★ **Roll Call Number**

Agenda Item Number
41 B

Date November 19, 2018

APPROVING INCORPORATION OF THE CONNECT DOWNTOWN PLAN AS AN ELEMENT OF THE MOVEDSM TRANSPORTATION MASTER PLAN

WHEREAS, on April 25, 2016, by Roll Call No. 16-0717, the City Council adopted PlanDSM: Creating Our Tomorrow Comprehensive Plan, which includes as a goal that in the year 2040, Des Moines will have a complete transportation system providing safe and efficient infrastructure for walking, bicycling, mass transit, and automobiles; and

WHEREAS, on November 6, 2017, the Connect Downtown Study, previously referred to as the Downtown Walkability Study, was presented by private stakeholders and City staff to the City Council; and

WHEREAS, on December 4, 2017, by Roll Call No. 17-2092, the City Council directed that the Connect Downtown Study, a copy of which is on file in the office of the City Engineer, be received and filed and referred to the Plan and Zoning Commission for review and consideration of inclusion in PlanDSM, with said Commission review to occur concurrently with review of the MoveDSM Transportation Master Plan if and when applicable; and

WHEREAS, the review of Connect Downtown and MoveDSM occurred concurrently with the overall citywide network developed as part of the new MoveDSM Transportation Master Plan; and

WHEREAS, on September 24, 2018, by Roll Call No. 18-1612, the City Council received a communication from the Plan and Zoning Commission advising that at a public hearing held on September 6, 2018, its members voted 12-0 to approve the Connect Downtown Plan as an element of the new MoveDSM Transportation Master Plan.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Des Moines, Iowa, that the Connect Downtown Plan is hereby approved as an element of the MoveDSM Transportation Master Plan.

APPROVED AS TO FORM: Glenna K. Frank

Glenna K. Frank
Assistant City Attorney

MOVED BY _____ TO ADOPT.

(Council Communication No. 18-623)

(21-2018-4.14)

COUNCIL ACTION	YEAS	NAYS	PASS	ABSENT
COWNIE				
BOESEN				
COLEMAN				
GATTO				
GRAY				
MANDELBAUM				
WESTERGAARD				
TOTAL				

MOTION CARRIED APPROVED

_____ Mayor

CERTIFICATE

I, DIANE RAUH, City Clerk of said City hereby certify that at a meeting of the City Council of said City of Des Moines, held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year first above written.

_____ City Clerk

(Contact Communication No.

DOWNTOWN

NOVEMBER 2017

City of Des Moines,
Urban Land Institute Iowa, and
Greater Des Moines Partnership

Acknowledgements

Connect Downtown Project Leads

Larry James Jr., Urban Land Institute Iowa
Meg Schneider, Greater Des Moines Partnership
Brian Willham, City of Des Moines

Consultant Team

Nelson\Nygaard

Paul Moore, Mathew Berkow, Roger Pardo, Corinna Kimball-Brown, Drew Meisel

Speck and Associates

Jeff Speck

Confluence

Christopher Shires

City of Des Moines

City of Des Moines Fire Department
City of Des Moines Public Works
City of Des Moines Traffic & Transportation
Mayor Frank Cownie
Councilman Chris Coleman
Councilman Joe Gatto
Councilman Bill Gray
Councilwoman Christine Hensley
Councilman Skip Moore
Councilwoman Linda Westergaard
City Manager Scott Sanders

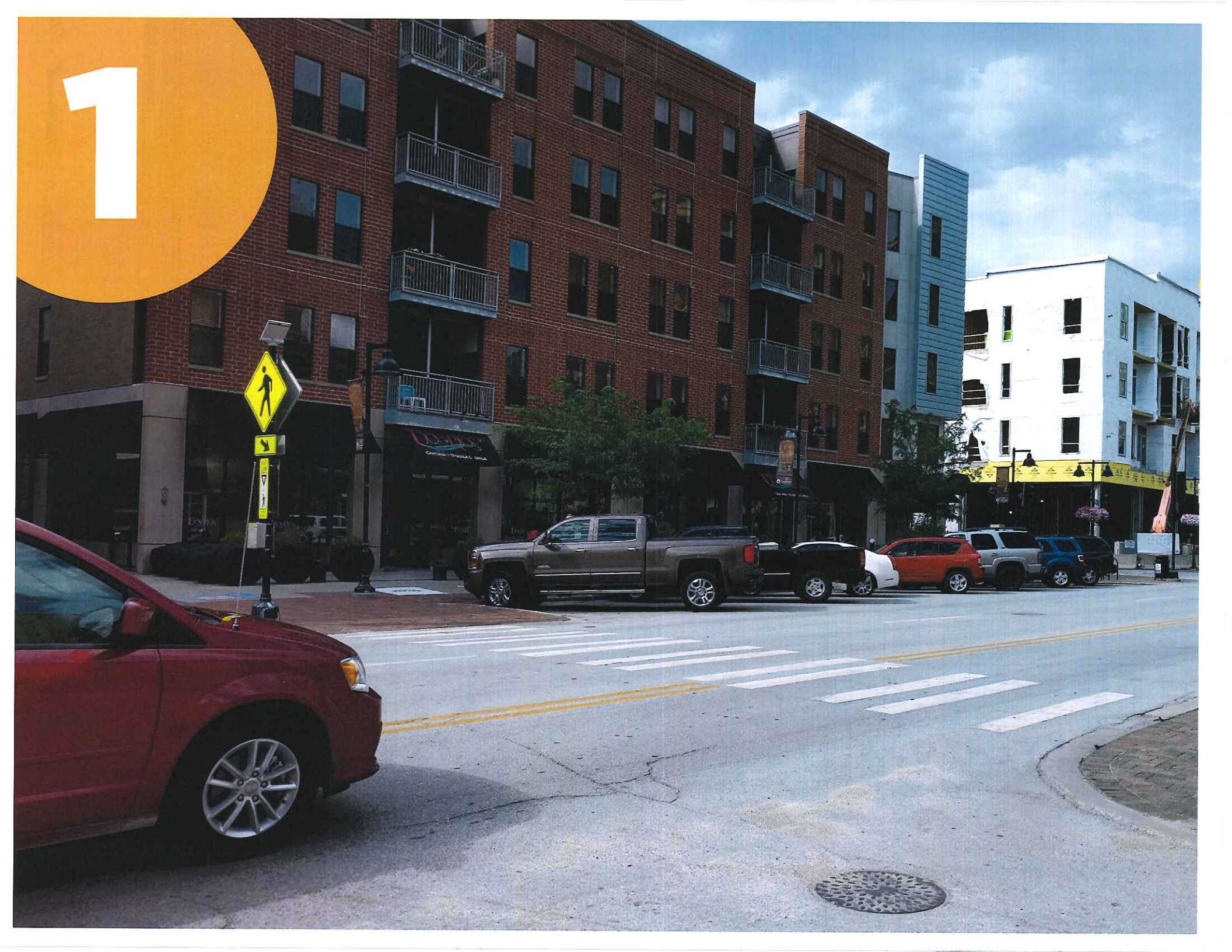
Stakeholder Advisory Committee

DART, Elizabeth Presutti
Des Moines Area MPO, Todd Ashby
Downtown Community Alliance, Tim Leach, Gene Meyer
Greater Des Moines Partnership, Jay Byers, Meg Schneider
Hubbell Realty, Kris Saddoris, Rick Tollakson
Knapp Properties, Aimee Staudt
Kum & Go, Sharon Krause
Operation Downtown, Amy Lego
Principal Financial Group, Teri Button, Ryan Carpenter
Urban Land Institute Iowa, Larry James Jr., Justin Platts
Wellmark, Mary Lawyer, Becky Wampler
Wells Fargo, Emily Bahnsen, Don Pearson

With additional input from

8/7 CentralAARP of Iowa
AC Marriott
Artisans Jewelry
The Avenues of Ingersoll & Grand
Blackbird Investments
Capitol Park Neighborhood Association
Capitol East Neighborhood Association
Christensen Development
Polk County Supervisor
Angela Connolly
Des Moines Area Community College
Downtown Neighborhood Association
Des Moines Bicycle Collective
Des Moines Public Schools
East High School
EMC Insurance
Hatch Development Group
HDR
Historic East Village Association
Homes of Oakridge
Iowa Healthiest State Initiative
Jett and Monkey
Mainframe Studios
Mercy Medical Center
Meredith Corporation
Nationwide
Raygun
Riverbend Neighborhood Association
Sherman Hill Neighborhood Association
Sixth Avenue Corridor
State of Iowa Capitol Planning Commission
Unity Point
Viva East Bank
Carl Voss

CONTENTS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Chapter One

INTRODUCTION

Downtown Des Moines is happening. Compared to ten, five or even three years ago, the amount of growth and business activity downtown is markedly on the upswing. More and more people are choosing to live downtown, and the number of cranes on the skyline is remarkable. It is clear that Des Moines is on the cusp of becoming a different type of city, one that attracts people just because of the kind of place that it is.

Yet, with all this activity, street life is still relatively subdued. Given all the businesses, apartments, and amenities downtown, one would expect to see more people walking and biking. Something is standing in the way of Des Moines becoming the more walkable city that stakeholders say they would like it to be. While other factors matter, it would seem that this impediment is largely the design of the City's downtown streets.

With a few notable exceptions, these streets have not changed much since the 1950s, when they were reengineered to speed traffic in and out of downtown. They do this job quite well, but at the expense of safety for people walking and biking and to the detriment of street-level retail. Many streets have more lanes than they need to handle their traffic load—current and projected—and many of these lanes are wider than they need to be. Both of these factors encourage speeding, as does the one-way configuration of many streets. These three conditions—extra lanes, wide lanes, and one-way traffic—add up to a downtown streetscape that does not welcome walking or biking.

Happily, this problem can be fixed. By modifying both the number and size of driving lanes, a large resource of paved area can be reallocated to better use, typically either parallel parking, bike facilities or both. Adding parallel parking makes people drive more carefully, creates a barrier of steel protecting the sidewalk from moving vehicles, and provides access for customers. Adding bike lanes, especially "low-stress" lanes protected by parked cars, allows bicycling culture to flourish, attracts young professional talent, and makes the streets safer for all users—even people driving. Reintroducing two-way traffic reduces speeding, ends driver "jockeying," and has been shown to both reduce crime and greatly benefit local businesses.[1]

All of these changes can be introduced throughout the downtown with only limited impacts on traffic flows. Systematic traffic modeling shows only a slight increase in peak-hour driving times in the future if all of the proposed street reconfigurations are implemented. But while slight, these changes must be taken seriously. For those people who only speed in and out of downtown each day, and are less concerned about its liveliness or attraction, any increase in driving times constitutes a burden. For this reason, it is important to communicate the trade-offs honestly, which this report attempts to do. But it also asserts, based on the experience of other cities, that the benefits resulting from its proposed changes will be understood in short order to far outweigh a slight increase in driving times.

The other challenge is cost. Changing streets is not cheap, and for that reason, most of the modifications suggested here can be accomplished with paint: reconfiguring the striping between the existing curbs, and modifying elements such as street signs, parking meters, and signals accordingly. Only in very few, important locations are new curbs suggested. While converting from one-way traffic to two-way traffic can require new signals, it is expected that some existing signals can be replaced by four-way stop signs instead, which will offer a savings on long term operations and maintenance costs. All in all, the limited cost of the changes proposed here can be expected to be far outweighed by the economic benefits and lives saved by a street network that helps make downtown Des Moines a place that is not only easy to drive to, but also worth arriving at.

> **"By modifying the number and size of driving lanes, a large area can be reallocated to better use."**

[1]Two-way Street Conversion: Evidence of Increased Livability in Louisville, *Journal of Planning Education and Research, 2015*

GOALS

Safety and Health
Promote safety, health and welfare throughout the Downtown and surrounding neighborhoods

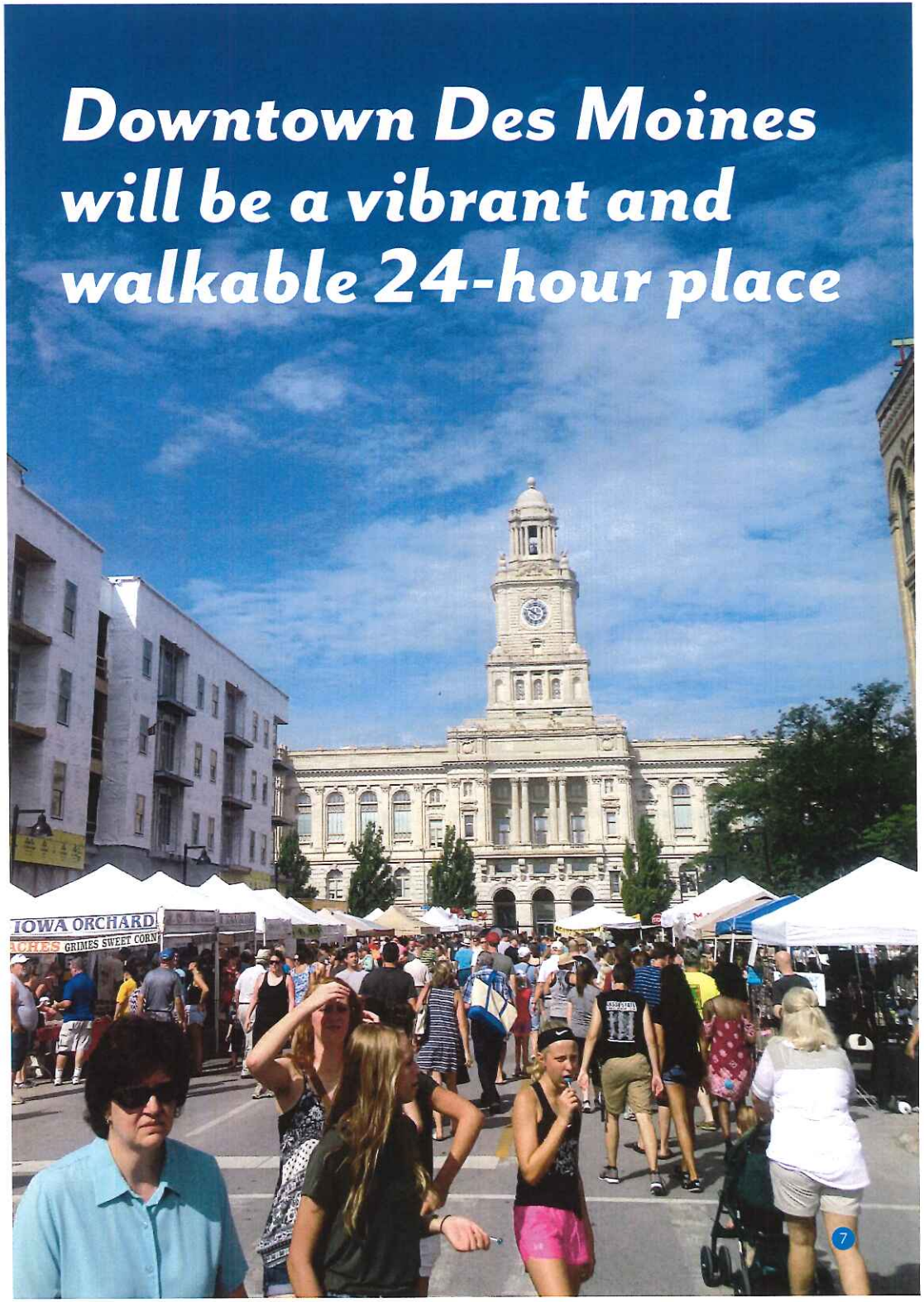
Transportation Choice
People should have the option to comfortably walk, bike, drive, and/or take transit

Economically Successful
Downtown should create an environment that attracts workers and supports retail

Character/Placemaking
Transportation decisions should be consistent with the land use vision of Downtown

Connected
Downtown is the heart of the region and as such needs to be connected to it; Downtown should be connected to the rest of the city, to the regional trail system, and overcome barriers at its edges (e.g., I-235)

Downtown Des Moines will be a vibrant and walkable 24-hour place

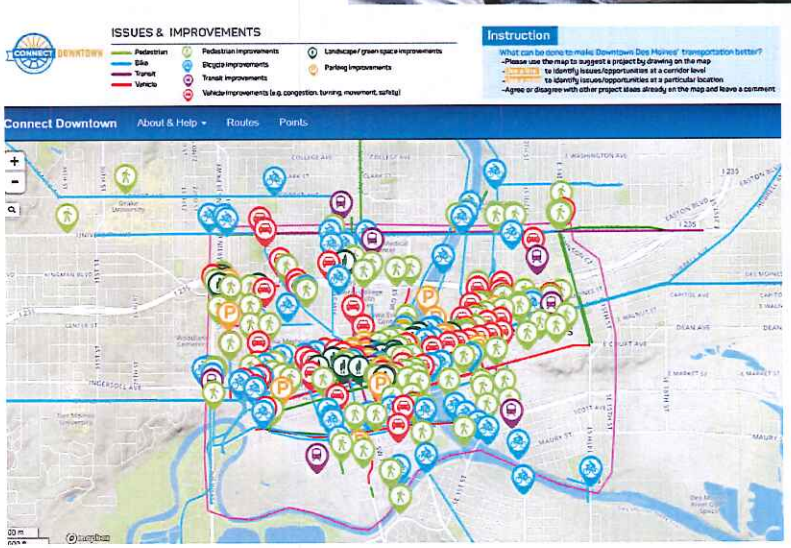


YOUR INPUT

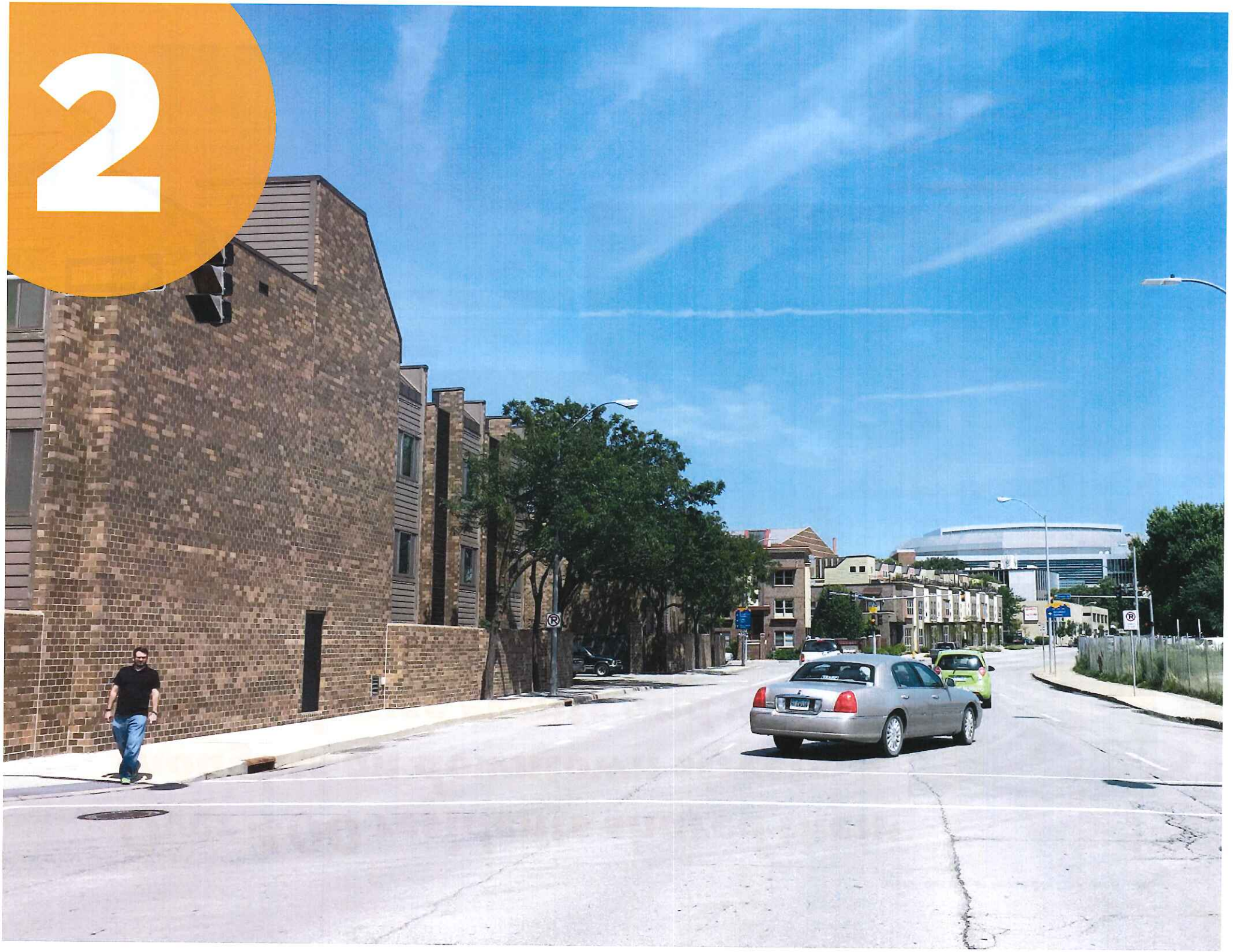
In the fall of 2016, the public identified existing challenges and opportunities from the perspective of a variety of stakeholders in downtown Des Moines at a community open house as well as through an online mapping tool. Key themes from the public include:

- Concerns over high speeds and large roads throughout downtown. The public expressed a desire to reduce speeds, convert streets to two-way operations, and reduce the number of lanes on Grand, MLK, Ingersoll, and several North-South streets.
- Provide for new and enhanced pedestrian crossings at intersections. Many large intersections are intimidating for pedestrians. University Avenue is in need of pedestrian enhancements as it serves as a barrier to neighborhoods north of downtown.
- Improve bicycle connections from the trails network to downtown streets.
- Develop a network of on-street bicycle facilities on streets such as Ingersoll/High, Locust, Grand, W MLK, Court, and University.
- Develop multi-modal connections from new developments south of MLK.
- Manage East Village streets to provide a pedestrian friendly environment that supports the growing commercial attractions.
- Manage streets to minimize high-speed cut-through traffic in Sherman Hill.

Over 400 residents shared their thoughts on downtown streets at open house events and via the project website.



Jeff Speck, a member of the consultant team, presents at an Open House in November 2016. Nearly 400 comments were received at the Open House and through the online mapping tool available on the project website.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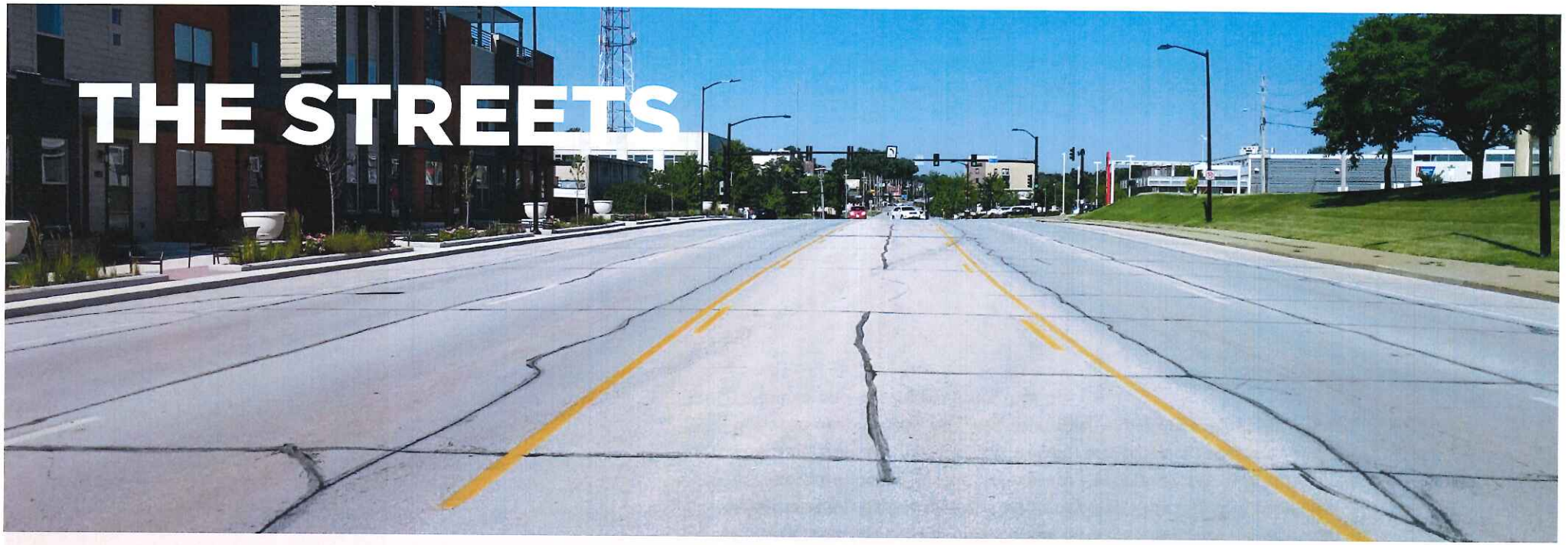
Chapter Two

THE ISSUES

The extent to which downtown is able to transcend its status as just a work destination and realize its potential as a vibrant center of activity and culture and regional destination will depend on its streets.

Downtown is a major employment destination and home to a variety of attractions, including the Sculpture Park, Court Avenue eateries, the East Village, and the Capitol complex. Events bring people to Wells Fargo Arena, the Iowa Events Center, Principal Park, various festivals, and the Saturday Farmers Market. A regional trails network provides access to the beautiful Des Moines and Raccoon Rivers. A gridded street network allows for direct walking and bicycling routes to and between destinations. Still, the downtown experience is not yet what residents and businesses want it to be.

THE STREETS

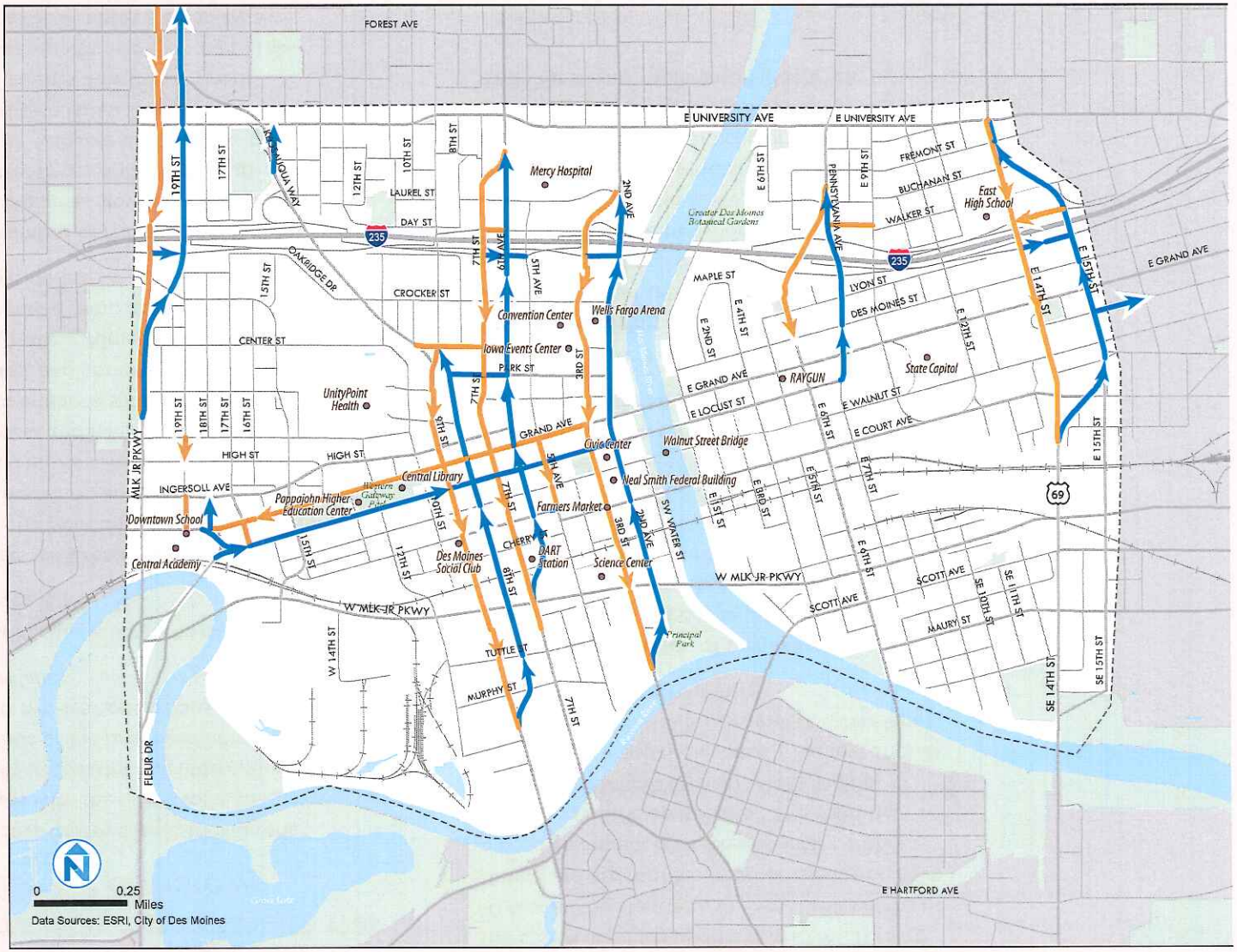


ISSUE: Large streets allow high speeds and detract from safety and the pedestrian environment

The size and speed of downtown streets has a strong impact on the appeal of walking and being downtown. Key issues include:

- **Street design focused primarily on driving.** Des Moines, like many cities, converted many of its downtown streets to one-way operation to facilitate access to newly built freeways. By eliminating the delay inherent in left turns across traffic and by introducing and allowing for synchronized signals, this transformation helped to speed cars to and through its downtown. Unfortunately, it did so at the expense of pedestrian comfort and economic vitality.
- **Streets that support high speeds.** People tend to speed on multiple-lane one-way streets. There is less friction from opposing traffic and a temptation to jockey from lane to lane. Many Des Moiners complain about 'scooping the loop', where people cruise a loop of one-way downtown streets on Friday and Saturday nights—often at unsafe speeds.
- **Streets that do not support retail.** One-ways have a history of damaging downtown retail. The higher speeds of one-way streets detracts from the experience of walking along them and makes drivers less likely to notice or stop at adjacent retail. While there are exceptions, successful commercial activity is typically located on two-way streets.
- **One-way streets result in long detours** in the event of a wrong turn or street closure. This issue has a major impact on DART and the people who rely on transit. Streets closed for events result in long bus detours that disrupt schedules and force passengers to locate and navigate to temporary stops. One-ways also tend to intimidate out-of-towners, who can easily become lost if they miss a turn.

ONE-WAY STREETS



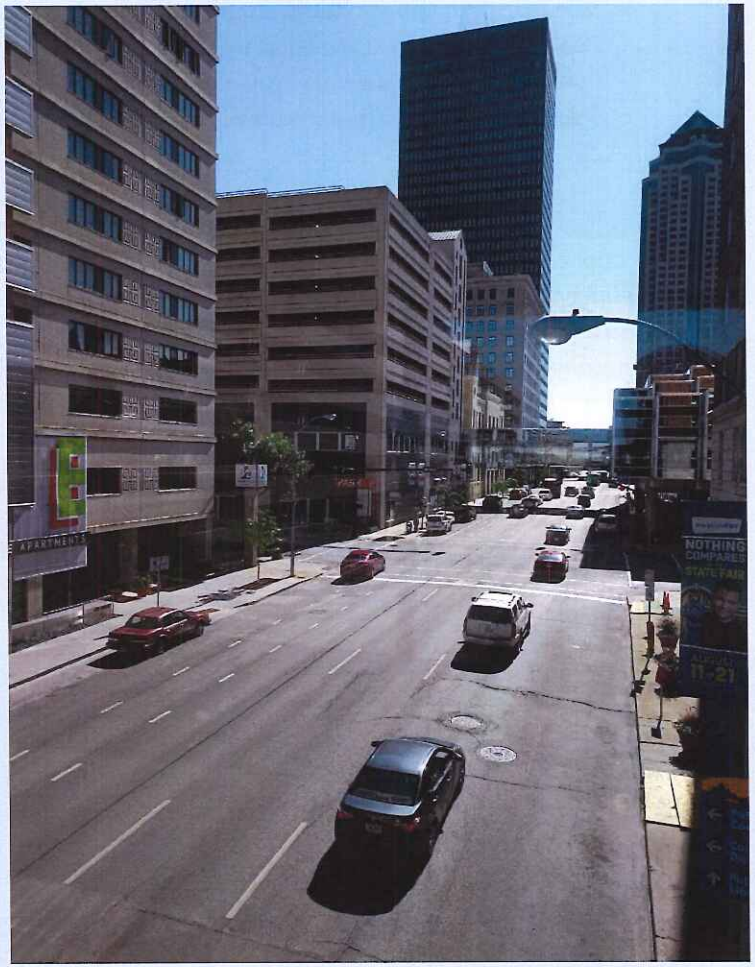
Downtown's many one-way streets support high speeds, inhibit walkability, and limit commercial development.

SOLUTION: Align downtown streets with the vision for downtown

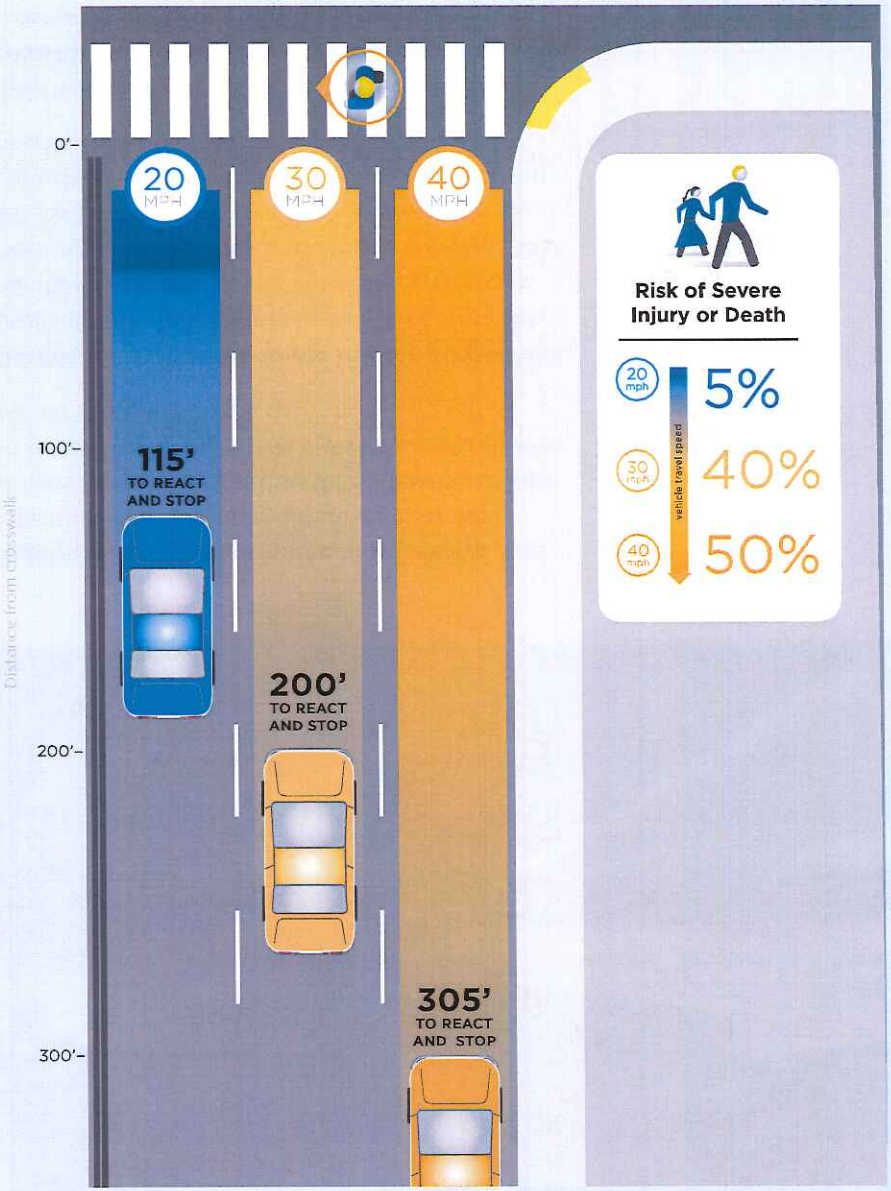
A primary objective of this plan is to align the downtown streets with the vision for a safe, connected, and economically successful downtown. Refer to *Section 4 for maps of the proposed network changes from one-way to two-way operations and to the number of travel lanes.*

The following principles guided the development of the street changes in this plan:

- **Align streets with their function.** Street configurations were developed with careful attention to existing and desired future uses. Considerations included supporting retail potential, reducing speeds and exposure to enhance safety, supporting key transit routes, and completing multi-modal networks. Traffic volumes and commute patterns, parking ramp access, and events were all considered.
- **The right number of travel lanes.** Removing excess driving lanes slows traffic and simplifies crossings, while freeing up pavement for valuable uses such as curb parking and bike lanes. The gridded network of streets downtown means traffic will be able to re-distribute to take advantage of new routes offered by a primarily two-way street network.
- **The right width of lanes.** Lane widths affect the speed at which people drive. NACTO lists 10 feet as the standard, saying, "Lane widths of 10 feet are appropriate in urban areas and have a positive impact on a street's safety without impacting traffic operations." The Institute of Transportation Engineers (ITE) Traffic Engineering Handbook states, "Ten feet should be the default width for general purpose lanes at speeds of 45 mph or less."
- **Careful consideration of turn lanes.** Pedestrians share space with turning vehicles at intersections. Turn lanes increase capacity but also increase potential conflict points. Intersection design downtown should prioritize pedestrian safety and conflict reduction. Turn lanes are recommended only where most needed, based on turning volume counts and the projected travel patterns modeled as part of this plan.
- **Consider applying these concepts citywide.** The above street design principles can extend to corridors outside of downtown to support safe and equitable transportation options throughout Des Moines. Reviewing travel lanes, turn lanes, and lane widths will illuminate opportunities for better accommodating all modes, reducing collisions, and supporting the vision for mixed-use areas in Plan DSM.



Speed is a critical issue in traffic safety, particularly for vulnerable roadway users. Higher speeds reduce reaction time to avoid a collision and increase the likelihood of a collision resulting in a severe injury or fatality.



Source: Table 3-3 AASHTO Greenbook, 2011)

THE WALKING EXPERIENCE

ISSUE: Pedestrians are not on equal footing

Downtown Des Moines has many of the hallmarks of a walkable downtown, including complete sidewalks, short blocks that support direct walking routes, innovative pedestrian crossing treatments, and a multitude of interesting destinations. However, there are several ways in which walking is penalized on downtown streets.

Key issues include:

- **Work zones frequently close sidewalks.** Given the large amount of construction throughout downtown, walking between downtown destinations can be extremely challenging, with sidewalk closures lengthening walking distances and travel times.
- **Sidewalks are often dropped at driveways.** This interruption of the sidewalk sends cues that drivers have priority, rather than signaling drivers to proceed cautiously and yield to people walking on the sidewalk.
- **Double left turn lanes create risk for pedestrians.** Dual left turn lanes at intersections increase the number of conflict points between pedestrians crossing at a crosswalk and turning vehicles. Dual lefts should be used sparingly downtown, with consideration given to their negative impacts on people walking.
- **Insufficient resources to maintain crosswalks citywide.** As a result, the city must prioritize where crosswalks are provided. This is particularly an issue on larger streets at the edge of downtown, such as University, where crosswalk markings at signalized intersections are not always provided or can be difficult to see.

Work zones that do not provide for pedestrian movements interrupt the continuity of the walking realm (left). Dropping sidewalks at driveways does not send the signal to drivers that they should yield to people walking on the sidewalk (right).

SOLUTION: Give equal priority to pedestrians downtown

Goal 1 of the transportation chapter of Plan DSM, the 2016 Comprehensive Plan, is to 'Develop a complete multi-modal transportation network for pedestrians, bikes, transit, and automobiles.' Below are a list of needed actions to bring the needs of people walking up to the level of accommodation given to other roadway users, notably motorized traffic. The City will need to increase staffing and operating budget to implement and maintain the recommended improvements.

- **Require work zones to accommodate the travel needs of people walking and bicycling.** Update Building Obstruction Permit Program to reflect NACTO guidance that 'Any construction project that obstructs the sidewalk should be mitigated through the provision of a temporary sidewalk that affords a safe and convenient passage or clearly directs users to an equivalent nearby detour.' Review recently updated peer guidelines (e.g., Oakland CA, Portland OR, Vancouver BC) to streamline the process of ensuring local guidelines are current with best practices.
- **Prioritize the maintenance of pedestrian crosswalks.** Implement comprehensive plan action T14 to 'Develop an ongoing funded program to improve sidewalk and crosswalk maintenance and repair.' Maintain crosswalks at a rate that ensures they are always highly visible to draw attention to these potential points of conflict between vehicles and people walking.
- **Consider pedestrian impacts in roadway projects and eliminate unwarranted turn lanes.** Utilize a complete streets checklist that ensures all transportation projects consider impacts to other modes. Eliminate turn lanes where possible to reduce the number of conflict points at intersections between people driving and walking.
- **Orient all street signs for two-way travel.** Pedestrians travel in both directions along all streets. Street signs on one-way streets in Des Moines are oriented to vehicular traffic, meaning that pedestrians cannot always see them. This is particularly an issue for visitors relying on street signs to help navigate downtown.
- **Maintain sidewalks at-grade across driveways.** Driveways are potential points of conflict with motorized traffic. At intersections with driveways, sidewalks should be maintained at-grade through the conflict zone. Update sidewalk standards and retrofit existing driveways as part of annual capital investments and re-development projects.
- **Expand the use of innovative signal and street operations strategies to support a pedestrian friendly downtown** including high visibility pavement markings, shorter signal cycles, pedestrian recall (providing a WALK signal at every cycle), slower speed signal progression, extended crossing times, leading pedestrian intervals (LPI), and stricter management of turning movements. Consider making high visibility zebra markings the standard crosswalk treatment.
- **A more vibrant, walkable downtown will result in many more people to draw into the skywalk system.** Develop a plan to increase the frequency and visibility of skywalk access points. Create policies that require street-level skywalk access, where gaps exist, as part of development projects.

This sidewalk design indicates that driveway users should yield to people walking on the sidewalk (Portland, OR) (above). Construction projects should be required to accommodate pedestrian movements under most circumstances (right).

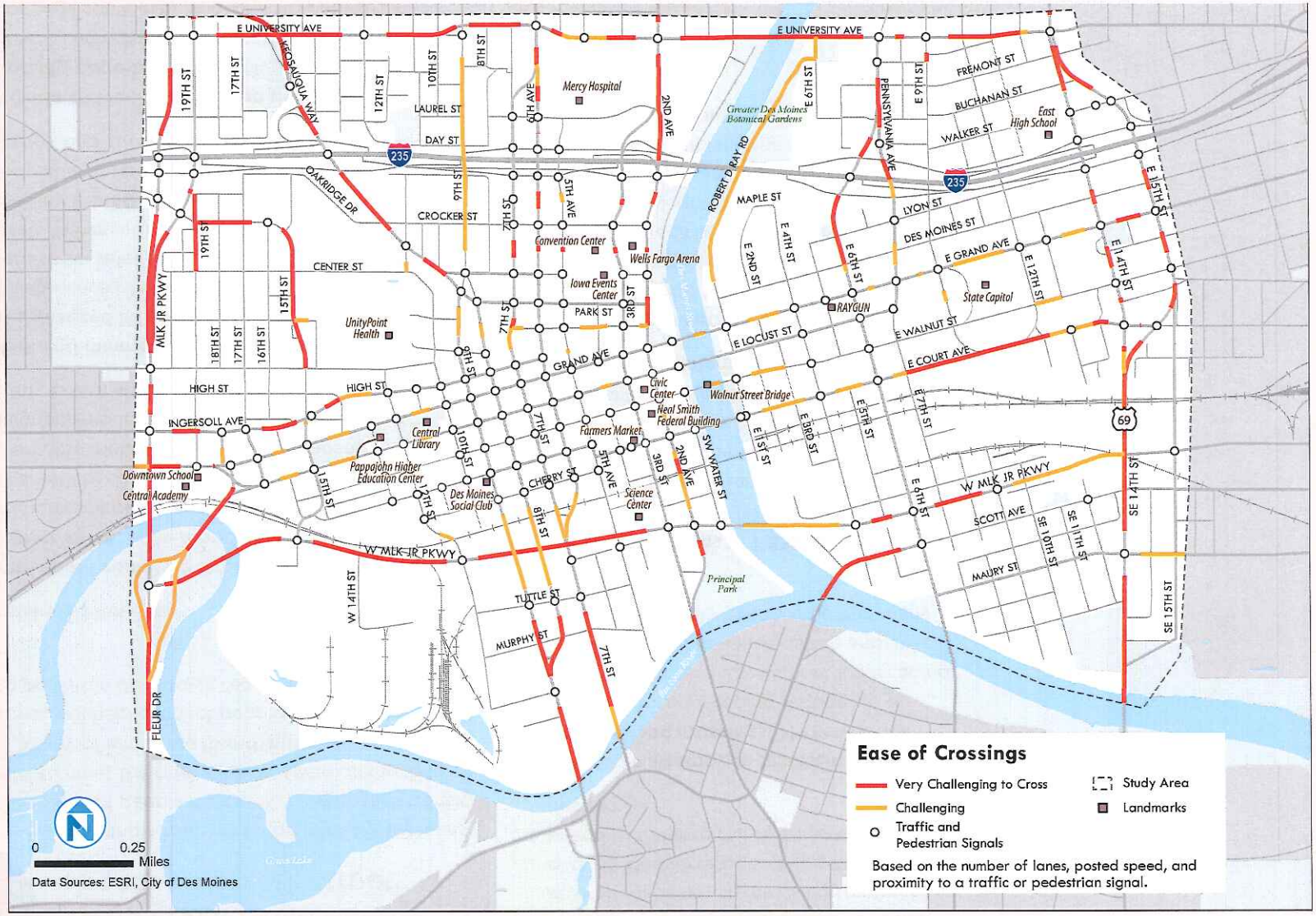
OVERCOMING BARRIERS

ISSUE: Barrier streets isolate downtown from adjacent neighborhoods

Roadways designed for speed, vehicle flow and regional travel have consequences for residents that are reliant on walking, bicycling or public transportation. Many Des Moines residents do not have access to a vehicle on a daily basis, including youth, older adults, and households with fewer cars than people. As such, several large and fast moving streets adjacent to neighborhoods in or adjacent to downtown effectively isolate some residents. An analysis of the number of travel lanes, posted speeds, and proximity to a traffic or pedestrian signal illuminates the challenging conditions that many residents face on a daily basis when walking along and across busy streets, particularly near the edges of downtown.

Key issues include:

- **Long distances between crossing opportunities.** Limited pedestrian crossing infrastructure along University, MLK, E 14th/15th and Keosauqua Way inhibits walkability for adjacent neighborhoods.
- **Crosswalks not always provided or visible.** Crosswalks are not always provided at signalized intersections. Pedestrian and bicycle crossing infrastructure is frequently not present at freeway on/off ramps, making I-235 a significant barrier.
- **Large roads create hazards for school children.** Several schools in the downtown area are adjacent to barrier roads, including East High School (E14th), Capitol View Elementary (E15th), Hiatt Middle School (University), and Carver Elementary (University).



An ease of crossings analysis illustrates areas where there are long distances between marked pedestrian crossings, particularly on larger streets near the edges of downtown.

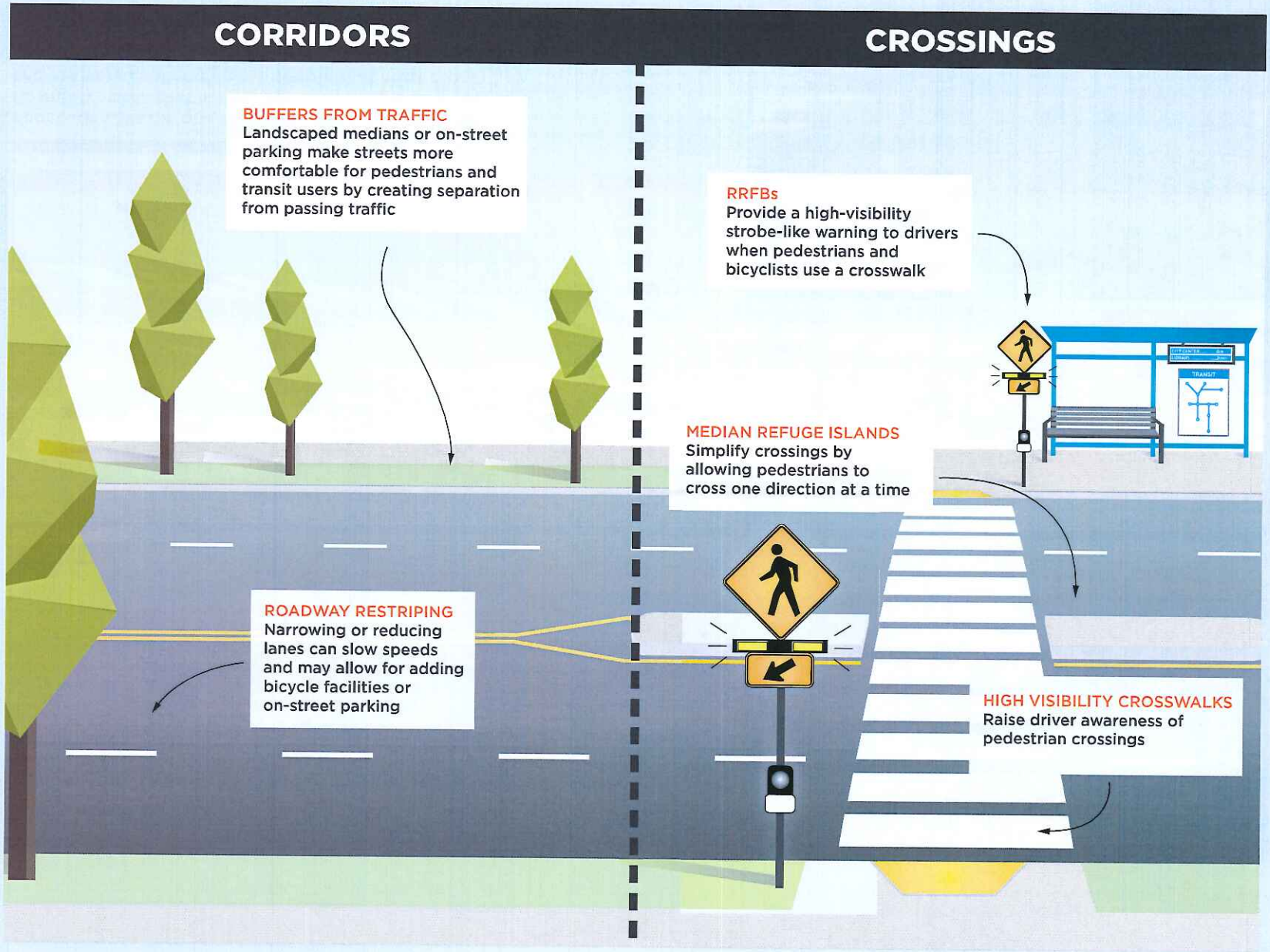
SOLUTION: Make barrier streets complete streets

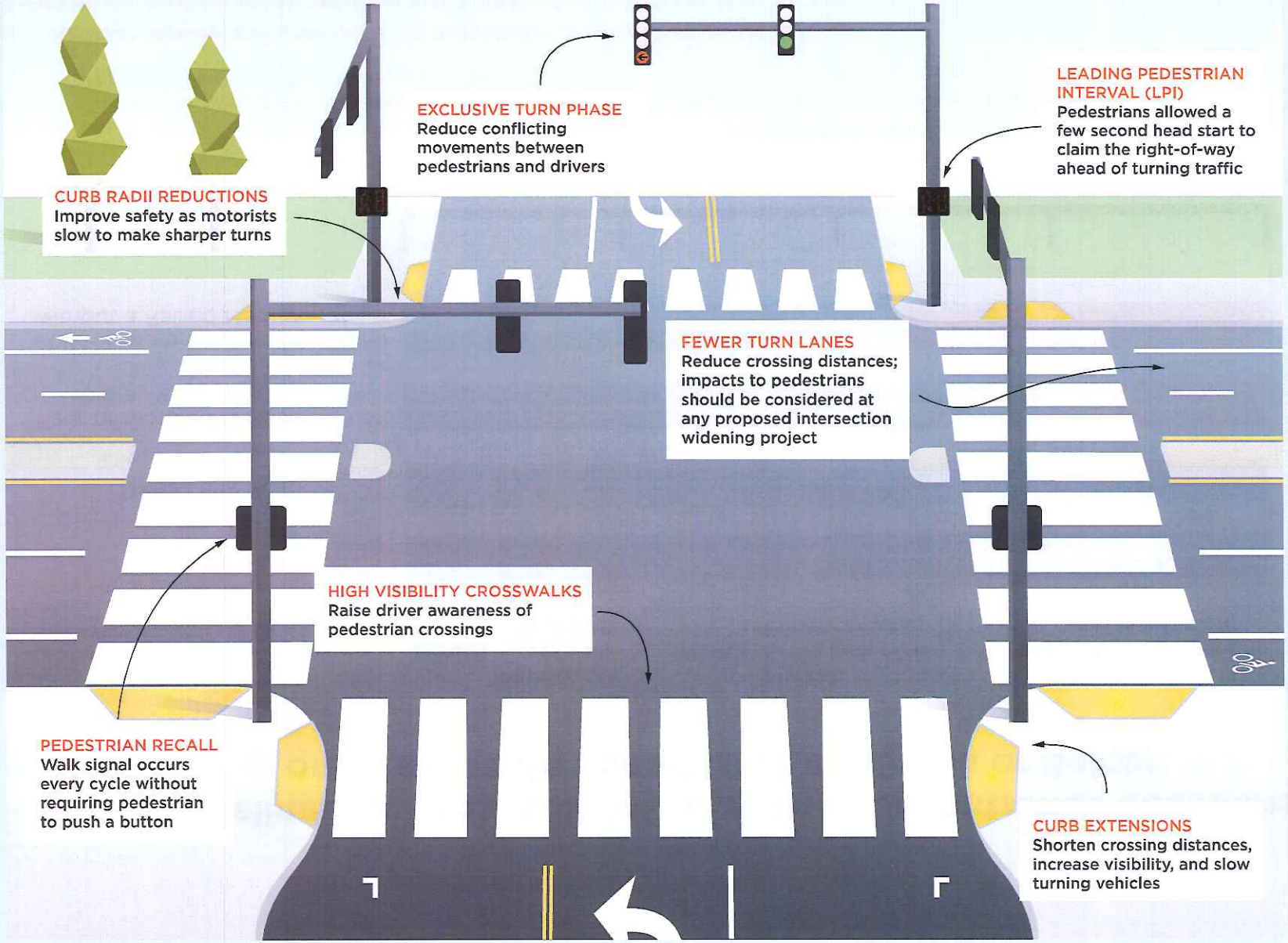
An equitable transportation network balances the needs of people that walk, bicycle, take transit, and drive to meet their daily needs. Overcoming 'barrier streets', many of which are found at the edges of downtown, will help connect people to the places they need to go within downtown regardless of how they travel.

Recommended Actions:

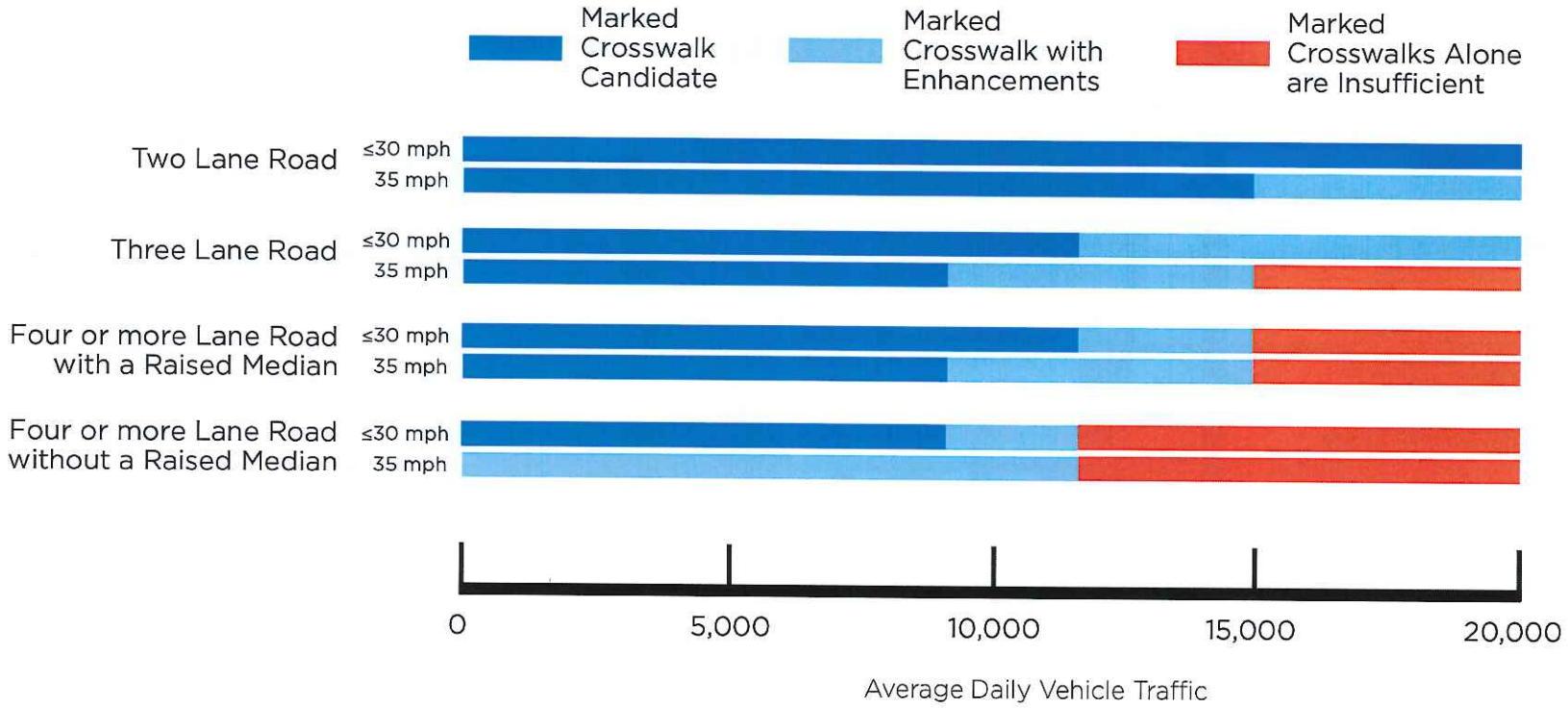
- **Implement complete streets treatments on barrier streets.** The proposed street cross sections will better serve people traveling by a variety of modes. Proposals that will overcome mobility barriers for adjacent neighborhoods include University, KEO, MLK, E 6th, E 14th and E 15th.
- **Mark and maintain crosswalks on all legs of signalized intersections.** Prioritize maintenance of marked crossings to enhance pedestrian safety. Consider other pedestrian safety enhancements, including high visibility crosswalks, curb extensions, leading pedestrian intervals, exclusive left turn phases, and curb extensions.
- **Provide conveniently spaced pedestrian crossing opportunities.** Analyze pedestrian crossing demand on barrier streets. Provide crossings conveniently located to pedestrian desire lines, including near opposing bus stops, recognizing that people are unlikely to walk far out of direction to reach a signalized crossing. Multi-lane, high-speed, and high-volume roads require crossing treatments such as median refuge islands and/or flashing beacons. *Refer to the crosswalk guidelines in Section 4.*
- **Develop a strategy to maintain pedestrian refuge island crossings.** Median refuge islands with landscaping require maintenance. Medians without landscaping are a lower maintenance option and an appropriate safety enhancement in many areas.
- **Enhance crossings of I-235 ramps.** Use design elements such as high visibility crosswalks, curb extensions, reduced turning radii, and bicycle conflict markings to increase visibility between roadway users, shorten crossing distances, and raise awareness of potential conflict areas.
- **Consider the need for equitable housing policies.** Making streets more human-scaled benefits adjacent neighborhoods, but may also make neighborhoods more desirable for new residents in the future. Equitable housing policies and effective community engagement can help the city maintain affordable and equitable housing options downtown.

Keosauqua Way is one of several large streets in the downtown area that isolate adjacent neighborhoods and are very challenging for people that must cross the street on foot.


CORRIDORS
CROSSINGS
BUFFERS FROM TRAFFIC
Landscaped medians or on-street parking make streets more comfortable for pedestrians and transit users by creating separation from passing traffic
RRFBs
Provide a high-visibility strobe-like warning to drivers when pedestrians and bicyclists use a crosswalk
MEDIAN REFUGE ISLANDS
Simplify crossings by allowing pedestrians to cross one direction at a time
ROADWAY RESTRIPING
Narrowing or reducing lanes can slow speeds and may allow for adding bicycle facilities or on-street parking
HIGH VISIBILITY CROSSWALKS
Raise driver awareness of pedestrian crossings
TRANSIT


EXCLUSIVE TURN PHASE
Reduce conflicting movements between pedestrians and drivers
LEADING PEDESTRIAN INTERVAL (LPI)
Pedestrians allowed a few second head start to claim the right-of-way ahead of turning traffic
CURB RADII REDUCTIONS
Improve safety as motorists slow to make sharper turns
FEWER TURN LANES
Reduce crossing distances; impacts to pedestrians should be considered at any proposed intersection widening project
HIGH VISIBILITY CROSSWALKS
Raise driver awareness of pedestrian crossings
PEDESTRIAN RECALL
Walk signal occurs every cycle without requiring pedestrian to push a button
CURB EXTENSIONS
Shorten crossing distances, increase visibility, and slow turning vehicles

Guidelines for Crosswalk Installation at Uncontrolled Locations on Streets with Speed Limit of 35mph or Below



Source: FHWA Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations Final Report and Recommended Guidelines https://www.fhwa.dot.gov/publications/research/safety/04100/04.cfm

Pedestrian refuge islands are appropriate at unsignalized crosswalk locations where the total crossing is 3 or more lanes. Pedestrian-activated tools such as Rectangular Rapid-Flash Beacons (RRFB) and High-Intensity Activated Crosswalks (HAWK) are appropriate in locations that serve pedestrian generators but where full signals are not warranted.

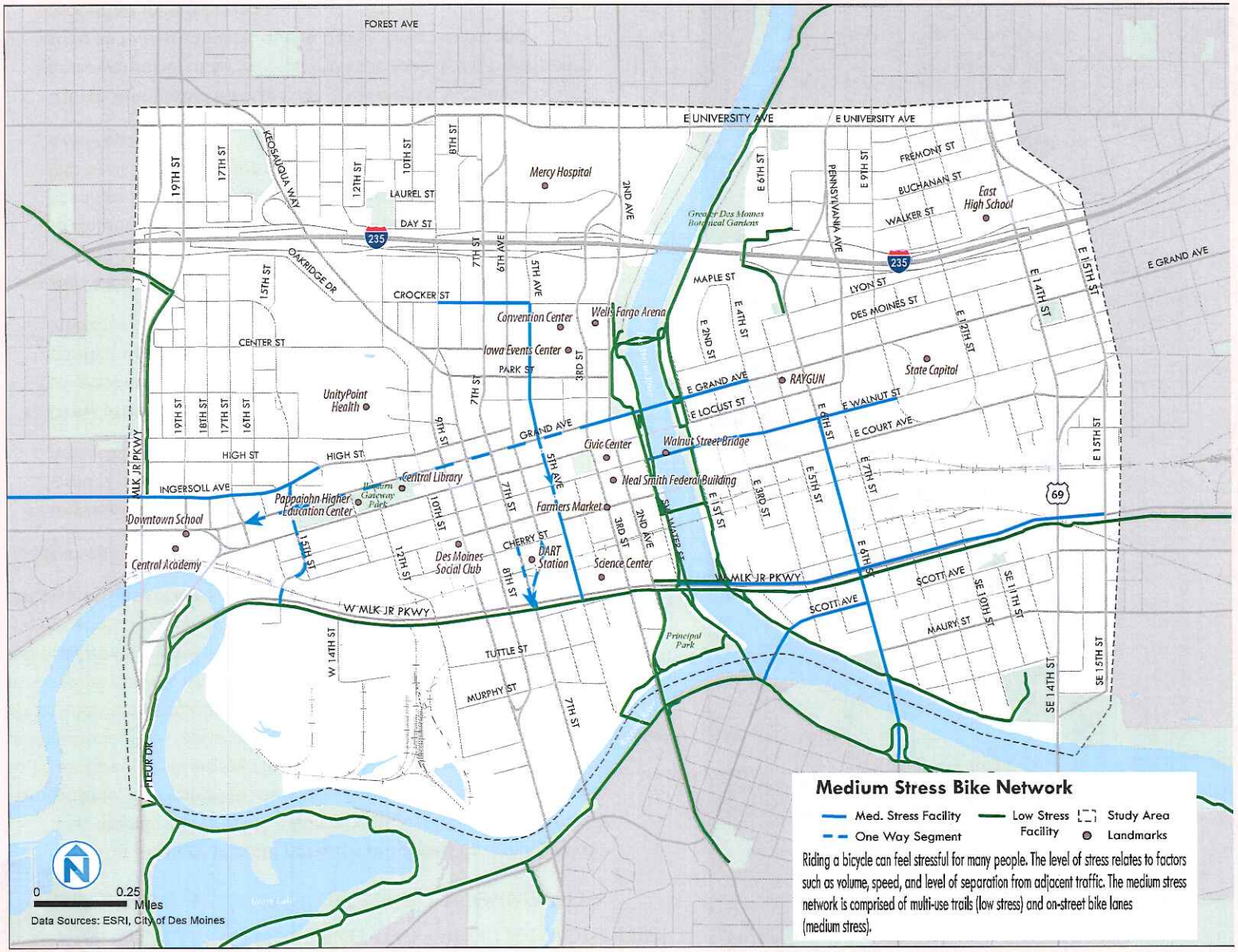
Crossing enhancements such as median islands and flashing beacons are needed on larger roads such as University.

BICYCLE NETWORK

ISSUE: The bicycle network does not connect to places people want to go

Bicycling is on the rise in vibrant and growing cities across the country, including Des Moines. Investments in bicycling have been shown to improve property values, increase retail sales, and help attract millennials with a preference for living in walkable and bikeable neighborhoods. Bicycling investments also support an equitable city, with studies showing that households earning less than $20k per year are roughly twice as likely to bike for transportation as all other income groups. Despite a limited and disconnected network, it is not uncommon to see people bicycling downtown. Key issues with the downtown bike network include:

- **Regional trails do not connect to downtown destinations.** A world-class network of trails deliver people to the edge of downtown in a comfortable, 'low stress' environment. Once downtown, frequent gaps in the network prevent all but the most experienced and 'fearless' riders from reaching their final destinations.
- **Existing on-street facilities do not feel comfortable for most people.** Existing bike lanes serve as a foundation for a more comprehensive network. Uncomfortable areas include the Grand Avenue transition from a right to a left side bike lane as well as the opposing route on Locust Street, which lacks a dedicated bicycle facility.
- **Downtown bike network does not create connections from outside of downtown.** The successful Ingersoll complete streets project represents the only on-street bicycle connection across the study area that facilitates travel in and out of downtown.



The existing on-street bicycle network does not connect to downtown destinations and is uncomfortable for most people.

SOLUTION: Make the bike network feel safe and comfortable for everyone

The **primary bicycle network** proposed for downtown Des Moines will provide a convenient, connected, continuous, comfortable, and complete network. These features are essential to attract people interested in bicycling to and between downtown destinations. The over-supply of travel lanes on many downtown streets offers the unique opportunity to re-allocate space for a bicycle network that serves downtown, connects to adjacent neighborhoods and the regional trail network, and helps achieve the citywide Comprehensive Plan goal of 'a complete multi-modal transportation network.' *Refer to the bicycle network map in Section 4.*

Recommended Actions:

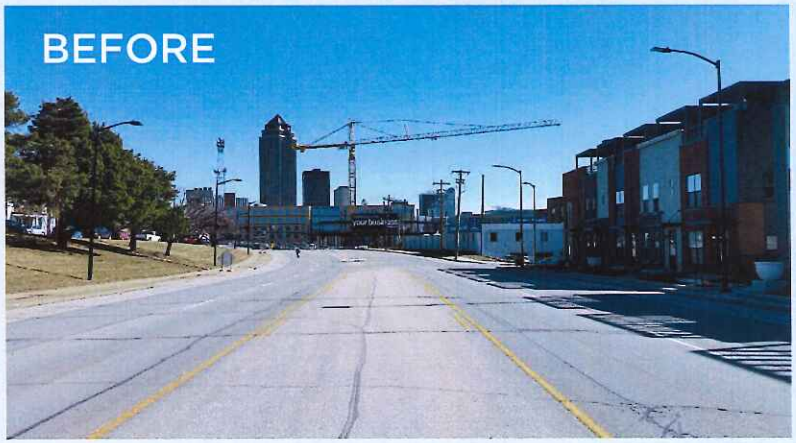
- **Implement the proposed primary bicycle network.** Facilities should provide a comfortable level of separation from motorized traffic.
- **Draw attention to conflict locations.** Use conflict markings to draw attention to areas where bicycles may come into conflict with vehicles at intersections, driveways, and freeway interchanges.
- **Add bicycle detection to signalized intersections.** Update or tune traffic signal detection along the bicycle network to detect bicycles to trigger a green light. On trails parallel to major streets (e.g. MLK), add bicycle detection to the intersection with minor streets or call the WALK signal on every cycle.
- **Utilize innovative intersection treatments.** Increase comfort and awareness of bicycles at intersections using treatments such as two-stage turn queue boxes, bike boxes, and protected intersections

The benefits of protected bike lanes and a complete low-stress network.

A low-stress bicycle network is sometimes referred to as an 8-to-80 network, meaning users from eight to eighty years of age feel comfortable riding there. Neighborhood streets with low traffic may be comfortable without significant infrastructure. As vehicle speeds and volumes increase, people need greater separation from cars to maintain acceptable levels of comfort. Many on-street bikeways feel unsafe for all users, and some bikeways that do provide low-stress options cannot be accessed without traveling far out of one's way, navigating high-speed streets, or crossing large intersections. A solitary high-stress barrier within a low-stress route can be enough to prevent someone from choosing to bike.

Protected bike lanes provide an attractive and safe bicycle facility through the physical separation from motor vehicle traffic using on street parking, curb, and delineators or landscaping. Protected bike lanes may be one way or two way, and are sometimes referred to as cycle tracks. Protected bike lanes have been shown to increase ridership and improve safety, and not just for the bicyclists; protected bike lanes reduce crash numbers for all roadway users.

Bicycle boulevards are low volume residential streets designated as part of the bicycle network. Typical enhancements include wayfinding signage, pavement markings, and enhanced crossings where routes cross busier streets. Traffic calming measures may be used to ensure low vehicle volumes and speeds so people driving and bicycling can share the road. The proposed primary network map includes bicycle boulevards on several residential and/or lower volume streets to complete network connections.



The proposed bicycle network includes many of the most commonly suggested bicycle routes during the plan's public involvement activities, including Ingersoll/High (shown here), Grand, W MLK, Court, and University.

PARKING

ISSUE: Parking policies do not support a walkable downtown and retail access

Management of the downtown parking influences the character, vitality and safety of downtown. Downtown parking is a mix of ramps primarily used by downtown employees, metered and unmetered on-street spaces, and peak hour restricted spaces.

Key parking considerations include:

- **Peak hour parking restrictions have unintended consequences.** In theory, peak hour parking restrictions create parking for part of the day while creating extra travel lanes to support rush hour traffic. In practice, they result in underutilized parking throughout the day and create extra wide streets that support higher speeds and detract from the pedestrian environment. These restrictions are largely unnecessary from a traffic flow perspective on most downtown streets.
- **Parking availability is an issue in the East Village.** Current meter hours in East Village result in limited availability of parking during key business hours and affects the ability of customers to reach retail destinations.
- **Street changes must consider downtown parking ramps.** Employee parking ramps makes up a large share of downtown parking. Modification to street configurations must maintain the smooth loading and unloading of these ramps.

Elimination of peak hour parking restrictions will support slower vehicle speeds.

PARKING

SOLUTION: Eliminate peak hour restrictions and align meter hours and pricing with demand

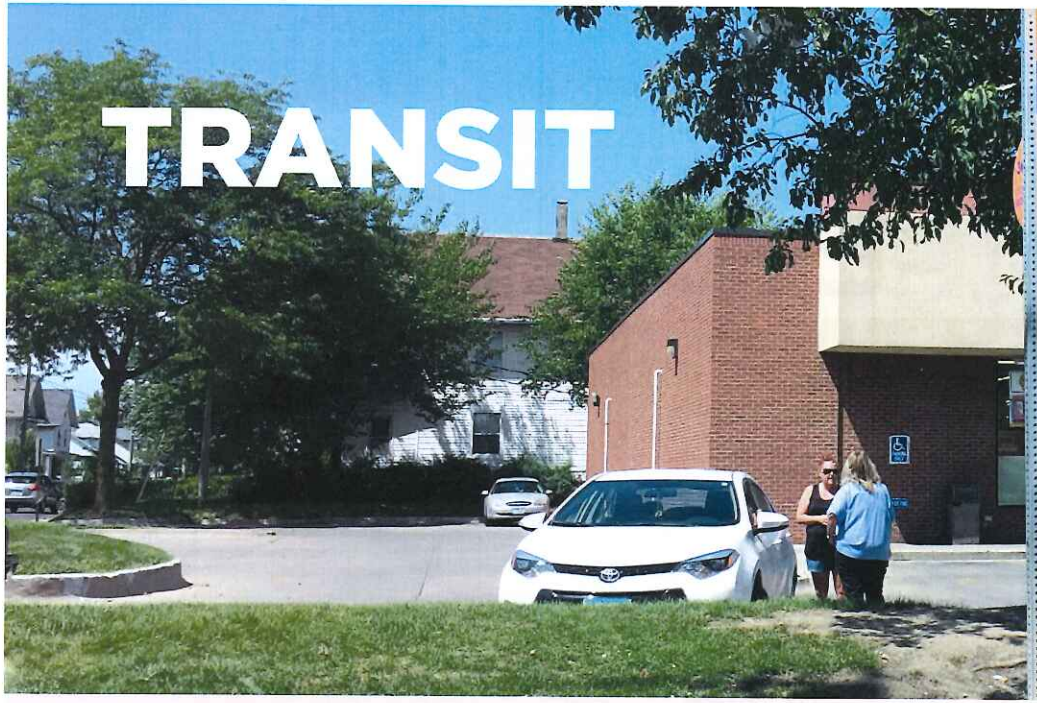
Removing peak hour parking restrictions is an inexpensive way to calm downtown streets. On-street parking narrows the street and creates activity at the edge of the street, which tends to slow vehicular traffic, separates the pedestrian realm from adjacent traffic, and can be used to create low-stress parking protected bikeways. Improved parking management, particularly in the East Village, will make finding a parking space more convenient, ensure regular access so customers can reach retail destinations, and reduce circling. The recommendations of this plan result in an increase in downtown parking supply and maintain parking ramp ingress/egress. *Refer to the parking changes map in Section 4.*

Parking recommendations include:

- **Eliminate peak hour parking restrictions.** Peak parking restrictions are unnecessary to maintain adequate traffic flow given the capacity of downtown streets. Making this parking permanent supports retail viability, slower vehicles speeds, and a more comfortable pedestrian environment.
- **Match parking meter hours to business hours of operations and periods of significant parking demand.** This is particularly important in the East Village where there are fewer parking ramps than west of the river.
- **Revise zoning code to better support walkable, mixed-use development downtown.** Require unbundled parking for rental and for-sale residential, commercial space, and other uses. Require provision of spaces for car-sharing and bicycle parking, and require provision of free transit passes. Establish policies requiring builders of commercial properties to include parking costs as a separate line in leases. Fully eliminate parking requirements downtown.
- **Work with existing employers and residential developments to implement travel demand management measures.** Example practices include unbundling the price of parking or providing subsidized transit passes so people have the opportunity to save money by using less parking. These measures should pay attention to the relative cost and ease of multimodal options as compared to driving alone.
- **Consider loading zones during detailed design phase.** Consider the need for loading zones on retail streets, typically 60' in length, during the detailed design phase of the roadway reconfiguration projects.

On-street parking and curb extensions support walkability on Court Avenue.

TRANSIT



ISSUE: Street design and special events impact downtown transit

Downtown streets are important to the transit user experience in many ways. The size and speed of the street impacts the comfort of waiting for the bus and the ease of crossing the street to reach stops. The extent of the bicycle network affects the ease of combining bike with transit to reach destinations further from stops. Finally, when streets are closed for special events, transit providers must develop alternate routes and transit users must be aware of the detours and know how to find the relocated stop. For people that rely on transit to meet their daily needs, unforeseen detours and longer travel times can impact their ability to reach their destination on time.

Key issues impacting downtown transit include:

- **One-way street network results in long bus detours during events.** Downtown Des Moines hosts a myriad of events throughout the year, many of which include temporary street closures (typically Grand/Locust). The large number of one-way streets requires longer out of direction detours for DART and inconvenience for riders.
- **Limited pedestrian crossings near bus stops on 'barrier' streets.** The core of downtown has short blocks and frequent traffic signals. On larger streets at the edge of downtown, longer signal spacing results in stops that are not located near dedicated places to cross the street.
- **Bicycle access to DART station and other stops.** DART buses have bike racks on the front of the bus, making it easier for transit users to reach their final destination. A complete on-street bike network would support the many transit users that combine bike and transit trips.

Bus detours due to special events are common in Des Moines.

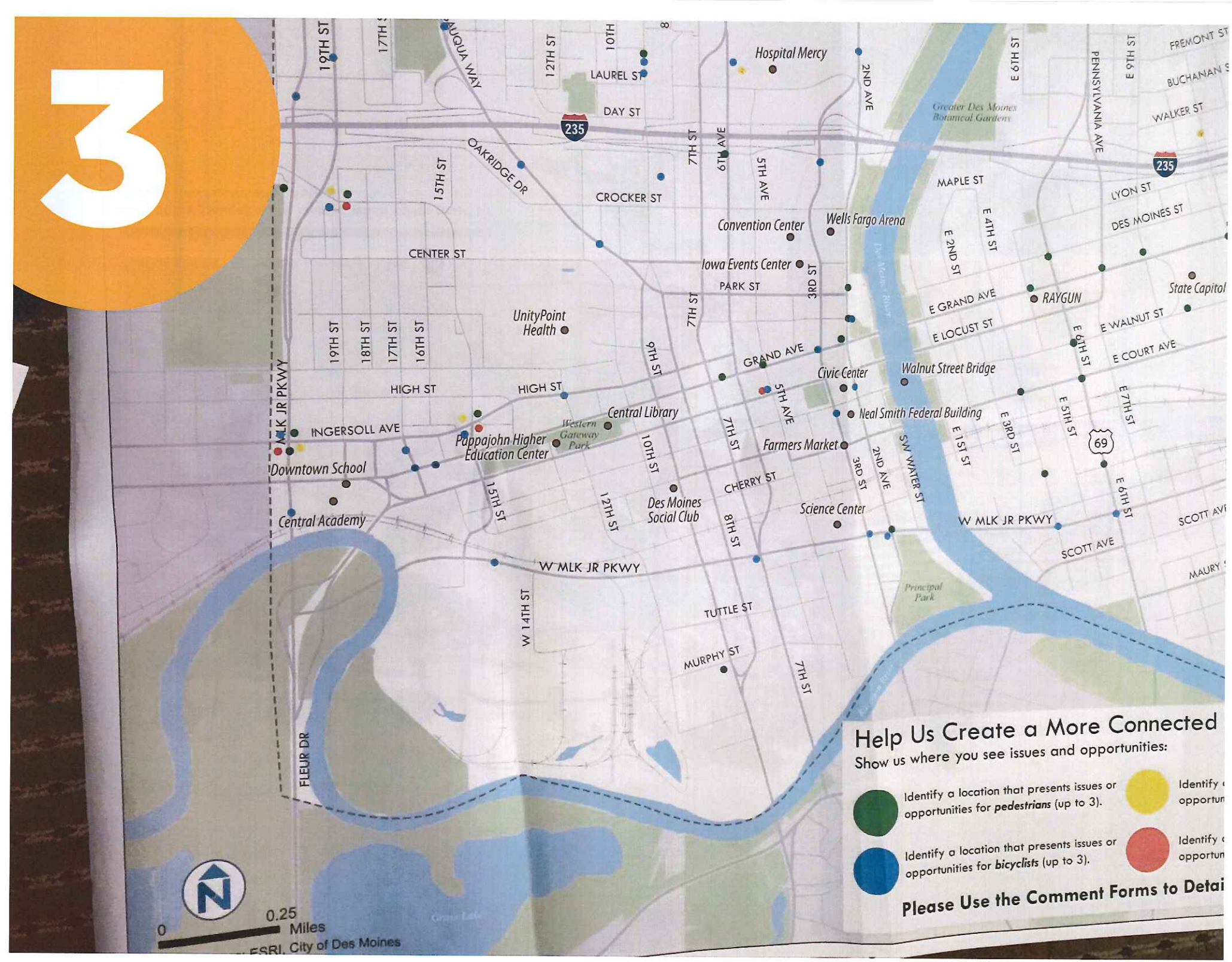
SOLUTION: Prioritize Transit / Transit Priority Streets

The DART Forward 2035 Transit Services Plan, updated in 2017, identifies Enhanced Corridor lines, which will have the highest levels of transit service in the region. Hallmarks of the Enhanced Corridor service type includes 15-minute frequency, transit priority treatments, and improved stop amenities such as benches and shelters. These corridors will increase the convenience and reliability of taking transit. DART has identified 6th Avenue and 7th Street as the most important corridors for its service through downtown Des Moines. The couplet will be served by three Enhanced Corridor routes and connect to DART Central Station.

The City of Des Moines can elevate the importance transit and ensure that people who rely upon or choose to take transit are able to get to work and meet their daily needs with minimal inconvenience through the following actions:

- **Designate 6th and 7th as Transit Priority Corridors.** Recommended elements of this designation include: Preserve bus movements on 6th and 7th during events (e.g., provide a traffic controller to allow buses to cross when Grand, Locust or other intersecting streets are closed). Permit buses to stop in the travel lane at stops, including incorporating bus bulbs into street design. Consider transit priority treatments such transit signal priority and queue bypasses at major signals.
- **Convert 6th and 7th to two-way operations.** This will reduce out of direction travel for the many DART buses using these streets during street closures for special events. Conversion of additional streets to two-way operations will further support the directness of alternate routes during events.
- **Work with DART during detailed street design phase.** Transit often loses significant time yielding to traffic as it exits bus zones. If funding allows, implement bus bulbs that extend the sidewalk out to the traffic lane. This permits transit to stop in the traffic lane, and eliminates the need to merge out of the stop. work with DART to designate no parking zones aligned with rear door access at bus stops.
- **Provide pedestrian crossing opportunities near transit.** Provide safe and convenient pedestrian crossings on larger streets near opposing bus stops that are distant from traffic signals.
- **Implement transit priority treatments on 'Enhanced Corridors.'** Support DART Forward 2035 by implementing treatments such as transit signal priority and queue bypasses to improve transit speed and reliability (requires signal equipment and staff time).
- **Study bike access to DART Central Station.** Evaluate the opportunity to add bike lanes on Cherry or Mulberry Street to provide a dedicated facility from 5th to 8th to serve the station. Cherry is currently proposed for shared lane markings to serve as wayfinding to the on-street bike network, due to the large number of parking garages that unload during the afternoon commute. See Section 5 for other ideas including a multi-use trail in the vicinity of the railroad tracks from 5th to 8th or adding a bike lane in each direction on 6th and 7th from MLK to Grand.

Bus bulbs prevent delay caused when buses need to merge into traffic after a stop.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Help Us Create a More Connected
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Identify a location that presents issues or opportunities for pedestrians (up to 3).
Identify a location that presents issues or opportunities for bicyclists (up to 3).
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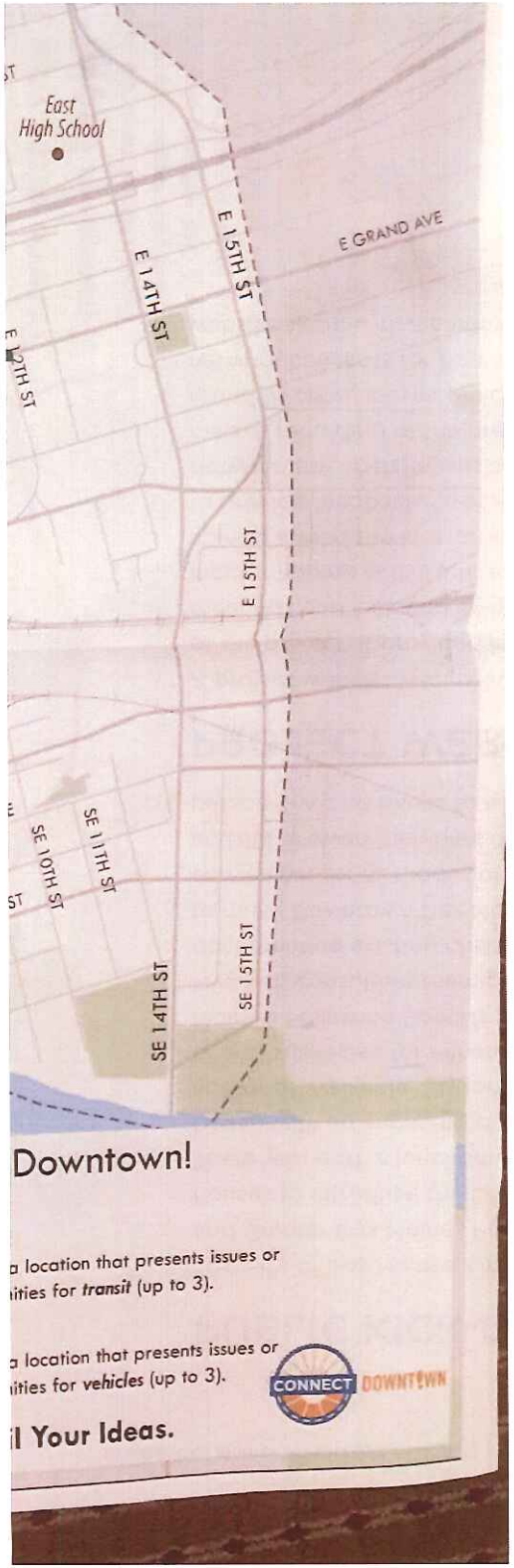


Chapter Three

TECHNICAL PROCESS

Critical to the success of the Connect Downtown planning project was a process that included collaboration with a variety of stakeholders and the Des Moines community to ensure the outcomes met the needs and desires of the community.

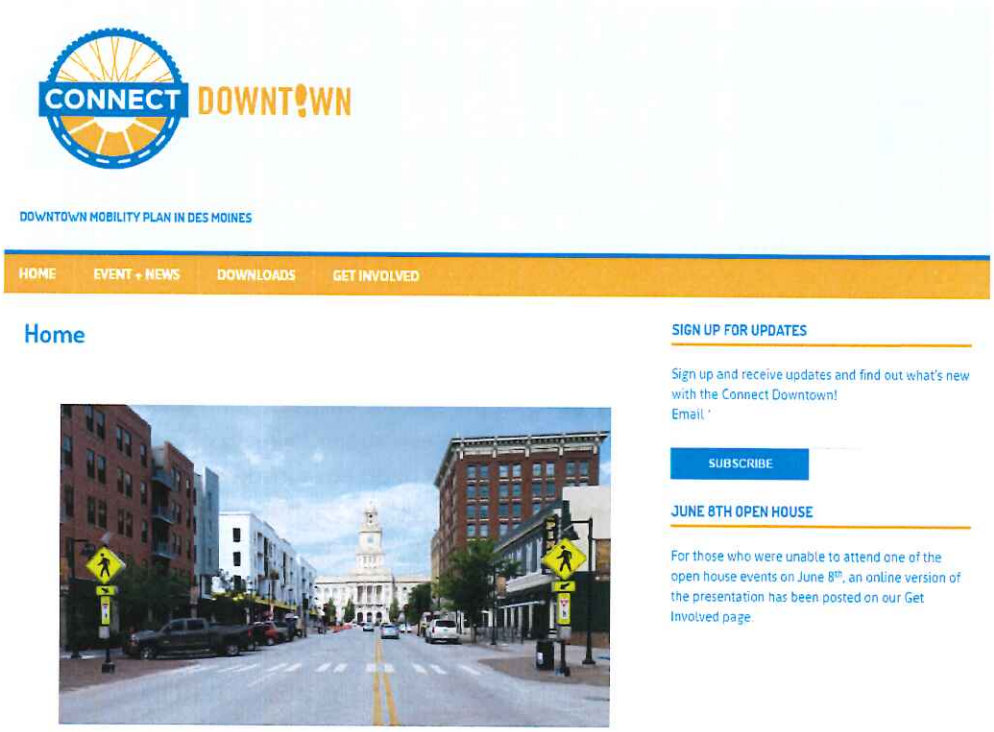
Input was received from a stakeholder advisory committee and the public to craft overarching project goals, develop and refine project ideas, and determine how projects should be prioritized. Public workshops were intertwined with the overall project schedule to ensure the open process provided the public with a space and necessary tools to make opinions heard at critical junctions in the process. These workshops were publicized via the project website, social media and other media placements to reach a wide array of people.

PUBLIC KICK-OFF

The City of Des Moines, Urban Land Institute Iowa and Greater Des Moines Partnership hosted two open houses to introduce the Connect Downtown project. There was both a lunchtime and evening event. Each began with an engaging presentation by Jeff Speck, author of Walkable City, on the wide-ranging benefits of and strategies for enhancing walkability in Des Moines. Following Speck's presentation, the Nelson\ Nygaard consultant team presented preliminary findings documenting existing challenges and opportunities to make Downtown Des Moines safer and more convenient for all modes of transportation. A mapping activity allowed members of the public to share their perspectives on issues to address with the plan.

PROJECT WEBSITE

A project website was maintained for the duration of the project. It provided information on upcoming meetings and included an online version of the public input mapping activity, to allow those who were not able to attend the kick-off open houses the opportunity to provide feedback. Over 400 responses were received between the open houses and website versions of the map. A recording of the presentation from the second round of open houses, which described the preliminary network concepts for downtown, was posted to the website along with a comment form.



The Connect Downtown website provided project updates and opportunities for feedback.

STAKEHOLDER MEETINGS

A series of stakeholder meetings were held at the beginning of the planning process. Five different meetings were held to gather input and perspectives from a broad range of stakeholders. Participants included agency staff (City of Des Moines, Des Moines Area Metropolitan Planning Organization, Polk County), a variety downtown employers, downtown retailers, neighborhood associations, architecture and realty firms, the Des Moines Bicycle Collective, DART, health agencies (Iowa Department of Public Health, American Heart Association), and economic development agencies (Greater Des Moines Partnership, Iowa Economic Development Authority). These meetings solicited input on aspirations for downtown, key challenges to overcome, and contributed to the development of the project goals described in Section 1.

STAKEHOLDER ADVISORY COMMITTEE

A subset of the participants in the stakeholder meetings met regularly throughout the project to provide feedback and direction. The makeup of the committee was similar to the stakeholder meetings, with representation from agency staff, major employers, neighbors and downtown businesses, economic development agencies and members of the development community, DART, the Des Moines Area MPO, and advocacy groups. The committee met to confirm the project goals, review the analysis of existing conditions (including existing issues and opportunities), and provide feedback on the proposed network changes and traffic modeling results.

DESIGN WORKSHOP

The project consultant team hosted a design workshop with city staff early in the process to discuss design considerations to inform the development of the proposed network changes. Design elements covered include design speeds, travel lane widths, curb radii, on-street parking, one-way to two-way street conversions, and pedestrian crossing enhancements. The discussion also focused on the importance of messaging to ensure the public understands the reason for implementing changes to downtown streets.

PUBLIC OPEN HOUSES

A second round of open houses provided the opportunity for the public to learn about the preliminary proposed street concepts and traffic modeling results. Similar to the first set of open houses, there was both a lunchtime and evening event. An online version of the presentation was posted to the project website to offer additional input opportunities.

ONE-ON-ONE PRESENTATIONS

Dozens of small meetings and presentations were made to stakeholders throughout the design process to answer questions, address concerns, and receive input.

FINAL PRESENTATION

The draft Connect Downtown plan will be presented at a City Council work session in the Fall of 2017.

TRAFFIC MODELING

The City worked with a transportation engineering firm to develop a computer simulation model to test the proposed downtown transportation network scenarios. The model outputs, including the changes in anticipated travel speeds and travel times, were presented to the stakeholder advisory committee and at the two public open houses in June 2017. Feedback from the stakeholder advisory committee and the public were incorporated into a revised network that was re-run through the simulation model.

The modeling revealed:

- The reduced number of travel lanes result in slower average travel speeds in downtown
- More two-way streets allows traffic to distribute throughout the network
- Most intersections clear all cars every cycle
- General indication that parking garages on one-way streets will function well when converted to two-way; garages will receive close attention during detailed street design

Are the increased travel times acceptable for the benefits?

- The traffic model estimated travel time changes to and from several downtown commuter destinations. With ALL network changes implemented, travel during the peak 15 minute period (i.e., the busiest time of the day) would increase from 1-3 minutes.

The City of Des Moines is currently developing an Intelligent Transportation System (ITS) Master Plan that, if adopted and implemented, will allow it to upgrade its traffic signal equipment to more effectively manage its transportation system, including during special events.

A more complete E 6th Street (at Des Moines).


4

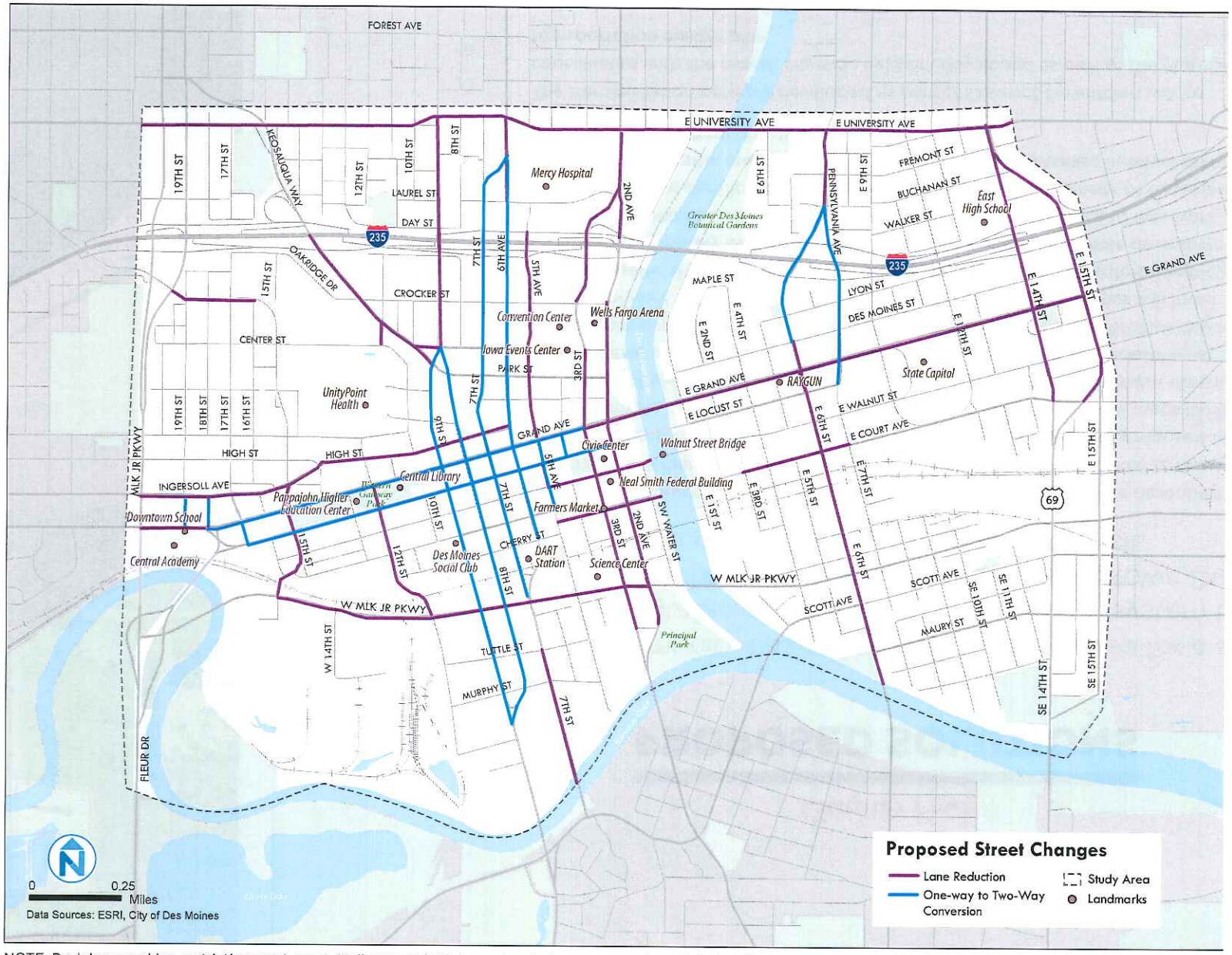
Chapter Four

PROPOSED SOLUTIONS

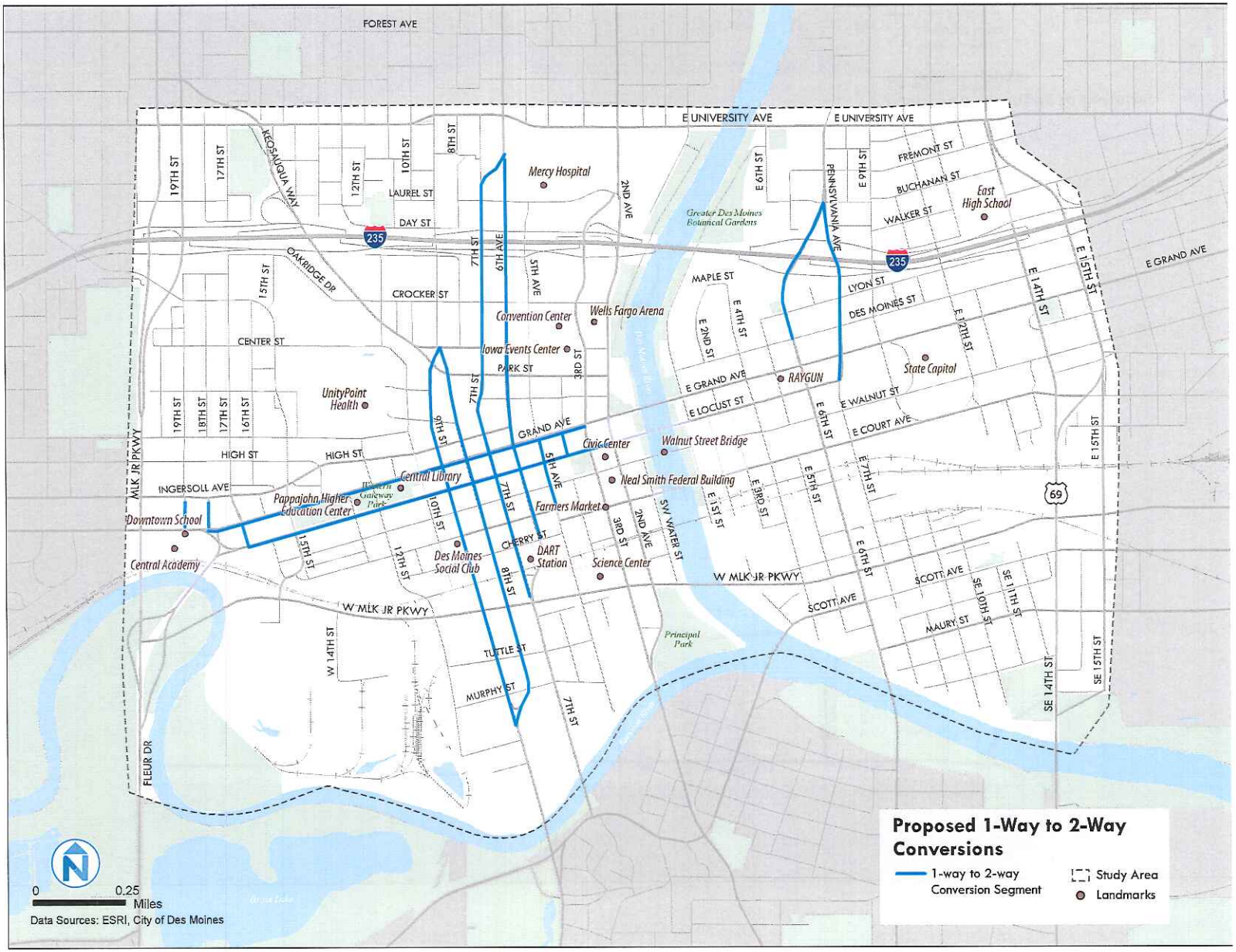
The community has articulated a clear desire for a safer, more equitable, multimodal transportation system that maximizes the economic potential of downtown Des Moines as a great place to live, work and visit.

A series of downtown network maps to achieve these objectives are described in this chapter. Street changes maps indicate which streets are proposed to move from one-way to two-way operations as well as where changes are proposed to the overall number of travel lanes. Parking changes and bicycle network maps illustrate the results of re-allocating the excess number of travel lanes throughout downtown to alternative uses. The proposals make downtown streets more pedestrian-scaled, increase the availability of on-street parking, and create a comprehensive downtown bicycle network. As described in this chapter, the proposed changes will lower driving speeds, shorten average crossing distances, provide a comfortable bicycle facility approximately every five blocks, and create a more walkable downtown that supports commercial activity and makes downtown a great place to live, work and visit. Despite the significant changes to the circulation and number of travel lanes downtown, the traffic modeling indicates only a modest increase in travel times to commuter destinations downtown.

The transportation network developed as part of Connect Downtown will be coordinated with the overall citywide network developed as part of the MoveDSM transportation master plan.



NOTE: Peak hour parking restrictions on Locust, Mulberry and 7th have already been removed as a 'pilot' project.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Data Sources: ESRI, City of Des Moines
Proposed 1-Way to 2-Way Conversions
1-way to 2-way Conversion Segment
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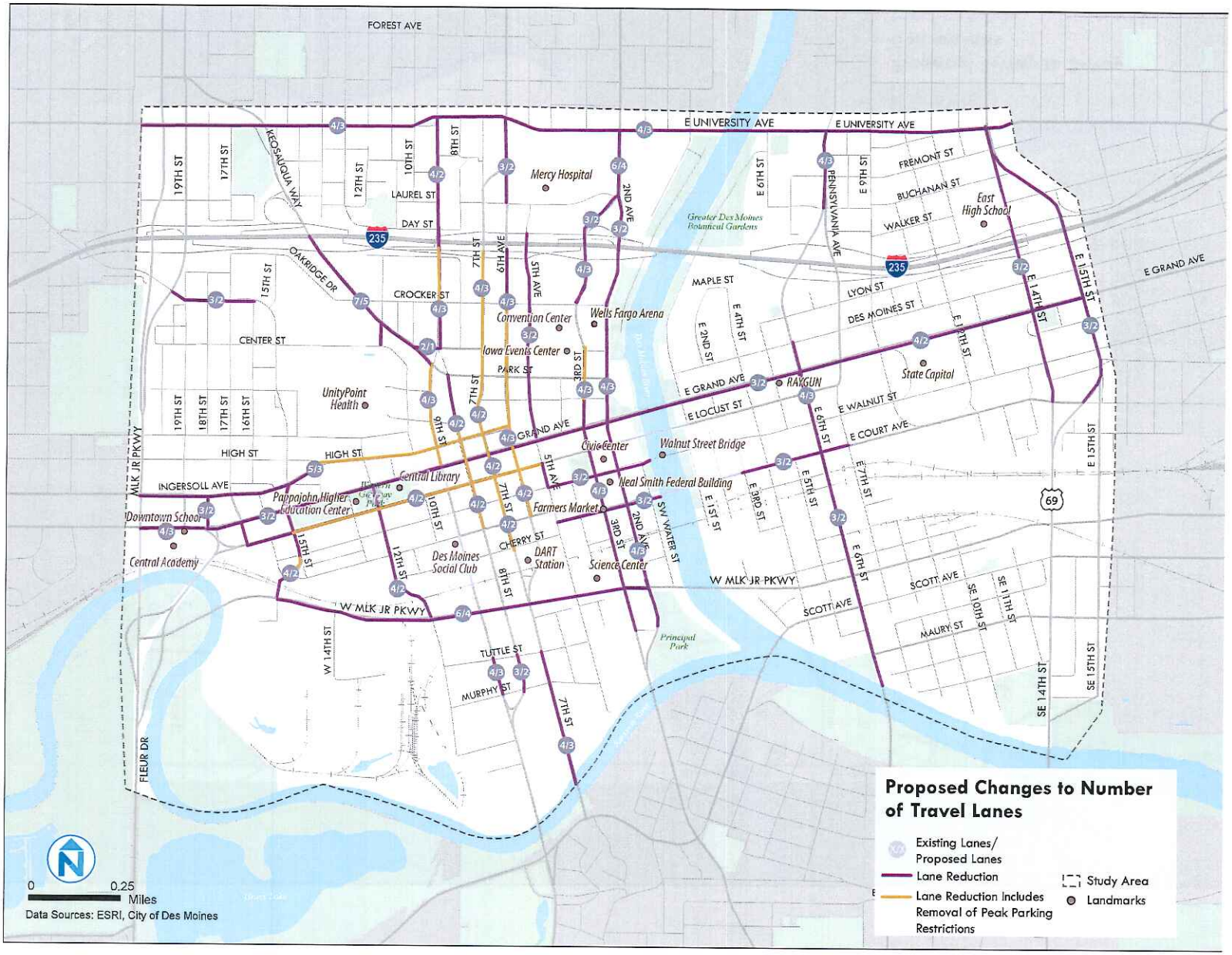
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Data Sources: ESRI, City of Des Moines
Proposed Changes to Number of Travel Lanes
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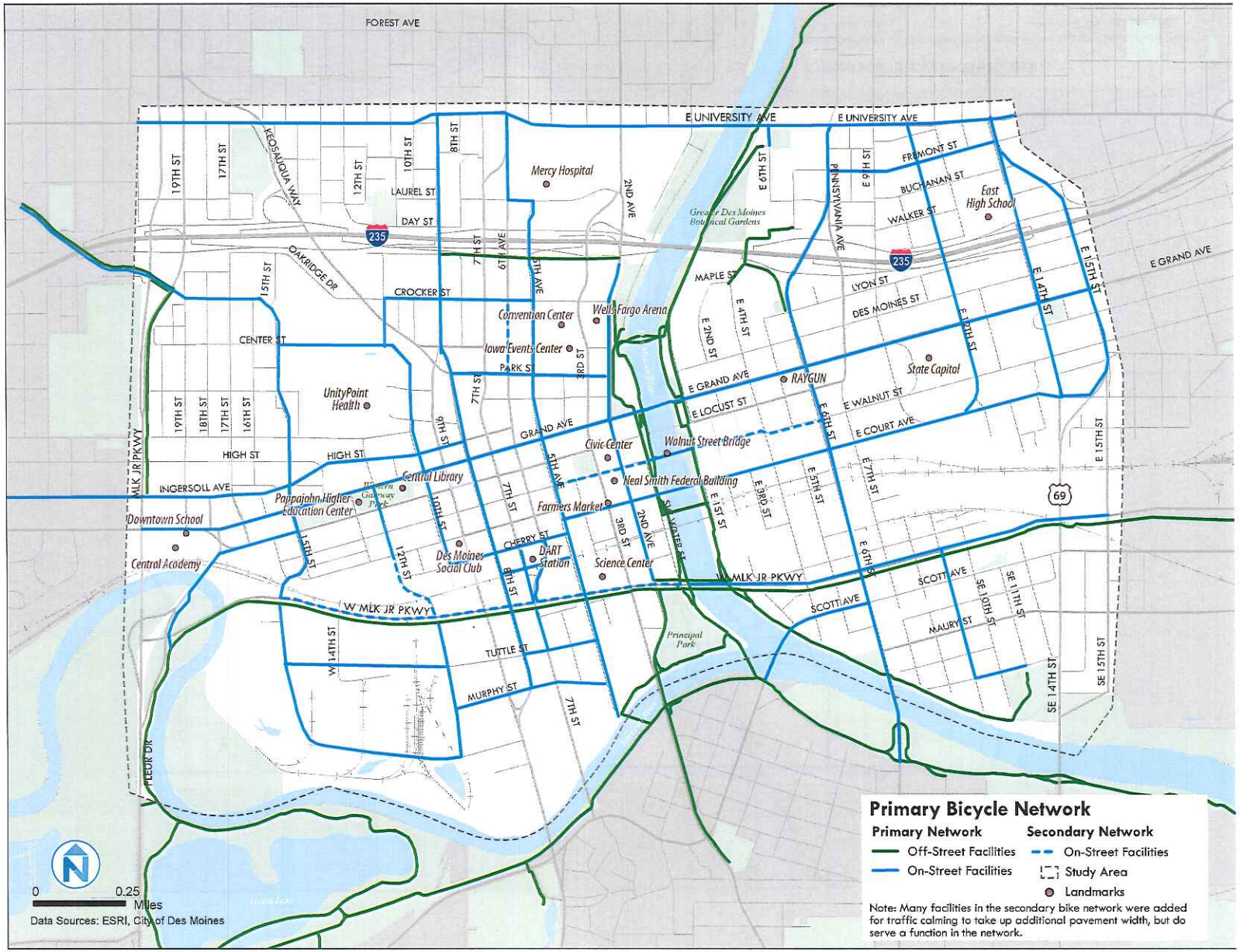
Lane Reduction Includes Removal of Peak Parking Restrictions
Study Area
Landmarks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Data Sources: ESRI, City of Des Moines
Primary Bicycle Network
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On-Street Facilities
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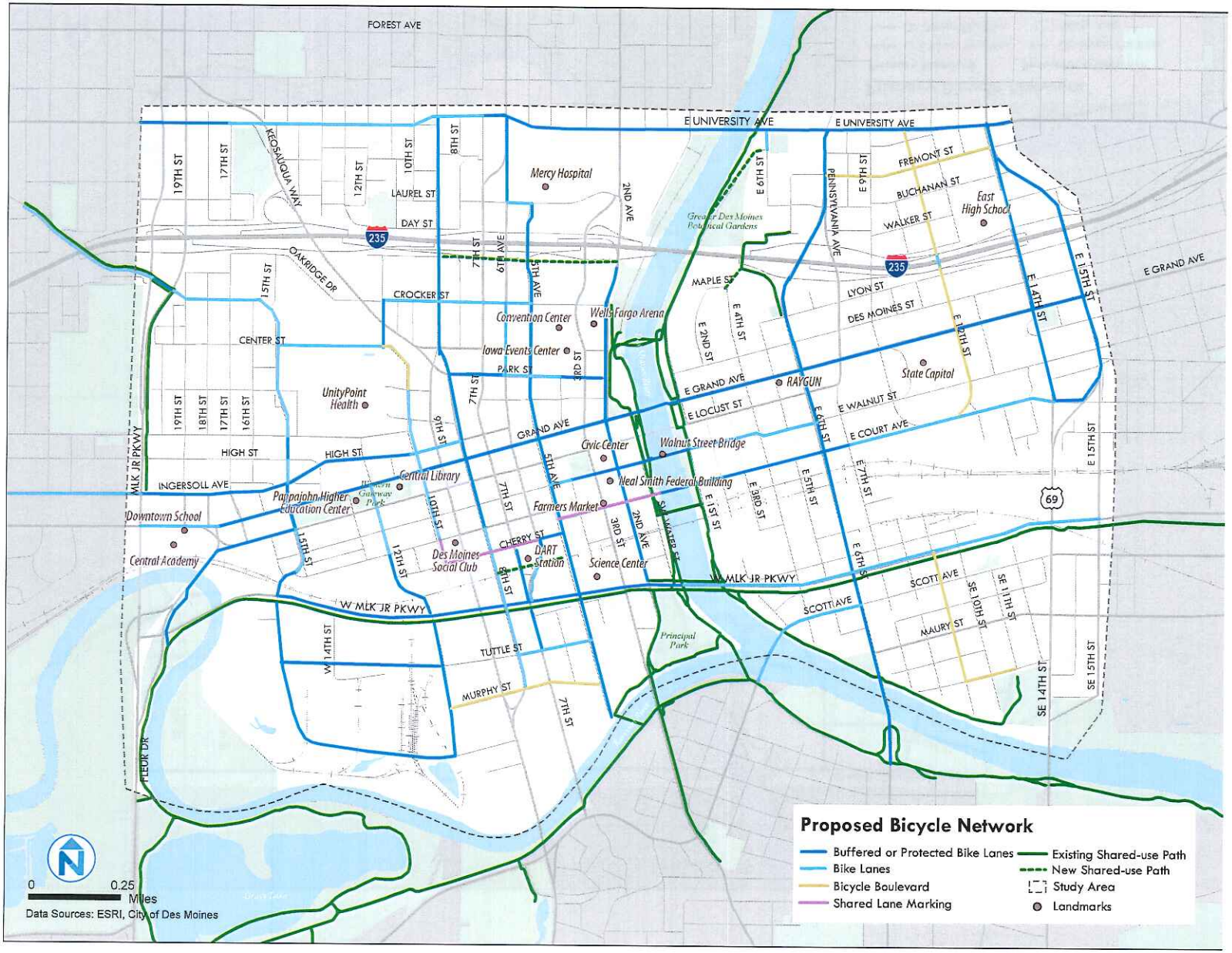
Note: Many facilities in the secondary bike network were added for traffic calming to take up additional pavement width, but do serve a function in the network.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18TH ST
17TH ST
16TH ST
9TH ST
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HIGH ST
HIGH ST
MLK JR PKWY
Civic Center
Walnut Street Bridge
INGERSOLL AVE
Central Library
Western Gateway Park
Neal Smith Federal Building
E 7TH ST
E 5TH ST
E 3RD ST
E 1ST ST
Pappajohn Higher Education Center
Farmers Market
SW WATER ST
Downtown School
Central Academy
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7TH ST
5TH AVE
3RD ST
2ND AVE
CHERRY ST
Des Moines Social Club
DART Station
Science Center
69
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12TH ST
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SCOTT AVE
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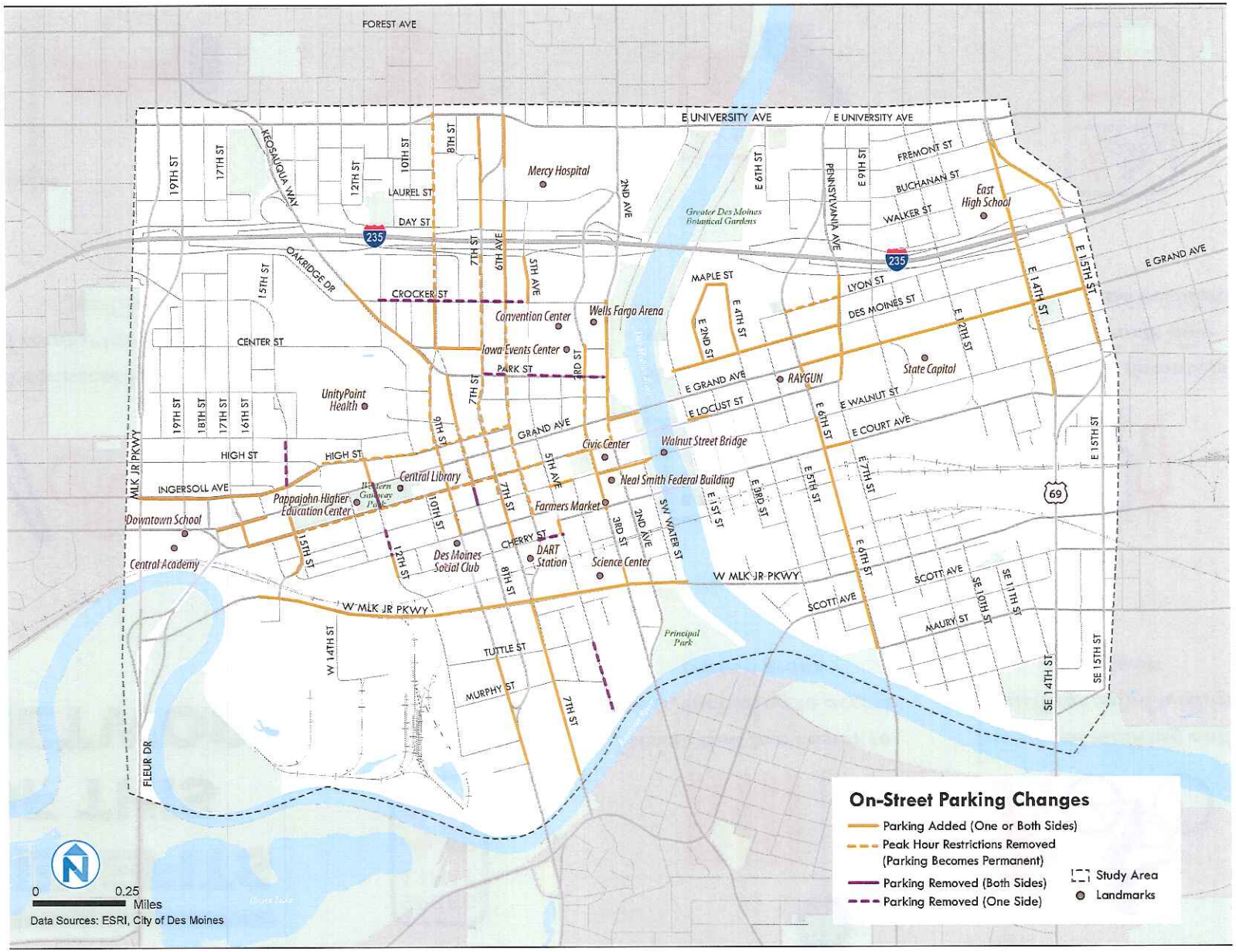
Miles
Data Sources: ESRI, City of Des Moines
Proposed Bicycle Network
Buffered or Protected Bike Lanes
Bike Lanes
Bicycle Boulevard
Shared Lane Marking
Existing Shared-use Path
New Shared-use Path
Study Area
Landmarks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WALKER ST
East High School
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LYON ST
DES MOINES ST
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Iowa Events Center
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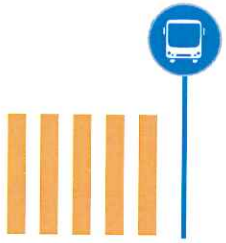
MURPHY ST
7TH ST
SE 14TH ST
SE 15TH ST
FLEUR DR
On-Street Parking Changes
Parking Added (One or Both Sides)
Peak Hour Restrictions Removed (Parking Becomes Permanent)
Parking Removed (Both Sides)
Parking Removed (One Side)
Study Area
Landmarks
0
0.25
Miles
Data Sources: ESRI, City of Des Moines

BENEFITS OF THIS NETWORK

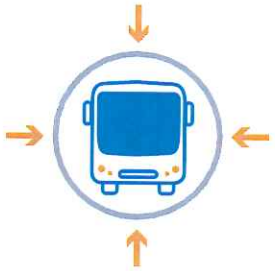
Streets that encourage slower speeds



Streets that are easier to cross, including to access transit stops

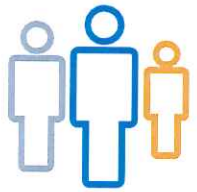
Increased walking and bicycling to and within downtown

A connected network of comfortable bicycle facilities



Improved access to transit and fewer detours for transit riders

Streets that support access to retail and increased sales



A walkable downtown that attracts new workers and residents

Streets that are interesting and comfortable to walk along

Enhanced mobility for downtown neighborhoods

Greater access to the Des Moines and Raccoon rivers

Connections to the regional trail system

GOOD FOR BUSINESS

Competitive advantages of walkable communities include:

- Attracting and retaining talented workers
- Capitalizing on their suroundings to build their brand and corporate identitiy
- Facilitating creative collaboration with nearby colleagues
- Being close to business partners and centralizing operations
- Supporting "triple bottom line" business outcomes (profits plus socially and environmentally friendly investment in a city center)

Cushman Wakefield and Smart Growth America Survey

BY THE NUMBERS

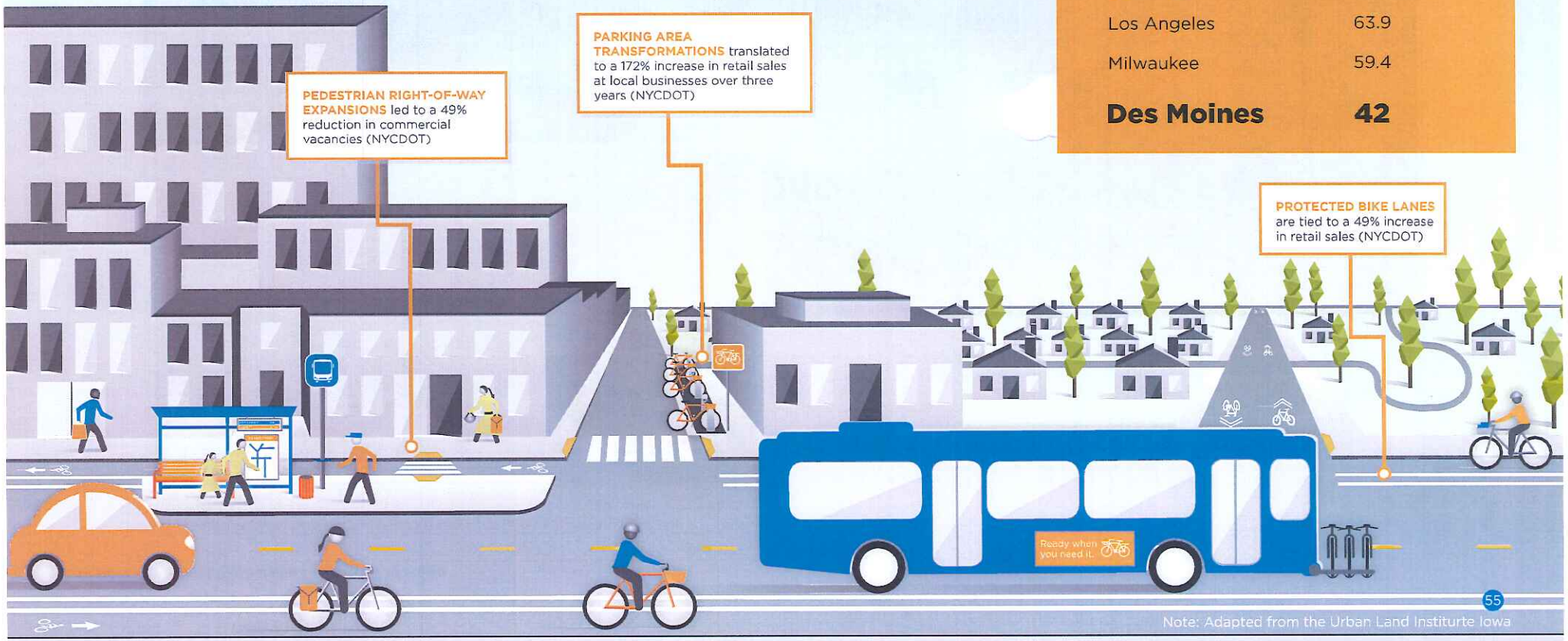
- In 13 out of 15 major markets, an increase of one point of the walk score translated into home price **premiums ranging from $700 to $3,000**[1]
- An increase of 10 points on the walk score was associated with an **increase of 5 to 8 percent** in commercial values[2]
- In Des Moines, the 50312 zip code saw a **23 percent increase** in retail sales after making conversions to Ingersoll Avenue to make it more bike and pedestrian friendly

[1]Walking the Walk: How Walkability Raises Home Values in US Cities.
[2] Walkability Raises Commercial Property Values

Walk Score is a proxy for walkability that rates proximity to commercial destinations on a scale of 1 to 100

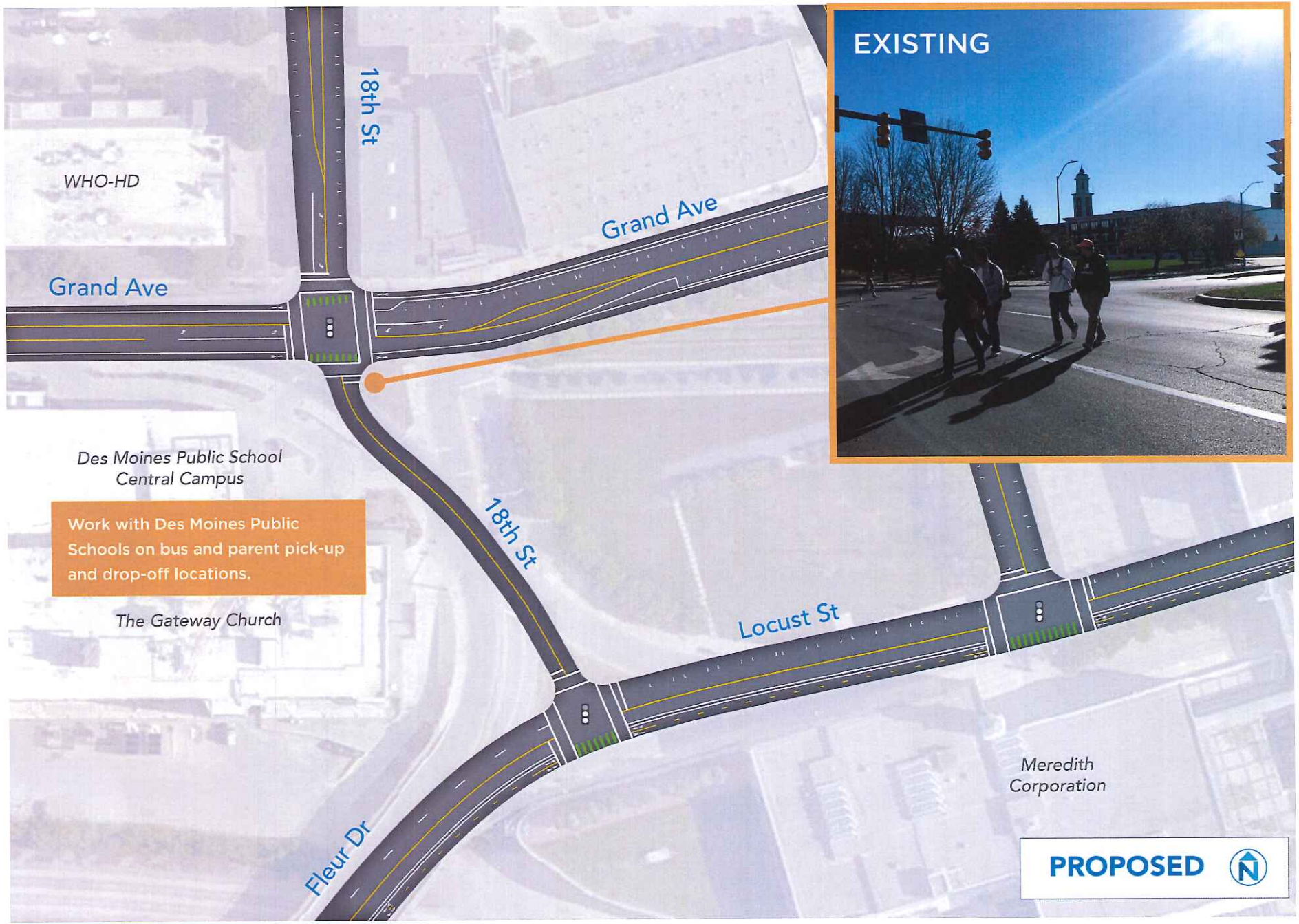
TOP 10 MOST WALKABLE US CITIES

City	Walk Score
New York	87.6
San Francisco	83.9
Boston	79.5
Philadelphia	76.5
Chicago	74.8
Washington DC	74.1
Seattle	70.8
Baltimore	66.2
Los Angeles	63.9
Milwaukee	59.4
Des Moines	**42**



Note: Adapted from the Urban Land Institurte Iowa

Reducing the level of obstacle presented by the current configuration of 2nd Avenue received strong support during stakeholder and public meetings. The initial project would maintain one-way operations but with fewer lanes. The image above shows the aspirational design as a two-way street, which the city can evaluate in the future.



Proposed intersection re-design for 18th and Grand.


5
STATE LAW

Chapter Five

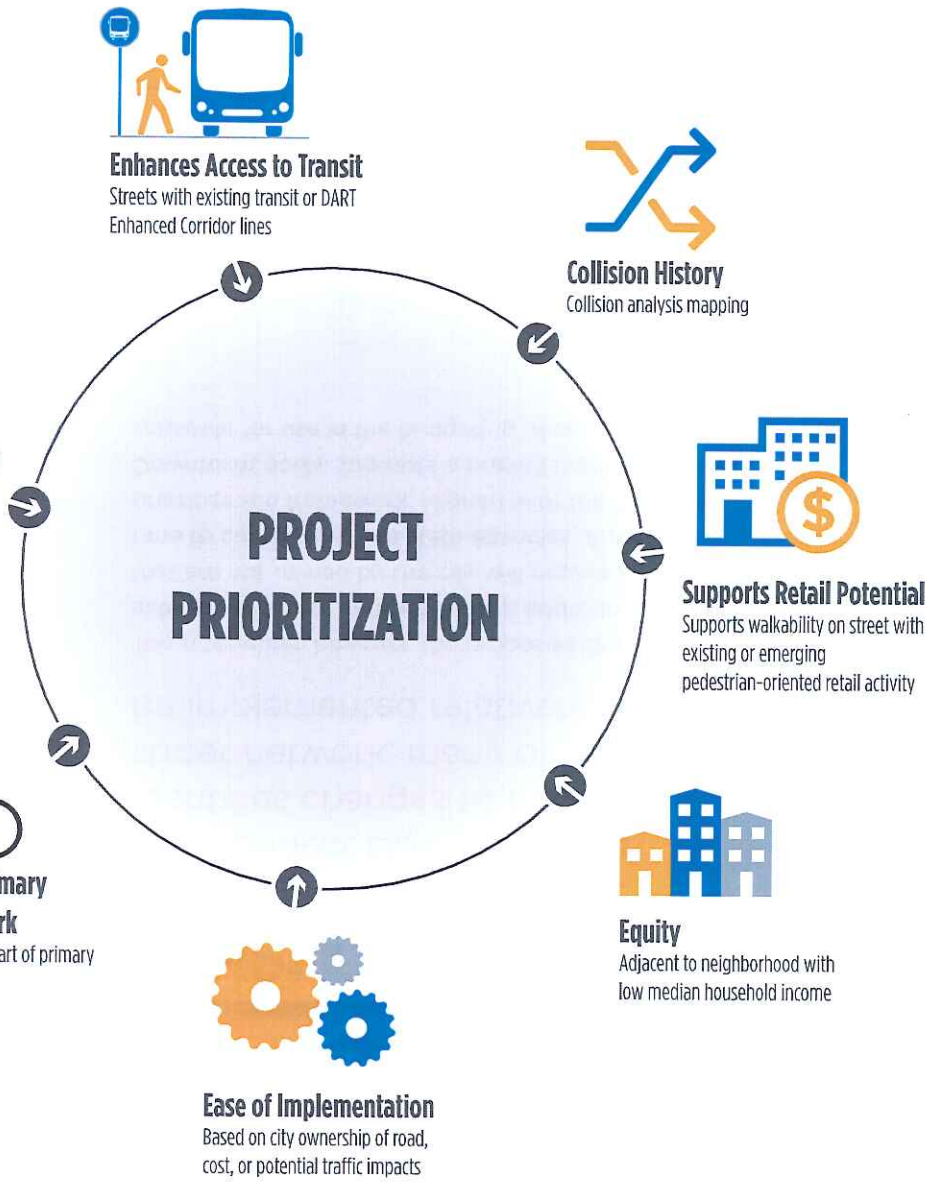
IMPLEMENTATION

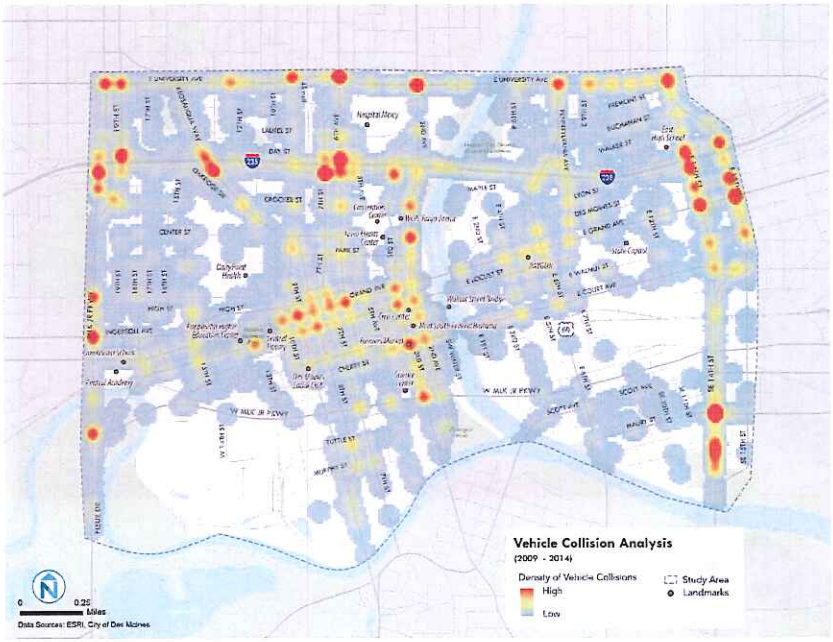
The Connect Downtown plan identifies changes to the downtown street network, many of which can be implemented relatively quickly.

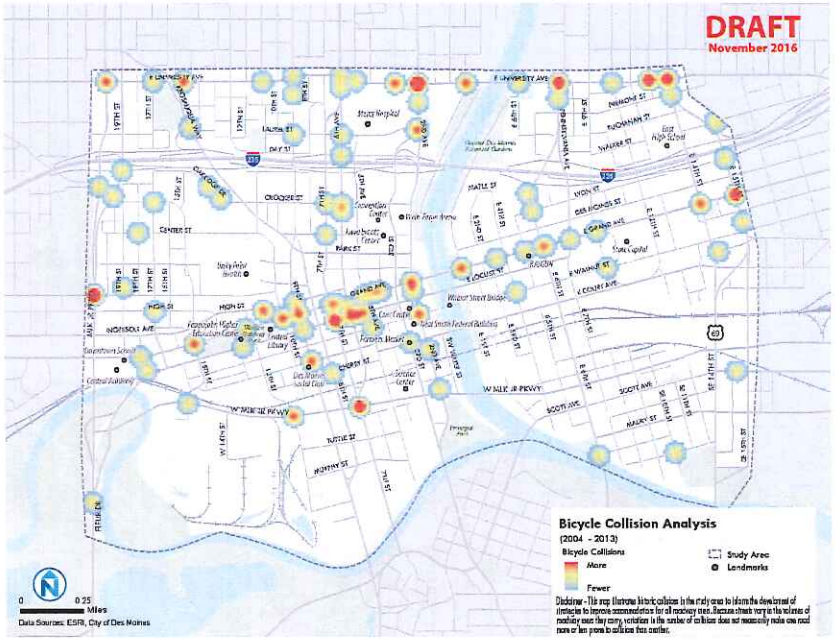
Taken together, however, the proposed changes are extensive and not without cost. In addition, some streets that are not owned by the city will require additional time to coordinate with state agencies. A project prioritization framework, aligned with the Connect Downtown goals, suggests a project implementation schedule for use in the budgeting of capital projects.

PRIORITIZATION

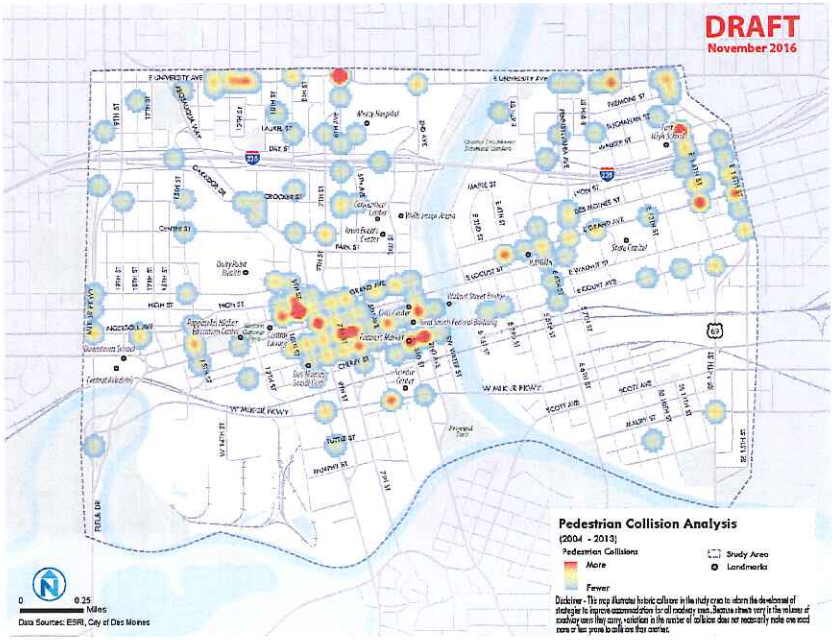
The prioritization framework identifies how well projects align with the Connect Downtown project goals. Projects that align with multiple criteria represent the greatest potential benefit to downtown Des Moines. Each criteria received equal weighting.







Safety is essential to achieve a vibrant and equitable downtown Des Moines. Historic collision patterns indicate that pedestrian collisions are most concentrated in the heart of downtown west of the river, as well as along E 14th/15th, E Grand, and University Avenue. Bicycle collisions are most concentrated on University, E and W Grand, W Locust, and MLK.

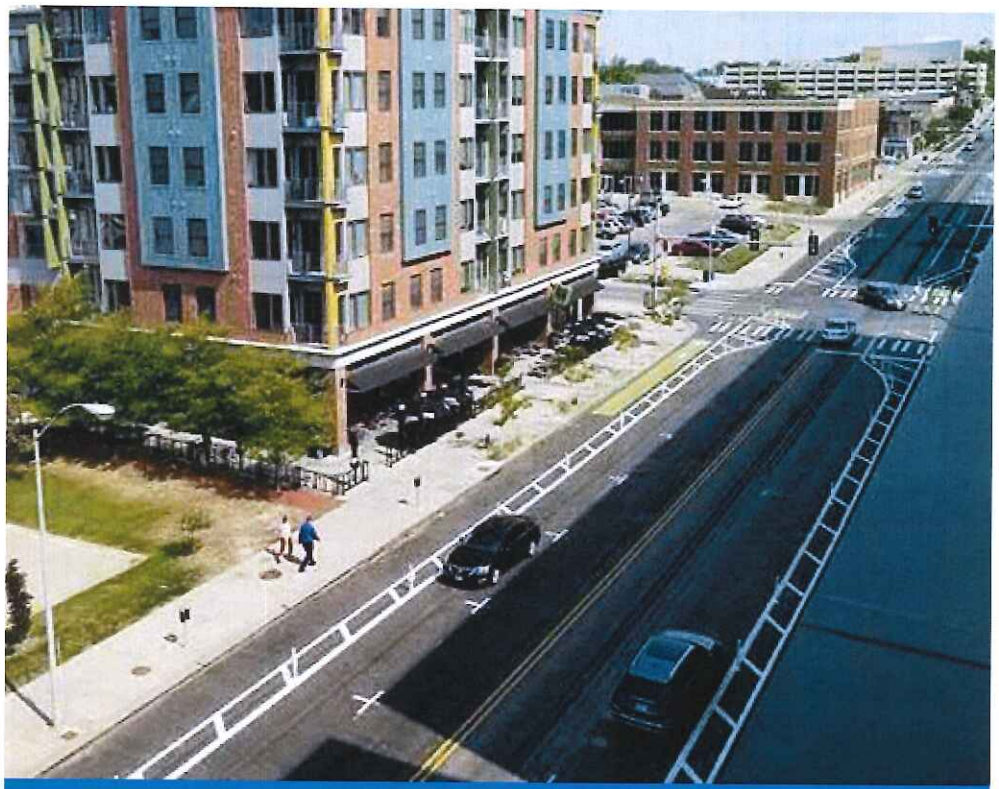


IMPLEMENTATION TIMEFRAME

Projects are grouped into three implementation timeframes based on the prioritization criteria. These timeframes are intended to inform capital projects budgeting. One-way streets that serve as couplets (e.g. W 6th/7th) are listed in same timeframe, with the lower scoring project moved up to join the higher scoring project. Stakeholders along the project corridors will be engaged during the detailed project design phase as individual projects come due for implementation.

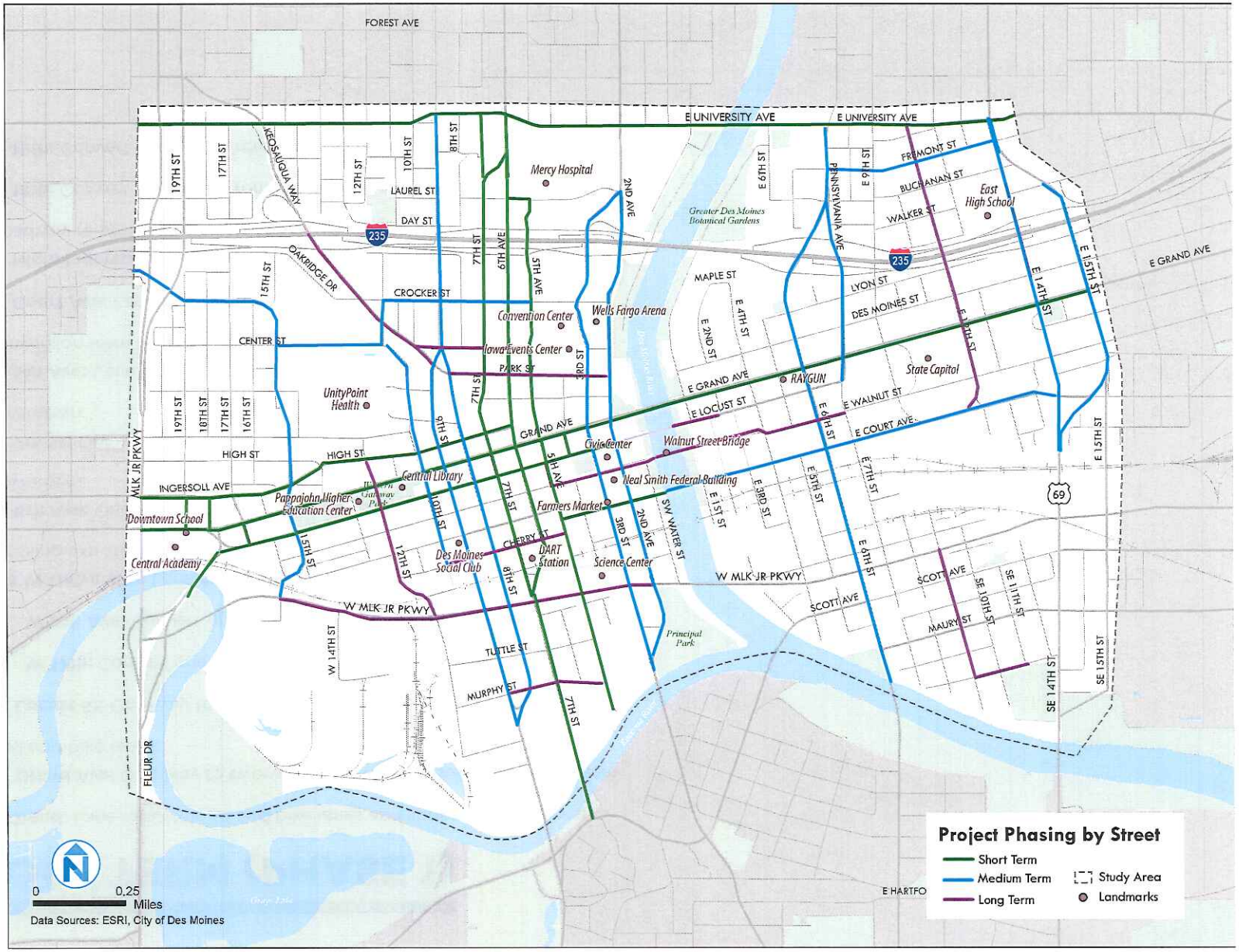
Taking Advantage of Opportunities

Opportunities will arise over time to implement some projects in a shorter timeframe, including as streets come up for regularly scheduled re-surfacing (funds to cover other project costs such as signal modifications would be required). Where possible, these projects should also be included in previously planned city improvements, including those in the Capital Improvements Program (CIP). Several long-term projects that would complete the bicycle network could be implemented at any time.



Pilot to Permanent Approach

Curb extensions, pedestrian safety islands, and protected bike lanes can be piloted with lower-cost materials including pavement markings and delineator posts. The pilot to permanent approach allows for quick implementation and the opportunity to observe project impacts prior to permanent installation. However, project elements should take into account existing streetscape plans for different roadway users to ensure long-term compatibility. For example, the design of curb extensions at intersections should not extend into the space needed for planned bikeways.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BUCHANAN ST
WALKER ST
East High School
PENNSYLVANIA AVE
235
7TH ST
6TH AVE
5TH AVE
OAKRIDGE DR
15TH ST
CROCKER ST
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SE 10TH ST
W MLK JR PKWY
SCOTT AVE
MAURY ST
W 14TH ST
Principal Park
TUTTLE ST
MURPHY ST
7TH ST
SE 14TH ST
SE 15TH ST
FLEUR DR
E HARTFO
Project Phasing by Street
Short Term
Medium Term
Long Term
Study Area
Landmarks
0
0.25
Miles
Data Sources: ESRI, City of Des Moines

SHORT TERM (PHASE 1)

- **E Grand:** Lane reduction to add bike lanes and support retail access.
- **W Grand Ave:** One-way to two-way conversion to support retail access and add bike lanes.
- **W Locust St:** One-way to two-way conversion to support retail access.
  - » **W 17th:** Convert one block from one-way to two-way.
  - » **W 4th Ave:** Convert one block from one-way to two-way.
- **E & W University:** Lane reduction to reduce speeds and pedestrian crossing exposure and add bike lanes.
- **W 6th Ave:** One-way to two-way conversion to support transit access to downtown.
- **W 7th St:** One-way to two-way conversion to support transit access to downtown.
- **W 5th Ave:** Lane reduction to add bike lanes (one-way to two-way conversion from Mulberry to Grand).
- **W Court Ave:** Lane reduction to add bike lanes.
- **W High/Ingersoll Ave (interim solution):** Lane reduction to add bike lanes (roadway re-striping).
- **W 18th:** Convert one block from one-way to two-way.
- **W 19th:** Convert one block from one-way to two-way.

MEDIUM TERM (PHASE 2)

- **E 6th St:** Lane reduction to add bike lanes and support retail access.
- **E Pennsylvania Ave:** One-way to two-way conversion to support slower speeds.
- **W 9th Ave:** One-way to two-way conversion support slower speeds.
- **W 8th St:** One-way to two-way conversion to add bike lanes.
- **W 10th St:** Add bike lanes.
- **W 15th Ave:** Lane reduction to add bike lanes.
- **W Cottage Grove Ave:** Lane reduction to add bike lanes. Implement with W 15th Ave project above.
- **E Court Ave:** Lane reduction to add bike lanes.
- **W 2nd Ave:** Lane reduction to support access to the Des Moines River and the East Village.
- **W 3rd St:** Lane reduction to support slower speeds and safer pedestrian crossings.
- **E 14th St (interim solution):** Lane reduction to support slower speeds and safer pedestrian crossings.
- **E 15th St (interim solution):** Lane reduction to support slower speeds and safer pedestrian crossings.
- **W Crocker St:** Eliminate turn lanes to add bike lanes.
- **W Center St:** Add bike lanes.

LONG TERM (PHASE 3)

- **W Keosauqua Way:** Lane reduction to support slower speeds and pedestrian crossings.
- **W High/Ingersoll Ave (long-term solution):** Lane reduction to add bike lanes (move curb and gutter and add median refuge island crossings as part of development/redevelopment projects).
- **W Walnut St:** Lane reduction to add bike lanes.
- **E Walnut Ave:** Re-allocate lane widths to widen bike lanes.
- **E Locust:** Add parking and curb extensions from bridge to E 2nd.
- **W Park:** Add bike lanes.
- **Cherry St:** Remove parking on one side of one block to add bike lanes (access to DART Central Station).
- **W 12th Ave:** Lane reduction and add bike lanes (MLK to Grand); Lane reduction to add bike lanes (KEO to Center).
- **E Fremont:** Add bike boulevard treatments.
- **E 12th:** Add bike boulevard treatments; bike lanes on bridge over I-235.
- **E 9th / E Railroad Ave:** Add bike boulevard treatments to connect to trail.
- **Murphy St:** Add bicycle boulevard treatments to connect to bike lanes on 5th and 8th.
- **E 14th (long-term solution):** One-way to two-way conversion to support slower speeds and safer pedestrian crossings. Add roundabout south of Court Avenue.
- **E 15th (long-term solution):** One-way to two-way conversion to support slower speeds and safer pedestrian crossings. Add roundabout south of Court Avenue.
- **W MLK:** Lane reduction to reduce speeds and add bike lanes.

INTERIM SOLUTIONS

The following streets are candidates for interim solutions:

- **W 2nd Avenue.** Enthusiasm for the proposed changes to 2nd Avenue were extremely positive at the stakeholder and public meetings. A short-term option would reduce a travel lane and implement the proposed two-way cycle track, with the full proposal to convert to a two-way street taking place later.
- **E 14th/15th.** An interim, shorter-term solution to reduce the level of barrier these streets represent to surrounding neighborhoods would be to reduce each street by one travel lane. The resulting additional space should be used to provide a single bike lane on each street.
- **Ingersoll.** Ingersoll is one of the few streets where moving curbs is recommended. The short-term solution is to re-stripe the road to convert the outside travel lanes to parking protected bike lanes. The long-term solution is to re-build the road to 65' from MLK to 14th, maintaining the parking protected bike lanes.

LONG-TERM CONSIDERATIONS

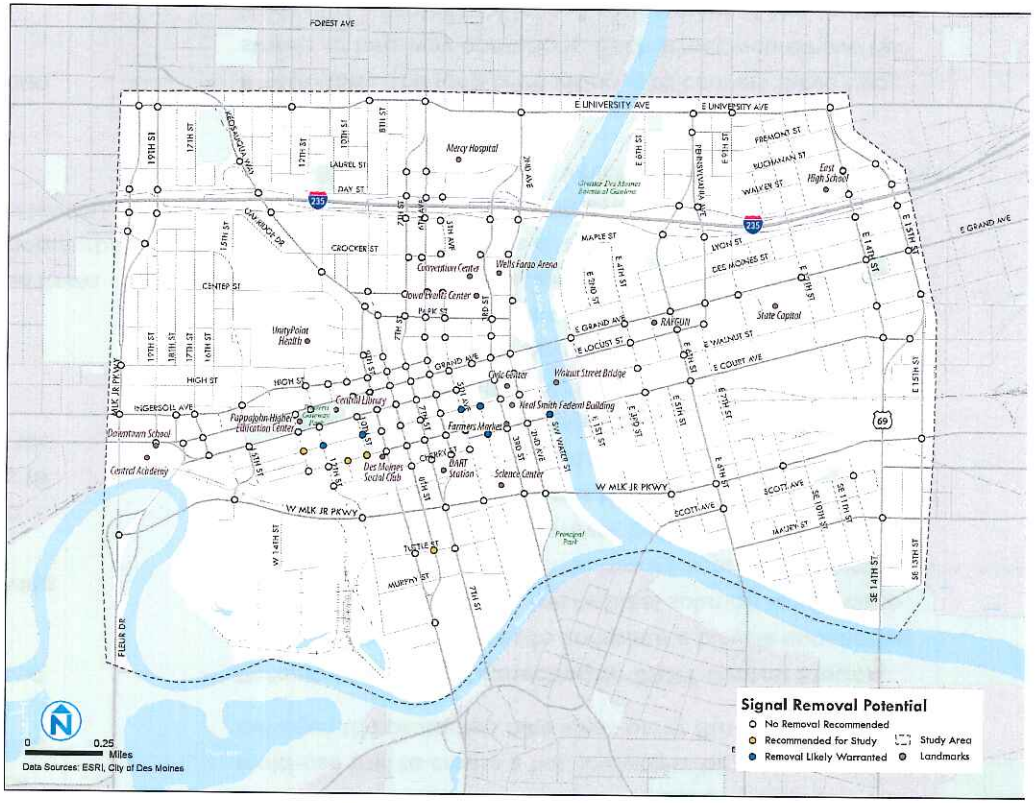
Below is a list of other potential longer-term solutions. These items are not critical and require either substantial cost (e.g., moving curbs) or coordination with other agencies (e.g., trail along railroad tracks), but are provided for further consideration by the city.

- **W 2nd/3rd.** The current proposal maintains one-way operations but removes one travel lane in either direction from University to School. In the long term, the curbs can be moved in from University to 235, widening the sidewalks across the freeway. Consider a roundabout at Laurel.
- **Keosauqua.** The current proposal removes one travel lane in either direction and adds parking. In the long term, the curbs can be moved in and this space allocated to widen the sidewalks to further enhance the pedestrian realm. Additionally, KEO does offer a direct bicycling route from the northwest, and could be considered for bike lanes in the future provided the project also addresses geometry issues at freeway ramps and free right turns.
- **Multi-use trail along School Street.** The existing sidewalks on the south side of School Street could be developed into a multi-use trail to create a flat, low-stress bicycle connection between the protected bike lanes on W 8th and W 2nd.
- **Potential Ideas for Connecting to DART Central Station.** There are several options to complete a bicycle connection to DART Central Station. The optimal solution would be to add bike lanes on Cherry or Mulberry to connect to bicycle facilities on 5th and 8th. However, both Cherry and Mulberry currently have parking garages that unload a large number of vehicles during the evening commute. An alternative solution would be to implement a multi-use path in the vicinity of the railroad tracks from 5th to 8th. Bike lanes on 6th/7th from MLK to Grand is another potential solution (not currently proposed as 5th and 8th are nearby streets identified as part of the primary bicycle network). However, there is room to include a bike lane in one direction on each street (two 10' driving lanes, two 7.5' parking lanes, and one 6' bike lane would fill the ~41' available), which would provide direct access to DART Central Station.
- **E 14th/15th.** The long term vision is to convert these two streets to two-way operations. Each street would have two lanes plus a center turn lane. A roundabout at the southern end of the couplet is recommended to distribute traffic evenly between the two streets.

Replacing Signals with All-Way Stop Signs

The proposed changes to the number of lanes and the number of one-way streets downtown offers opportunities to replace some existing traffic signals with all-way stop signs. While all-way stops are confusing when multiple lanes intersect from multiple directions, they become a good option when a four-lane street becomes two-lane, or a multi-lane one-way becomes two-way (with one lane in each direction).

All-way stops offer a number of benefits. Drivers never pass through the intersection at more than a very low speed, providing a safer environment for all. In addition, while people driving slow down, they never have to wait for more than a few seconds to pass. Stop signs are also much less expensive to install and maintain than traffic signals. There are, however, also reasons for maintaining some signals that may no longer be warranted based on traffic volumes. For example, along those streets that are remaining one-way, a green wave provides drivers with an expedited path through downtown. In instances where cross traffic is too light to justify an all-way stop, leaving signals in place is generally a better option than a two-way stop. The reason is that two-way stops are damaging to walkability, as they essentially require people crossing the faster street to jaywalk. Finally, pedestrians benefit from signals at intersections with long crossing distances.



This map shows signals that could be considered for removal based on the considerations described in the text.

COST AND STAFFING REQUIREMENTS

Implementation of the Connect Downtown Plan is estimated to cost approximately $33 million. These planning level costs include estimates for project design and construction administration which will require either dedicated city staff or hiring a program management consultant to oversee project development and implementation. If the city handles this in house, approximately three to five new city staff would be required to implement the plan in the proposed six-year timeframe.

PHASE	PLANNING LEVEL COST ESTIMATE
Short-term	$18 million
Medium-term	$12 million
Long-term	$3.5 million
Total	**$33.5 million**

Note: Converting one-way streets to two-way operations requires new traffic signals. Where two one-way streets intersect, the cost of the new signal is assigned to the project being implemented first, which explains the relatively higher cost for the short-term phase.

Operations and Maintenance

The expansion of the downtown bike network will require periodic maintenance, with bike lanes typically re-striped every 3-5 years. Full buildout of Connect Downtown would result in approximately 25 miles of bike lanes, of which half are proposed as parking protected bike lanes. The annual cost of maintaining the fully built out bike network is estimated at $500k. Some of this striping cost will be offset by the need to maintain a fewer number of downtown travel lanes.

The cost of sweeping the parking protected bike lanes can be minimized by installing signage to prohibit parking on these streets corresponding to the day/time of each streets' regularly scheduled sweeping. Snow removal is another factor, and there is limited data available on this cost, which will vary by geographic location. Minneapolis estimates an annual cost of $6.50 per linear foot to remove snow and sweep protected bike lanes weekly. This is considered a conservative cost estimate and Des Moines can likely find less expensive strategies to keep its protected bike lanes clear. The city should work to refine these estimates and explore partnership opportunities (e.g. a self-taxing district similar to what is commonly done for sidewalk maintenance) to fund snow removal.

Funding Opportunities

Connect Downtown provides a blueprint for a more vibrant, safe, connected, equitable and economically successful downtown. However, significant and continued collaboration with stakeholders is needed if the plan is to successfully achieve its goals. Cities across the country have utilized a variety of mechanisms to fund downtown improvements, including federal and state grants, development impact fees, self-taxing districts, local options sales tax, or tax increment financing (TIF). Projects can also be implemented as part of regularly scheduled road resurfacing projects or with other projects that impact the street, such as sewer maintenance. Stakeholders in the study area will continue to work with the City of Des Moines on public private partnerships to complete the plan.