



13TH STREET | WALKABILITY STUDY

Prepared for The City of Omaha



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CONTENTS

13TH STREET | WALKABILITY STUDY

I	ABBREVIATIONS
01	EXECUTIVE SUMMARY
05	EXISTING CONDITIONS
13	PUBLIC OUTREACH AND VISIONING
17	ALTERNATIVES DEVELOPMENT
23	WALKABILITY PLAN
32	IMPLEMENTATION
A	APPENDIX EXISTING CONDITIONS MEMORANDUM
B	APPENDIX SELECTION CRITERIA MEMORANDUM
C	APPENDIX ALTERNATIVES ANALYSIS MEMORANDUM
D	APPENDIX PUBLIC INVOLVEMENT MEMORANDUM

ABBREVIATIONS

AACE	Association for the Advancement of Cost Engineering
AASHTO	American Association of State Highway Transportation Officials
ADT	Average Daily Traffic
BID	Business Improvement District
BLTS	Bike Level of Traffic Stress
BNSF	BNSF Railway
bpd	Bikes per Day
bph	Bikes per Hour
BRT	Bus Rapid Transit
CDBG	Community Development Block Grant
CIP	Capital Improvement Plan
City	City of Omaha
CSDG	Complete Streets Design Guide
CSP	Complete Streets Policy
FWHA	Federal Highway Administration
HCM	Highway Capacity Manual
HSIP	Highway Safety Improvement Program
ITE	Institute of Transportation Engineers
LOS	Level of Service
LTS	Level of Traffic Stress
MAPA	Metropolitan Area Planning Agency
MPH	Miles per Hour
NDOT	Nebraska Department of Transportation
OMP	Omaha Master Plan
PHB	Pedestrian Hybrid Beacon
PIP	Public Involvement Plan
PLTS	Pedestrian Level of Traffic Stress
ppd	Pedestrians per Day
pph	Pedestrians per Hour
ROW	Right of Way
RRFB	Rectangular Rapid Flashing Beacon
SID	Sidewalk Improvement District
STBG	Surface Transportation Block Grant
TA	Transportation Alternatives
TIF	Tax Increment Financing
TWLTL	Two-Way Left-Turn Lane
UNMC	University of Nebraska Medical Center
UPRR	Union Pacific Railroad
USPS	United States Postal Service
vpd	Vehicles per Day
vph	Vehicles per Hour

1 EXECUTIVE SUMMARY



How can we effectively accommodate more transportation modes?

1.0 | INTRODUCTION

Omaha's streets are an integral part of its rich history. Think of the historically significant places in Omaha like Benson, Dundee, Blackstone, and Downtown. All these places are built around historically significant streets like Maple Street, Underwood Avenue, Farnam Street, and Dodge Street. Thirteenth Street carries a rich history and is a backbone connecting a series of significant, historic places in Omaha. From the Vinton Street Business District, to Little Bohemia, and into the numerous historic districts and buildings in Downtown, 13th Street serves a vital role in the vibrancy and longevity of the community surrounding it.

Thirteenth Street is also a vital transportation corridor. Today, it primarily serves automobiles, but the fundamental question this study aims to answer is, "How can we effectively accommodate more transportation modes?" This question is being asked in response to the desire to reimagine 13th Street as a gateway corridor. It also relates to the development and implementation of the CSP which requires Omaha's streets to consider all modes of transportation.

It's time to move forward on Omaha's vision of remaking the 13th Street corridor as not only a transportation corridor, but a place that is comfortable, inviting, and stimulating. By enhancing walkability, Omaha's residents and visitors will be able to enjoy a corridor designed for everyone, whether you may be a bicyclist, pedestrian, resident, business owner, or commuter.



1.1 | BACKGROUND

This scope of this study includes 13th Street from Interstate 80 to Interstate 480. Because 14th Street is the one-way pair to 13th Street in downtown, it was also included between Leavenworth Street and Interstate 480. While this is a walkability study, it is being conducted with the overall goal to improve the corridor for all modes of transportation. There was a strong desire from both the City and the community to make 13th Street inviting to active transportation modes like walking, biking, and transit. This is in response to a goal outlined in the CSP of creating a continuous, citywide, multimodal transportation network.

Through the years, the City has conducted various planning efforts, from the regional to neighborhood level, that overlap the corridor; however, to date there has not been a focus at the corridor level on 13th Street. This study will fill that gap and aim to create unified vision of what 13th Street can be. Moving forward, this study will serve as a touchpoint for public infrastructure projects. Additionally, the City recognizes benefit of complementing redevelopment efforts that are already underway. In both cases, a unified corridor vision will help promote continuity and collaboration for projects moving forward.

1.2 | STUDY FORMAT

Ultimately, the plan is a result of collaboration among engineering analysis, transportation planning, and community visioning (**Figure 1.1**). The study was designed with an emphasis on collaboration with the public and stakeholders. It takes a comprehensive view of the corridor today, considers technically feasible alternatives, incorporates valuable public input, and presents a plan to improve the corridor for all modes.

This walkability plan report is organized by chapters summarizing the progressive steps taken to develop the plan. Each chapter summarizes the individual steps taken to complete the study. The final chapters of the report culminate in an overall corridor plan and a list of potential projects that incrementally execute that plan. Detailed information about each phase of the study can be found in the technical memorandums in the appendix.

Figure 1.1 Fundamental Elements of the Walkability Plan



1.2.1 Existing Conditions

Before the study team could determine the best way to improve the corridor, they first had to understand the current condition. What are the challenges? Are there under-used portions of the ROW? Where are the areas for improvements? The goal of the existing conditions analysis was to answer these questions. It started with a comprehensive data collection and reduction effort. This included a review of existing relevant plans; gathering volume, crash, and transit ridership data; and a field review of the corridor. This information was then analyzed to identify traffic demands, condition of pedestrian space, existing crash patterns, and much more.

1.2.2 Public Outreach & Visioning

Public involvement was critical to the outcome of this study. Over the course of the study, the project team met with stakeholders and the public to better understand the needs for the area, develop a corridor vision, and guide decisions.

This was accomplished through a combination of general public outreach and focused conversations with a stakeholder group. In those meetings, some of the critical issues raised included speed control, enhancing aesthetics, improving sidewalk condition, and improving safety and aesthetics of the railroad bridges north of Pacific Street.

The one of the results of the public outreach effort was developing a guiding vision that was based on the needs and desires of the community. This vision identifies three main tenants: honor the existing users, improve safety for all modes, and enhance aesthetics and placemaking.

1.2.3 Alternatives Development

In addition to the public involvement, one of the fundamental components of the study was the development and analysis of 13th Street alternatives. This included developing a series of alternatives that allowed the analysis team to understand the limits of what is technically feasible. It also included an analysis of traffic demands and relative benefit to pedestrian and bike modes of each alternative. This analysis generally resulted in identifying the need for two through lanes in each direction south of Leavenworth Street, three lanes on both 13th Street and 14th Street, (including on-street bike lanes) in downtown, comprehensive sidewalk repair, aesthetic enhancements to

pedestrian right-of-way, and additional crossing opportunities along 13th Street.

1.2.4 Walkability Plan

The culmination of the study was a marrying of the corridor vision to the technically feasible alternatives to generate a cohesive corridor plan. Recommendations include:

- Street cross section updates
- Practical, effective walkability treatments
- Modal preference
- Additional aesthetic and safety improvements

The cross section is described in detail segment-by-segment in this chapter. It partitions the corridor into three areas with Martha Street and Leavenworth Street as the boundaries.

The walkability treatments chosen were those that fit well within the limited ROW and were sensitive to the context of each segment. For example, mid-block curb extensions were appropriate between Martha Street and Pacific Street where block lengths and distances between signals are longer. The extensions provide visual indication for drivers to slow and opportunities for additional pedestrian crossings. These treatments would be less appropriate in the close block spacing in downtown.

Additional improvements, those that were not specific to a segment, include aesthetic and safety improvements to the railroad bridges and geometric improvements to accommodate transit.



Target opportunities to realize plan with redevelopment like in Little Bohemia

1.2.5 Implementation

The final component of this study was to identify candidate projects that could begin to realize the walkability plan. These projects have not necessarily been committed or programmed, but are examples of how the plan could be realized. Conceptual cost estimates and potential funding sources were also identified.

1.3 | MOVING FORWARD

This plan is just the start of realizing a long-term vision for 13th Street. While projects are not currently programmed, the City will use this study as a touchpoint to help guide future project development and execution. This is true for public infrastructure and privately-funded projects alike.

In the short term, redevelopment projects like Little Bohemia, the Landmark Building, and the Gene Leahy Mall will provide opportunities to realize portions of this vision adjacent to these projects. Additionally, the City could take opportunities to execute projects that fill in gaps between existing projects or incorporate things like sidewalk or pavement repair within current maintenance programs. In the long term, projects like protected bike lanes, streetscaping, or improvements to the railroad bridges can be realized through a combination of public and private efforts. In the end, this will be a model corridor for Omaha and will be a result of a collaborative effort between the City and the community at large.



14th and Douglas, an intersection with one of the highest pedestrian volumes on the corridor



Location along corridor Landmark and Gene Leahy Mall redevelopment

2 EXISTING CONDITIONS



The beginning of the study, the team worked to understand the corridor from as many perspectives as possible.

2.0 | INTRODUCTION

The beginning of the study marked an intense period of data collection where the team worked to understand the challenges and need of the corridor from as many perspectives as possible. This included understanding the demands from each travel mode, condition of infrastructure, and needs from stakeholders. This final subject will be addressed in subsequent chapters. This chapter summarizes the observations and analysis of the corridor from an engineering and planning perspective.

The study area was defined by the project team to include 13th Street from Interstate 80 to Interstate 480. Because 14th Street is the one-way couplet of 13th Street in downtown, it was also included between Leavenworth Street and Interstate 480.

2.1 | DATA COLLECTION & ANALYSIS

Olsson and the City worked to gather data on as many facets of the study area as possible. This included:

- daily and peak volumes for vehicles, bikes, and pedestrians;
- daily truck counts;
- crash history from 2012-2017;



- speed;
- parking inventories;
- cross section measurements;
- documentation of sidewalk and roadway condition;
- observations of sidewalk connectivity;
- a review of existing, relevant plans;
- inventory of transit use.

In addition to data-gathering the team performed a series of analyses to better understand what the data showed. This included capacity analyses and reduction of crash data for vehicles; calculation of parking turnover and occupancy; and bicycle and pedestrian LTS.

2.2 | VOLUME DATA

Perhaps the most useful and fundamental data that was used in this study was volume counts of all modes of transportation. Olsson and the City performed a comprehensive volume data collection effort that included counts of the eight busiest hours of the day for vehicles, pedestrians, and cyclists. Because 13th Street is also a truck route that serves multiple industrial businesses and the regional USPS hub, truck counts were performed to understand the demands from freight users.

Generally, traffic volume was the highest at the south end of the corridor and pedestrian volume was highest at the north end. Bicycle volume was slightly higher in the downtown area, but still relatively low. Truck volumes remained consistent throughout the corridor, with a slight drop near the USPS distribution hub on Pacific Street. **Figure 2.1** shows how volumes changed throughout the corridor.

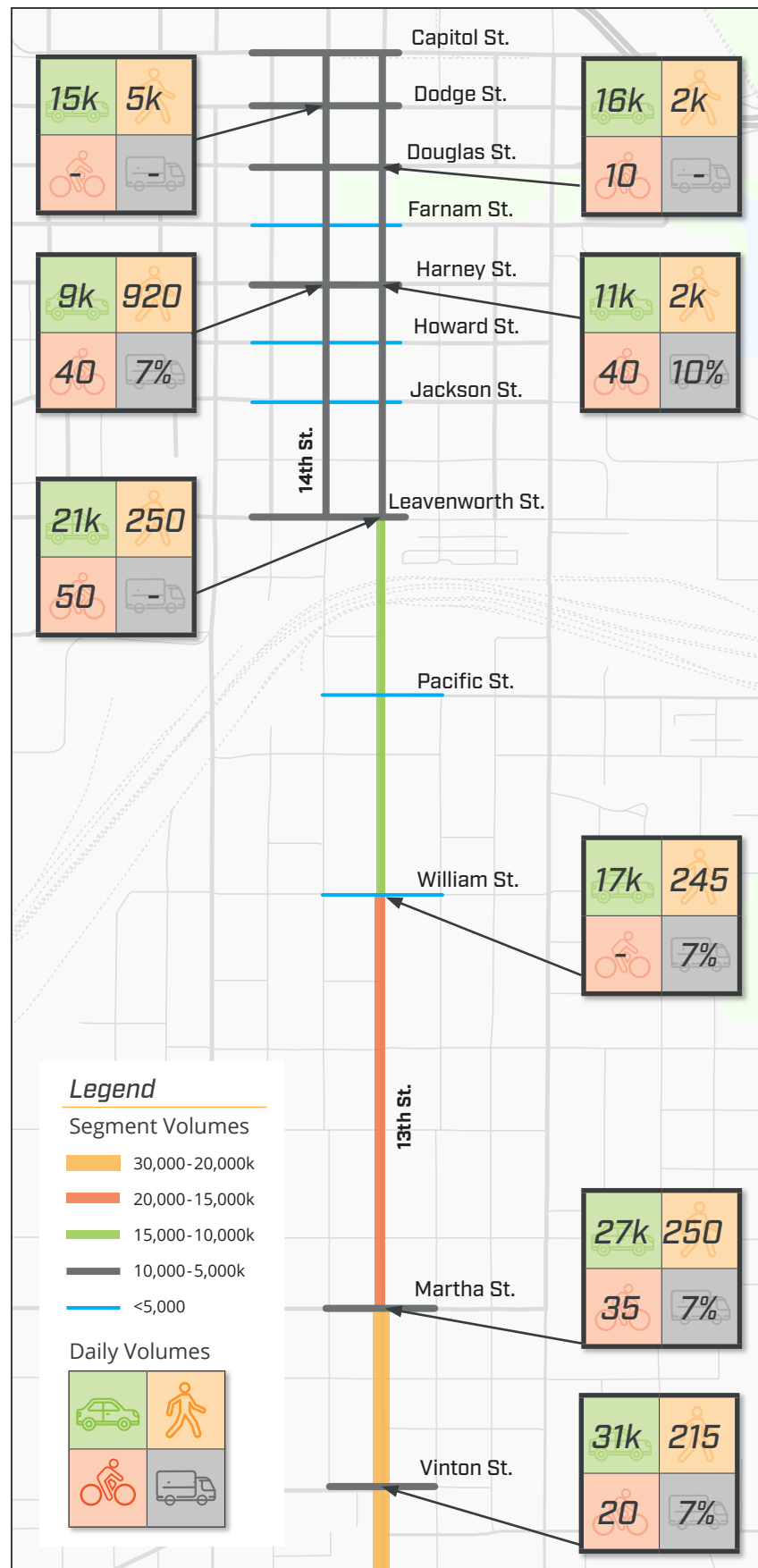


Figure 2.1 Existing Traffic Volumes

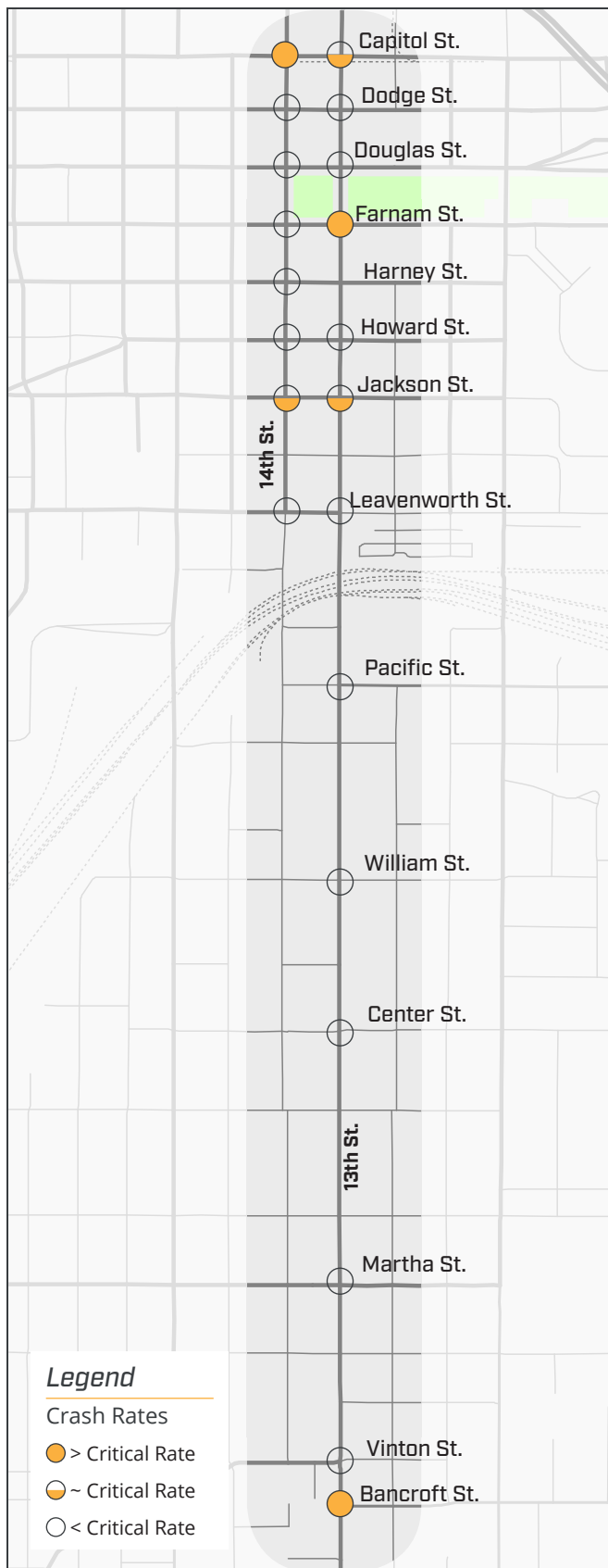


Figure 2.2 Existing Crash Data

2.3 | CRASH DATA

The City provided a history of crash data. This data summarized types and severity of crashes as well as who was involved in the crash. This allowed the team to identify any hotspots where future projects could address crash patterns.

Two of these hotspots were at the intersections of 13th Street & Bancroft Street and 14th Street & Capitol Avenue. These two intersections were the highest crash locations in the study area. Both intersections should be studied in more detail to determine with more certainty the causes of and solutions to crash patterns.

BANCROFT STREET INTERSECTION

This is the location of the highest number of crashes as well as the highest crash rate. The crash rate is number of crashes per vehicle passing through the intersection. The crashes were primarily between vehicles leaving a Bancroft Street and northbound vehicles on 13th Street. It is likely a result of poor visibility to the south due to buses or right-turning vehicles in the line of sight.

CAPITAL AVENUE INTERSECTION

The north leg of this intersection is also the off ramp for eastbound I-480. Most crashes at this location were between two southbound vehicles, nearly all of which were sideswipe crashes. While few injuries occurred here, the pattern suggests that changes to geometry or traffic control are necessary to simplify the driving task. There were also two crashes between a vehicle and pedestrian, both of which were a southbound left-turning vehicle on the west leg of the intersection.

Other prevalent crashes include angle crashes (those between two cars traveling through an intersection), sideswipes, and rear-end crashes. Many crashes were “property damage only” or minor injury crashes. Approximately 20% resulted in a major injury and one fatality was reported. **Figure 2.2** shows a summary of crashes along the corridor.

2.4 | PARKING USAGE

While the Downtown Parking Needs Assessment provides a summary of how parking is being used and is expected to be used in Downtown, there was a lack of parking data for portions of 13th Street south of Leavenworth Street. As such, the data collection effort in this study included a review of on-street parking. The area between Pacific Street and Martha Street, where on-street parking is provided was surveyed to determine utilization and turnover. That is, how many stalls are occupied and how long cars are occupying the stalls. This helped to understand where parking should be provided and where it could be eliminated, and the space used for other purposes.

It was found that approximately 35% of the on-street spaces were being used and that vehicles were occupying the spaces for over four hours at a time. Note that there is a two-hour parking restriction on most spaces. This suggests two ideas. The first is that some parking could be eliminated without a significant detriment to current users. Second, the parking is not being used the way it is intended. With the redevelopment occurring in the Little Bohemia area, there is an advantage to encouraging shorter parking durations, in turn allowing more individuals to access businesses.

2.5 | SIDEWALK CONDITION & CONNECTIVITY

One of the most basic ways to provide a walkable corridor is to ensure that pedestrian infrastructure is in good condition and is part of a continuous network that connects hubs of pedestrian activity. To know where potential gaps in either condition existed, the team needed to first understand the condition of the current infrastructure. This was accomplished through a series of site visits documenting various characteristics of the network. These included general sidewalk condition, tripping hazards, obstructions in the traveled way, and slope of the sidewalk. Additionally, the team inventoried gaps in sidewalk or locations where accessible routes were not available.

In terms of sidewalk condition, segments of 13th Street between Martha Street and Leavenworth Street scored lowest, particularly on the west side. This is primarily due to consistent, large areas with poor sidewalk conditions, including cracked pavement or irregular surfaces, like brick, being used.

The sidewalk network is generally complete, with all designated street crossings having accessible curb ramps. Sidewalks are continuous throughout the study area. That said, the portion of 13th Street between Martha Street and William Street does not have a designated east-west crossing. This segment is one-half mile long and bordered on both sides by residential or retail development that could be a source of pedestrian traffic. Most pedestrians prefer to walk no more than 400 feet to reach a crossing.



Sidewalk being blocked by vehicle



Brick sidewalk with narrow setback near Martha Street

2.6 | REVIEW OF EXISTING PLANS

The long-term vision for this corridor did not begin with this study. Many efforts, although not specifically focused on 13th Street, have already included ideas for the corridor. The study built on the previous planning efforts. Therefore, the team performed a comprehensive review of plans that have been adopted by the City that have discussed improvements for 13th Street. These include the following:

- City of Omaha Master Plan (Transportation Element)
- Downtown Omaha Master Plan
- MAPA Regional Bike-Ped Plan
- Omaha Transit Alternatives Analysis
- Complete Streets Policy
- Downtown Parking Needs Assessment
- Various reconstruction projects
- Leavenworth Lane Reconfiguration Study
- MAPA Block Talks

The scope of these documents varied widely. While some focused on individual transportation modes, others focused on land use, and still others on policy, there were a few common themes that pertain to the study area.

A FOCUS ON MULTIMODAL ENHANCEMENTS

Nearly all the plans and policies include some provision for enhancing 13th Street to be more functional for active transportation modes (walking, biking, and transit). This could include basic repairs to sidewalks, on-street bike facilities, or neighborhood beautification.

13TH STREET AS A SIGNIFICANT CORRIDOR

This study was the result of multiple plans and redevelopment efforts coalescing around a regionally significant corridor. It serves as a prominent trucking route, transit route, and gateway into Downtown Omaha. It also passes through multiple historic districts. Development of 13th Street should be done under the guidance of a unified vision that incorporates previous planning efforts as well as the current information from the City and stakeholders

13TH STREET IN UNDERUTILIZED

While the corridor does see significant vehicular volume today, there are opportunities in multiple locations to find better uses for available right-of-way. This includes enhancing pedestrian areas or repurposing the roadbed in some segments to other transportation modes.



Little Bohemia - One of the Corridor Focal Points



Block Talk near 13th & Bancroft [Source: MAPA]

2.7 | EXISTING NETWORK CHARACTERISTICS

Part of the existing evaluation effort was to start to define the corridor with respect to functional classification, context, and general roadway features. This helped inform the future discussions on what the street could be moving forward. Draft versions of the typologies developed for the CSDG define street typologies and which should be considered given the context and functional classification.

The current functional classification is an arterial. The context varies from Neighborhood Commercial in the south to Downtown in the north. These would correspond to Urban Connector and General Urban typology, respectively. These are unlikely to change so future alternatives would need to work in the context of these typologies for street characteristics such as number of lanes, presence of bike lanes, or sidewalk width.

Other notable characteristics of the corridor is that it is a truck route and on the national highway system. Multiple historic properties exist along or near the corridor and would need to be considered with projects that may impact the sites. These are listed in the Existing Conditions Memorandum. Other notable characteristics are summarized in **Table 2.1** below

Table 2.1 Existing Network Characteristic Summary

	ROW Width (ft)	Roadbed Width (ft)	Sidewalk Width (ft)	Sidewalk Setback (ft)	Lane Width (ft)	Number of Lanes	Two-Way/One Way	On-Street Parking	Left-Turn Lanes	Bike Lanes	Posted Speed (mph)	85th Percentile Speed (mph)	Daily Traffic Volume (1,000 vpd)	Truck Percentage	Daily Pedestrian Volume (ppd)
13TH STREET															
13th Court to Martha Street	90	55	4	3	11	4	2	N	Y	N	35	39	25	7%	50-250
Martha Street to William Street	100	60	20	0	11	4	2	Y	N	N	30	44	16	7%	150-250
William Street to Leavenworth Street	100	60	20	0	11	4	2	Y	N	N	30	-	14	-	200
Leavenworth Street to Jackson Street	100	60	20	0	11	4	2	Y	N	N	25	-	9	-	850
Jackson Street to Capital Avenue	100	60	20	0	11	4	1	Y	N	N	25	31	7	10%	2k-6k
14TH STREET															
Capital Avenue to Jackson Street	100	60	20	0	11	3	1	Y	N	Y	25	32	6	7%	1k - 5k

2.8 | DATA ANALYSIS

One of the tasks necessary to establish a baseline of operations along the corridor was to understand how each mode was being served. This informed decisions and strategies during later phases of the study. For vehicles, the quality of operations was defined by level of service (LOS) which is a grade assigned to traffic movements or intersections based on the average delay of individual vehicles. This analysis also reviewed the expected intersection queuing.

Generally, intersections currently operate at LOS C or better, which is the City's goal. Two exceptions were the 14th Street & Capital Avenue and 13th Street & Leavenworth Street intersections. Some individual movements at Vinton Street and Bancroft Street experienced high delay or queues that extended beyond adjacent major drives or intersections. Additional detail can be found in the Existing Conditions Memorandum in **Appendix A**.

Because the pedestrian and bicycle modes are operated at the human scale, the quality of operations is defined less by delay than it is by the general experience of the user. This is summarized by level of traffic stress (LTS). This gives a street segment or intersection a grade based on how inviting and safe a facility feels.

Most street segments scored an LTS score of 3 or 4 (out of 4) for both bikes and pedestrians. This is primarily due to the volume and speed of traffic and number of traffic lanes along 13th Street. The exception to this is segments in downtown which scored an LTS 1 due to wide sidewalks with good separation from traffic. A score of LTS 1 or 2 is desirable to attract new or less confident users to the corridor. Additional information regarding the LTS assessment is found in the Alternatives Analysis Memo in **Appendix C**.



Looking North at 14th and Capitol, a High Delay Location During Morning Peaks

2.9 | TRANSIT USE

In Omaha, bus service is run through Metro. This organization operates fixed bus route, origin-to-destination service, and bus rapid transit for the Omaha metro area. While they are a separate organization from the City, these two groups work closely to coordinate transportation for Omaha's citizens.

One reason why this relationship exists is the strong connection between transit and other active modes. Walking and biking are typically convenient for local trips, less than a few miles, but transit fills the gap when a person needs to make a longer trip within the metro area. Therefore, this walkability study places a focus on accommodating bus users by looking for opportunities to create infrastructure that helps connect cyclists and pedestrians to transit services.

As part of the existing conditions assessment, the team talked directly with Metro to understand how they used the corridor and plans they may have for future services. The primary route along 13th Street is Route 13, but others exist. It is among their highest-used routes with approximately 650 one-way trips per day. It connects with other major routes in downtown by way of the transfer station at 13th Street & Harney Street.

The coordination effort with Metro yielded a few short-term desires and long-term goals for bus service along 13th Street. The short-term desires, ones that can be most readily accommodated as part of this study, include modifications like stop consolidation, relocation, and geometric enhancements. The enhancements could include locating pedestrian crossings near stops or moving boarding locations out to edge of traveled way from behind parking.

This route was also identified in the 2017 Sarpy County Transit Feasibility Study as a candidate for some form of enhanced transit to serve regional commuting between Bellevue and Omaha.

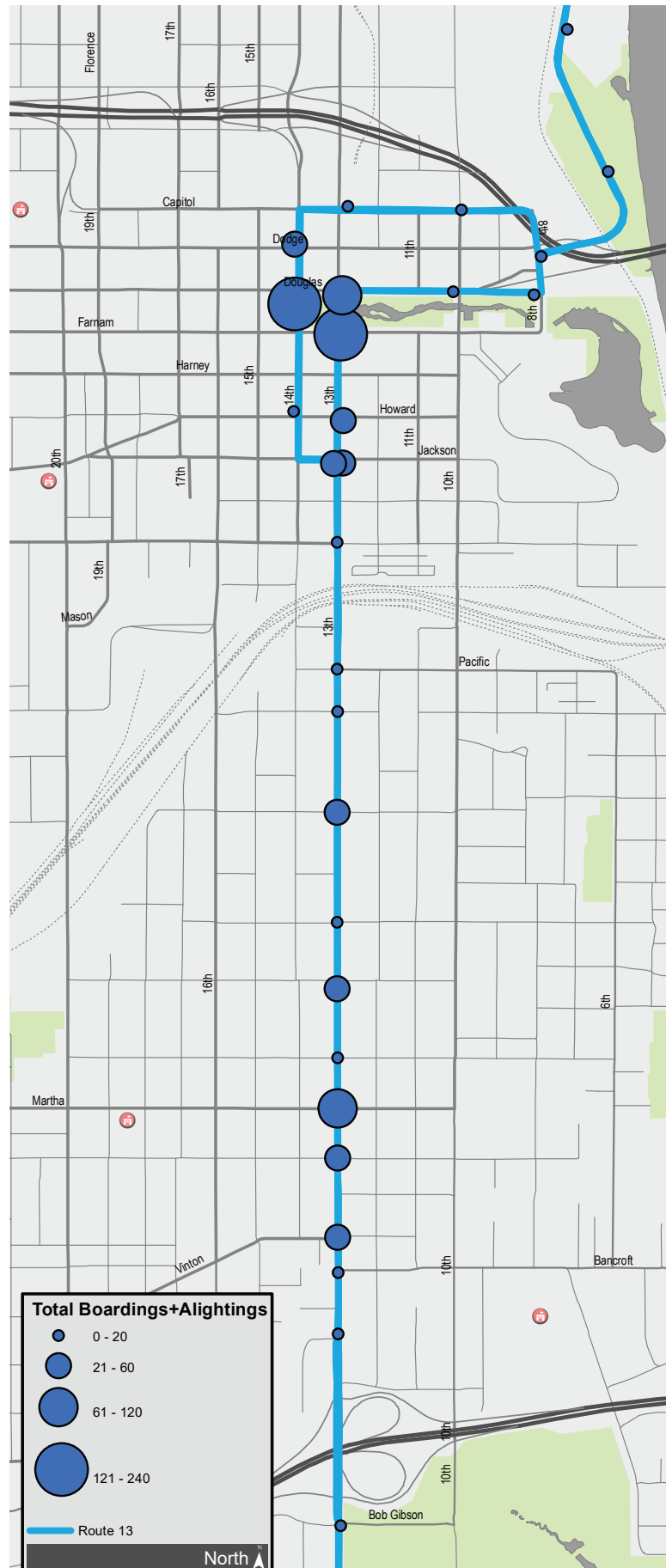


Figure 2.3 Existing Transit Ridership

3 PUBLIC OUTREACH AND VISIONING

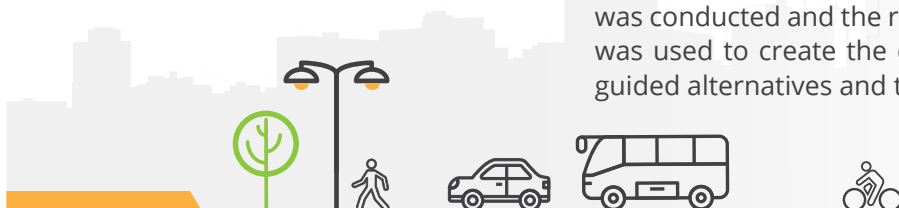


A critical component of the walkability study was developing a guiding vision.

3.0 | PUBLIC OUTREACH

While certainly the technical analyses helped to inform what was possible, an equally critical component to the walkability study was developing a guiding vision of what the corridor could be. This vision, one of the study's primary purposes, will develop a consistent theme to use as a touchpoint for future projects. The desire of the City is to develop 13th Street as a continuous corridor, not a collection of various projects.

This vision was established through a robust public outreach effort that included input from a stakeholder committee, individual stakeholders, agencies, and the general public. This chapter discusses the process by which the public engagement was conducted and the results of that effort. Ultimately, this input was used to create the corridor vision by which the study team guided alternatives and tradeoff discussions.



3.1 | PUBLIC INVOLVEMENT PLAN

The public outreach effort included a series of meetings with individual stakeholders, a stakeholder group, and the general public. The stakeholder group was comprised of business owners identified as having a unique, valuable, and varied perspective on the corridor. The stakeholder group met periodically throughout the study process to provide input on various topics.

Meetings were also conducted with individual stakeholders. The goals of these meetings were to determine the unique challenges they face and how changes to 13th Street could impact them.

The analysis team also met with the public in an open house setting twice during the study. The first meeting was following the initial technical review and the second was after the draft plan development. The goals of this meeting were to both inform the public of the study process and field input that may not have been provided by stakeholders. A summary of the meetings is shown in **Table 3.1** below.

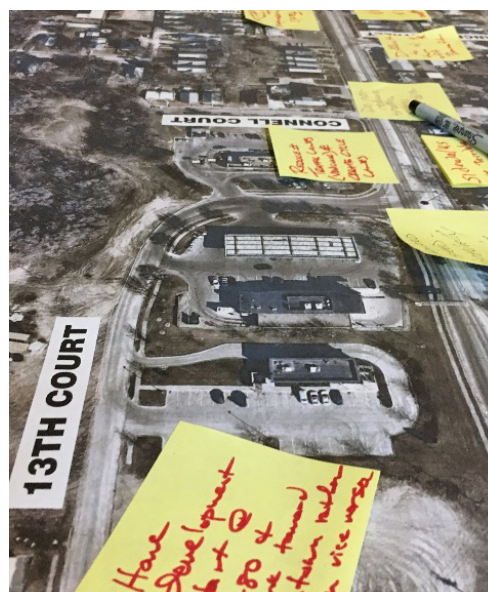


Table 3.1 Schedule of Public Involvement Efforts

DESCRIPTION	DATE	MEETING OBJECTIVE[S]
Stakeholder Kick-Off Meeting	5/3/2018	Introduce study and understand stakeholders' critical issues
Public Open House #1	5/14/2018	Introduce study, gain input on critical issues
Location-Specific Stakeholder Meetings	6/28/2018	Present initial findings of alternatives analysis and discuss cross section alternatives
INDIVIDUAL STAKEHOLDER MEETINGS		
PJ Morgan Tenants	5/22/2018	Understand the challenges of the Little Bohemia redevelopment effort
13th Street Industrial/Commercial Businesses	6/13/2018	Gain input on truck usage
Union Pacific Railroad	7/24/2018	Determine opportunities for bridge improvements
Unified Stakeholder Workshop	7/12/2018	Present initial corridor plan and discuss options for walkability treatments
Public Open House #2	7/26/2018	Present draft plan and field public input

3.2 | PUBLIC INPUT SUMMARY

The series of meetings provided valuable insight into the corridor from the users' perspective. The intent was to use this input to evaluate the series of technically feasible alternatives that would be developed for the project. Because the character of the corridor and needs of users appeared to vary significantly north and south of the railroad bridges, input was loosely classified geographically relative to the bridges to verify if differences in need were present.

The analysis team was able to identify the critical success factors from the public and stakeholder meeting through consistencies in the input. Reducing vehicular traffic speeds, accommodating truck deliveries, and improving the corridor aesthetics were among the most frequently mentioned topics. Others included improving safety and comfort under the railroad bridges and improving the sidewalk condition.

In addition to the challenges to be solved, the analysis team asked the public which modes of travel should be prioritized. The pedestrian mode was identified as the most important in both areas of the corridor with the vehicular mode being second.

Bicycles and transit ranked lowest, with bikes receiving higher preference in the downtown area. The intent was not to diminish the importance of these modes, so much as to understand which modes would be given preference during trade-off discussions.

A summary of the individual rankings is shown in **Table 3.2** and detailed discussions of the public input can be found in both the Public Input Memorandum (**Appendix D**) and the Selection Criteria Memorandum (**Appendix B**).

Table 3.2 Individual Rankings

	NORTH	SOUTH
TOPIC		
Improve Sidewalk Condition	1	4
Accommodate Truck Deliveries	5	1
Speed Control	2	2
Improve Corridor Aesthetics	3	3
Improve Railroad Bridge	6	5
Connect Pedestrians to Downtown	4	6
Additional 13 th Crossings	7	7
MODE		
Pedestrian	1	1
Auto	2	2
Bicycle	3	4
Transit	4	3

3.3 | CORRIDOR VISION

The public input described above is valuable insight into the community needs. To use the input to help guide the alternatives discussions, it was necessary to develop concise, measurable tenants. These tenants would drive future decisions and ultimately comprise the unified vision for the corridor.

These common themes, which are the fundamental elements of the vision, are described as follows:

SAFETY

Slowing traffic to match the posted speed improves safety for all modes. Additionally, projects should address current crash patterns as well as increase comfort for bikes and pedestrians.

HONOR EXISTING USERS

Because 13th Street is a truck route, an arterial, and a link on the national highway system, it was critical that it retain current functionality. Alternatives developed for this study will honor that existing need while enhancing other modes of transportation.

PLACEMAKING & WALKABILITY

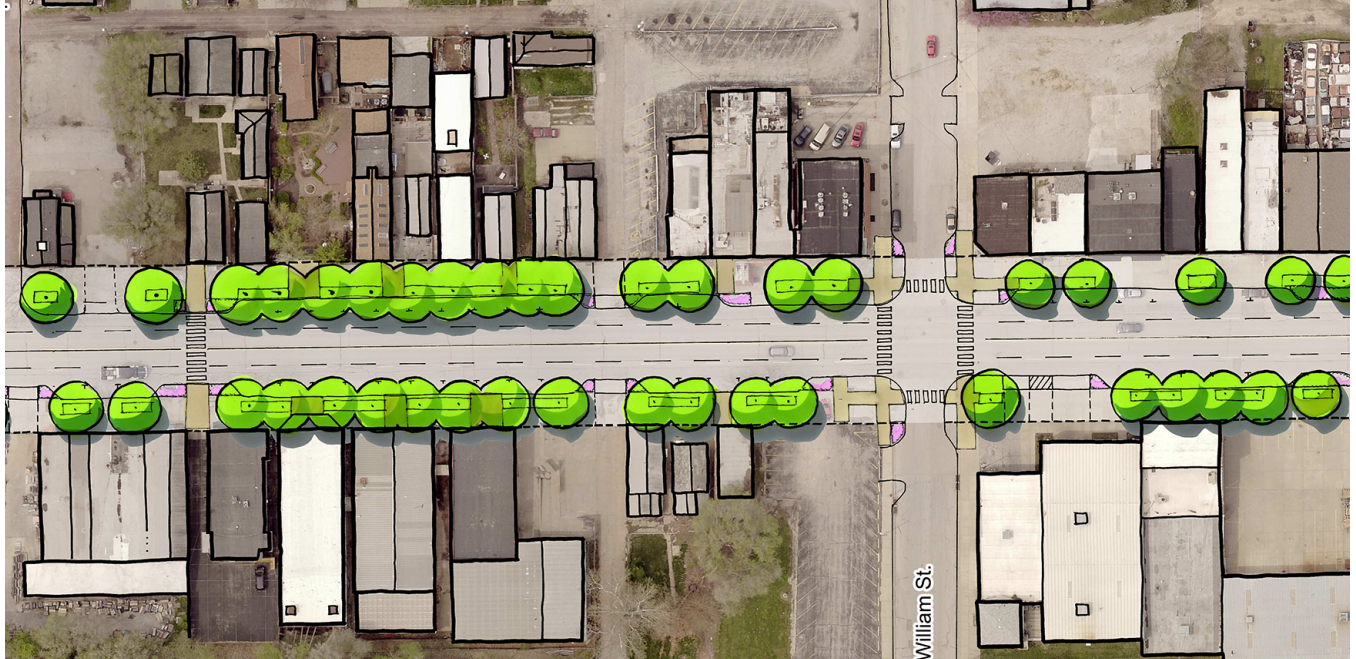
The pedestrian mode was consistently cited as the most important to include. Improving conditions for the pedestrian mode was critical to the success of the study. This would include improving comfort and aesthetics along the corridor.

In addition to these fundamental elements, tradeoff discussions, while trying to achieve an overall goal to consider all users, should emphasize the pedestrian and vehicular mode. Bicycles and transit should be accommodated where possible. Bicycles should become a larger part of the discussion in the downtown area where interest in and infrastructure for biking already exists around 13th and 14th Streets. Additionally, because transit is so integral to biking and walking as part of a complete transportation network, transit amenities should be incorporated with pedestrian improvements.

Figure 3.1 Elements of the Vision



4 ALTERNATIVES DEVELOPMENT



4.0 | INTRODUCTION

The alternatives development phase of this walkability study focused on three main goals: establish a series of alternatives, determine technically feasible alternatives, and identify effective multimodal improvements. This resulted in a set of recommendations to present to stakeholders and the public that would initiate tradeoff discussions.

The need to establish technically feasible alternatives started with generating a series of alternatives, ranging from a “no-build” scenario to reductions of through lanes throughout the corridor. Alternatives were then tested against the technical feasibility requirements and the multimodal goals to develop recommended improvements. This chapter outlines the analysis process and its results.

The goal of the alternatives development was to identify potential alternatives, test technical feasibility, and identify multimodal improvements.

4.1 | ALTERNATIVES DEVELOPMENT

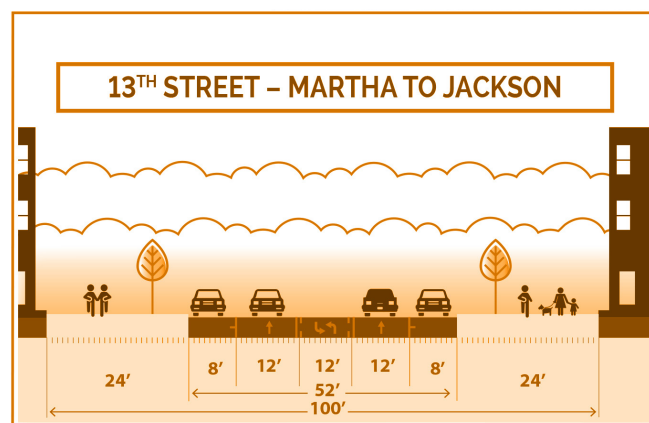
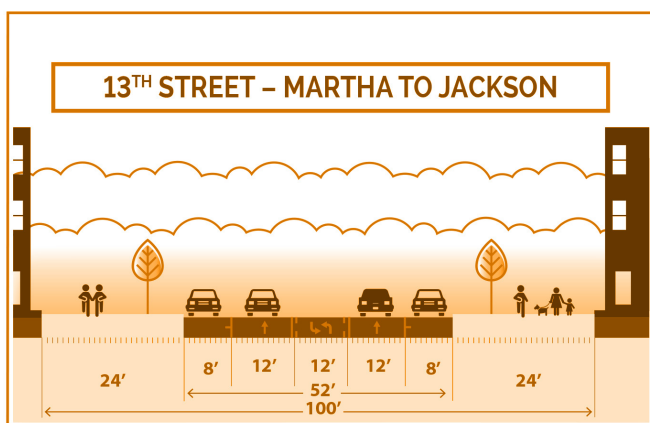
The goal of the alternatives development was to generate cross sections that would define the limits of alternatives that meet the technical feasibility, multimodal goals, and satisfy the vision. Technically feasible alternatives meet the demand of the current users, while acknowledging the potential for traffic growth. The multimodal goals, defined later in this chapter, would improve the safety and comfort of the corridor such that new users would be attracted.



The series of alternatives developed for the study are summarized in **Table 4.1** below. Alternatives vary by number of vehicle through lanes provided or the inclusion of on-street bike facilities. It is worth noting that Alternatives 2a through 2d do not allow room for both parking and bike lanes between Martha and Pacific Streets as ROW is constrained due to buildings. If only one through lane were provided in each direction, the lanes would need to be a 12-foot lanes as 13th Street is a truck route. Accounting for the center turn lane, this leaves 16 feet (total) for parking, and 8 feet (total) for bike lanes. For this facility, bike lanes should be a minimum of 5 feet and should also be buffered, if not protected. Therefore, including bike lanes would require the elimination of on-street parking. If only parking or bike lanes area provided, it would be possible to move in the curb 4' to 5' on each side to give a wider pedestrian zone as this space would not be needed in the roadbed.

Table 4.1 Alternatives Considered

	ALTERNATIVE		
	1A-1B	2A-2D	3A-3B
I-80 to Vinton	2 Lanes Each Direction	2 Lanes Each Direction with Center Turn Lane	2 Lanes Each Direction with Center Turn Lane
Vinton to Martha		1 Lane Each Direction with Center Turn Lane	1 Lane Each Direction with Center Turn Lane
Martha to Jackson			
Jackson to I-480 (13 th)	3 Lanes (one-way)	3 Lanes (one-way)	2 Lanes (one-way)
Jackson to I-480 (14 th)	3 Lanes (one-way)	3 Lanes (one-way)	2 Lanes (one-way)
Variations	1a - "no-build" condition 1b - Add center turn lane, Vinton to Martha	Lane Transition south of: 2a - Martha Street 2b - William Street 2c - Pacific Street 2d - Leavenworth Street	Inclusion of protected bike lanes and/or angled parking in downtown



Two of the alternatives considered for the segment north of Martha Street

4.2 | FUTURE TRAFFIC VOLUMES

It was necessary to acknowledge the potential for traffic growth for this analysis. With the current redevelopment along 13th Street and future redevelopment in Downtown, this primary route is anticipated to experience a slight increase in volume through the 2040 horizon year. The MAPA long range travel demand model shows an approximately one-half percent per year increase in daily volume. The future daily volumes are shown on **Figure 4.3**.

The capacity analyses were performed using peak hour traffic volumes. It was necessary develop peak hour turning volumes from the daily through volumes. This was done using a comparison of current and expected turning movement distributions to the future daily volumes. The peak hour volumes were analyzed to understand the demand placed on the street during a typical “rush hour.” Future volumes were reviewed with the City prior to moving into analyses.

4.3 | TRAFFIC ANALYSIS

The primary goal of the traffic analysis was to define the list of technically feasible alternatives. This would meet City’s LOS goals (intersection LOS C or better, movement LOS D or better) and not result in problematic traffic queues. Examples of problematic queues in a through lane include those that would block a turn lane, extend through adjacent public intersections, or spill out of an existing turn lane.

The traffic analysis consisted of a review of average vehicle delay and queuing at signalized intersections. Some unsignalized intersections were also analyzed at critical locations like Bancroft Street. The goal of the analysis was to understand the relative impacts to traffic operations from the various potential changes to lane configuration. No changes to traffic control (signalization, additional signing, etc) were made other than adding left-turn phasing at some locations.

South of Martha Street, the analysis indicated the need for two lanes in each direction, as well as a center turn-lane at intersections. Here the volumes are generally greater than 25,000 vpd.

The projected traffic volumes between Martha Street and Leavenworth Street indicated the potential to eliminate a through lane in each direction while meeting the technical feasibility requirements. A

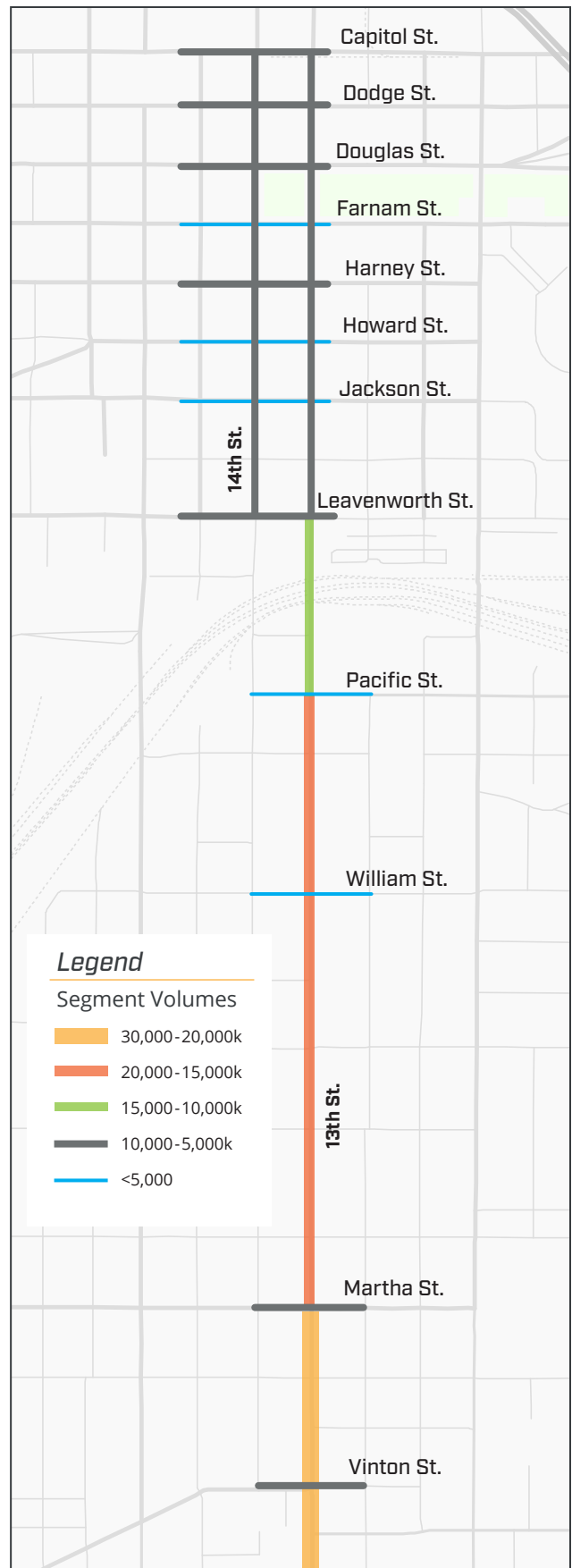


Figure 4.2 Future Traffic Volumes



13th Looking South from Capitol



Example of BLTS 3 in downtown

series of alternatives were analyzed that progressively shifted a transition to drop the through lanes north from Martha Street. In all cases except the Pacific Street intersection, reducing the through capacity resulted in delay or queuing that would not meet the feasibility requirements. For example, the southbound movement at William Street is expected to experience LOS F with a 550-foot queue which is considered unacceptable.

North of Leavenworth Street, within the downtown area, both 13th Street and 14th Street were analyzed to evaluate lane reductions. Alternatives were developed with both three lanes and two lanes along the one-way streets. While the technical feasibility requirements were satisfied for both conditions, three through lanes were recommended for two reasons. The first is that the queuing was sufficiently long and minor disruptions, like a downtown event or a crash, could quickly extend the queues through adjacent intersections within the 300-foot downtown intersection spacing, potentially resulting in congestion. Second, the risk of these queuing failures outweighed the relative benefit from reducing an additional through lane. Reducing a single through lane allowed the inclusion of an enhanced bike lane and helped to reduce pedestrian exposure by 33 feet when combined with curb extensions.

Additional detail regarding the traffic analysis can be found in the Alternatives Analysis Memorandum (**Appendix C**).

4.3 | BIKE AND PEDESTRIAN ANALYSIS

Alternatives were evaluated from the perspective of cyclists and pedestrians using the concept of level of traffic stress (LTS). This is a qualitative measure of the user experience that focuses on the relative safety and comfort of a street using a series of criteria like volume and speed of adjacent traffic, width and quality of buffering space to traffic, and sidewalk or bike facility pavement surface condition. LTS is graded on a scale of 1 to 4, 1 being the lowest stress facility. Generally, LTS 3 or 4 indicates that the facility will generally be used by those with high confidence or out of necessity. A grade of LTS 1 or 2 will be comfortable for most users and may attract new users. LTS 2 or better was considered the target grade for this study. Additional detail regarding the LTS analysis can be found in the Alternatives Analysis Memorandum (**Appendix C**).

4.3.1 Bike Level of Traffic Stress

The Existing Conditions Analysis identified that 13th Street currently exhibits BLTS 3 within downtown and BLTS 4 south of downtown. This is primarily due to relatively high traffic volume and speed. The target BLTS 2 or better would generally require the addition of an on-street, separated facility coupled with a reduction in traffic speed. The existing conditions analysis identified multiple locations where current (85th percentile) speeds were 5 mph or greater over the posted speed.

Because two through lanes were required south of Leavenworth Street, the inclusion of a separated bike facility would require the removal of on-street parking. Addition of a protected bike lane would be required to meet the BLTS goals. Note that the initial public surveys indicated that the pedestrian and vehicular modes received higher priority than bikes. Furthermore, tradeoff discussions with the stakeholder committee revealed a desire to maintain on-street parking, acknowledgement of the challenges posed to including a low stress bike facility, and the availability of parallel bike routes along 14th Street or 10th Street. For these reasons, bike lanes were not included on the southern portion of the corridor.

North into downtown, the traffic analysis indicated that at least one lane of traffic could be repurposed for another mode. As such, the downtown portions of 13th Street and 14th Street were analyzed with both a buffered and protected bike lane. Both would meet the BLTS goal, and because the bike mode was deemed higher priority and bike lanes would help to grow the existing network, buffered or protected bike lanes were included in recommended cross sections.

4.3.2 Pedestrian Level of Traffic Stress

The PLTS was analyzed for both intersections and segments. Signalized intersections generally receive a PLTS 1 when a dedicated pedestrian phase is provided, which it is in all cases along the corridor. All unsignalized minor leg crossings were considered PLTS 1 as well, because a pedestrian would cross a low-volume, low speed road. That said, some crossings could certainly benefit from shortened crossing distances and enhanced visibility provided by curb extensions.

Crossing 13th Street at unsignalized locations is generally considered PLTS 4 due to the number of lanes and volume of traffic to cross. These crossings could be improved using treatments that would slow traffic, control (or stop) traffic, shorten crossing distances, and enhance visibility of a pedestrian. Because the number of traffic lanes are not decreasing, 13th Street crossings would be best served by traffic calming measures like curb extensions that also make pedestrians more visible and shorten crossing distances. Traffic control devices like warning signs, markings, and active flashing beacons (where they are warranted) could provide additional benefit.

The PLTS along 13th Street segments varies widely today. The PLTS is outside the target scores south of the downtown area. The primary contributing factors to the score are sidewalk condition, as well as the width and quality of sidewalk setbacks. Therefore, a comprehensive sidewalk replacement program that reconstructs sidewalks south of Martha Street to a minimum of 5-foot or preferably 10-foot setback would help meet the PLTS goals. North of Martha Street, enhancements to the buffer space like streetscaping would also help to meet the multimodal goal of PLTS 2 or better.



Example of PLTS 4 south of Martha Street



Example of PLTS 1 in downtown

4.4 | TRUCK CONSIDERATIONS





13th Street is a designated truck route. Any alternatives considered should make provisions for the unique operational needs of large trucks. These include needs such as additional width, longer turn lane storage lengths, and adjusted signal timing to account for slower acceleration. Relevant to this study is the width a truck route requires (12-foot lanes, as per City policy).

Much of the vehicle travel way is not changing as part of this study; however, in the downtown area where a lane is being removed, additional width should be provided from the current 11-foot lanes. This will include a single 12-foot lane in the rightmost lane on both 13th Street & 14th Street.

4.5 | RESULTS

Table 4.2 below summarizes the recommendations by mode along the study area. These recommendations meet the technical feasibility for vehicles as well as provide the greatest opportunity to meet the multimodal LTS goals. The alternatives should be carried forward to inform the tradeoff discussions with stakeholders as well as provide guidance for the development of future projects along the corridor.

Table 4.2 Mode Recommendations

	 VEHICLE	 PEDESTRIAN	 BIKE	 TRANSIT
I-80 to Vinton	2 Lanes Each Direction	Sidewalk repair, improve setbacks	n/a	Consolidate Stops, consider far side locations
Vinton to Martha				
Martha to Leavenworth		Sidewalk repair, construct intersection and midblock curb extensions, consider additional crossing between Center and William, improve streetscaping		Consolidate Stops, consider far side locations, coordinate stop locations with curb extensions and pedestrian crossings
Leavenworth to Jackson	1 Lane in Each Direction	Sidewalk repair, complete intersection curb extensions, improve streetscaping	Transition to bike lanes	
Jackson to I-480 (13 th)	3 Lanes (one-way)		Bike lane (northbound)	
Jackson to I-480 (14 th)	3 Lanes (one-way)		Bike lane (southbound)	
Notes	Add center turn lane, Vinton to Martha. Provide 12-foot lane in downtown	Coordinate street- scaping and sidewalk improvements with redevelopment projects	Explore buffered versus protected bike lanes	All improvements to be coordinated with Metro

5 WALKABILITY PLAN



5.1 | ROADWAY CROSS SECTION

The public and stakeholder outreach created a unified vision. Now it's time to blend these two ideas to determine the best alternative for the street.

The Alternatives Development identified the need for two through lanes in each direction from the southern limits through Leavenworth Street. If 13th Street were reduced to a single lane in each direction, intersections such as William Street and Leavenworth Street have movements with failing levels of service and queue lengths that extend into other intersections.

Pedestrians were found to most benefit by enhancing the facilities along 13th Street. This will be primarily achieved through improving sidewalk conditions and enhancing setbacks. Sidewalk setbacks would be enhanced by increasing their width and adding landscaping or street trees. Through the areas with on-street parking, select locations should be identified for midblock chokers (discussed later) that would provide greater width and opportunities for greenspace.



Example protected bicycle facility in Lincoln, NE



Intersection node with Streetscape; Olathe, Kansas

Eliminating a through lane on 13th Street creates an opportunity to introduce on-street buffered or protected bicycle facilities in downtown. A buffered facility, one with a painted area between bikes and vehicles, would be relatively simple to implement and introduce users to the idea of an on-street facility that is comfortable to ride. Long term, a protected lane, one with a raised barrier, should be considered on both 13th Street and 14th Street because of the additional comfort to cyclists.

There are currently three redevelopment efforts underway along 13th Street. Each of these will focus on commercial land uses that rely on convenient parking. Therefore, on-street parking should remain an element of the cross section in these areas. This is especially true in the downtown redevelopment, where representatives of the business community have stressed the importance of adjacent on-street parking.

In the Little Bohemia area, south of William Street, parking will be provided by a mix of on-street and off-street facilities. While there is a desire to maintain some on-street facilities, business owners are more focused on the traffic calming and placemaking benefits of additional sidewalk space and streetscaping.

5.2 | WALKABILITY ELEMENTS

5.2.1 Traffic Calming

Two of the primary goals of this study were to improve walkability and to increase safety for all users. The data collection, as well as public input, identified speeding as a critical issue to resolve. Reducing speeds through traffic calming can

effectively meet these goals. Many sections of 13th Street, despite being posted at 30 mph or 25 mph, are 60 feet wide with four lanes and parking. Many of the parking areas are under-utilized, which gives the road the appearance that a higher speed is reasonable than what is intended by the posted speed.

In general, traffic-calming strategies should decrease the scale, or the feel, of the roadway, giving the perception that the appropriate travel speed is closer to the posted speed. This perception is accomplished through engineering solutions discussed below. Additionally, two strategies will improve the effectiveness of the traffic-calming strategies discussed below: (1) education of drivers regarding the potential conflict with vulnerable users such as pedestrians and cyclists; and (2) enforcement of the posted speed.

This street is an arterial street and a truck route. Applying countermeasures that are too aggressive can increase delay along the roadway. For example, speed bumps would not be appropriate for 13th Street, because they would require drivers to routinely slow below the posted speed and then accelerate, which could lead to congestion. Installing speed bumps on arterial roads in Omaha is also against City Policy. Additional considerations need to be given to accommodating trucks and draining stormwater from the roadway.

The following list of strategies can be applied to the 13th Street corridor. Additional information can be found in the ITE Traffic Calming: State of Practice guide and the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.

INTERSECTION NODES & MID-BLOCK CHOKERS

These are curb extensions that project from the existing back-of-curb location to the edge of the outside lane. These extensions not only create driver perception that a slower speed is appropriate, but they also decrease crossing distances for pedestrians. The extensions also provide opportunities to landscape intersections and further enhance the effectiveness of the nodes. Shrubs should not be higher than approximately 3 feet within the intersection sight triangle.

RAISED CENTER MEDIAN

These, especially when used in conjunction with nodes and chokers, further reduce the scale of the road and cue drivers to reduce speeds. As with curb extensions and nodes, raised center medians also reduce pedestrian exposure and can provide refuge for a two-stage crossing. These medians also provide areas for landscaping and provide a barrier, which further improves safety. Raised medians should be used in the southernmost portions of the corridor, where on-street parking does not exist.

ON-STREET BIKE LANES

These lanes provide a visual cue for drivers and also create friction that encourages lower speeds. If bike lanes are provided, lane narrowing should be removed from consideration so ample room is provided for both vehicles and bicycles. If bike lanes are provided, there should be a buffer between the 11-foot vehicle lane or a minimum of 6-foot bike lane. This is due to the volume of trucks and volume of traffic. This gives an additional level of comfort at conflict points. As mentioned above, the design of bike lanes needs to take user interactions at intersection nodes into consideration.

ENHANCED CONSPICUITY OF PEDESTRIAN CONFLICT POINTS

This would be accomplished with additional signage and markings, and active warning devices like RRFB or PHB signals. Treatments like these may be applied (where warranted) in the Little Bohemia business district as pedestrian traffic increases with this redevelopment.

5.2.2 Access Control

While not directly addressed in the previously discussed analyses, access control plays a vital role in the safety of all modes. Reducing driveway access to the streets reduces conflicts among vehicles, bikes, and pedestrians. In particular, limiting driveway accesses provides a significant advantage to cyclists and pedestrians since crashes between these users and vehicles are often severe.



Midblock chalet with streetscaping; Olathe, Kansas



Olathe, Kansas enhanced conspicuity for a pedestrian crossing



On-street bike lanes; Lincoln, Nebraska

The Transportation Element of the City of Omaha Master Plan (TMP) identifies specific goals for access to arterial streets. These goals are generally most applicable to streets west of 72nd Street where arterials are spaced at 1 mile increments and there is a high focus on mobility. The TMP also states that full-movement or signalized intersections will be no closer than one-quarter mile and that right-in, right-out access is permitted at one-eighth mile increments. The established street network in the 13th Street Corridor does not allow for compliance with this.

More applicable to this corridor are the driveway requirements for arterial streets. The TMP states that driveways should be no closer than 500 feet to arterial intersections; therefore, existing driveways on arterial streets should be consolidated or eliminated where possible. Commercial lots should have no more than one access to arterial streets. The TMP also states that direct access from residential lots to arterial streets is prohibited. Clearly, these requirements would need to be applied with discretion and context along 13th Street.

For example, closing residential driveways would not be possible, but combining them to a shared access would be. Establishing shared access would help reduce the number of driveways a pedestrian has to cross and the number of conflict points for vehicles. Projects that come from this study should focus on consolidating commercial and residential access.

5.2.3 Railroad Bridges

The railroad bridges between Leavenworth Street and Pacific Street were identified as significant impediments to walkability, particularly when considering the goal of connecting downtown to the neighborhoods south of Pacific Street. Reasons cited included poor lighting, consistently slippery and wet sidewalks, and bridge materials falling onto the sidewalk and street. Additionally, the community expressed a general desire to improve the aesthetics of the bridges.

These bridges are owned by UPRR and BNSF. The northern structure is a UPRR facility, and the southern structure is owned by BNSF. Through coordination with each railroad, it was clear that any improvements or modifications would need to be approved by the railroads. Additionally, all projects would need to be performed under a signed agreement with the City as a signatory.

The following are potential treatments that could be applied to the bridges. The images below are similar public art projects completed in other communities that could be applied along 13th Street.



Example Murals



Santa Fe Streetscape; Olathe, Kansas



ABUTMENT REPAIR

Several locations were identified during the study where water is seeping from the abutment, which keeps the sidewalk consistently wet and creates a slipping hazard in both cold and warm weather.

OVERHEAD PROTECTION

During and prior to this study, multiple instances of ballast and even railroad ties falling from the bridges have been reported. Basic and necessary improvements would protect the street and pedestrians from falling objects

or repair the bridge such that these objects would not fall.

IMPROVED LIGHTING

One of the basic concerns for both safety and functionality is to improve the under-bridge lighting. This improvement would provide brighter and more consistent lighting for pedestrian walkways.

MURAL PAINTING

Neighborhood groups and local artists who attended the public meetings identified an opportunity and willingness to

participate in mural projects to enhance the pedestrian experience under the bridges. These projects would add murals to one or both bridge abutments.

BRIDGE FAÇADE & DOWNTOWN-GATEWAY FEATURES

A potential improvement would be adding a façade to the bridge structure and landscaping or signage welcoming travelers into downtown. These improvements would need to be coordinated with the railroads to guarantee their ability to maintain the structures.

UPRR

Olsson met directly with the UPRR public projects manager to discuss the improvements discussed in the study. Preliminary feedback indicated a general willingness to work with the City and its residents, with the understanding that any improvements could not affect the functionality of the structures or UPRR's ability to maintain them.

The railroad does not currently have repair efforts planned but would be open to discussing the opportunity to make improvements simultaneously with a road project in the area. Potential improvements that UPRR would be open to exploring include installation of canopies or ballast curbs, repairs to abutments to mitigate drainage, and installation of crash walls to provide enhanced separation between the sidewalk and traveled way. Bridge and abutment painting would be evaluated when presented and would likely need to be coordinated with bridge inspections. Encasing the piers would not be permitted.

A page on the UPRR website has additional information on Industry and Public Projects including sample agreements and how to apply for permits to perform this work. Additionally, the UPRR website includes information for the Community Ties Giving Program, which provides grants for public projects. These grants cannot be applied to improvements within UPRR right-of-way but could be used for other improvements that could provide community benefits.

BNSF

Generally, the types of aesthetic improvements addressed here would be considered on a case-by-case basis. Any party interested in performing this work should collaborate with the City and reach out to the BNSF public projects manager to begin coordination as early as possible. Applicants should also consult the Public Projects Manual, specifically Chapter 5 and Chapter 23, on how BNSF would permit these projects.

5.2.4 Incorporating Transit

While modifications to transit facilities were not a focus of the study, transit plays an integral role in improving the walkability of 13th Street. The City does not have direct control over transit infrastructure; however, METRO was consulted, both individually and as part of the stakeholder group, to gauge its willingness to participate in modifications to its system. Route 13 is the primary route along 13th Street and is among the routes with the highest overall ridership within the METRO system.

Specific to METRO bus stops, two modifications were proposed: stop consolidation and relocation to far side stops. METRO provided ridership data for all stops along 13th Street. While many stops have strong usage, particularly in downtown, several stops had fewer than 10 riders per day. These include Dorcas Street and Pacific Street. METRO also expressed an interest in creating longer stop spacing, approximately two to four blocks, to improve efficiency. Therefore, projects around these stops should include coordination with METRO to gauge its desire to keep the stop.

Stop location was another modification to the METRO system that was explored. Some modifications explored included moving stops to far side locations, creating curb extensions, and locating stops near pedestrian crossings. Far side stops appear to be advantageous in some locations, including Bancroft Street, where moving the stop would improve intersection sight distance. Locating stops near marked pedestrian crossings, where possible and appropriate, is expected to enhance safety for pedestrians trying to reach transit stops.



Bus stop at Pacific St (NW Corner)

5.3 | CORRIDOR CHARACTERISTICS

Each of the following sections discusses the themes of the various street segments including the primary modes served, street section, walkability elements, and unique challenges to address. While the goal of the study was to serve all modes, the primary modes served are those that received preference during tradeoff discussions.

5.3.1 I-80 to Martha

The southernmost portions of 13th Street are influenced by the direct access to I-80. Traffic volumes are the highest here as compared to other portions of the corridor. Here, maintaining vehicular capacity, while improving the pedestrian zone (the area behind the curb) will be critical.

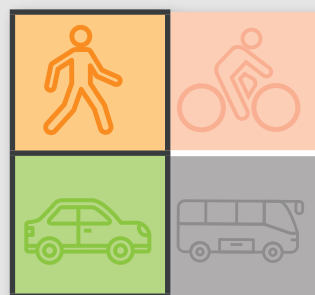
Two lanes of through vehicular capacity will be provided in each direction. A center turn-lane should also be provided through Martha Street. This will provide the opportunity to include raised center medians which are expected to provide traffic calming.

The sidewalk condition is inconsistent through much of this portion of 13th Street. Poor surfaces and narrow Planting Zone should be replaced with new sidewalk and the City minimum (6.5-foot) Planting Zone. These setbacks should be wider, greater than 10 feet, where possible and landscaped to further enhance pedestrian comfort.

The Bancroft Street intersection was also identified as a location with the highest number of crashes, most of which are angle crashes. This pattern was attributed to poor lines of sight for a westbound vehicle. A comprehensive safety study should be performed to address this issue.

MODE PREFERENCE

Pedestrian, Vehicles



- ✓ Maintain vehicular capacity
- ✓ Improve sidewalk condition and setbacks
- ✓ Explore streetscaping near Vinton Street
- ✓ Bancroft Safety Improvements



Example Streetscape Projects; Olathe, Kansas



5.3.2 Martha to Leavenworth

This section of 13th Street transitions to a Neighborhood Commercial context with intermittent single family homes. Traffic volumes remain moderately high, speeding is a primary safety concern, and redevelopment in Little Bohemia is currently underway. Multiple businesses on 13th Street rely on truck deliveries, including the USPS, so truck access will be critical.

Two vehicular lanes in each direction will remain here. On-street parking will also remain to serve commercial businesses, but will be consolidated using mid-block chokers and intersection nodes. The goal is to create more side friction to aid in traffic calming. This will also create opportunities for enhanced pedestrian crossings and streetscaping. As future projects develop, the designers should look for opportunities to collaborate with local businesses to install and maintain the streetscaping that makes public ROW unique and inviting and enhances a sense of place.

This area also includes the railroad bridges that were identified as locations to improve safety and walkability. The City and local organizations should work with the railroads to realize basic safety improvements and find opportunities to recreate the bridge as a gateway feature into downtown Omaha.

MODE PREFERENCE

Pedestrian, Vehicles



REALIZING THE VISION

- ✓ Maintain vehicular capacity, conduct resurfacing and curb repair, explore opportunities for loading areas
- ✓ Improve sidewalk condition streetscaping around Little Bohemia, curb extensions
- ✓ Traffic calming through walkability improvements, improved pedestrian crossings



5.3.3 Leavenworth to Capital

The northernmost portion of the corridor study also incorporates 14th Street as a one-way pair with 13th Street. This is the downtown core where pedestrian and bicycle activity increases dramatically and land use context shifts to a central business district. The current vehicular capacity is greater than the traffic volume, creating an opportunity to repurpose lanes.

Both 13th Street and 14th Street will have three vehicle lanes in each direction. A northbound bike lane will be included on 13th Street. This should be constructed initially as a buffered lane in conjunction with current redevelopment plans. Long term, this should be converted to a protected lane. The existing bike lane on 14th Street should also be restriped as a buffered lane initially and ultimately reconstructed as a protected bike lane.

With the changes in lane configuration, a 12-foot-wide truck lane should be provided in the easternmost lanes of 13th Street and 14th Street.

Curb extensions (nodes) exist on many, but not all, intersections throughout downtown. Projects in the downtown area should aim to install nodes where they do not exist, while accommodating the on-street bike facilities. These nodes will shorten crossing distances and improve pedestrian visibility in an area with some of the highest pedestrian activity in the city.

As another high-crash location, 14th Street & Capitol Avenue should be examined for safety improvements.

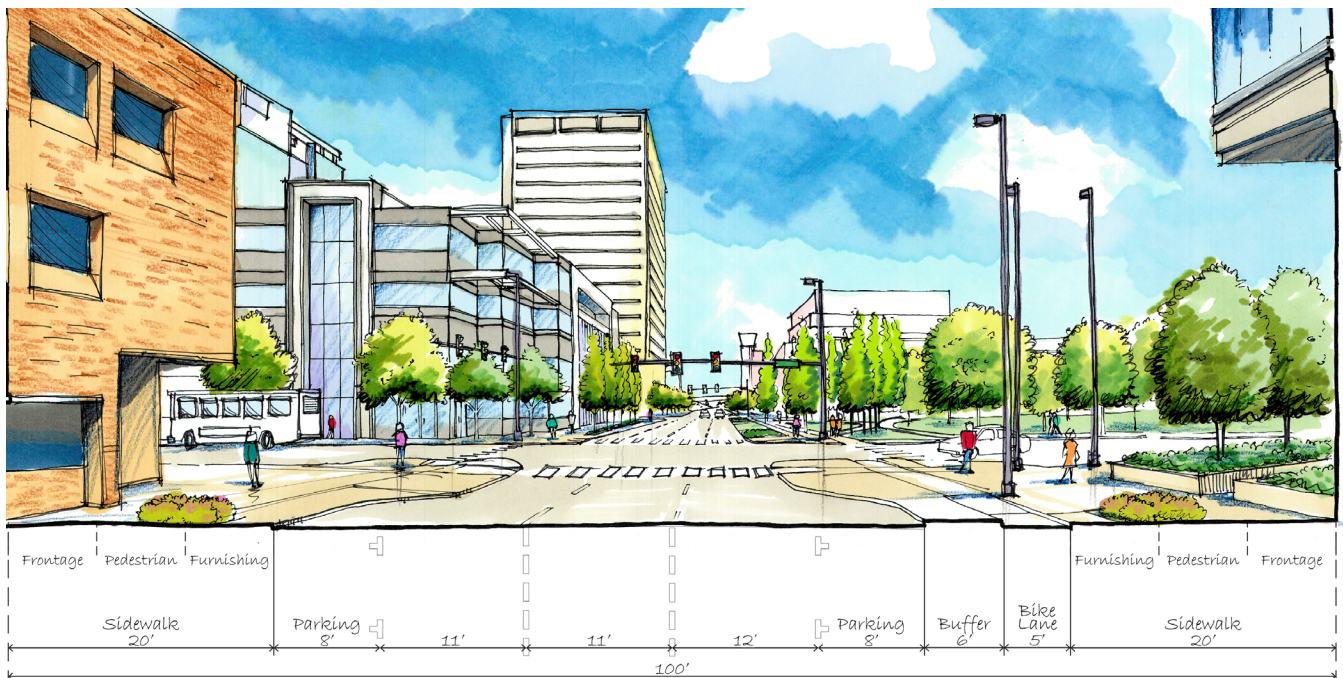
MODE PREFERENCE

Pedestrian, Vehicles, Bikes



REALIZING THE VISION

- ✓ Maintain vehicular capacity, provide 12-foot lane for trucks
- ✓ Curb extensions integrate on-street bike facilities
- ✓ Capitol Ave. safety study
- ✓ Buffered or protected bike facilities



6 IMPLEMENTATION

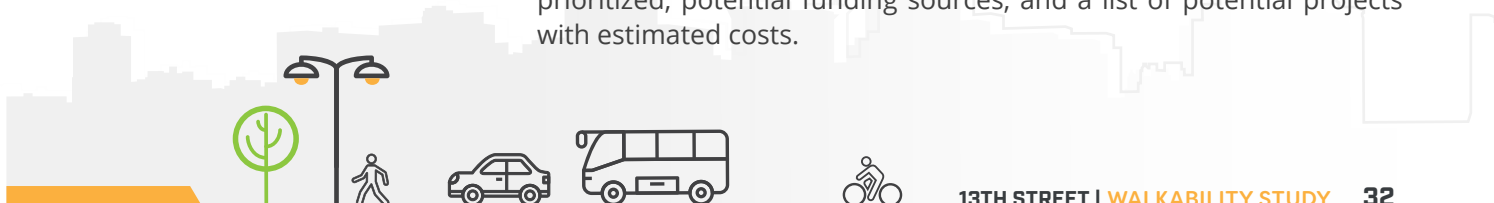


6.0 | INTRODUCTION

Projects will be accomplished by public and private collaboration

The Walkability Plan will ultimately be realized by a series of projects that will incrementally improve the corridor. The projects will be accomplished by a combination of efforts from both public and private entities and will need to be tied to the unified vision developed in this study. The following sections discuss how these projects may be implemented.

These projects are intended to serve as a guide for implementation and do not necessarily represent how projects may be programmed as part of the City CIP or redevelopment. In both cases, planners and designers should use the plan in the interest of realizing the 13th Street vision. The following section discusses how projects should be prioritized, potential funding sources, and a list of potential projects with estimated costs.



6.1 | PRIORITIZATION

Part of the effort to implement projects will include prioritization among potential actions. Projects have been prioritized using the criteria outlined below. Scoring for identified projects is shown in **Table 6.1**. Projects with a score of 1 were considered high priority. Those with a score of 2 are considered medium priority. A priority score of 3 is a low priority. The high, medium and low priority speak to the immediacy of the need and don't necessarily correlate to a specific time.

SAFETY

Projects that improve safety or address a known safety concern were automatically categorized as high priority.

TECHNICAL NEEDS

High priority scores in this category are assigned to projects with immediate needs from a technical standpoint, such as pavement condition or completing pedestrian or bicycle network connectivity.

Table 6.1 Prioritization Scoring

PROJ. ID	DESCRIPTIONS	Safety	Technical Needs	Collaboration with Other Projects	Expected Funding Availability	PRIORITY
1-1a	Bancroft Safety Improvements	1	1	3	1	1
1-1b	Capitol Avenue Safety Improvements	1	1	3	1	1
1-3a	Sidewalk Repair - Frederick to Martha	2	1	2	1	1
1-3b	Sidewalk Repair - Martha to Pine	2	1	3	1	1
1-3c	Sidewalk Repair - Pine to Leavenworth	2	1	1	1	1
2-3d	Sidewalk Repair - Downtown	2	1	1	1	1
1-4	Resurfacing, Curb Repair, and Pavement Rehab - Frederick to Martha St	2	2	3	2	2
2-3a	Resurfacing, Curb Repair, and Pavement Rehab - Martha to Pine	2	2	3	3	3
2-3b	Resurfacing, Curb Repair, and Pavement Rehab - Pine to Leavenworth	2	2	3	3	3
3-3	Curb extensions and curb repair	2	2	1	2	2
2-1a	Pedestrian Crossings - Pine Street	1	1	3	2	1
2-1b	Pedestrian Crossing - Center Street	1	1	3	2	2
2-1c	Pedestrian Crossing - Pierce Street	1	1	3	2	3
3-1	13th Street - Downtown Road Diet (Buffered Bike Lanes)	2	2	1	1	1
3-2a	13th Street Protected Bike Lanes	2	2	2	3	3
3-2b	14th Street Protected Bike Lanes	2	2	2	3	3
1-2	Vinton District Streetscaping - Vinton to Castelar	3	2	1	3	3
2-4	Little Bohemia Streetscaping	3	2	1	2	2
3-4	Downtown Streetscaping and Beautification	3	2	1	2	2
2-2a	Railroad Bridge - Safety Improvements	1	1	2	2	1
2-2b	Railroad Bridge- Aesthetic Improvements	3	3	3	3	3
2-2c	Railroad Bridge - Murals	3	3	1	1	2

Projects were ranked by total of individual criteria. Totals of 6 or less received high-priority, scores of 9 or more were low-priority.

COLLABORATION WITH OTHER PROJECTS

Some projects listed below may be combined with other ongoing efforts, particularly private actions. This includes adjacent redevelopment or CIP projects that can help construct portions of the corridor in accordance with the vision. Such projects received a high priority score.

EXPECTED FUNDING AVAILABILITY

Projects that may have immediate funding available or are of relatively small construction cost, particularly those with a high expected cost-to-benefit ratio, received a high priority score. Those with uncertain funding availability, high cost, or low expected cost-to-benefit ratio received a medium to low priority.

6.2 | FUNDING

Several funding sources have been identified to assist in achieving the desired outcomes of this walkability plan. These sources are intended to illustrate where potential projects could receive funding and serve as a guide during other planning efforts (such as development of the City CIP). Potential funding sources listed below include STBG Program, HSIP, locally-generated public funding, partnerships with private entities like BIDs, and other sources such as Foundations or redevelopment activities.

Local public funds would be those appropriated from the General fund or other sources like bonds. Special assessments are funds that will be particularly useful for relatively low-cost projects like sidewalk reconstruction (according to City ordinance these would be funded through a special assessment). Maintenance dollars appropriated from the General Fund as a part of a larger City program could also be used for low-cost projects.

Other sources include grants or partnerships outside the typical public sources. For example, Chapter 5 of this document discusses a grant available from UPRR that can be used for community development projects in municipalities served by the railroad. Additionally, several potential projects, (e.g. streetscaping) are most likely to be successfully funded through a combination of private funding and coordination with the City. Private funding could include money from a BID, public improvements required as part of a redevelopment effort, or philanthropic efforts.

Descriptions of potential funding sources are shown in **Table 6.2**.



Public Improvements on 13th Street in response to redevelopment.



Gene Leahy Mall is undergoing renovations to be coordinated with 13th Street reconstruction

Table 6.2 Funding Descriptions

ABBREVIATIONS	TITLE	DESCRIPTIONS	POTENTIAL AMOUNT
STBG	Surface Transportation Block Grant	Federal funding apportioned to MAPA to be used regionally for large-scale local transportation projects. Typically requires local fund match.	\$\$\$\$
HSIP	Highway Safety Improvement Program	Federal funding source for local agencies to enhance safety as apportioned by the State's safety committee and typically requires a local match.	\$\$
Local	City General Fund	This is funded through local taxes (e.g. property taxes, sales taxes) and used to pay for public infrastructure.	\$\$\$
	Transportation Bonds	Bonds (loans against future revenue) taken out by the City specifically intended for transportation projects.	\$\$\$
	City Maintenance	Projects to realize 13th Street plan that may overlap with maintenance projects could be completed with maintenance projects. This would include overlays and possibly restriping for bike lanes.	\$\$
BID	Business Improvement District	Improvement district formed by area businesses for the purpose of funding collectively beneficial infrastructure such as sidewalks and streetscaping.	\$\$
SID	Sidewalk Improvement District	A district created for the purpose of large-scale sidewalk repair. Projects are administered through the City of Omaha and costs are assessed back to property owners in the district.	\$
TIF	Tax Increment Financing	Redevelopment projects, typically urban infill, often qualify for TIF that allows taxes deferment to provide up front costs for site or infrastructure improvements. This could be a mechanism used as part of the various redevelopment projects.	\$\$
Private	Philanthropic Donations	Various foundations in Omaha may be interested in funding signature projects that would otherwise not receive public funding. This source could be pursued for railroad bridge improvements or other public art.	\$\$
	Community-Driven	Projects that would be funded and led by the community and performed in conjunction with the City. Example projects include murals and other public art.	\$
Other	Community Development Block Grant (CDBG)	Federal funding that is generally used to improve areas with low-income residents.	\$\$
	Transportation Alternatives (TA)	Federal funding apportioned to MAPA to address regional non-motorized transportation improvements. It would be appropriate for improvements near Castelar Elementary, All Saints School, or the future school at 10th & William.	\$

6.3 | COST ESTIMATES

Cost estimates were developed using guidance found in the AACE Cost Estimate Classification System which provides guidance on construction and engineering estimates at several stages in project development relative to the level of detail available.

The estimates below were developed using the guidance for a Class 5 estimate. A Class 5 estimate is based upon the lowest level of project definition and is typically used for planning-level or concept level estimates. The level of project development for each potential project identified this study is between 1% and 5% defined. Most unit costs were generally based on engineering judgment or assumed aggregated unit prices estimated from local conditions (e.g. roadway reconstruction per lane-mile). All costs are in 2018 construction dollars.

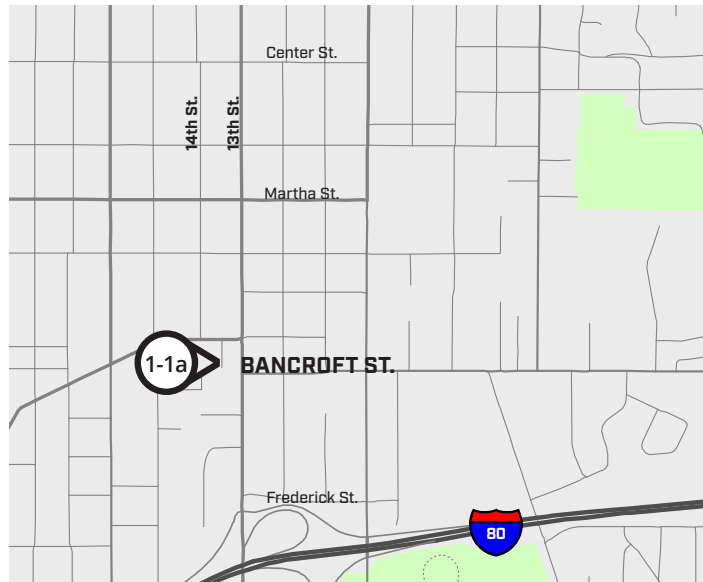
6.4 | PROJECT INFORMATION SHEETS

6.4.1 Bancroft and Capitol Improvements

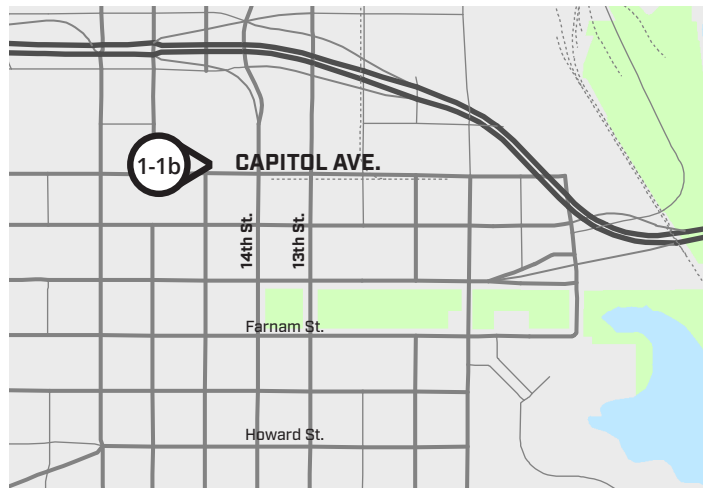
The Existing Conditions Analysis identified two areas needing further exploration into current numbers and types of crashes. These were at 13th Street & Bancroft Street and at 14th Street & Capitol Avenue. The projects identified include a detailed safety study, preliminary design, and final design. Not knowing the extent of improvements, it was assumed that a certain amount of pavement reconstruction and modifications to traffic control would be required. These projects are considered a high priority.



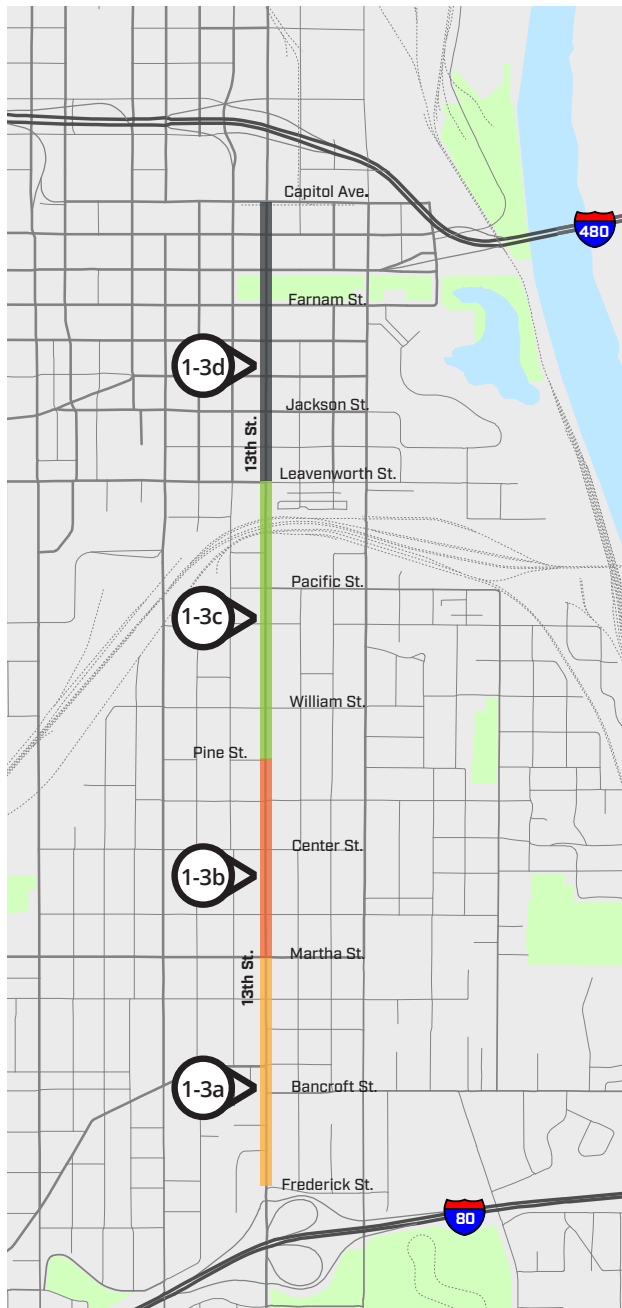
13th & Bancroft Street intersection looking south



14th & Capitol Avenue intersection looking north



Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
1-1a	Bancroft Safety Improvements	\$ 19,900	\$ 123,000	\$ 14,800	\$ 157,700	Local	1
1-1b	Capitol Avenue Safety Improvements	\$ 31,000	\$ 265,000	\$ 32,000	\$ 328,000	Local	1



6.4.2 Sidewalks

Improving the condition of the sidewalk is a primary goal to improve walkability of the corridor. This is particularly true south of Martha Street. A review of the existing corridor also identified multiple locations where curbs had failed, allowing vehicles to encroach on the pedestrian space. Additionally, many locations do not have adequate setbacks, so new sidewalk should be constructed to a minimum of 6.5 feet, (preferably 10 feet). Due to the impediments to walkability, these projects should be considered high priority.

The projects listed below would reconstruct the sidewalks and adjacent curbs as needed throughout the corridor. Sidewalk maintenance is currently the responsibility of the adjacent landowner according to City municipal code. Given the comprehensive nature of the improvements, these should be led by the City in partnership with the various BIDs and landowners through SIDs. These projects, or portions of these projects, may also be combined with resurfacing or other work to repair or reconstruct the street (Proj. 31-4, 2-3a, 2-3b).



Brick sidewalk along 13th Street in Little Bohemia area



Sidewalk condition south of Pacific Street

Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
1-3a	Sidewalk Repair - Frederick to Martha	–	\$ 210,300	\$ 25,300	\$ 235,600	Other, SID, BID	1
1-3b	Sidewalk Repair - Martha to Pine	–	\$ 168,800	\$ 20,3000	\$ 189,100	Other, SID, BID	1
1-3c	Sidewalk Repair - Pine to Leavenworth	–	\$ 203,200	\$ 21,800	\$ 225,000	Other, SID, BID	1
1-3d	Sidewalk Repair -Downtown	–	\$ 300,000	\$ 36,000	\$ 336,000	Other, SID, BID	1

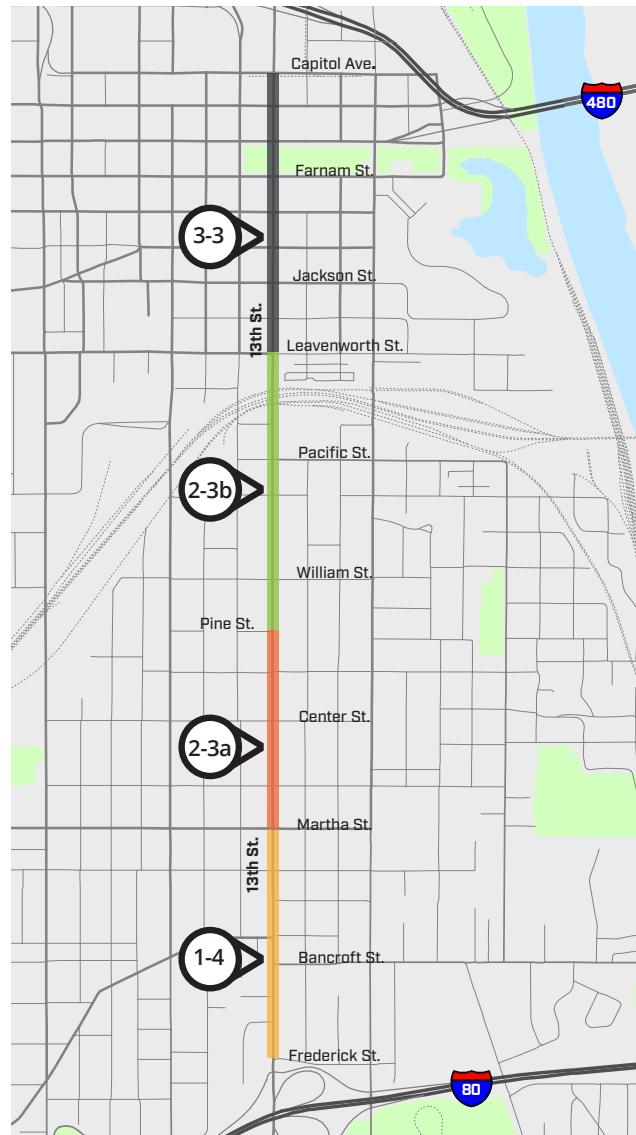
6.4.3 Resurfacing and Curb Repair

While this study did not specifically address pavement condition, portions of 13th Street within this study area would likely be candidates for pavement repair and resurfacing in the future. These would be opportunities to improve the roadway surface for vehicular travelway as well as pedestrian crossings. Updated markings, including exploring opportunities to add marked pedestrian crossings, in accordance with the City marked crossing policy, could also enhance safety along the corridor.

These projects would likely be funded with local funds. These projects should be considered medium-term priority. Projects could be coupled with sidewalk and curb work, including curb extensions (Proj. 3-4). Curb extensions would be funded privately.



14th Street looking south from Howard Street



Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
1-4	Resurfacing, Curb Repair, and Pavement Rehab - Frederick to Martha St	\$ 77,900	\$ 973,400	\$ 116,900	\$1,168,200	Local	2
2-3a	Resurfacing, Curb Repair, and Pavement Rehab - Martha to Pine	\$ 46,600	\$ 618,800	\$ 74,300	\$ 742,700	Local	3
2-3b	Resurfacing, Curb Repair, and Pavement Rehab - Pine to Leavenworth	\$ 70,000	\$ 875,000	\$ 105,000	\$1,050,000	Local	3
3-3	Curb extensions and curb repair	\$ 84,000	\$ 1,047,000	\$ 125,000	\$1,256,000	BID, TIF, Private	2



Potential Location of Project 2-1a

6.4.4 Pedestrian Crossings

One of the primary ways to improve walkability is to include more opportunities for safe pedestrian crossings. This is especially true in the areas south of Pacific Street. These should be installed in a phased approach. The most likely candidate for the first crossing is directly south of the Little Bohemia redevelopment. This could be a hub of pedestrian activity. However, locating these crossings and identifying the final configuration of the crossing should be performed as part of the final design process.

The costs associated with this project include markings, signing, and curb extensions at the crossing. These would likely be funded by a BID or redevelopment project due to the relatively minimal cost. The first crossing should be considered a high priority and performed in coordination with the Little Bohemia commercial redevelopment.



Potential Location of Project 2-1c



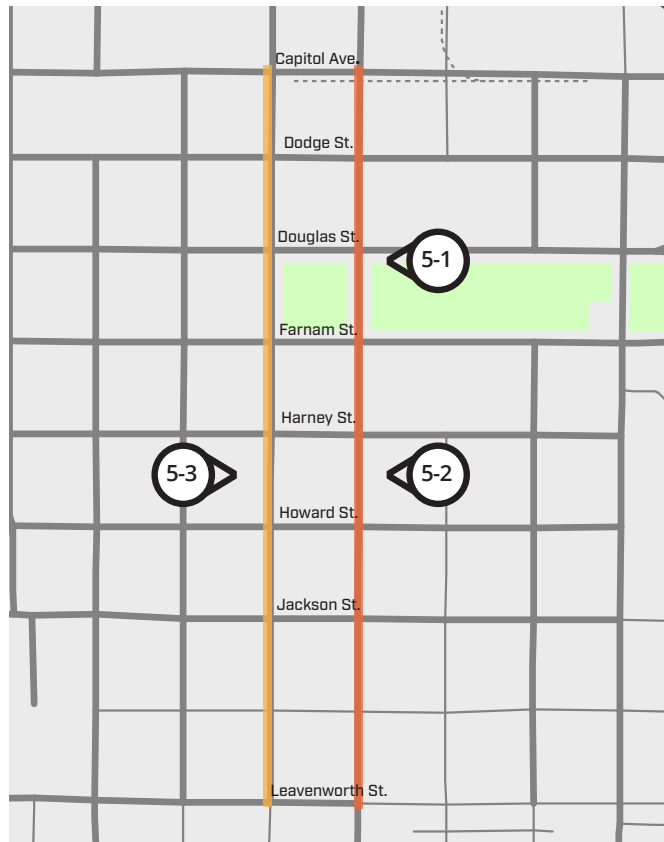
Potential Location of Project 2-1b

Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
2-1a	Pedestrian Crossings - Pine Street	\$ 6,500	\$ 45,400	\$ 7,000	\$ 58,900	BID, TIF	1
2-1b	Pedestrian Crossings - Center Street	\$ 6,500	\$ 45,400	\$ 7,000	\$ 58,900	BID, TIF	2
2-1c	Pedestrian Crossings - Pierce Street	\$ 6,500	\$ 45,400	\$ 7,000	\$ 58,900	BID, TIF	3

6.4.5 On-Street Bike Facilities

This study identified the downtown portions of both 13th Street and 14th Street as candidates for on-street bike facilities. A buffered or protected facility was identified as necessary to meet the goal of attracting cyclists who would not otherwise use the street. To establish the bike corridors, 13th Street and 14th Street could be reconfigured in the interim using markings and signage. This would require some modification to the traffic signals to realign or remove vehicle signal heads. The construction estimate includes these costs. This is considered a high priority project as there are opportunities with ongoing redevelopment efforts along 13th Street to incorporate part of the reconfiguration with those projects. Given the short timeline, opportunities to partner with private development, and relatively low cost, it is expected that these would be funded through a combination of private and local public funding.

Long term, both 13th Street and 14th Street should be considered for protected bike lanes. This could include adding a raised median coupled with relocating the bike lane between the parking and curb. This configuration could provide benefits beyond those to cyclists, including opportunities for streetscaping, improving safety and comfort at pedestrian crossings, and providing opportunities for more functional transit stops. These improvements would be considered low priority as they could lag behind the establishment of buffered bike lanes. The extended timeline would allow private, BID, or TIF funding to be organized and appropriated.



Protected bike facility in Lincoln, Nebraska

Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
5-1	13th Street - Downtown Road Diet (Buffered Bike Lanes)	\$ 53,000	\$ 662,100	\$ 79,500	\$ 794,600	Local, Private	1
5-2	13th Street Protected Bike Lanes	\$ 72,700	\$ 908,700	\$ 109,100	\$ 1,090,500	Private, BID, TIF	3
5-3	14th Street Protected Bike Lanes	\$ 80,000	\$ 999,400	\$ 120,000	\$ 1,199,400	Private, BID, TIF	3

6.4.6 Streetscaping

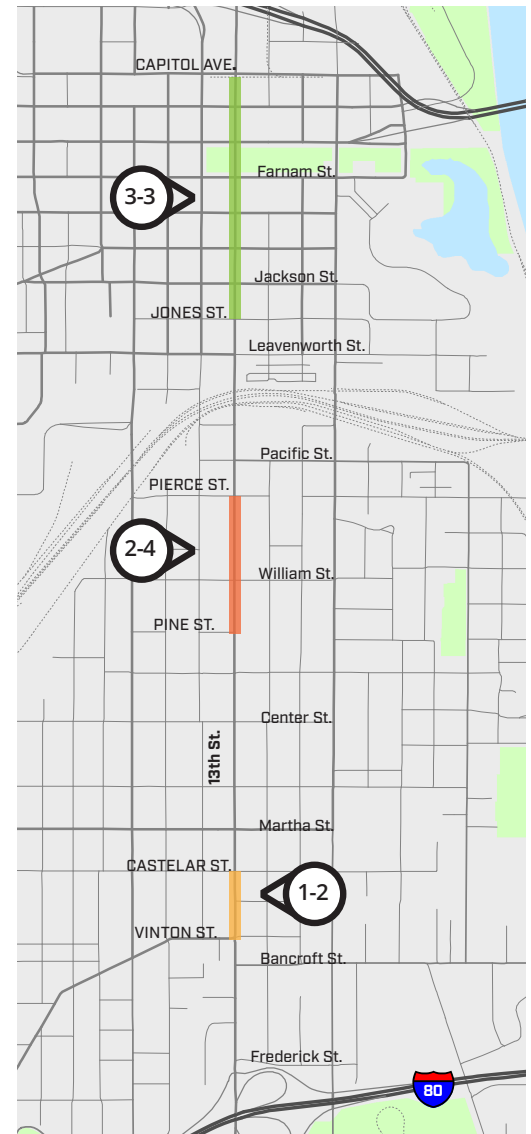
Many of the improvements to walkability include enhancements to the areas behind the curb. These enhancements are intended to soften the area where pedestrians will be interacting with the public right-of-way. The proposed improvements are planned help to make the pedestrian zone more inviting and will give individual districts an opportunity to create unique, beautified areas. The projects listed below are placeholders for individual streetscaping projects along the corridor.

The Vinton Street district is the first encountered from the south and could set the tone for the corridor. Though relatively small, a concentration of active businesses could benefit from enhanced pedestrian facilities. Additionally, a well-planned streetscaping effort could be used to signify 13th Street as a destination corridor, not just another route into downtown.

Little Bohemia, already under redevelopment, creates an opportunity to build off that momentum and carry beautification efforts north and south from William Street. This could also serve as the gateway to downtown.

The downtown portion of the corridor has some form of streetscaping today, but much of it needs rehabilitation and gaps remain. For example, the portions of 13th Street from Jackson to Harney have inconsistent or poorly maintained streetscaping. Furthermore, creating a unified streetscaping concept can create visual consistency through downtown.

Estimates for these projects include primarily mid-block treatments such as landscaping planters and street trees. Also included is incidental sidewalk and curb work. Estimates do not include hardscaping within the roadway, such as decorative crosswalks. Projects could also include curb repair and curb extensions as would be appropriate based on project scope (Proj. 3-4). Streetscaping is generally not funded by the City, so these projects would be the responsibility of private partners. For example, BIDs would be ideal organizations to take on construction and maintenance of these amenities. These projects are considered medium-to-low priority and should be coupled with other redevelopment efforts.



Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
1-2	Vinton District Streetscaping - Vinton to Castelar	\$ 15,100	\$ 187,800	\$ 22,000	\$ 225,500	Other	3
2-4	Little Bohemia Streetscaping	\$ 66,000	\$ 824,000	\$ 99,000	\$ 989,000	BID, Other	2
3-4	Downtown Streetscaping and Beautification	\$ 375,000	\$ 4,680,000	\$ 461,000	\$ 5,516,000	BID, Other	2

6.4.7 Railroad Bridge Improvements

The railroad bridge was identified throughout the study as an impediment to walkability for multiple reasons including pedestrian safety and comfort. Improvements to these bridges could be a significant step towards creating a more walkable corridor into downtown. These improvements would need to be coordinated with UPRR and BNSF and led by the City. Depending on the project, funding could come from various sources.

Project types generally fall into two categories: functional improvements and aesthetic improvements. The functional improvements include creating better separation between pedestrians and vehicles, improving lighting under the bridges, performing underdeck repairs to prevent bridge materials from falling on the sidewalk and street, and improving drainage. As of the date of this report, BNSF is working on functional improvements to their structure. Preliminary discussions with UPRR indicate that these improvements could be possible, provided that they do not impede the ability to inspect and maintain the structure. These projects would likely be privately funded, but UPRR expressed the potential to perform some maintenance activities concurrent to City projects. These improvements should be considered high priority due to the effects on safety.



Railroad Bridges north of Pacific Street

The second category of improvements are aesthetic in nature and include murals or painting on abutments, bridge facades, and gateway landscape features. These projects will be highly scrutinized by the railroad would need to be constructed with the maintenance needs of the railroad on the forefront. These are considered medium-to-low priority due to their complex nature and permitting requirements.



Concept of Project 2-2b



Proj. ID	Description	Design Engineering	Construction Costs	Construction Engineering	Total Cost	Funding Source	Priority
2-2a	Railroad Bridge - Safety Improvements	\$ 26,300	\$ 327,800	\$ 39,400	\$ 393,500	UPRR/ BNSF, Local	1
2-2b	Railroad Bridge - Aesthetic Improvements	\$ 111,600	\$ 930,000	\$ 139,500	\$1,181,100	UPRR/ BNSF, BID, Other	3
2-2c	Railroad Bridge - Murals	\$ -	\$ - ¹	\$ -	\$ -	Other	2

¹Construction costs could vary widely depending on who is doing the work