the segment passes under the I-480 bridges where the pedestrian through zone expands to approximately 13 feet of paved sidewalk between to the bridge abutments and piers.

Pedestrian comfort within this segment is viewed as high-quality. Appropriate buffers separate the travel lanes from the pedestrian realm throughout the corridor and are paired with wider than standard sidewalk widths.

25th Street – Dodge Street to Douglas Street

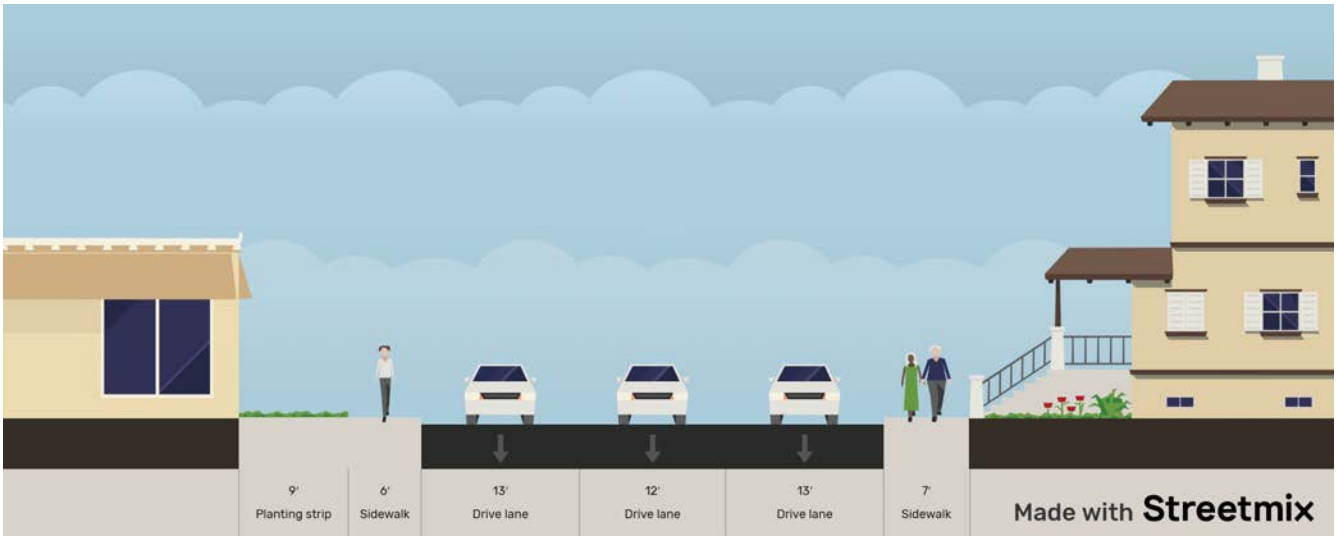
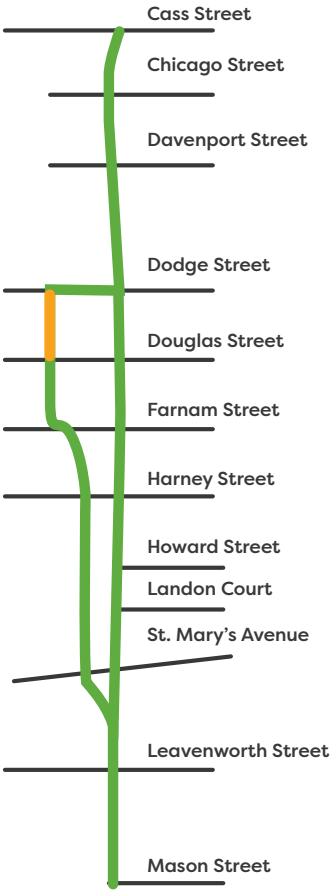


Figure 24 Existing 25th Street Cross-section, Dodge Street to Douglas Street



25th Street is the southbound one-way partner to northbound 24th Street. South of Dodge Street, 25th Street functions as a three-lane roadway within approximately 50 feet of right-of-way. Centered within this right-of-way is a 38-foot roadbed containing three-through lanes. The westernmost of these through lanes provides the greatest incidence of conflict. The 13-foot lane is too narrow to support on-street parking and traffic operations, but current signage allows two-hour parking within the lane south of the Metro transit stop (approximately 120 feet south of Dodge Street). This creates conflicts for both Metro transit (whose drivers must negotiate serving the stop while avoiding parked cars within the lane) and for general traffic operations.

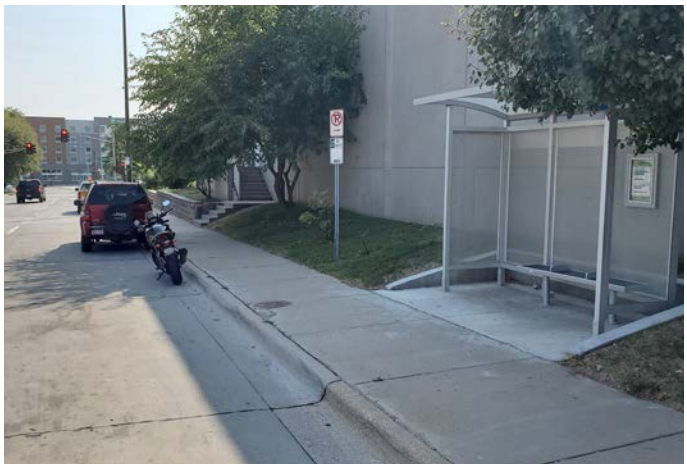


Photo 14 Bus stop on 25th Street adjacent to on-street parking

The pedestrian zone on both sides of 25th Street in this location is composed of a six-foot paved sidewalk directly abutting the curb. Generally, the sidewalks in both locations are in good condition.

Narrower than standard sidewalks placed directly adjacent to the travel lanes result in a negative experience for pedestrians.

25th Street – Douglas Street to Farnum Street

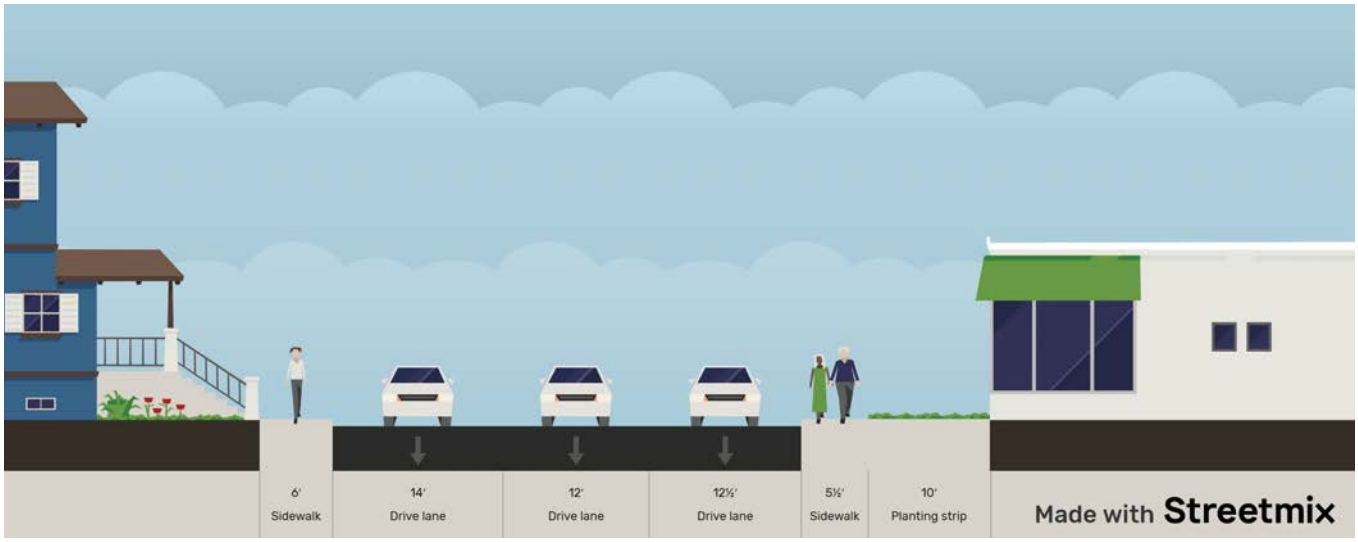
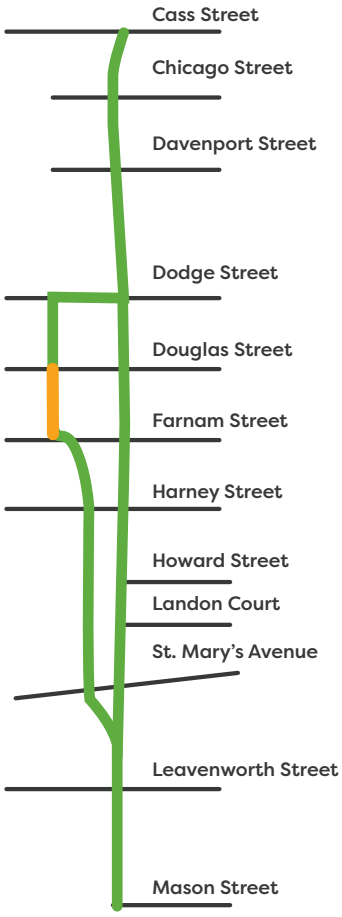


Figure 25 Existing 25th Street Cross-section, Douglas Street to Farnam Street



As 25th Street continues southward, the configuration is generally consistent from the previous segment. South of Douglas Street, 25th Street vectors slightly eastward toward its connection with 24th Avenue at Farnam Street. The corridor continues to occupy an assumed 50-foot right-of-way using a 38-foot roadbed, composed of three lanes. Unlike the previous segment, there is no parking provided on-street.

Photo 15 25th Street and Farnam Street intersection

The pedestrian zone is again wholly occupied by a uniform six feet of paved sidewalk directly adjacent to the curb. Pedestrian comfort is unacceptable in this location – narrower than standard sidewalks are positioned directly adjacent to travel lanes.

25th Street– Farnam Street to Unnamed Alley

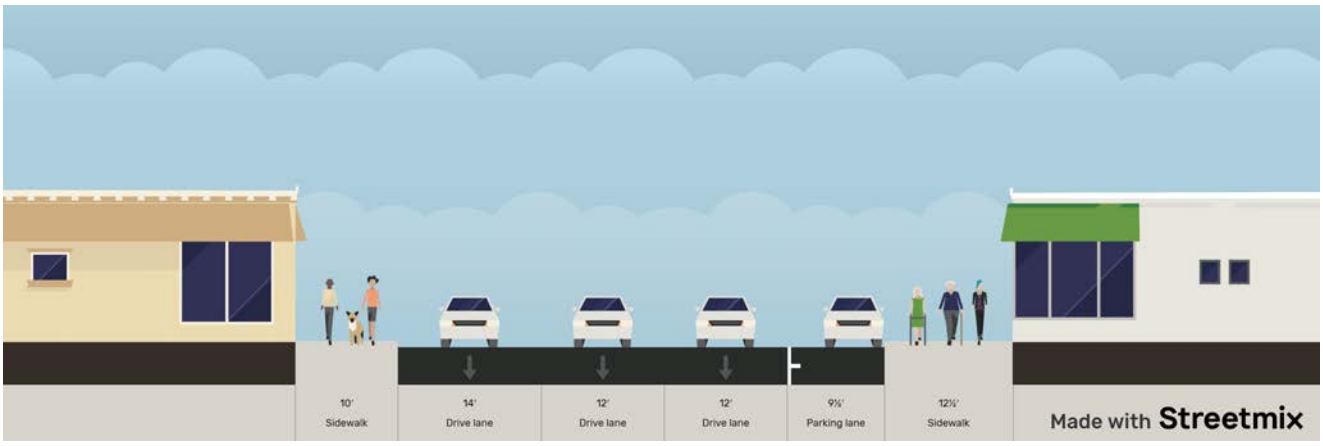
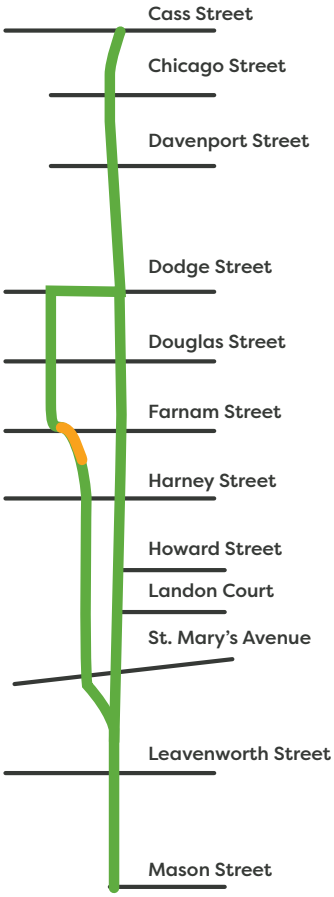


Figure 26 Existing 24th Avenue Cross-section, Farnam Street to unnamed alley



Immediately south of the Farnam Street intersection, 25th Street becomes 24th Avenue. At this point, redevelopment activities have added curb extensions to protect on-street parking on the east side of 24th Avenue. The right-of-way within this segment of the corridor widens to approximately 66 feet. Vehicular traffic continues to use a 38-foot roadbed composed of three through lanes of southbound traffic.

Photo 16 Improved parking and pedestrian zone south of Farnam Street

The pedestrian zone is composed of a 10-foot sidewalk on the west side of the street, directly abutting the curb. A 12 ½-foot paved pedestrian zone facilitates pedestrian traffic on the east side of 24th Avenue in this location.

Pedestrian comfort within this segment is deemed to be acceptable on the west side of the segment. Wider than standard sidewalks are positioned directly adjacent to travel lanes. On the east side of the segment, high-quality pedestrian levels of comfort are achieved due to the additional buffer provided by the on-street parking paired with a wider than standard sidewalk.

24th Avenue – Unnamed Alley to Casa Parking Lot

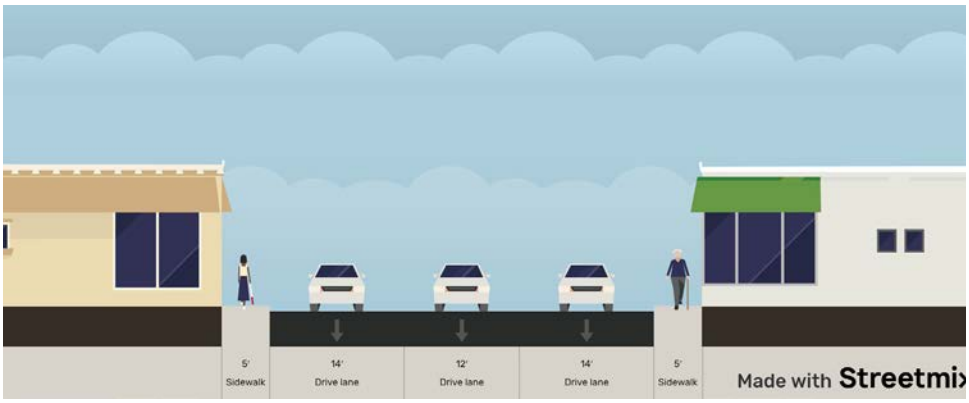


Figure 27 Existing 24th Avenue Cross-section, unnamed alley to CASA parking lot access

Photo 17 Utility vault step within sidewalk south of Harney Street

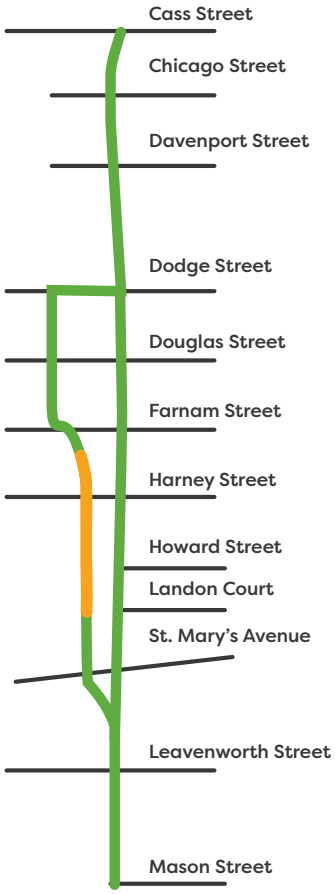


Photo 18 Sidewalk and lane configuration south of Harney

24th Avenue continues southward from the unnamed alleyway north of Harney Street in a similar fashion to previous segments. The assumed right-of-way contracts to 50 feet. Within this area, a 38-foot roadbed is composed of three southbound lanes. No on-street parking is allowed within this segment.

The pedestrian zone for both sides of 24th Avenue varies to an extent from the illustration in Figure 16. Near Harney Street, the sidewalk has been widened and set back from the curb to connect to a utility vault. The vault, however, is raised above the sidewalk, creating a step within the sidewalk (shown in Photo 16). For the remainder of the segment, both sides of 24th Avenue retain a six-foot paved pedestrian zone abutting the curb.

Pedestrian comfort within this segment is split. Both sides exhibit wider than standard sidewalks are positioned directly adjacent to travel lanes. Challenges within the sidewalk along the west side of the corridor (step-up to connect to a utility vault) result in an unacceptable condition. The east side of the street retains an acceptable level of pedestrian comfort. A small retaining wall on the west side of the street creates the feeling of a narrower pedestrian zone, reducing comfort.

24th Avenue – Farnam Street to Unnamed Alley

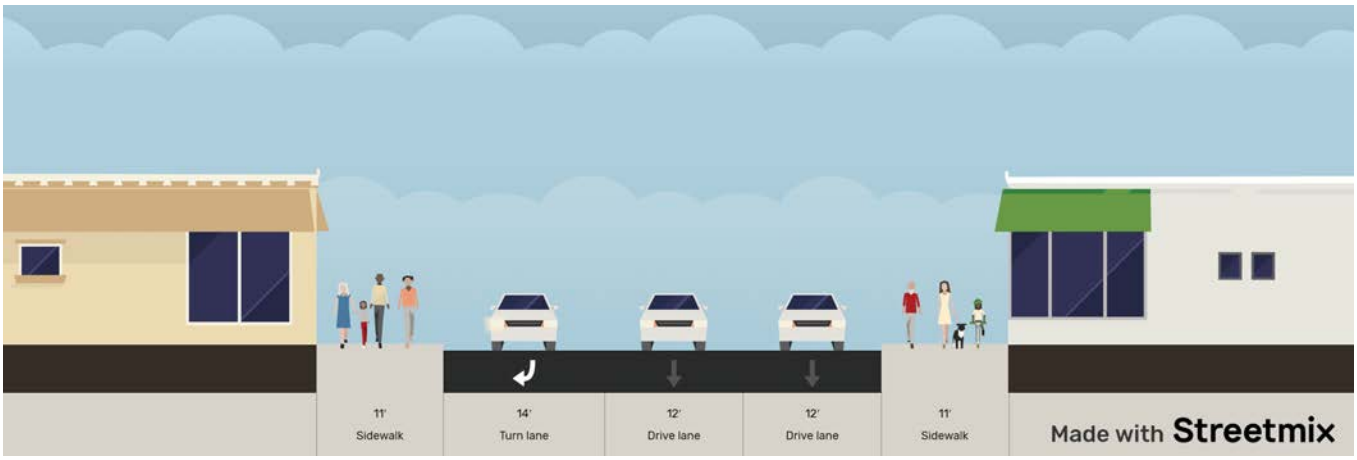
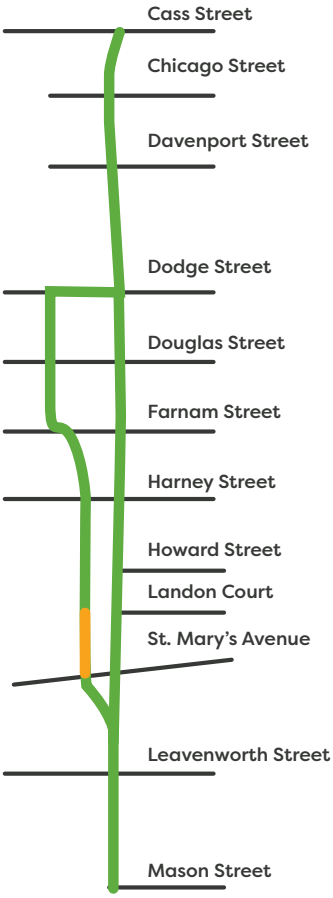


Figure 28 Existing 24th Avenue Cross-section, Farnam Street to unnamed alley



South of the CASA parking lot access, the corridor's assumed right-of-way widens to approximately 60 feet. Within this segment, the 38-foot roadbed is retained and is composed of three southbound lanes.

Photo 19 East pedestrian zone north of CASA, looking south

The pedestrian zone on both sides of 24th Avenue expands outward to contain dual 11-foot paved pedestrian zones. As pedestrians reach the St. Mary's Avenue, it should be noted that signage prohibits crossing St. Mary's Avenue on the east side of the street (similar signage exists on the west leg of 24th Street and St. Mary's avenue).

Pedestrian comfort in this location is deemed to be unacceptable. Both sides of the street exhibit narrower than standard sidewalks adjacent to travel lanes as well as utility poles and mulitple driveway crossings interrupting continuity of the sidewalk resulting in an uncomfortable experience for walkers and obstacles for people with mobility issues.

24th Avenue – St. Mary's Avenue to 24th Street Tie-in

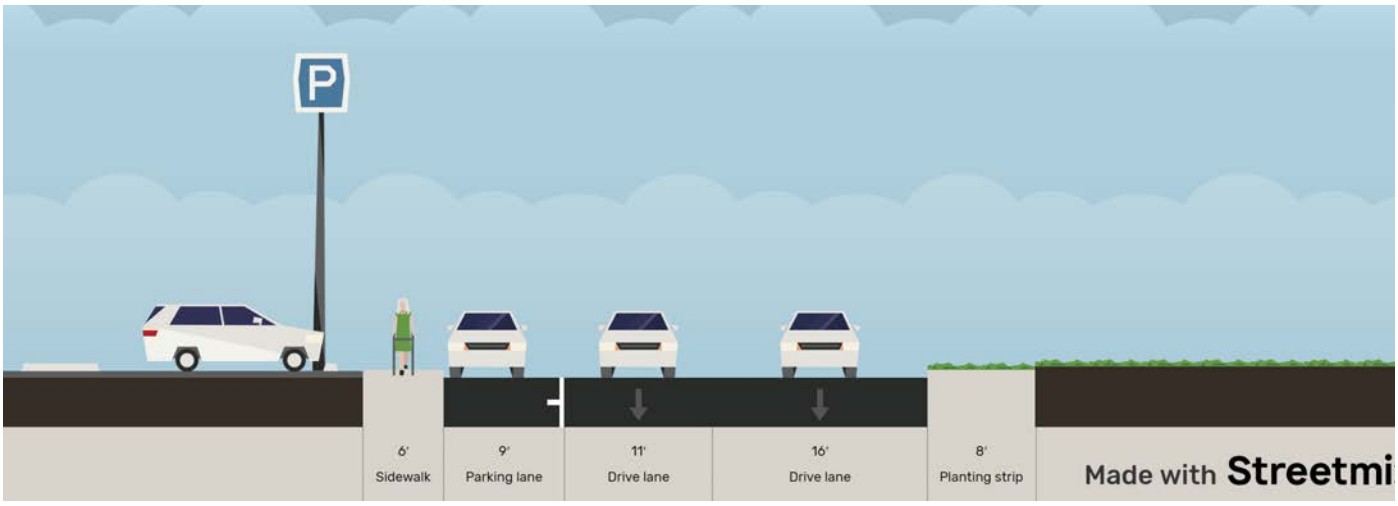
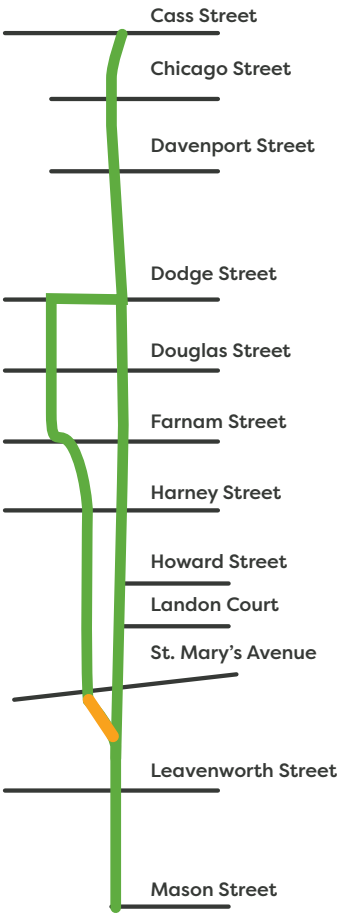


Figure 29 24th Avenue Cross-section, St. Mary's Avenue to 24th Street tie-in x



South of St. Mary's Avenue 24th Avenue's alignment skews to the east to tie in with the northbound lanes. In this location, the right-of-way is assumed to be 50 feet wide. The roadbed in this segment narrows to 36 feet, becoming predominantly a two-lane cross-section. On-street parking is provided on the west side of the segment.

Photo 20 West pedestrian zone south of St. Mary's Avenue, looking south

The pedestrian zone is concentrated along the west side of the segment (pedestrians are prohibited on the east side). The pedestrian zone is composed of a six-foot paved area, directly abutting the curb.

Pedestrian level of comfort on this segment are unacceptable. An unacceptable level of comfort exists on the west side of the segment with narrower than standard sidewalks buffered by on-street parking. The adjacent parking lot tends to pinch the available sidewalk and reduce available through space. The east side of the segment is unacceptable as pedestrian amenities are not provided.