SIOUX CITY
DOWNTOWN
TRANSPORTATION STUDY

SIOUX CITY, IOWA

DOWNTOWN TRANSPORTATION STUDY

May 2022

simpco

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INTRODUCTION

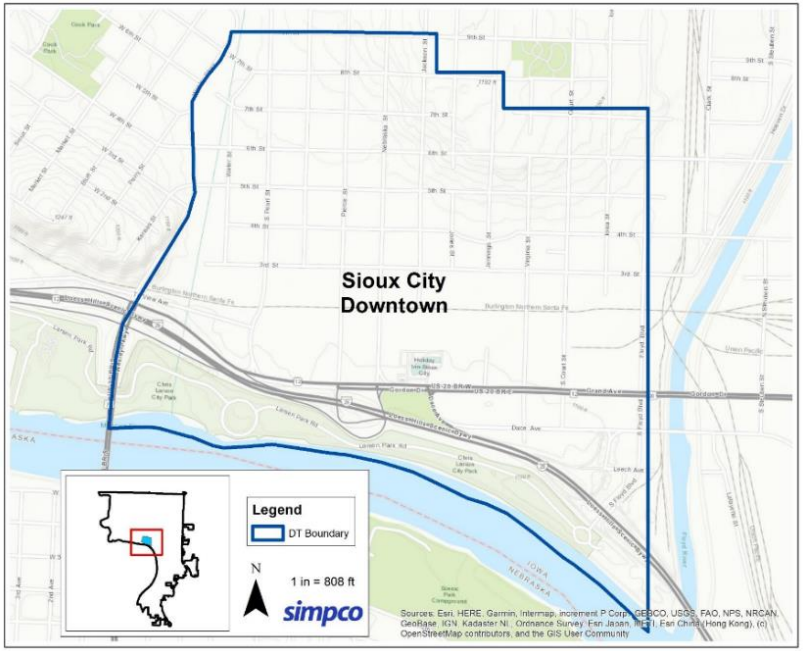
Downtown Sioux City is changing, in ways both planned and organic. New residential, office, retail, and riverfront development matches rising levels of interest – locally and nationwide – in living downtown and getting around without a car. Meanwhile, the reconstruction of US Interstate 29 (I-29) that began in 2008 reached completion in 2019, opening new access routes into downtown. With change comes opportunity, and these opportunities exist through redevelopment and reuse, creation and connectivity of open spaces, and in multimodal connectivity.

The **Sioux City Downtown Transportation Study** is a response to these changes. Commissioned by the Siouxland Interstate Metropolitan Planning Council (SIMPCO) and conducted by SRF Consulting Group and RDG Planning & Design, the study examines the functions of downtown streets, identifies needed improvements, and ends with an implementation plan for the next 10 years.

Study Area

The study area is defined approximately by Wesley Parkway to the west, Floyd Boulevard to the east, 9th Street to the north, and the Missouri River to the south. The exact borders are shown in Figure 1.

Figure 1. Study Area

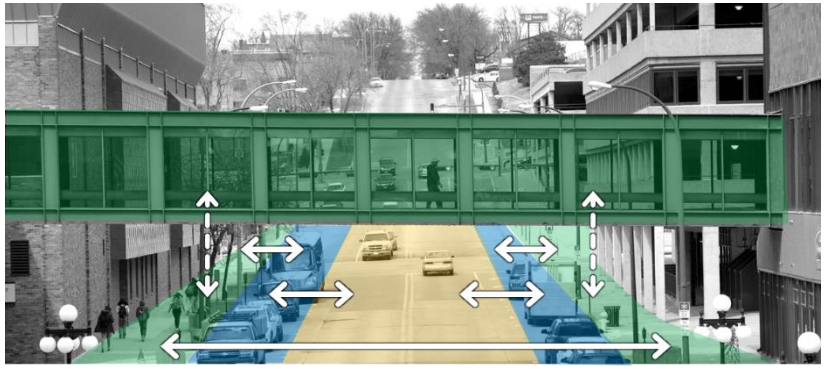


Study Purpose

The purpose of this study was to identify the network improvements that will best support mobility downtown for all users. Starting with a holistic view of the downtown transportation system, the study identified a hierarchy of functions within each corridor. This hierarchy in turn suggests which modes should receive priority in the design and construction of physical facilities.

Figure 2 illustrates the ways in which different functions depend on the physical space of the street. Each function receives a certain allocation of space: the green-shaded spaces support pedestrian travel, the yellow space supports vehicular travel, and the blue-shaded spaces support parking. The functions with the highest priority receive the most investment in their space.

Figure 2. Space Allocation in Downtown Sioux City



Goals and Objectives

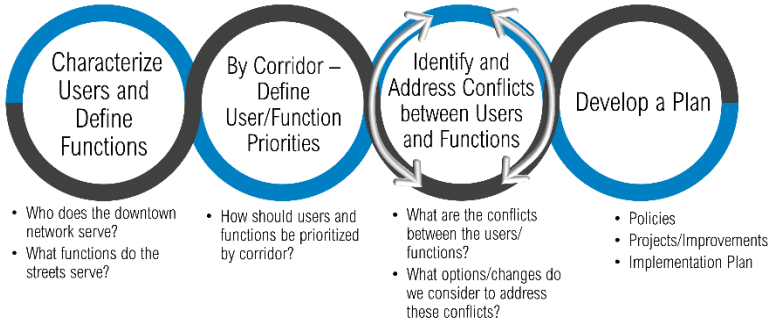
This study's guiding goal is developing network improvements for the safe and efficient movement of people, transit, bicycles, vehicles, and other means of transport across downtown. Three key objectives support this guiding goal:

1. Analyze the pedestrian and bicycle network of downtown and make recommendations for improvements and connections.
2. Evaluate the skywalk system and make recommendations for improvements with the goal to increase pedestrian use of the skywalks and enhance the downtown environment to attract and support new capital investment.
3. Identify traffic flow and parking impacts of a converting 5th and 6th Street to two-way streets in downtown. Develop recommendations to address impacts.

Study Process

To achieve the study goals and objectives, the study was completed using a fundamental 3-step process answering keys questions during each step, as illustrated in Figure 3.

Figure 3. Overall Study Process



Step 1 set out to establish the users of downtown as a whole and how the current transportation system serves them. Step 2 prioritized how users – either drivers, walkers, or bikers – should be served for each street in downtown. Step 3 considered the competing interests between drivers, walkers, and bikers and identified where conflicts exist and what options or changes best address these conflicts. Ultimately, this process allowed for a comprehensive review of the downtown pedestrian and skywalk network, bicycle network, and street network.

Previous Studies and Plans

This study integrates the multiple issues under discussion in downtown Sioux City today, resulting in a cohesive approach that opens new opportunities to act. It builds on previous studies and plans that have separately examined aspects of downtown life. These studies are listed and summarized in Table 1. They include assessments of traffic flow, parking, biking, and walking (including skywalk system). They also include design guidelines and wayfinding plans to make it easier and more enjoyable to navigate downtown. These studies all identified important downtown trends; this current study expands on this work, looking into the future.

Table 1. Summary of Previous Studies

Plan/Study	Purpose	Outcomes	Relevance to Downtown Transportation Study
2009 Sioux City Skywalk Inspection Summary Report	Assess physical condition of skywalks.	Assessment of the system.	Provided previous recommendations for consideration for comparison purposes on what's been done to-date.
2010 Design Guidelines	Help guide future development. Reflect community's future vision in physical shape and character of the built environment.	Guidelines adopted as an urban design element of the city's Comprehensive Plan.	Encourages the use of transparent glass in downtown. Encourages reduced parking requirements and suggests specific parking design solutions. Identifies "favorite places" downtown that embody strong place-making and urban design principles. Locations include Historic 4th Street, the Riverfront, and certain landmark buildings. Identifies neighborhood centers and streets with existing pedestrian—friendly environments. Recommends pedestrian enhancements on 3rd and 4th Streets.
2014 Street Conversion Study	Document the existing conditions of Downtown Sioux City and evaluate a two-way conversion at 5th Street, 6th Street, and Douglas Street.	Bike lanes were not received well. Public parking was preferred. A two-way conversion at 5th Street, 6th Street, Douglas Street, and Iowa Street would accomplish City goals. Existing network is sufficient in meeting basic transportation needs.	This study produced useful data, including turning movement counts. It also suggested methodologies for downtown traffic forecasts.

Plan/Study	Purpose	Outcomes	Relevance to Downtown Transportation Study
2015 Active Transportation Plan	Identify interest in/barriers to active transportation in Sioux City and recommend changes that reduce and overcome barriers, provide safe and accessible connections, and encourage community participation in active transportation. Help Sioux City receive Blue Zone designation from Wellmark Blue Cross and Blue Shield.	GIS analysis and survey results on active transportation, including pedestrian, bicycle, and transit access. A list of recommended programs and improvements, broadly categorized under Engineering, Education, Encouragement, Enforcement, and Evaluation.	Broadly, the plan affirmed Sioux City's interest in and commitment to active transportation and Complete Streets. Data collected for the plan showed that Downtown is particularly high in bicycle and pedestrian collisions because it is the nexus of highways, railways, waterways, and trails. Bridge availability across rivers and rail lines is a barrier.
2017 Parking Study	Analyze public parking usage in Sioux City.	There is a surplus of parking in the downtown area. The public needs to be informed that there is not a parking problem. Parking garages should be used for longer parking, leaving on-street parking open for shorter trips. Public parking leaves little room for greenspace and bike lanes.	Public parking in Sioux City does not allow for greenspace, parks, and bike lanes. Parking is important to local businesses. The public believes there is a lack of parking in the downtown area, when in fact there is a surplus. This information can be used to advocate for an increase in bicycle and pedestrian facilities.
2020 Wayfinding Plan	Announce Downtown Partners' wayfinding project in Downtown Sioux City and the new updates already made in the area	Pedestrian wayfinding signs were installed in Downtown Sioux City on signal cabinets. Vehicle wayfinding signs are still in the process of being designed and installed.	An increase in pedestrian wayfinding signage can encourage more people to walk/bike, which could increase interest in pedestrian and bicycle accommodations.

Multimodal Transportation Network Facilities

Roadways

The roadways of downtown Sioux City were designed to prioritize ease of movement and access for motorized traffic. They collect inbound and outbound traffic via major thoroughfares like I-29, Gordon Drive, and Wesley Parkway; they also provide a direct route for east-west through traffic, especially on 5th and 6th Streets. To better understand the traffic characteristics, Figure 4 illustrates block-by-block traffic volumes from 2015. Further details are included in Appendix A.

On-street parking is a common feature on downtown streets where on some streets painted parking spots occupy a lane on either side. These spots are metered by the city. Certain blocks show high occupancy and turnover rates, such as the block outside City Hall. However, the 2017 SIMPCO study found that on-street parking is by and large underutilized. The 2017 study observed that cost-free parking lots operated by private businesses are also abundant downtown. For any possible destination, free parking can be found within walking distance.

Except for two traffic signals on Wesley Parkway, all signalized intersections downtown operate as one coordinated group with a single timing plan. The 65-second cycle for each signal is designed to allow drivers on 5th and 6th Streets to hit a smooth series of green lights as they travel through downtown. They also provide automatic pedestrian walk signals without the need for pushbuttons.

Cross-town traffic is also supported by the one-way orientation of five streets: Douglas, Pierce, and Nebraska on the north-south axis, and 5th and 6th Streets on the east-west axis. Downtown Partners, its business-owner constituents, and elected officials have for years been interested in converting all or some of these streets to two-way flow to encourage drivers to notice and visit downtown businesses.

Over the last 10 years, Sioux City has taken the principle of "Complete Streets" as a guide. In a complete street, every potential user is served, whether they are driving, walking, biking, using a wheelchair, or using some other kind of mobility device. The draft Comprehensive Plan, Active Transportation Plan, design guidelines and Complete Streets Policy all indicate a desire for complete streets features. On most downtown roadways, the complete streets principle means that bicycles are expected to use vehicular traffic lanes, even in the absence of bike-specific paint or signs.

Sidewalks

Almost every street in downtown is lined by sidewalks that comply with the Americans with Disabilities Act. An inventory of sidewalk conditions showed that while the sidewalks themselves are generally in good shape, there are other deficiencies. Figure 5 illustrates the existing and proposed sidewalk and trail network. The complete inventory, including maps of tree cover, curb cut condition, sidewalk condition, and bus stop access, is included as Appendix B. The main takeaways include:

- Overall, it appears that the city is making good progress in upgrading pedestrian curb ramps to be ADA compliant. There are a few isolated instances where curb ramps appear to be ADA compliant, but adjacent curb or curb gutter condition is in poor condition.
- Three bus stops do not appear to be compliant with ADA. All these cases appear to be situations where the bus pad, located between the curb and sidewalk paralleling the street has a greater longitudinal slope than two percent. The city will likely not be able to address these locations until a full street reconstruction is performed.
- There is a lack of street trees in downtown Sioux City. Trees are an important streetscape element that benefits downtown by providing buffer between pedestrians and vehicular traffic (ideally spaced closer than 50' to truly created the desired sense of buffering), shade protection for pedestrians, visual enhancements, and environmental benefits of carbon dioxide uptake and rainfall interception.
- There are sidewalks missing along Wesley Parkway. The dirt paths on both sides of the road show that pedestrians do want to walk along the street, and that the trail on the east side is not meeting the desired walking paths.

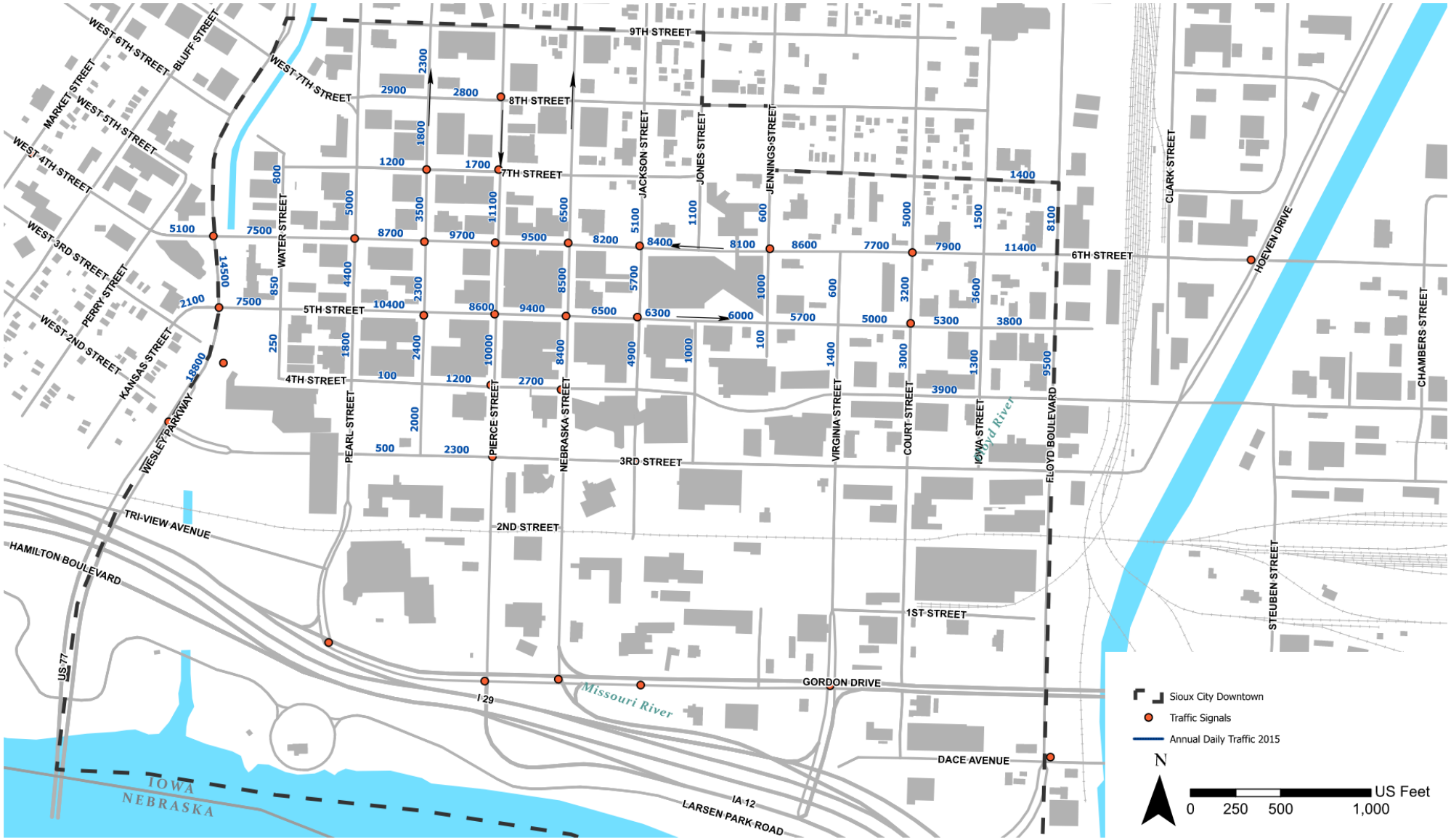


Figure 4: 2015 Daily Traffic Volumes

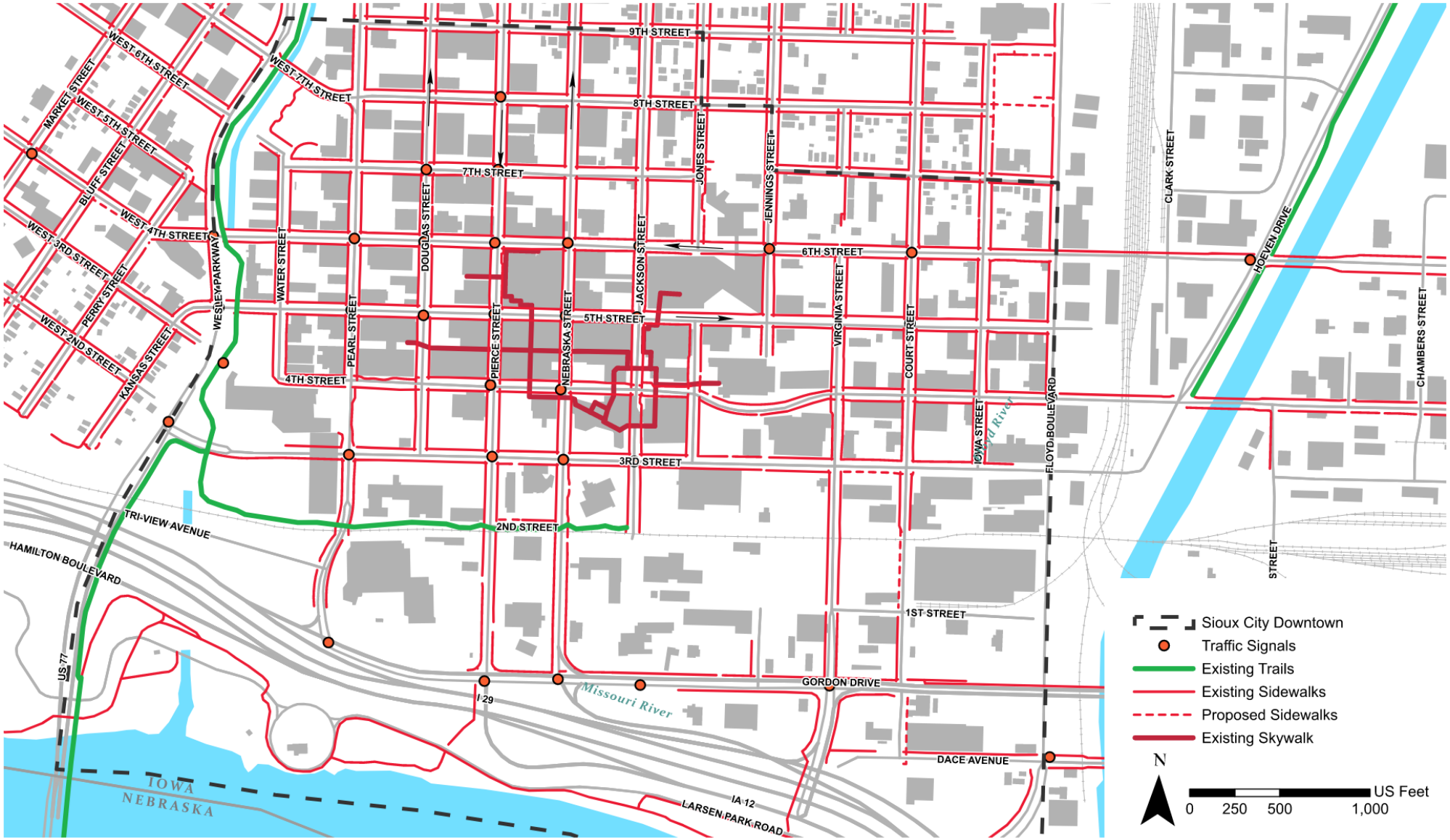


Figure 5: Existing and Proposed Sidewalk Network & Trails

Physical condition of the sidewalk network was reviewed block-by-block using street view imagery reflecting 2019. Additionally, using GIS aerial mapping additional facilities characteristics such as sidewalk width were cataloged for corridors in the study area. Table 2 documents sidewalk review considerations employed by the study team.

Table 2. Sidewalk Condition Assessment Questions

Category	Assessment-framing Questions
Sidewalk condition	Is there obvious vertical displacement, excessive cross slopes, or a level width that is less than 5 feet? Are there other obstructions on the sidewalk that constrict or displace pedestrian movement?
Presence of street trees	What percentage of the block face is lined with street trees?
Curb ramp condition assessment	Is there a curb cut? Is there a truncated dome? Does the truncated dome placement appear to meet current design guidelines?
Curb condition at curb ramps	Is there obvious curb pavement deterioration at the curb ramp?
Bus stop ADA compliance	Is there an accessible path to the stop (5' x 8') that is visually flat (approximate 2% slope)? Is it connected to a sidewalk that parallels the street?

Skywalks

The Sioux City Parking and Skywalk System Board of Trustees (Board of Trustees) along with individual property owners manage the building-to-building skywalk network using fees paid by the connected property owners. The Board of Trustees is responsible for determining annually the costs associated with operation, maintenance and repair of the network outside the footprint of connected buildings, including bridges crossing streets, wayfinding and signage, and establish guidelines for use of the network outside private buildings. Funding for Board of Trustees work is collected through an annual assessment to private properties connected by the network and annual allocations from the city budget.

Figure 6 shows the full skywalk network with its connected destinations. The skywalk system provides extensive service to downtown districts, businesses, and parking garages. For Sioux City, the existing skywalk system offers many opportunities:

- The system provides good service to many high use buildings like the library, convention center, transportation center, hospital, the Orpheum Theater, and parking garages. Several downtown residential uses also connect to the system.
- Locations in the system are feasible for skywalk expansion as built today if demand rises. Examples include a north connection from the alley between the Orpheum and transportation center to the Warrior Hotel (pending historical evaluation of impact) and a south connection from the Central Bank alley skywalk access to the Art Center.
- Most areas within the skywalk are well maintained and clean and offer opportunities to use wall spaces for community promotion and interaction.
- Visible security system and monitoring makes users feel safe and comfortable using the system today.

Barriers that may prevent the full potential usage of the system include:

- Wayfinding to find street-level entrances to the skywalk with some street entrances invisible or unclear. However, wayfinding once in the skywalk is clear and visible.
- No access to some higher use areas like Pearl Street and Historic 4th Street. These areas would be difficult to serve via skywalk.

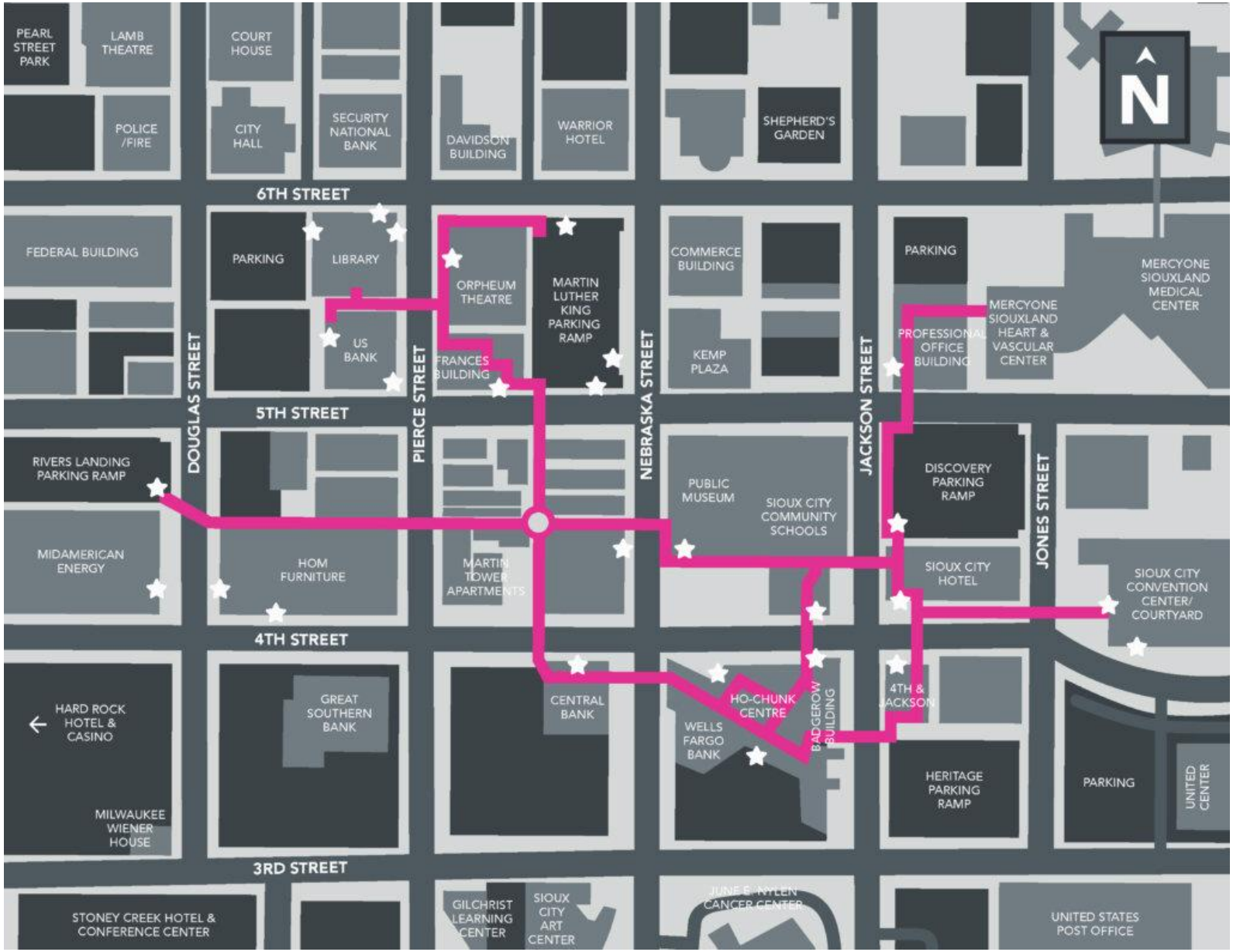
Additional details regarding the assessment of existing conditions of the skywalk system are included in Appendix C.

Bicycle Facilities

Bicycle facilities in the area are limited to shared-use paths, including the Perry Creek Trail, Riverfront Trail, and Floyd River Trail. The paths provide a bicycle route to downtown from various directions. There are no bicycle facilities in the downtown core other than the Perry Creek extension east from the Hard Rock Casino to the Abben Cancer Center. Regardless of the limited bicycle facilities downtown bicyclists frequent several corridors (whether on the street or sidewalks):

- Pierce Street, between Chris Larsen Park and the Library.
- 5th and 6th Streets around the Martin Luther King Jr. Transportation Center.
- Dace Avenue into downtown for commuters from the Morningside area.
- W 7th Street from the Perry Creek Trail to Pearl Street.

See Figure 7 for the existing bicycle network relative to downtown.



LEGEND

- Skywalk Route
- Junction
- Access Point

Figure 6: Existing Skywalk Network

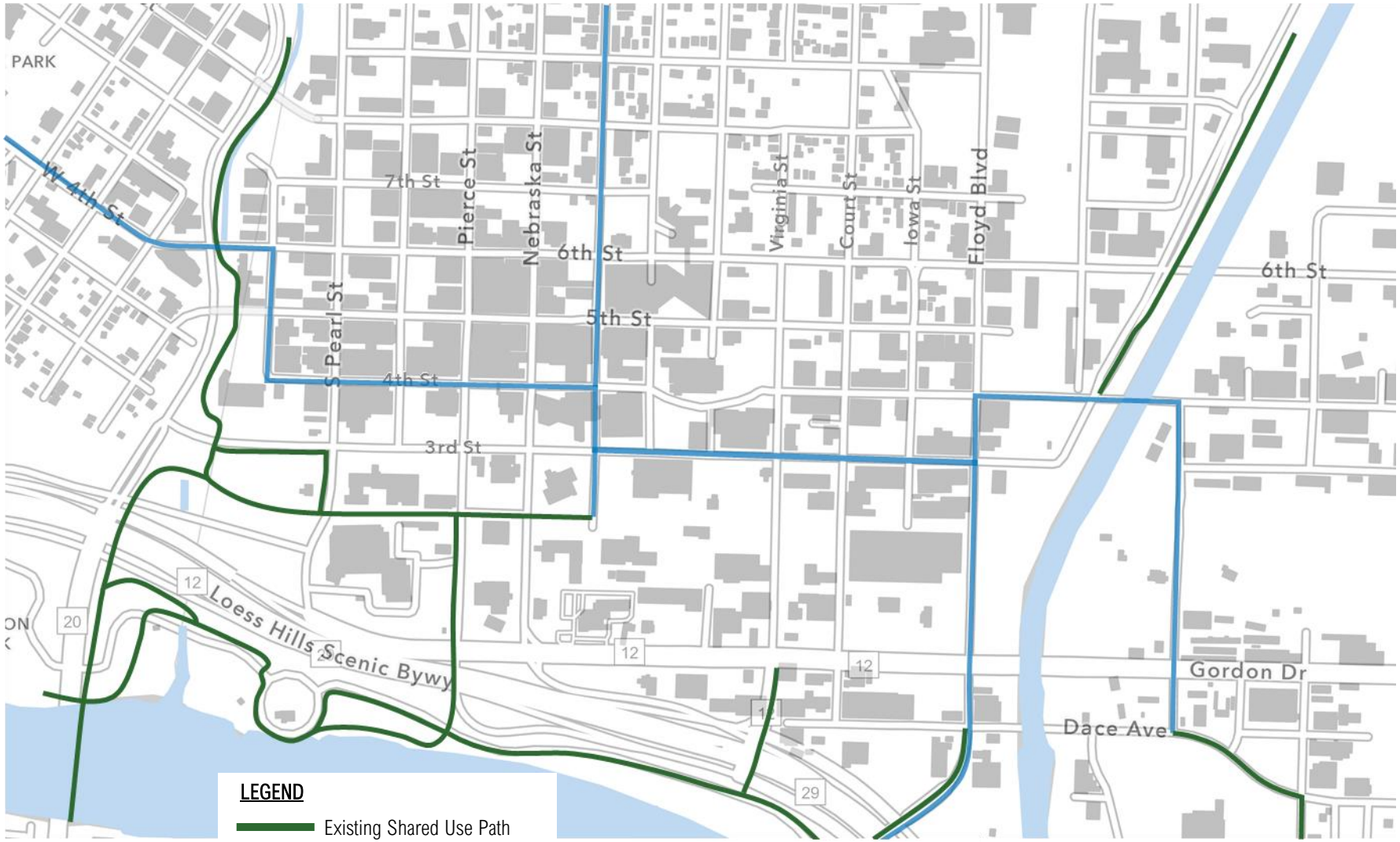


Figure 7: Existing Bicycle Network

Land Uses

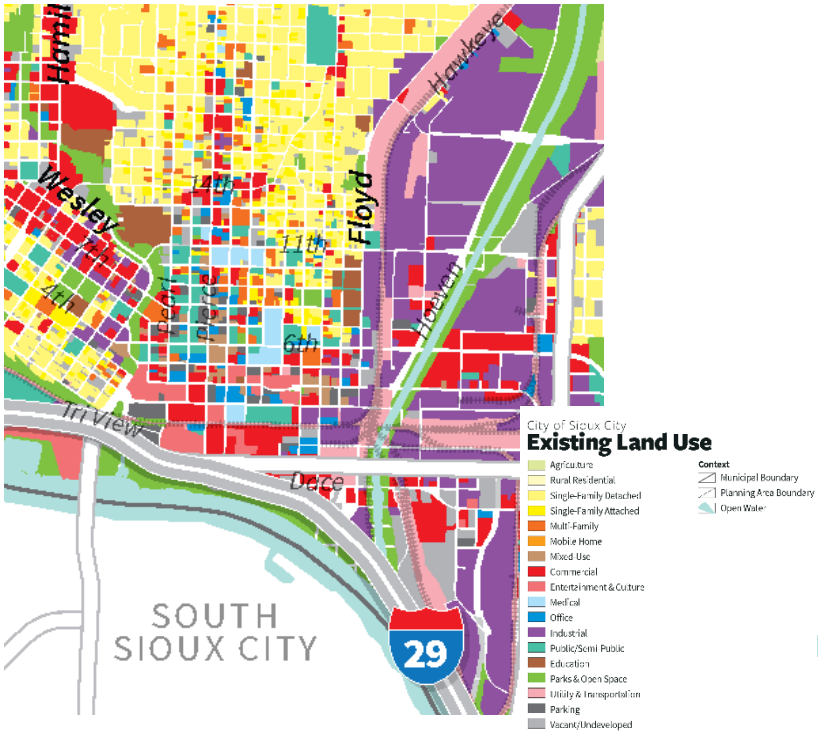
The 2040 Comprehensive Plan for Sioux City highlights two land use designations for the downtown area:

- **Downtown Core:** This area is relatively consistent with the focus area for the Downtown Transportation Study, which is bounded by the Missouri River on the south, Floyd Creek on the east, 8th Street on the north and Wesley Parkway on the west side of downtown.
- **Downtown Transition:** This area forms a buffer between the higher density uses and activities in the Downtown Core and neighborhoods to the north and west of the core. Many of the uses in the transition area and the core are consistent (e.g., office, multi-family residential), however the density in the transition area progressively steps down from the higher density core to the lower density adjacent neighborhoods.

Figure 8 borrowed from the 2040 Comprehensive Plan displays the general land uses in the core and the transition areas between core and adjacent neighborhoods. Land uses in the core are generally characterized as:

- Mixed-use developments with a focus on design character and fostering an active pedestrian-oriented environment.
- Ground-floor uses that should include activities that capitalize on pedestrian traffic and support street life, such as restaurants, retail, and services that create frequent patron traffic for uses.
- Upper-floor uses that should include offices, services not reliant on ground-floor visibility, and residential units.

Figure 8. Current Land Use Map (2040 Comprehensive Plan)



Traffic Volumes & Crash History

Existing traffic conditions were reviewed to identify needs and establish a baseline for forecasted changes as Sioux City grows. The study analyzed exiting traffic volumes along with crashes at intersections. The following section summarizes the review of the roadway network conditions. Details are included in a Technical Memorandum provided in Appendix A.

Traffic Volumes

Since this study started at the onset of the COVID-19 pandemic, existing 2013 turning movement volumes collected as part of the 2014 study were used and validated against the 2015 daily volumes shown in Figure 4, which shows the block-by-block counts collected for key downtown streets. The heaviest traffic is seen on the arterials circling downtown and on 5th and 6th Streets, which serve as through routes. The use of the 2013 dataset was to ensure the analysis did not "under count" the existing traffic levels, which are in turn grown to future years for understanding long-term traffic operations. Based on existing daily traffic levels, both a 3-lane roadway (i.e., one travel lane in each direction along with a shared center left-turn lane) with two-way flow and the removal of one travel lane with one-way flow can be considered as part of this study. Further, due to the ongoing COVID-19 pandemic it was determined sufficient pedestrian and bicycle volume data was not able to be obtained for this study.

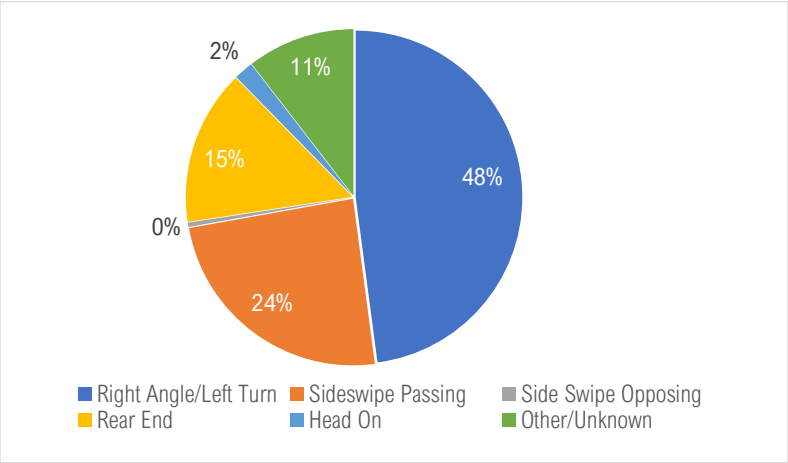
Crash History

Historical crash data helped to establish crash trends and issues in the study area. Iowa DOT's Iowa Crash Analysis Tool provides a rich level of information on the causes, locations, and environmental factors involved in each reported crash. A review of data since 2013 – excluding the periods when I-29 construction was at its peak – showed 478 crashes at intersections in the study area, one of which was a fatal crash and two of which involved severe injuries. Crashes were not considered during the period when the construction on I-29 altered traffic patterns throughout the city.

Predominant Crash Types

A review of the crash types indicated that the predominant types of crashes occurring at the intersections are right-angle/left-turn (48 percent) and sideswipe passing (24 percent) crashes, as shown in Figure 9. Right-angle/left-turn crashes are commonly referred to as "T-Bone" crashes.

Figure 9. Intersection Crash Types (2013-2016, 2019)



Intersections to Watch

The crash rates at intersections were analyzed to identify any that particularly stood out. For each intersection, the analysis compared the actual crash rate to a statewide average crash rate for intersections with similar characteristics. The difference between the two was then evaluated for statistical significance. Several intersections showed crashes that were significantly higher than the average. They included:

- 5th Street and Court Street
- 6th Street and Nebraska Street
- 6th Street and Jackson Street
- 8th Street and Douglas Street

This indicates there is likely a challenge with the geometric design or the traffic controls at these intersections. There could also be a challenge with the way that access to the intersection is managed.

PUBLIC & STAKEHOLDER ENGAGEMENT

Overview

A Public Engagement Plan (PEP) was developed that outlined the various methods and approaches to engage key stakeholders and the broader public as part of the Downtown Transportation Study. The consultant team, SRF Consulting Group and RDG Planning and Design, used the engagement plan as an executive guide for management of stakeholder outreach and engagement activities throughout the study.

SIMPCO's Public Participation Plan (PPP) (2018) is an important policy document that guides public participation for transportation planning in the region and approaches, themes, and strategies from this document were incorporated in the PEP. The plan was further developed in collaboration with SIMPCO, the Stakeholder Committee, and the consultant team along with input received through a range of participants.

The purpose of this engagement plan was to:

- Inform a diverse public about the work to be done/study purpose and how they can get involved.
- Collect input from a diverse public travel into, through and around the downtown area.
- Use public input to shape the work and enable informed decision-making.

Engagement Activities

During the study both in-person and virtual /online activities were used to engage the public and interested stakeholders. Table 3 provides a summary of the engagement activities conducted. The following pages highlight the input received throughout the public and stakeholder engagement efforts.

Table 3. Engagement Activities

Timeframe	Activity
August 2020	Stakeholder Committee Meeting #1
October 2020	Stakeholder Committee Meeting #2
December 2020	Public Newsletter #1 – Introduction to study and survey regarding use of downtown
January 2021	Stakeholder Committee Meeting #3
March 2021	Public Newsletter #2 – Results of survey and introduction to street typologies and methodology
April 2021	Stakeholder Committee Meeting #4
June 2021	Stakeholder Committee Meeting #5
December 2021-January 2022	In-Person Open House with On-line Narrated Presentations – Provide study recommendations
January 2022	Presentation to City Council and SIMPCO Committees – Provide study recommendations

Input from Stakeholder Committee

Development of the downtown study was guided by a Stakeholder Committee, which provided oversight and input into the development of the study recommendations. Stakeholder Committee participation beyond the SIMPCO team included:

- Downtown Transportation Committee
- City of Sioux City (Public Works, Planning, Economic Development, and Parking & Skywalk System Board of Trustees)
- Iowa Department of Transportation
- Downtown Partners
- Siouxland District Health
- Active Transportation Advisory and Seniors Advisory Committees
- LaunchPAD Children's Museum
- Sioux City Transit
- Sioux City School District

Throughout the course of five meetings the Stakeholder Committee provided feedback on issues, priorities, public engagement efforts and overall study recommendations. Table 4 provides a summary of Stakeholder Committee impressions documented. Detailed meeting summaries are in Appendix E, along with additional engagement material used.

Table 4. Stakeholder Committee Impressions

Category	Comments
Cycling	Many cyclists avoid downtown because the streets are unfriendly to bikes. The topography is a challenge; cyclists avoid steep hills. The bike racks at certain locations, such as the library, show that there are people who cycle downtown. There might be more cycling activity on the trail behind the Nylen Cancer Center if it were straightened and extended.
Skywalks	Improvements are needed and should be a priority.
Traffic Flow	Snow removal may affect the outcome of changes to street design. Sioux City stores snow in the middle of the street, which affects traffic flow in winter. For lack of better routes, there is significant east-west traffic through downtown. Trucks heavily use downtown, especially 6th Street, to access the light industry/construction businesses to the east.
Parking	There appears to be an excess of parking. There would likely be opposition to removing parking at the Federal Courthouse, City Hall, DHS, Promenade, and schools between Nebraska and Jackson.
Land Use and Development	Many retail businesses are gone from downtown. Walgreens is the only grocery store. There are pockets of vacant or underused properties ripe for future redevelopment. Significant residential development is just getting started. Historically, housing has been low-income, but more market rate units have been and will be built. New hotels opening will add to the traffic and use of parking ramps downtown. The Career Academy is growing and creates significant activity in the immediate vicinity.
Employment	Downtown lacks the ability to attract outside employers. Multiple changes need to happen at the same time. Sioux City is a regional center for the area. In the future, more people will live and work downtown.
Safety	Safety concerns include alleys, right-turns on red, drivers rarely yielding to pedestrians, and summer congestion on Pearl Street. New safety concerns may emerge at Virginia and Gordon Drive following new development.
Pedestrian Uses	Access for people with disabilities is problematic, especially in certain buildings and intersections.
General	Downtown activity seems to be seasonal: slow in the winter but congested in the summer.

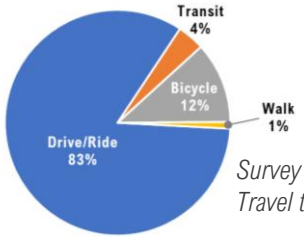
Initial Input from the Community

An internet-based survey was developed with purpose of gathering input about how people currently travel and how they would prefer to travel, which provided the study team with additional information on barriers present across the entire network. The survey was organized to allow separation of responses from people that live in downtown from people that travel into downtown for work, recreation, or other purposes. Over the month the survey was open (from December 2020 to January 2021), a total of 133 responses were received with over 90 percent of the respondents stating they lived outside of downtown. While the residential population in downtown has seen growth in the last several years, it still represents a relatively small fraction of total population in the region. This section presents the responses and comparisons of questions from the community survey.

Travel to and within Downtown

Travelers were asked about the mode they use to get to/from downtown and the mode they use in downtown. Through review of the responses between the two questions we were able to understand the importance of providing pedestrian connectivity within downtown. A third question regarding mode of travel in downtown asked about travelers' preferred mode, to understand whether the current network of sidewalk/skywalks supported travel or whether added facilities are needed. Reponses to the questions were:

- Approximately 83 percent of respondents stated they drove/rode in a vehicle to get to/from downtown.
- Bicycle travel accounted for approximately 12 percent of responses.
- Five percent of the responses noted transit was their travel mode.
- One percent of the respondents walked to/from downtown.

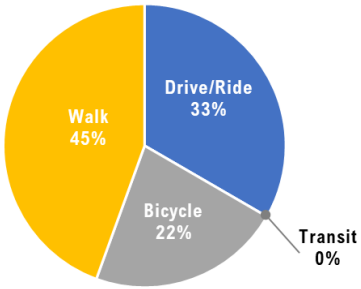


Survey Responses – Mode of Travel to Downtown

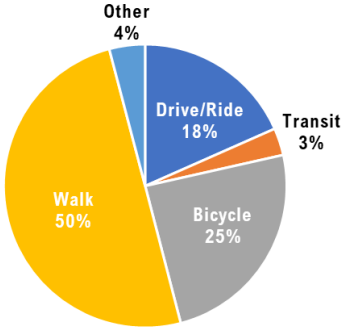
Once in downtown, when there were multiple destinations, the travel model mix changed considerably. Listed below are responses for mode of travel within downtown:

- Walking trips accounted for 45 percent of the responses for trip within downtown.
- Approximately one-third of respondents stated they drove/rode in a vehicle between downtown destinations.
- Bicycle travel accounted for approximately 22 percent of responses.
- Transit was not a within downtown mode used by any of the respondents.

The third question about travel mode reflected on travelers preferred mode while in downtown, which may not be their actual mode due to gaps in the network or other contributing factors. The most significant difference between responses of the actual mode relative to the preferred, is more people would rather NOT travel by car/truck than do. The increment of difference in the vehicle mode between actual and preference was spread across each of the other modes.



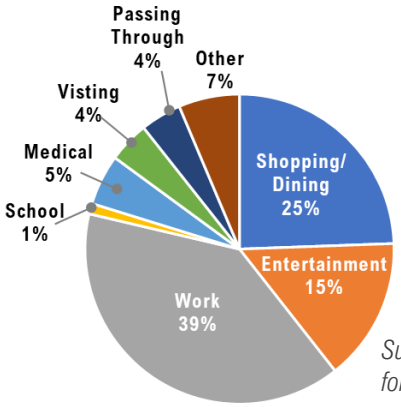
Survey Responses – Current Mode of Travel Within Downtown



Survey Responses – Preferred Mode of Travel Within Downtown

Trip Purpose

The survey allowed people to identify the range of purposes for their trips to or within downtown (if they were a downtown resident). As downtown is a primary employment center, work was the most identified purpose for travel into downtown. Recreational activities such as dining or shopping was the next highest purpose. The remaining purposes of school, medical services, visiting friends who were residents or simply passing through were relatively consistent, however, much lower percentages of the total.

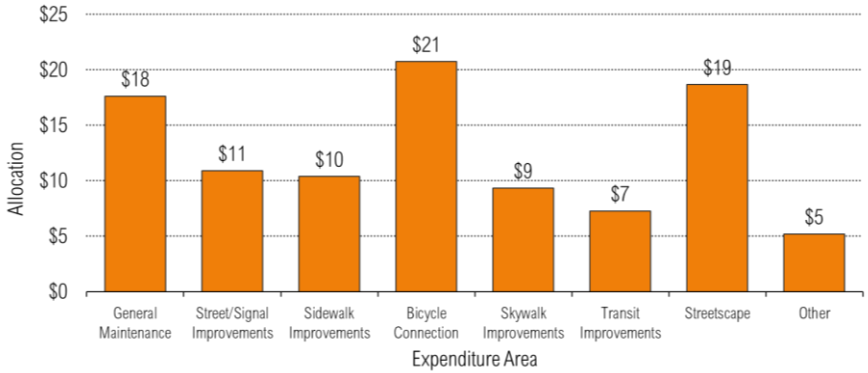


Survey Responses – Trip Purpose for Travel to/within Downtown

Allocation of Improvement Dollars

To understand how respondents believed maintenance and improvement dollars should be spent, they were asked to allocate a $100 budget. A series of categories were provided, and respondents were able to supplement the provided category list, with those responses grouped into the "Other" category. Prioritized responses are outlined below:

- Improving bicycle connections had the most dollars per response ($21)
- Streetscape improvements was second ($19).
- Maintenance of the system was third ($18).



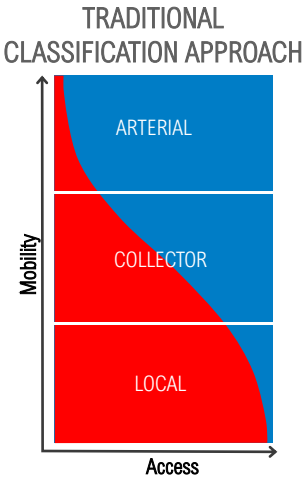
Street Typologies

Background

A core assumption of the Downtown Transportation Study is every street, made up of the vehicle travelway, parking areas and the sidewalk, must, to some degree, accommodate all travel modes while serving a range of travel purposes. Accommodating these central assumptions would establish all streets as complete streets; open and available for people who walk, ride a bike, drive a car or truck or a mix of these modes.

Traditionally in community-wide or even subarea planning, like the downtown study, roads and streets are grouped, or classified, based on how they support two elements, access to adjacent property and mobility, or the amount of travel supported. Streets have been traditionally classified or groups into three types based on function, including arterial, collector and local.

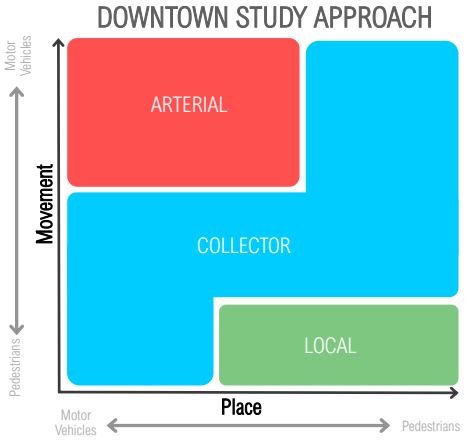
Arterials serve mobility to the greatest extent, with access to property as a more distant secondary function. On the opposite end of the spectrum, local streets principally are intended to provide access to properties, while moving people between places that do not include their home or business is a secondary function.



A more modern approach taken as part of the downtown study replaced the mobility and access terms used to define street classification with ranges of movement and place. Within either of these characteristics is a focus on individual modes from pedestrians to motor vehicles.

Movement considers the distance associated with trips supported, with shorter trips being walking and longer trips by motor vehicle. Similarly, when considering place, those characteristics, and elements supportive of a pedestrian "place" are different than those associated with motor vehicles. The approach allows us to define more appropriately, or classify streets, using characteristics that are more pertinent to the complete streets process, while continuing to allow use the Arterial-Collector-Local Street functional categories traditionally incorporated into transportation plans.

This shift from basing analysis on the mobility-access balance to movement-place supports our efforts to be more focused on how people move about downtown and creating an appropriate and safe environment for all users in assessing needs and opportunities by corridor.



Considering the movement-place balancing approach, each street in downtown was evaluated to understand its current and future roles in moving people, across all modes, in a safe and appropriate environment, which is the place element.

The desired product was a determination and associated reasoning for characterizing the functions specific streets support, including routes for pedestrians to travel within downtown, or a corridor for commuters to get to/from their downtown jobs, or routes for vehicle travel through downtown to get to/from adjacent areas. To get to this product, we gathered data and information from a range of sources that document land uses, trip generation connected to development, and street sections as well as the results from the traffic analysis, crash analysis and physical conditions reviews completed as part of the downtown study. Sources included:

- The transportation plan functional classification map
- The Sioux City Comprehensive Plan
- Transit route maps
- The Active Transportation Plan

Additionally, conversations with MPO and city staff coupled with analysis of routes connecting developments in downtown that likely generate pedestrian trips between them were integrated into the layers analysis.

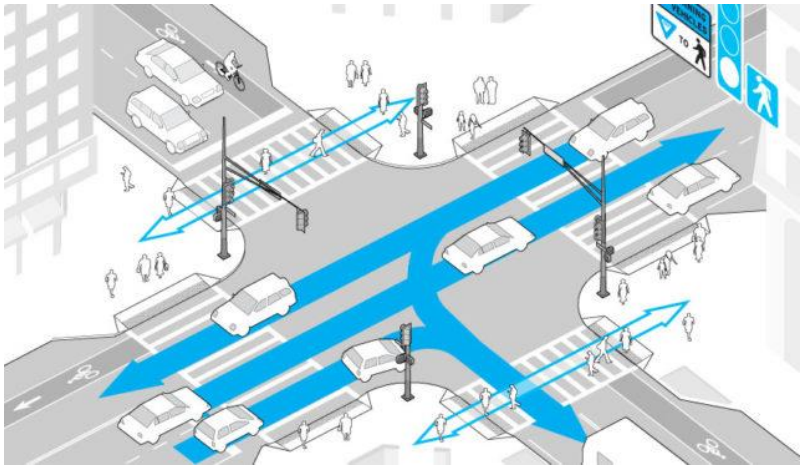
Street Typology Categories

The result of our integration of land use and transportation documents an analysis of a range of data using the movement-place principals, are three categories of street types:

- **Standard Complete Streets:** Standard complete streets are the underlying basis for all routes in downtown Sioux City, as all streets must safety and efficiently support all modes from pedestrians to bicyclists to persons in motor vehicles. Thus, the base condition is all streets are complete streets. Examples of standard complete streets are shown in Figure 10.
- **Pedestrian Emphasis Streets:** These routes connect or provide primary access to uses people would likely walk to or walk between. Routes that access the Public Museum or the library are examples of uses where pedestrian access is important. Additionally, routes or travel paths between downtown residential uses and the library or those along transit routes are preferred pedestrian corridors. Pedestrian safety in these corridors takes on an even higher level of concern and includes treatments to provide buffers between pedestrians and motor vehicles and bicycles. Examples of pedestrian emphasis streets are shown in Figure 11.
- **Bicycle Emphasis Streets:** While bikes are allowed and likely found on every street in downtown, bicycle emphasis streets represent those connecting uses people currently or would ride to office spaces and residential uses or lower volume routes providing continuity across downtown. These routes generally would have less auto and truck traffic, low turnover on-street or no on-street parking, and manageable street grades. Examples of pedestrian emphasis streets are shown in Figure 12.

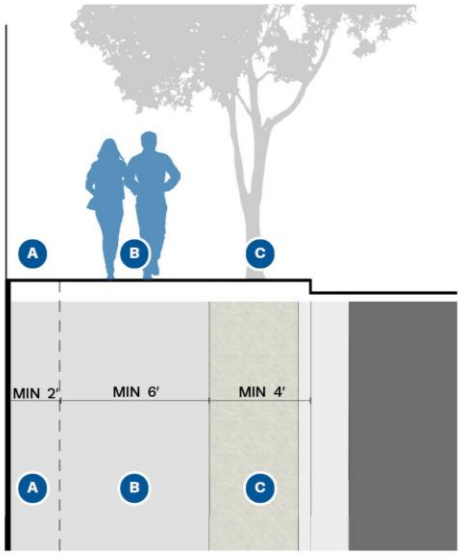
Figure 13 displays recommended designations for streets across downtown reflective the type for the Downtown Transportation Study.

Source: Boston Complete Streets Manual



- Sidewalks on both sides of the street that meet minimum design standards
- Vehicle movement facilitates safe and comfortable walking along all downtown sidewalks and across all intersections
- Vehicle movement allows bicyclists to safely use street travel lanes if bicyclists choose to do so
- Intersections upgraded to comply with ADA standards

Figure 10: Standard Complete Street Examples

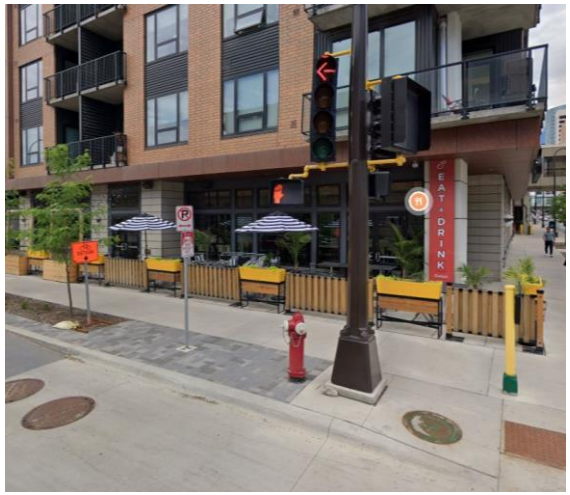


A. Building Frontage Zone
   - Buffer zone between Primary Pedestrian Zone and adjacent building façade
   - May accommodate outdoor dining (if widened)

B. Primary Pedestrian Zone
   - Accommodates pedestrian circulation for all ages and abilities
   - ADA compliant
   - Free of all intrusions

C. Planting/Furnishing Zone
   - Sample zone elements:
     - Street furnishings
     - Street trees
     - Planters
     - Street lights
     - Outdoor dining

New development - Consider visually permeable facades at street level to enhance visual access between indoor and outdoor activities



Adjacent surface parking lots are screened from the sidewalk using ornamental fencing and/or ornamental plantings

- Street right-of-way allocation gives preference to pedestrian space through provision of generous sidewalks.
- If feasible, pedestrian through zones are buffered from vehicular traffic via the planting/furnishing zone and/or on-street parallel parking.
- Pedestrian through zones should minimize pavement textures and pavement joints to increase comfort for people with disabilities.

Figure 11: Pedestrian Emphasis Street Examples

- Street will contain a designated bicycle facility (either on- or off-street) to support bicyclists
- Bicycle facility type will vary based on street traffic volumes and adjacent land uses
- Sidewalks on both sides of street that meet minimum design standards

- Special consideration needed to ensure safe interaction between transit buses and designated bike facility
- Shared use trails are also proposed at select locations outside of designated street right-of-ways

Figure 12: Bicycle Emphasis Street Examples

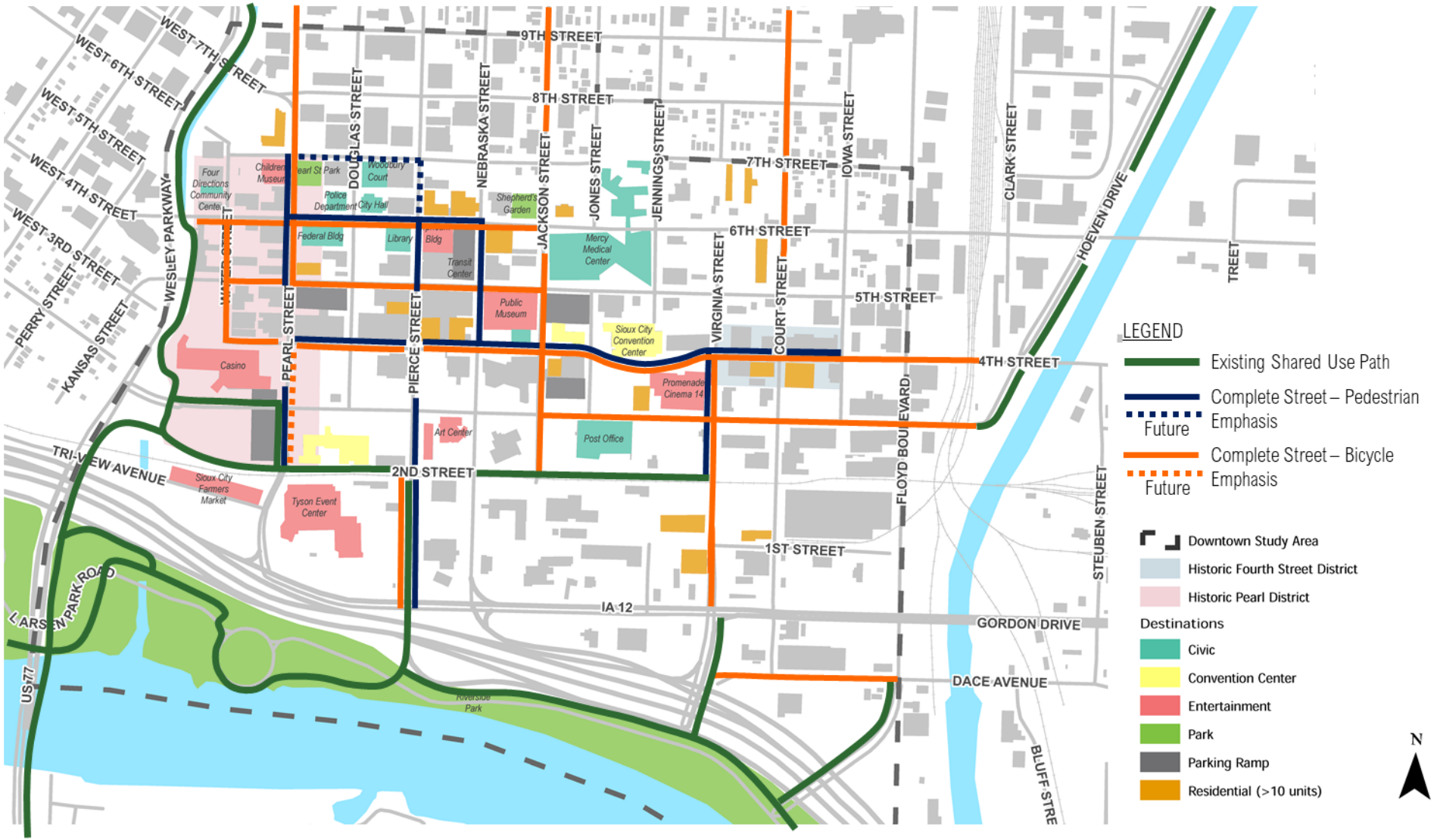


Figure 13: Proposed Street Typologies by Corridor

Redevelopment Areas

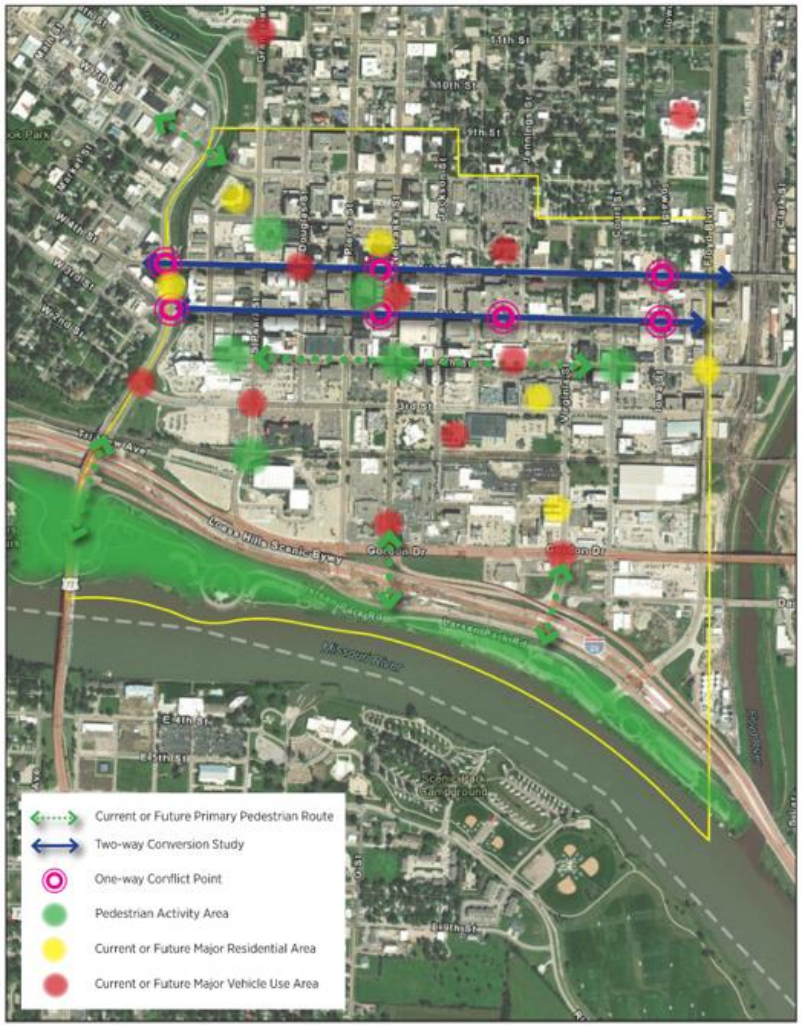
Downtown Sioux City continues to undergo significant changes through redevelopment and reuse, creation and connectivity of open spaces, and in multimodal connectivity. New residential opportunities with more retail and office creates more demand for people to walk to and from work or the store. Redevelopment of the riverfront allows for enhanced pedestrian and bicycle connections between the downtown center and current/future opportunities along the river. Development of the Downtown Transportation Plan incorporates motorized and nonmotorized modes in consideration of addressing travelers entering/leaving, traversing, and circulating within the downtown area. Figure 14 illustrates where these opportunities exist. The green arrows highlight current or future primary pedestrian routes connecting the pedestrian areas shown in green. Yellow areas indicate where current or future major residential areas are located. Red areas show areas where vehicle use is prominent now or expected in the future.

Future Traffic Volumes

The 2014 study for the conversion of 5th and 6th Streets to two-way traffic flow focused on existing traffic volumes, including a conservation of volume within the project area, maintaining current volume trends based on location, and no change of vehicle destination. This methodology also assumed volumes on 5th and 6th Streets were developed to be approximately half of each directional flow shifting to the parallel street. Due to the location of the bridge over the Floyd River, volumes on 6th Street were assumed to be higher than 5th Street as 6th Street would be a more desirable route.

For this current Downtown Transportation Plan, additional detail was included to account for future development changes while using a predictive routing analysis to understand the likely shifts in traffic levels due to the changes to two-way traffic flow on both 5th and 6th Streets. Prior to developing estimates for changes in traffic levels because of two-way flow on 5th and 6th Streets in downtown, base 2045 traffic forecasts were developed from the SIMPCO Travel Demand Model (TDM). The process used to develop future traffic volumes is documented in Appendix A.

Figure 14. Making Connections in Downton Sioux City



IMPROVEMENT SCENARIOS REVIEW AND RECOMMENDATIONS

Development of the Downtown Transportation Plan incorporates motorized and nonmotorized modes in consideration of addressing travelers entering/leaving, traversing, and circulating within the downtown area. To accomplish the task of developing recommendations across all modes the team identified travel generators associated with each mode, defined corridors that support through, entry/exit and/or internal circulation, and developed concepts to meet the desired needs appropriate for each corridor complementing travel by mode. The approach to addressing multimodal system needs in downtown employed a four-step process while tying the concepts back to the street typology identified for this study:

- **Step 1:** Gathered pertinent physical information covering each of the modes at street level and the skywalk network to understand the entire network and characterize current conditions.
- **Step 2:** Used background information to define and map gaps and deficiencies. Understanding the study must also meet future needs, new and redevelopment opportunities that influence travel into and within downtown were identified.
- **Step 3:** With the foundation of current information and ideas of where growth is expected, we developed individual modal network improvement strategies and evaluated the strategies relative a consistent set of criteria that included:
  - Potential to address/fill a gap in the network.
  - Addresses current physical condition deficiencies of the sidewalk, skywalk, or street network.
  - Cost for an improvement relative to the available budget.
  - When is an improvement needed?
- **Step 4**: Narrowed the list of potential improvements to a preferred list and developed a schedule of when improvements may be needed and could fit within the available budget.

Sidewalk Network Improvements

A plan has been developed based on the needs identified in the sidewalk inventory. The plan identifies actions for the following four priorities:

- **First Priority:** Along pedestrian priority streets, address locations where curb-cuts, ramps and other ADA elements are missing or are in poor condition. A low cost, high benefit change recommended as a first step in downtown is to incorporate into the timing plans a leading pedestrian phase where appropriate. With this improvement, 3-4 seconds of leading walk signal time is provided, which allows pedestrians to get into the street before vehicles are released. This simple signal treatment increases visibility of pedestrians by drivers, which reduces the potential for vehicle-pedestrian accidents.
- **Second Priority:** Along pedestrian priority streets, fix sidewalks that are in poor condition, which means there are uneven panels, broken concrete, poor drainage, broken curbs, and other condition issues. Additionally, install ADA curb-cuts and ramps where they are missing on streets that are not pedestrian priority streets.
- **Third Priority:** Address sidewalk deficiencies in corridors that have been characterized as either standard complete streets or bicycle emphasis routes.
- **Fourth Priority**: Add pedestrian bump outs or curb extensions to selected intersections at where two pedestrian emphasis corridors meet. It is anticipated these physical changes would be coordinated with other street improvement or utility projects in downtown.

The four priorities that have been identified are illustrated in Figure 15.

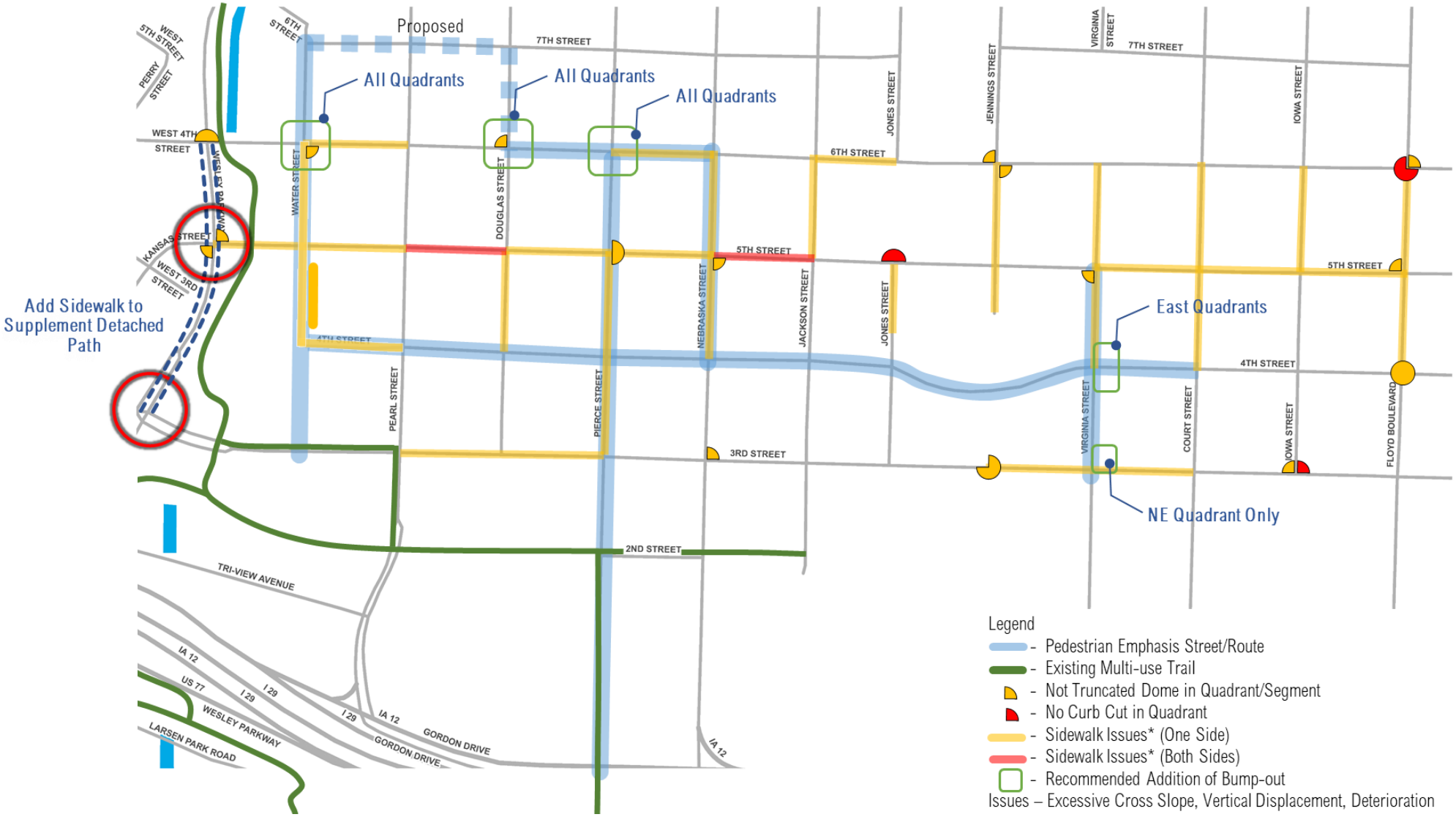


Figure 15: Sidewalk Improvement Recommendations

Skywalk Network Improvements

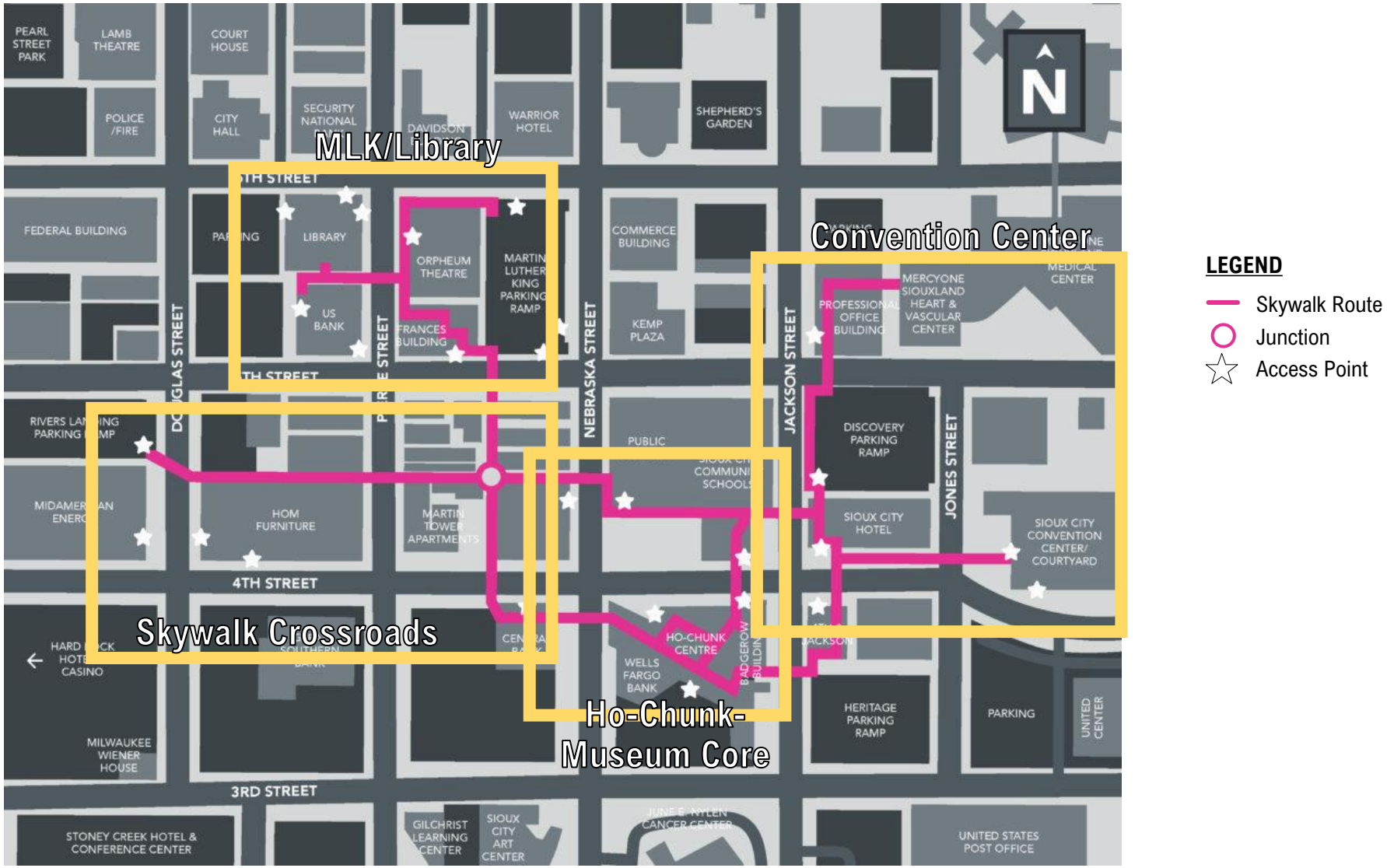
Recommendations for the skywalk element of the pedestrian network range from the basics of maintenance to ideas for expansion as a support to continued development and redevelopment of downtown. Recommendations to the current network include:

- **Maintenance:** Establish a funded maintenance program. Every year there is a list of maintenance-type needs for the skywalk network, however, the level of funding available for maintenance beyond keeping them clear of trash and the windows washed is very limited. The network could benefit from enhanced maintenance to address findings from the 2009 condition assessment, which include replace ceiling tiles and address the cause of water leaks that stain tiles, and repair window seals on bridges over downtown streets. Ensuring the corridors are clean and fresh is central to people thinking the skywalks are safe and inviting to use on nice days as well as rainy, cold, and snowy days. See Figures 15 to 20.
- **Aesthetics:** A clean environment can be enhanced by adding an element of interest. Skywalk corridors provide opportunities for advertising and displaying local artist's work, however, throughout the current network there are long stretches of essentially bare walls. While the environment is warm and dry or cool and dry, the lack of an interesting and inviting environment may be restricting use because the street provides a more interesting and active environment.
- **Navigation:** The combination of using interior and exterior space for the skywalk network inevitably creates the question of what is skywalk space and what is tenant space? While a map of the network provides some direction and can orient people, a clear and present program of letting people know where they are and how they can get to their destination is critical and is missing in many locations in the network. Thus, a plan for not only providing information on where travelers are located, but how to get to their destination or to the street, is needed to improve comfort and convenience of the network.
- **Wayfinding:** Closely aligned with the need to improve wayfinding through the network, there is an equal, if not greater, need to better mark how to get into and out of the network from the sidewalk level. Access to the network from parking garages is generally well marked, but where access is provided along the street level should be the focus on a coordinated access plan associated with wayfinding within the network itself. See Appendix D.
- **Expansion:** In addition to recommendations for the current skywalk network, a charge of the downtown transportation planning effort was to consider future improvements to support continued development and redevelopment. Skywalks, through their controlled environment, can support expansion in downtown if there is a coordinated effort in planning and construction.

Through the Downtown Transportation Plan, a limited number of expansion opportunities tied to new office, residential and entertainment development have been identified. A relatively conservative approach to expansion has been taken as the cost of constructing and maintaining bridges over the street is considerably higher than for maintaining the sidewalk network that complements skywalks, and there is a considerable level of competition for pedestrians between sidewalks on the street level directly adjacent to on-street parking and street level business access.

Seven opportunities for expanding the skywalk network have been identified (see Figures 21-23), with each being associated with potential future lot development or expansion. A central assumption to the concepts parcel development will drive skywalk expansion, not the other way around. Three of the potential expansions were identified on the north end of the current network. The first providing connectivity to the Warrior Hotel Apartments to the Orpheum and MLK parking ramp. The other two more north end expansion ideas are associated with potential development parcels west of the current federal building and development of parcels northeast of Nebraska and 5th Street, which also provides the opportunity to connect with Blue Bird Flats.

A second group of skywalk expansion take advantage of current activity and growth opportunities at the Hard Rock Casino. The Casino is one of the primary activity centers in downtown and its within walking distance proximity to other entertainment areas made up of restaurants and bars, could support expanding facilities from the Rivers Landing parking ramp. Parking lots east of the casino if developed provide the opportunity to expand skywalk facilities across Peirce Street and Douglas Street to serve potential development site. Enhanced access and connectivity for the skywalk network can be provided through creating north-south expansions that complement east-west extensions highlighted in the previous slides. Routes along Douglas Street and extension to the Art Center provides opportunity to create the grid with crossroads at the major east-west routes.

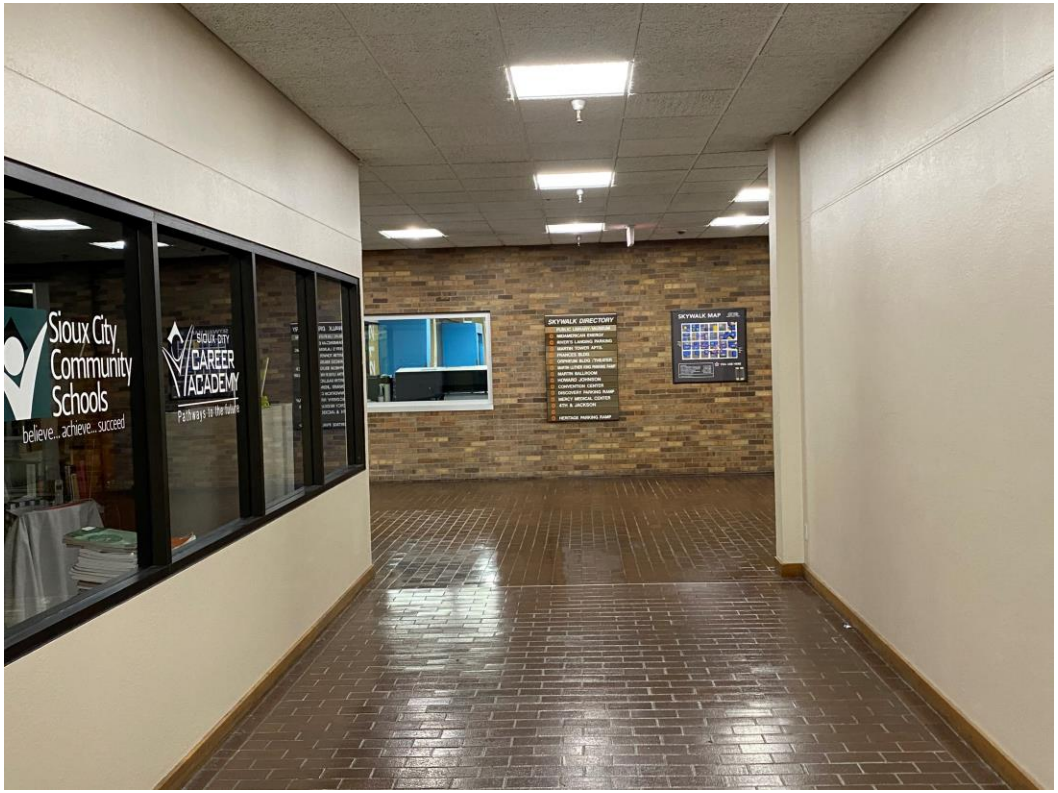


LEGEND

- Skywalk Route
- Junction
- Access Point

Figure 16: Skywalk Network – Areas of Condition Improvement Needs

Ho-Chunk / Museum Core



Recommended Actions

- Correct roof issues and replace ceiling tiles on Ho-Chunk-Heritage skywalk bridge
- Address incipient corrosion and repaint structural members of other skywalk bridges.
- Provide bicycle parking facilities at Heritage Garage.
- Clarify public skywalk access at Career Academy south entrance. Increase visibility of Ho-Chunk skywalk access points.
- Improve wayfinding and directional information at Ho-Chunk and City Museum nodes. Clarify skywalk paths through Ho-Chunk Center to improve orientation.
- Investigate feasibility of a skywalk access at the City Museum
- Identify Nebraska Street entrance on west side of City Museum exterior as a skywalk access.

Figure 17: Ho-Chunk / Museum Core – Recommended Skywalk Actions

MLK-Library

Recommended Actions

- Enhance access and circulation path from MLK Transit Center and bus platform to skywalk level.
- Develop a Downtown Bike Center at the MLK Transit Center.
- Correct skywalk bridge maintenance items noted in 2009 report.
- Identify main entrance of Frances Building as a skywalk access point.
- Within building constraints, use lighting and graphics within the OEB corridor to provide a more welcoming public environment.
- Improve lighting and apparent security for the north skywalk access at the MLK Garage.

Figure 18: MLK – Public Library Area – Recommended Skywalk Actions

Skywalk Crossroads

Recommended Actions

- Complete maintenance items on bridge structures noted here and in 2009 report.
- Develop/Implement an interior development program on "crossroads" segments (wall graphics, transparency and access to adjacent buildings where possible, lighting including color and differentiation of areas)
- Implement a placemaking concept at the "Crossroads" node (introduction of natural light through skylighting or light tubes)
- Develop new skywalk access points on 4th Street between Nebraska and Pierce; and Pierce between 4th and 5th.
- Work with Hom Furniture to reopen access if possible.
- Maximize access points to adjacent developments and buildings.
- Develop alleys under the skywalks (expand mural program, adding alley level transparency, and improving lighting and paving – a "Sioux City Under" concept.
- Interior enhancement of intersection nodes

Figure 19: Skywalk Crossroads Area – Recommended Skywalk Actions

Convention Center

Recommended Actions

- Analyze structure and rehabilitate 5th Street/Mercy Skywalk
- Close existing skywalk entrance to Discovery Garage at 5th and Jackson, retain as exit stair only
- Improve interior of skywalk passage along Discovery Garage
- Renew elevator lobby of Discovery Garage and provide clear graphic guidance of level change
- Improve directional graphics at hotel skywalk node
- Clarify path from hotel entrance to skywalk level
- Complete necessary exterior maintenance and painting of Convention Center and Hotel-City Museum Skywalk
- Address roof issues and repair ceiling tiles at Convention Center Skywalk.

Figure 20: Convention Center Area – Recommended Skywalk Actions

Key	Notes
1	**WARRIOR CONNECTION:** Extends from Orpheum Building to Warrior Hotel - From MLK Parking Ramp using alley west of the hotel. Contingent on SHPO approval. Includes one new bridge.
2	**LIBRARY TO FEDERAL BUILDING LINK:** Extend west from Library and US Bank to connect future development site opportunity. Advancing requires redevelopment on Douglas Street block from 5th to 6th. Includes one new bridge.
7	**5TH STREET EXTENSION:** Extension to Bluebird Flats. Feasible only with future redevelopment along 5th Street corridor, which should incorporate existing retail and hospitality uses.

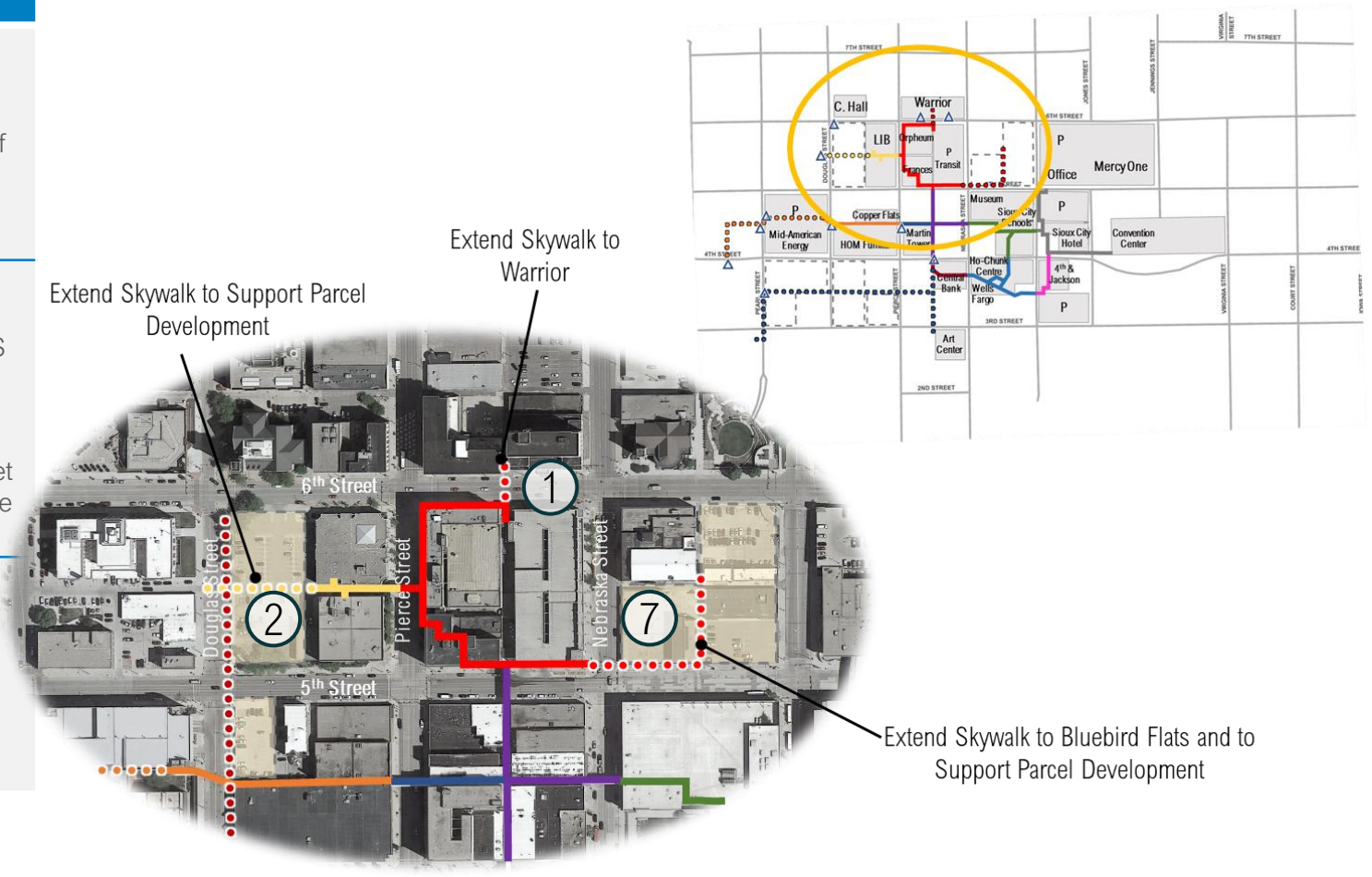
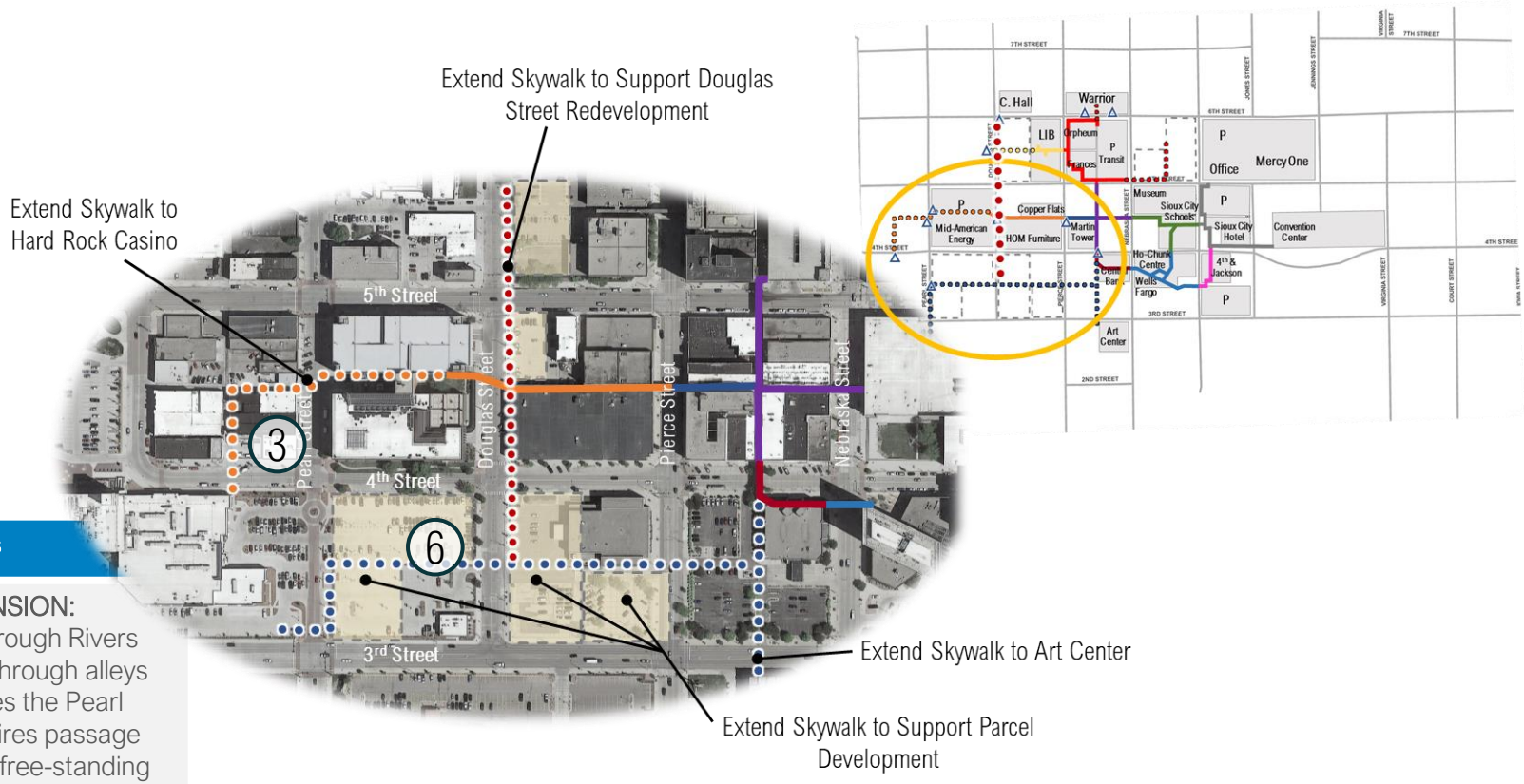


Figure 21: Potential Skywalk Extension Concepts



Key	Notes
3	HARD ROCK EXTENSION: Extends Red Line through Rivers Landing Ramp and through alleys to casino. Also serves the Pearl Street District. Requires passage through garage and free-standing skywalk structure through alley. Limited redevelopment potential. Includes two new bridges.
6	CASINO LOT: New east-west connection between Art Center link and Hard Rock Casino. Requires major redevelopment of casino's current surface lot and other sites between 3rd and 4th Streets. Requires two new bridges.

Figure 22: Potential Skywalk Extension Concepts (cont.)

Key	Notes
4	DOUGLAS STREET: Requires major redevelopment along east side of Douglas and coordination with HOM Furniture. Evaluate whether an INTERIOR route (possibly involving use of a strip of the store's current second floor area) is feasible. Long-term project to be integrated into future redevelopment. Includes two new bridges.
5	ART CENTER LINK: Extension south from Center Bank. Requires and would be incorporated into redevelopment on Pierce Street block from 3rd to 4th. Requires one new bridge.

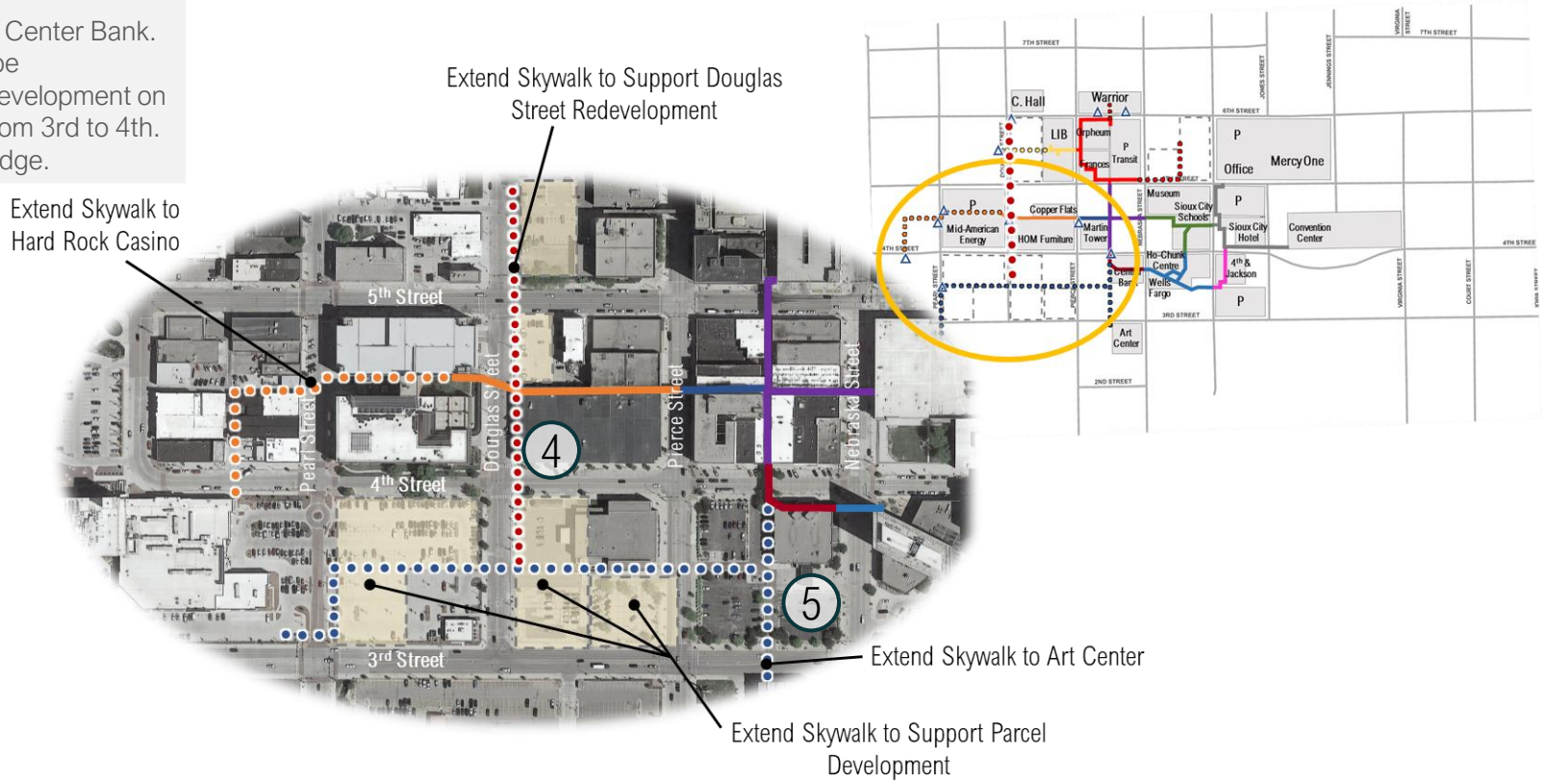


Figure 23: Potential Skywalk Extension Concepts (cont.)

Bicycle Network Improvements

The development of bike network concepts was based on the foundation of:

- Providing connectivity between downtown activity centers and outlying areas through downtown gateways. Gateways include trail access points and streets that connect with surrounding neighborhood.
- Creating continuous routes through downtown.
- Complementing travel between uses in downtown.

For the bicycle element of the multimodal network, the team established guidelines considering potential demand and the current limited presence of facilities including:

- **Street Width**: Street width would not likely (and in most conditions cannot) be widened to accommodate bike facilities.
- **Lane Reconfiguration:** Reconfiguration of travel lanes would likely be acceptable only in conditions when traffic operations could be maintained at current levels (i.e., no reduction in peak hour level-of-service).
- **Lane Width:** As speed limits are low in downtown (30 MPH or less) and traffic volume in most corridors is modest, it would be acceptable to consider narrowing 12 foot or wider lanes to 11 feet. The desire would be to retain wider left turn lanes where feasible to accommodate heavy commercial vehicles.
- **On-Street Parking:** Removing on-street parking to accommodate an on-street bicycle facility is likely not acceptable. While facilities such as striped bicycle lanes or cycle tracks provide a bicycle travel benefit, the consensus was the negative impact of losing parking would be perceived as an unacceptable impact to abutting property owners. Converting angle parking to parallel parking could be acceptable along blocks where parking utilization is low. Reconfiguring on-street parking (e.g., converting pull-in angle parking to back-in angle parking) was acceptable, however, added outreach would be needed before advancing to implementation.
- **Terrain:** Be realistic in considering grade through corridors as it will influence use of the route. The team was sensitive to idea of recommending facilities and those facilities not being used due to difficult terrain will negatively impact additional facility support in the future.
- **Curb Lines:** No modification of curb lines was assumed.

Throughout the study, the range of bicycle applications were referred to as the "ingredients" to be combined to formulate a bicycle facility improvement plan for downtown. To reflect the diversity of need, or demand, across of downtown, various on-street applications were developed and reviewed relative to:

- Availability of space in identified corridors to accommodate the dedicated bike facilities/applications.
- Public input on support for including the concept in a corridor.
- Potential impacts to traffic operations, including on-street parking availability.

Through a combination of coordinating access locations into and out of downtown with streets that connect downtown destinations a connected network of appropriate bike corridors through downtown were identified. Keys to the concepts developed include:

- **Integration:** Integration of individual treatments/ideas into a network plan considered spacing reflective of the range of needs and generators. Consistent spacing between east-west and north-south facilities was provided as appropriate. Consistent spacing of north-south facilities was more successful than for east-west facilities.
- **Continuity:** At least one corridor providing north-south and east-west continuity through downtown was preferred to support travel.
- **Connectivity:** Use of, and connectivity to, the current bike path network is critical.

The concepts draw from the list of bicycle network ingredients applied using some basic guidelines that provide opportunities for bike travel, but do not provide that opportunity at the expense of other users in a corridor. The recommended bicycle treatments by corridor in downtown are displayed in Figure 24.

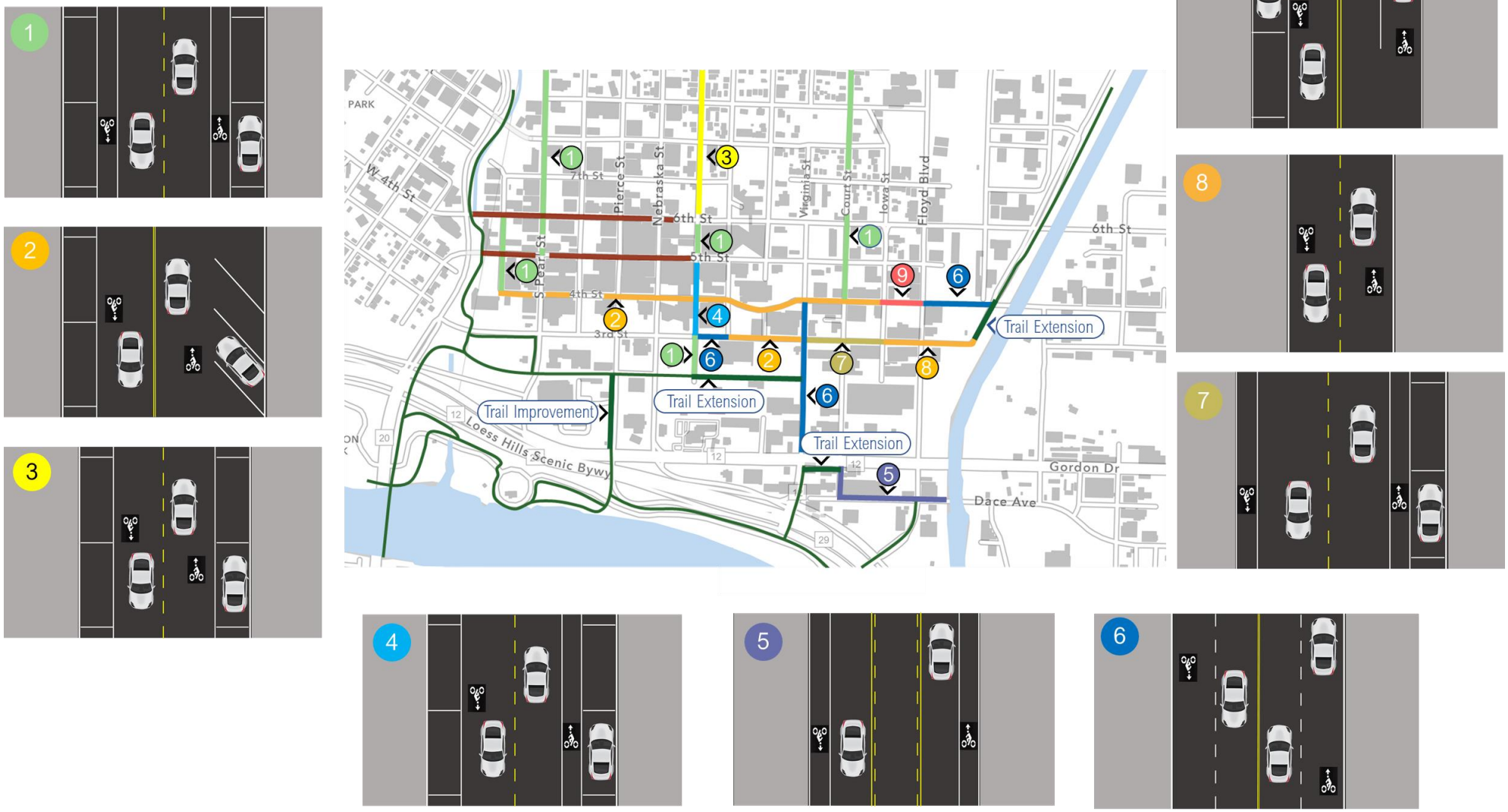


Figure 24: Bicycle Network Recommendations

5th Street – 6th Street Conversion

For the 5th and 6th Street element of the multimodal network, the study considered goals for the downtown transportation network established through prior studies and further defined in Sioux City's Draft Comprehensive Plan, including the need to:

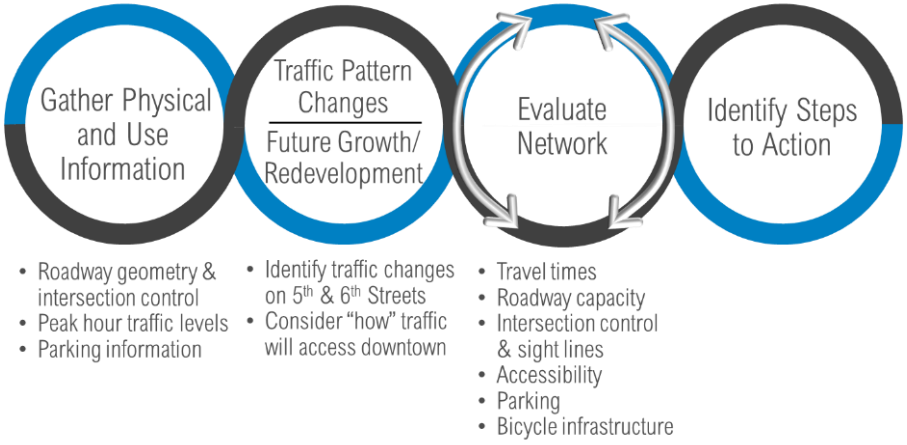
- Remove barriers that limit access to downtown.
- Encourage a pedestrian-oriented environment.
- Place emphasis on minimizing impacts to on-street parking.

A key strategy for 5th and 6th Streets supporting these goals is to convert both streets to two-way traffic flow between Wesley Parkway and Iowa Street. Work completed for this Downtown Transportation Study is part of the due diligence previously recommended for continued evaluation of two-way streets for the downtown area.

Evaluation Process

Building on the study completed in 2014 that identified and evaluated concepts for two-way traffic flow on 5th and 6th Streets, the study team addressed traffic operations and safety using the process illustrated in Figure 25.

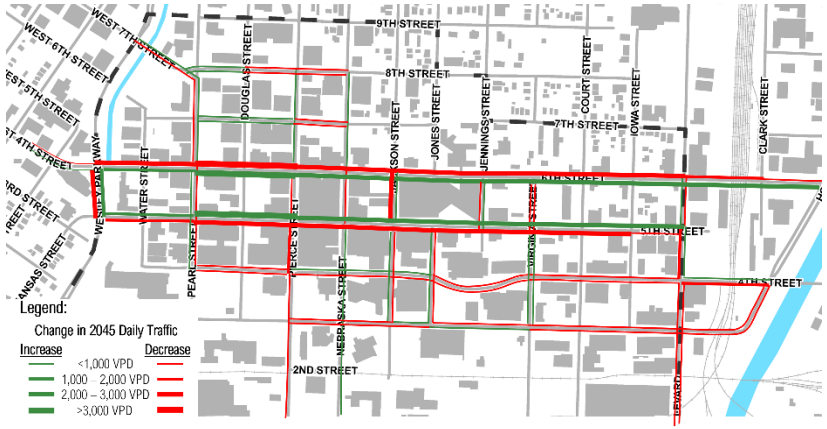
Figure 25. Evaluation Process for Conversion to Two-Way Flow



Changes in Traffic Levels with Two-Way 5th and 6th Streets

With two-way traffic flow on 5th and 6th Streets, most of the changes in traffic levels are expected on 5th and 6th Streets. Expected changes in traffic flow are Illustrated in Figure 26. Green are locations where traffic is expected to increase with the conversion and locations in red are where traffic levels are expected to decrease. When comparing both streets, 6th Street attracts and retains a little more than 5th Street since 6th Street is a continuous east-west route and a good portion of traffic traveling through downtown. Also, with the conversion some traffic from 3rd and 4th Streets shift to both 5th and 6th Streets. These travel pattern changes were used to compare the street network and potential bicycle infrastructure improvements.

Figure 26. Changes in Traffic Levels with Two-Way 5th and 6th Streets



Comparison of Traffic Operations

Traffic operations along the 5th and 6th Street corridors were considered to understand the potential mobility impacts (or benefits) of changing to two-way traffic flow along the roadways. This analysis considered intersection operations and queuing along with corridor travel times assuming a 3-lane cross-section (i.e., one travel lane in each direction with shared center left-turn lane) on both roadways after the conversion. The traffic operations analysis was performed using Vissim, which is a microscopic simulation program that can be used to model complex transportation networks and provides a multitude of metrics for comparison.

Based in preliminary evaluation the cycle length for the two-way conversion was assumed to be an 80-second cycle, which was increased from its current 65-second cycle. With this modification progression is reasonable on both 5th and 6th Streets and key north-south roadways. With the additional conflicts presented with the two-way traffic flow, progression is not as good east-west as with the one-way pair system. Note the timing plans used for this analysis are reasonable for study purposes but would require detailed refinement before developing timing plans for field implementation.

Travel Times

Since most of the changes in traffic levels are expected on 5th and 6th Streets where 6th Street attracts and retains a little more than 5th Street since 6th Street is a continuous east-west route, and a good portion of traffic is "through" so changes in through-to-through travel times are an important consideration for travelers:

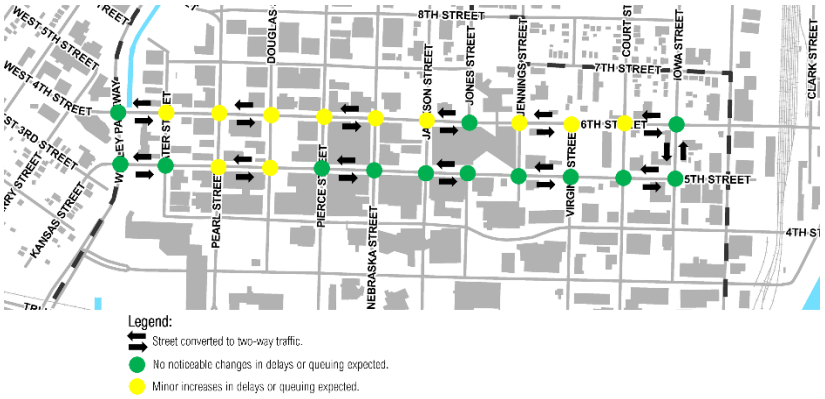
- Pierce Street, Nebraska Street, and 6th Street are expected to have slight increases in travel times where the north-south movements are the most impacted as additional time is needed for east-west movements with reduced lane capacity.
- Between 5th and 6th Street today there are effectively three eastbound travel lanes and three westbound. With the conversion to two-way traffic flow with a 3-lane roadway on both 5th and 6th Streets there would effectively be only two through travel lanes in each direction.

Intersection Operations:

Several intersections along 6th Street could experience minor increases in delays or queuing because of the conversion (see Figure 27). Added conflict points and reduced capacity causes these degradations, but they are only expected to be minor:

- Slight increases in overall delay are expected at Water Street, Pearl Street, Douglas Street, and Pierce Street along 6th Street. Also, slight increases area expected at Pearl Street and Douglas Street, and Pierce Street along 5th Street.
- Queuing at 6th Street and Nebraska Street could extend east to Jackson Street thereby impacting delays on Jackon Street in the southbound direction. As a result, queueing at 6th Street and Jennings Street could also increase towards the east into Virginia Street. Also, slight increases in queuing at 6th Street and Court Street towards the west are expected.
- Potential mitigation for queuing issues at 6th Street and Jackson Street include restriping the southbound approach at 6th Street and Jackson Street to a left-turn + shared thru/right-turn. This improves poor operations southbound (that worsens with conflict from two-way traffic) but would impact on-street parking.

Figure 27. Comparison of Traffic Operations



Traffic operations were also evaluated when keeping one-way traffic flow on 5th and 6th Streets while removing a travel lane to accommodate potential bicycle infrastructure. Based on the results of the analysis the removal of a lane of travel to introduce opportunities for other uses would operate acceptably with minimal degradation in delays and travel times. This supports the guidelines assumed above regarding the potential "acceptance" of introducing bicycle infrastructure that reduces travel capacity.

Accessibility with Two-Way Streets

As we compare street network options it is important to understand the fundamental benefit of two-way streets vs. one-way streets, and that's improved accessibility for travelers destined for downtown. One-way streets cause unnecessary out-of-direction travel, cause confusion for visitors looking to access destinations downtown, and limit storefront exposure for those businesses highly dependent on pass-by traffic. In contrast, two-way streets improve accessibility for downtown users and have a positive influence on businesses dependent on pass-by traffic.

Level of Emphasis on Street Functions

With the benefits of two-way streets defined we can consider different options for how these streets can function. Three key metrics were considered when comparing functionality. These compare the level of emphasis the options provide relative to:

- Minimizing impacts to parking.
- Level of comfort for on-street bicyclists.
- Level of accommodation for turning vehicles and their minimal disruption to travel.

Illustrated in Figure 28 are four options for converting 5th and 6th Streets to two-way traffic or two options keeping them one-way. Also illustrated is the current configuration for reference. The graphs below the options show how the functions are being prioritized (i.e., level of emphasis) for each option. As Option 1 shows, converting 5th and 6th Streets to two-way traffic can be done with minimal or no impacts to parking or turning vehicles. As bicycle infrastructure is prioritized, tradeoffs existing between accommodating parking and turning vehicles. If the long-term decision is to keep one-way traffic flow on 5th and 6th Streets, there are options for introducing bicycle infrastructure into the one-way street system. Similarly, though, tradeoffs would still exist between parking impacts and turning traffic as bicycles are prioritized on 5th and 6th Streets with one-way flow.

Supporting the Downtown Goals

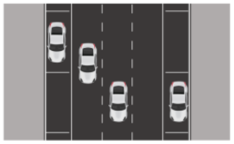
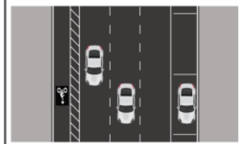
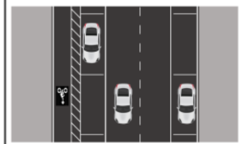
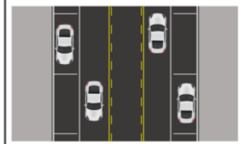
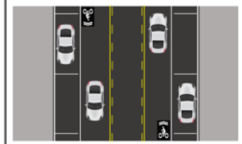
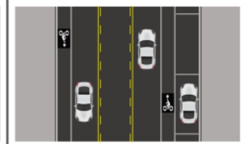
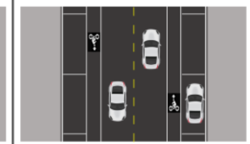
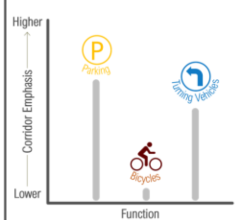
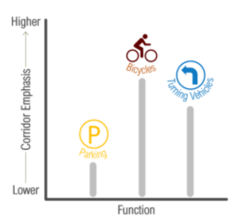
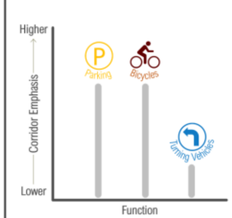
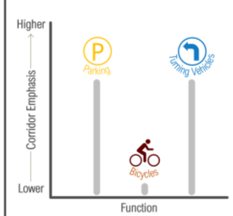
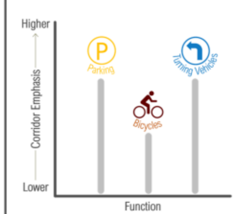
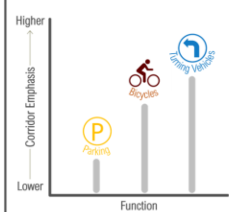
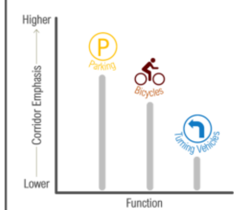
The overall summary comparing the downtown street networks options shown in Figure 28 shows this ongoing evaluation of converting 5th and 6th Streets to two-way traffic flow supports goals developed as part of planning efforts in that the conversion:

- Removes/reduces barriers limiting access to downtown by providing improved accessibility.
- Lowers travel speed with minimal changes to travel times through downtown which better supports a pedestrian-oriented environment.
- Results in minimal impacts to on-street parking.

A key finding of the last two evaluations of the conversion analysis resulted in a consistent finding that with two-way flow, acceptable traffic operations can be established and maintained through the 20-plus year planning period. Thus, we can conclude future discussion of converting the one-way pair to two-way flow would not require an update of the traffic and operations analyses, unless there are substantial changes to the uses directly along the corridors. Substantial changes are those that reflect adding greatly to the density of building mass along 5th and 6th Street, relative to the current and/or proposed levels included in the SIMPCO travel demand model.

The benefits associated with reducing current accessibility and vehicle speed concerns will be relatively minor for individual travelers. Understanding the incremental benefits are small is a critical element in assessing timing as the costs associated with the conversion are substantial (i.e., traffic signal revisions and equipment, signing and pavement marking changes, minor paving work), which means there needs to be support for a longer-term payback of the upfront cost. The conversion can be done absent further investment in streetscaping and enhancements if desired, which were substantial cost items in previous conversion analyses.

Further, integration of bicycle infrastructure concepts into 5th and 6th Streets require careful consideration of the broader transportation picture reflective of two-way relative to one-way flow. Bike network improvements appropriate in the one-way concept may not be in the two-way flow condition. Thus, having a clear understanding of modal and priorities and the trade-offs associated with accommodating various bike infrastructure concepts will need to be part of any future discussions when planning for future improvements or changes to 5th and 6th Streets in downtown.

	One-Way Streets			Two-Way Streets			
	Existing	Option 1	Option 2	Option 1	Option 2	Option 3	Option 4
							
Corridor Emphasis							
Travel Time*	Minimal or no change	Minimal or no change	+10 second increase	-10 second decrease	-10 second decrease	-10 second decrease	+20 second increase
Parking	Minimal impacts or no change	Loss of ~140 designated spaces	Minimal impacts or no change	Minimal impacts or no change	Minimal impacts or no change	Loss of ~140 designated spaces	Minimal impacts or no change
Accessibility	No change	No change	No change	Improved accessibility with more direct routes	Improved accessibility with more direct routes	Improved accessibility with more direct routes	Improved accessibility with more direct routes
Cost	No cost $	<$500,000 $$	<$500,000 $$	$6M $$$$	$6M $$$$	$6M $$$$	$6M $$$$

* Average change in east-west travel times through downtown on 5th and 6th Streets

Figure 28: Overall Comparison of One-way vs. Two-way Streets

Steps to Action for One-way to Two-way Conversion

As continued discussions take place regarding whether to convert 5th and 6th Streets to two-way traffic flow or not, the following steps to action have been identified to aid in the decision-making process:

- **Document the level of support for the idea of the conversion.** Seek input from continued stakeholders regarding converting 5th and 6th Streets to two-way traffic flow. Absent strong support for the conversion, the conversion itself comes at a substantial cost where benefits will likely be realized over the long-term.
- **Identify broader infrastructure projects on 5th and 6th Streets.** As the travel and safety benefits of the conversion are minor for each user, it can be difficult to base the decision solely on traveler benefits. The roads involved are also utility corridors and serve a range of nonmotorized transportation functions. Connecting the argument for timing the conversion with other infrastructure needs (i.e., utility replacement streetscape revitalization, etc.) in the corridor (or for cross routes) will enhance the benefits of the investment. To be a success, the conversion requires substantial investment on both corridors, not just one.
- **Find a partner with funding to reduce the burden on the city.** Seek and pursue partners and funding opportunities to minimize the burden of a stand-alone conversion project. Often, this can be the catalyst to long-term changes for a downtown corridor.