Application

01972 - 2014 Pedestrian Facilities (Sidewalks, Streetscaping, and ADA)

02137 - CSAH 3 (Lake Street) Streetscape

Regional Solicitation - Bicycle and Pedestrian Facilities

Status:	Submitted
Submitted Date:	11/26/2014 11:33 AM

Primary Contact

Name:*		Carla	J	Stueve
	Salutation	First Name	Middle Name	Last Name
Title:	Transportation Engineer			
Department:				
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*	Medina	Minnesota	55340	
	City	State/Province	Postal Code/Zip	
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	Phone		Ext.	
Fax:				
What Grant Programs are you most interested in?	Regional Solicitation - Roadways Including Multimodal Elements			

Organization Information

Name:	HENNEPIN COUNTY

Jurisdictional Agency (if different):

Organization Type: County Government

Organization Website:

Address: DPT OF PUBLIC WORKS

1600 PRAIRIE DR

*	MEDINA	Minnesota	55340
	City	State/Province	Postal Code/Zip

County: Hennepin

Phone:* 763-745-7600 Ext.

Fax:

PeopleSoft Vendor Number 0000028004A9

Project Information

Project Name CSAH 3 (Lake Street) Streetscape

Primary County where the Project is Located Hennepin

Jurisdictional Agency (If Different than the Applicant): Not Applicable

Brief Project Description (Limit 2,800 characters; approximately 400 words)

The CSAH 3 (Lake Street) Streetscape Project will provide enhancements to the bicycle, sidewalk, and transit users along the corridor. The project is located in Minneapolis, from Blaisdell Avenue to 1st Avenue and from 3rd Avenue to 5th Avenue, for a length of 0.34 miles. The project will include similar streetscaping elements that have been applied by previous projects along the entire Lake Street corridor. Improvements to this segment of Lake Street were postponed to allow for coordination with the I-35W Transit & Access Project that is led by Hennepin County. The remaining three blocks along Lake Street, from 1st Avenue to 3rd Avenue, will be included with the I-35W Transit & Access Project.

CSAH 3 (Lake Street) is classified as an "A" Minor Arterial that functions as an Augmentor. The existing roadway is a 4-lane, undivided, urban roadway; along the east end of the project there is restricted parking on both sides of the roadway. There are currently minimal streetscaping elements located sparingly along the corridor.

The CSAH 3 (Lake Street) Streetscape Project may include the following elements:

- Trees and other small plantings

- Lighting

- Ornamental iron fencing along the perimeter of parking and green areas

- Pedestrian amenities (benches, waste receptacles, and newspaper boxes)

- Bicycle amenities (racks and way finding signage)

- Supplemental transit shelter signage

- Vinyl protective wraps for traffic signal and power cabinets

Include location, road name/functional class, type of improvement, etc.

Project Length (Miles) 0.34

Connection to Local Planning:
Reference the name of the appropriate comprehensive plan, regional/statewide plan, capital improvement program, corridor study document [studies on trunk highway must be approved by MnDOT and the Metropolitan Council], or other official plan or program of the applicant agency [includes Safe Routes to School Plans] that the project is included in and/or a transportation problem/need that the project addresses. List the applicable documents and pages.

The CSAH 3 (Lake Street) corridor has experienced a reconstruction, through three separate projects, over the last ten years. However, there is one remaining section, from Blaisdell Avenue to 5th Avenue, that has been postponed to allow for coordination with the I-35W Transit & Access Project, which is scheduled to take place in the near future.

Connection to Local Planning

Improvements to this segment along Lake Street are included in the City of Minneapolis 2015-2019 Capital Improvement Program. Also, this project supplements the I-35W Transit & Access Project that is included in Hennepin County's approved 2014-2018 Capital Improvement Program. In addition, the Midtown Greenway Framework Plan states a need to reconstruct all of Lake Street in Minneapolis as a way to revitalize this corridor which holds historic value to the area. Furthermore, Lake Street is defined as a primary transit network in the Access Minneapolis plan, which recommends incorporating street furniture elements to the area.

Project Funding

Are you applying for funds from another source(s) to implement this project? No

If yes, please identify the source(s) Not Applicable

Federal Amount $640,000.00

Match Amount *Minimum of 20% of project total*	$160,000.00
Project Total	$800,000.00
Match Percentage *Minimum of 20%* *Compute the match percentage by dividing the match amount by the project total*	20.0%
Source of Match Funds	County

Preferred Program Year

Select one:	2018

Project Information

County, City, or Lead Agency	Hennepin County
Zip Code where Majority of Work is Being Performed	55408
(Approximate) Begin Construction Date	05/01/2018
(Approximate) End Construction Date	11/30/2018

LOCATION

From: **(Intersection or Address)** *Do not include legal description;* *Include name of roadway if majority of facility runs adjacent to a single corridor.*	1st Segment: Blaisdell Avenue; 2nd Segment: 3rd Avenue
To: **(Intersection or Address)**	1st Segment: 1st Avenue; 2nd Segment: 5th Avenue
Type of Work *Examples: grading, aggregate base, bituminous base, bituminous surface, sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge, Park & Ride, etc.)*	Lighting, fencing, landscaping, transit elements, bicycle elements, and pedestrian elements

BRIDGE/CULVERT PROJECTS
(If Applicable)

Old Bridge/Culvert?	No
New Bridge/Culvert?	No
Structure is Over/Under **(Bridge or culvert name):**	N/A

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$40,000.00
Removals (approx. 5% of total cost)	$40,000.00

Roadway (grading, borrow, etc.)	$0.00
Roadway (aggregates and paving)	$0.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$0.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$0.00
Traffic Control	$0.00
Striping	$0.00
Signing	$0.00
Lighting	$0.00
Turf - Erosion & Landscaping	$25,000.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall	$0.00
Traffic Signals	$0.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$0.00
Other Roadway Elements	$0.00
Totals	**$105,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	**Cost**
Path/Trail Construction	$0.00
Sidewalk Construction	$0.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$0.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$240,000.00
Streetscaping	$325,000.00
Wayfinding	$5,000.00
Bicycle and Pedestrian Contingencies	$50,000.00

Other Bicycle and Pedestrian Elements	$65,000.00
Totals	**$685,000.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	$10,000.00
Stations, Stops, and Terminals	$0.00
Support Facilities	$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	$0.00
Vehicles	$0.00
Transit and TDM Contingencies	$0.00
Other Transit and TDM Elements	$0.00
Totals	**$10,000.00**

Transit Operating Costs

OPERATING COSTS	Cost
Transit Operating Costs	$0.00
Totals	**$0.00**

Totals

Total Cost	$800,000.00
Construction Cost Total	$800,000.00
Transit Operating Cost Total	$0.00

Requirements - All Projects

All Projects

1.The project must be consistent with the goals and policies in these adopted regional plans: Thrive MSP 2040 (2014), the 2030 Transportation Policy Plan (amended 2013), the 2030 Regional Parks Policy Plan (amended 2013), and the 2030 Water Resources Management Policy Plan (2005).

Check the box to indicate that the project meets this requirement. Yes

2.Applicants that are not cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.

Check the box to indicate that the project meets this requirement. Yes

3.Applicants must not submit an application for the same project in more than one funding sub-category.

Check the box to indicate that the project meets this requirement. Yes

4.The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Multiuse trails & bicycle facilities must be between $125,000 and $5,500,000. Pedestrian facilities and Safe Routes to School must be between $125,000 and $1,000,000.

Check the box to indicate that the project meets this requirement. Yes

5.The project must comply with the Americans with Disabilities Act.

Check the box to indicate that the project meets this requirement. Yes

6.The project must be accessible and open to the general public.

Check the box to indicate that the project meets this requirement. Yes

7.The owner/operator of the facility must operate and maintain the project for the useful life of the improvement.

Check the box to indicate that the project meets this requirement. Yes

8.The project must represent a permanent improvement with independent utility. The term independent utility means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match. Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.

Check the box to indicate that the project meets this requirement. Yes

9.The project must not be a temporary construction project. A temporary construction project is defined as work that must be replaced within five years and is ineligible for funding. The project must also not be staged construction where the project will be replaced as part of future stages. Staged construction is eligible for funding as long as future stages build on, rather than replace, previous work.

Check the box to indicate that the project meets this requirement. Yes

10.The project applicant must send written notification regarding the proposed projected to all affected communities and other levels and units of government prior to submitting the application.

Check the box to indicate that the project meets this requirement. Yes

Requirements - Bicycle and Pedestrian Facilities Projects

1.All projects must relate to surface transportation. As an example, for multiuse trail and bicycle facilities, surface transportation is defined as primarily serving a commuting purpose and/or that connect two destination points. A facility may serve both a transportation purpose and a recreational purpose; a facility that connects people to recreational destinations may be considered to have a transportation purpose.

Check the box to indicate that the project meets this requirement. Yes

2.The project must exclude costs for study completion, preliminary engineering, design, construction engineering, or other similar costs (eligible costs include construction and materials, right-of-way, and land acquisition).

Check the box to indicate that the project meets this requirement. Yes

3.The project must exclude work which is required as a condition of obtaining a permit or concurrence for a different transportation project.

Check the box to indicate that the project meets this requirement. Yes

4.Seventy percent of the project cost must fall under one of the following eligible activities:

Check the box to indicate that the project meets this requirement. Yes

For Safe Routes to School Projects Only

5.All projects must be located within a two-mile radius of the associated primary, middle, or high school site.

Check the box to indicate that the project meets this requirement.

6.All schools benefiting from the SRTS program must conduct after-implementation surveys. These include the student tally form and the parent survey available on the National Center for SRTS website. The school(s) must submit the after-evaluation data to the National Center for SRTS within a year of the project completion date. Additional guidance regarding evaluation can be found at the MnDOT SRTS website.

Check the box to indicate that the project meets this requirement.

7. The applicant must have a Safe Routes to School plan or planning process established to be eligible for funding. MnDOT staff will notify Metropolitan Council staff of all agencies eligible for funding. If an applicant has a new Safe Routes to School plan and has not previously notified MnDOT Safe Routes to School staff of the plan, the applicant should contact Nicole Campbell (Nicole.M.Campbell@state.mn.us; 651-366-4180) prior to beginning an application to discuss the plan and confirm eligibility. MnDOT staff will send updated applicant eligibility information to Metropolitan Council staff, if necessary.

Check the box to indicate that the applicant understands this requirement and will contact MnDOT Safe Routes to School staff, if necessary, to confirm funding eligibility.

Other Attachments

File Name	Description	File Size
Attachment 01 - Letters of Support.pdf	Letters of Support	369 KB
Attachment 02 - Lake Street Midtown Greenway Framework Plan - Local Connections.pdf	Local Connections	353 KB
Attachment 03 - Lake Street Midtown Greenway Framework Plan - Corridor Design Guidelines.pdf	Corridor Design Guidelines	1.4 MB
Attachment 04 - City of Minneapolis - Green Crescent Project Details.pdf	Green Crescent Project Details	3.1 MB
Attachment 05 - Access Minneapolis - Pedestrian Facility Design Guidelines.pdf	Pedestrian Facility Design Guidelines	2.6 MB
Attachment 06 - Access Minneapolis - Street Lighting Design Guidelines.pdf	Street Lighting Design Guidelines	367 KB
Attachment 07 - City of Minneapolis - Traffic Volume Data.pdf	Traffic Volume Data	77 KB
Attachment 08 - MnDOT - Crash History.pdf	Crash History	133 KB
Figure 01 - Project Basemap.pdf	Project Basemap	235 KB
Figure 02 - Project Aerials.pdf	Project Aerials	6.7 MB
Figure 03 - Existing Streetscaping Elements.pdf	Existing Streetscaping Elements	182 KB
Figure 04 - Proposed Streetscaping Elements.pdf	Proposed Streetscaping Elements	145 KB
Figure 05 - Proposed Layout.pdf	Proposed Layout	6.5 MB
Figure 06 - Proposed Typical Sections.pdf	Proposed Typical Sections	103 KB
Figure 07 - Access Minneapolis - Existing Land Use Features.pdf	Existing Land Use Features	1.6 MB
Figure 08 - Access Minneapolis - 2030 Land Use Features.pdf	2030 Land Use Features	1.9 MB
Figure 09 - Access Minneapolis - 2030 Traffic Analysis Zones.pdf	2030 Traffic Analysis Zones	345 KB
Figure 10 - Access Minneapolis - Historic Development and Transportation Patterns.pdf	Historic Development and Transportation Patterns	1.2 MB
Figure 11 - Access Minneapolis - Citywide Existing Bicycle Facilities.pdf	Citywide Existing Bicycle Facilities	2.3 MB
Figure 12 - Access Minneapolis - Citywide Primary Transit Network.pdf	Citywide Primary Transit Network	824 KB

Figure 13 - Access Minneapolis - Citywide Hi-Frequency Transit Networks.pdf	Citywide Hi-Frequency Transit Networks	859 KB
Figure 14 - City of Minneapolis - Street Furniture Priority Locations.pdf	Street Furniture Priority Locations	962 KB
Figure 15 - Approved Lake Street HSIP Project - Ped Countdown Timers.pdf	Approved HSIP Project - Ped Countdown Timers	274 KB
Figure 16 - 2014 Hennepin County CIP - I-35W Transit Access Project.pdf	2014 Hennepin County CIP	154 KB
Figure 17 - 2014 Minneapolis CIP - Lake Street & I-35W Improvements.pdf	2014 City of Minneapolis CIP	1.8 MB
Figure 18 - MnDOT I-35W Transit Access Project - Study Area.pdf	MnDOT I-35W Transit Access Project	1.8 MB

Measure A: Project Location Relative to Jobs, Manufacturing and Education

Select all that apply:

Direct connection into, on an adjacent street, or within a Job Concentration	Yes
Direct connection into, on an adjacent street, or within a Manufacturing/Distribution Location	
Direct connection into, on an adjacent street, or within an Educational Institution	
Project provides a direct connection into, on an adjacent street, or within an existing local activity center identified in an adopted county or city plan	Yes

City or County Plan Reference

Response (Limit 700 characters; approximately 100 words)

The CSAH 3 (Lake Street) Streetscape Project is not only within a Job Concentration Center, but has also been identified in the Midtown Greenway Framework Plan as being adjacent to three local activity areas including: the K-Mart block at Nicollet Avenue and the future desire to reconnect Nicollet Avenue, the Midtown Greenway, and the I-35W Lake Street Transit Station (which serves over 20 buses a day and will soon serve bus rapid transit). This segment of Lake Street also provides connections to Cristo Rey Jesuit High School (Educational) and Nico Products (Manufacturing).

Upload Map	01 - Regional Economy - CSAH 3 (Lake Street) Streetscape - Combined.pdf

Measure A: Cost Effectiveness

Existing Population Within One-Half Mile (Integer Only)	44513
Existing Employment Within One-Half Mile (Integer Only)	20347

Completed by Metropolitan Council Staff

Total Project Cost	$800,000.00
Cost Effectiveness for Population	$17.97
Cost Effectiveness for Employment	$39.32
Upload Map	04 - Population & Employment - CSAH 3 (Lake Street) Streetscape - Combined.pdf

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Racially Concentrated Area of Poverty	Yes
Project located in Concentrated Area of Poverty	
Projects census tracts are above the regional average for population in poverty or population of color	
Project located in a census tract that is below the regional average for population in poverty or populations of color or includes children, people with disabilities, or the elderly.	

Response (Limit 1,400 characters; approximately 200 words)

The CSAH 3 (Lake Street) Streetscape Project will improve a key east/west pedestrian and transit corridor while enhancing bicycle connections between Lake Street and the Midtown Greenway. Unique transit shelters may be installed along the corridor to promote their expanded use. This segment of Lake Street currently serves over 20 bus routes and is a commercial hub for the neighborhood, demonstrating the need for an improved pedestrian realm. The streetscaping elements will provide a sense of safety by improving lighting conditions and placing of trees to physically separate vehicles and pedestrians. Bicycle racks, benches, and open spaces provide rest areas to encourage travel by alternative modes. The installation of trash receptacles, traffic signal cabinet wraps, and newspaper corrals will further improve the quality of life.

This Streetscape Project will supplement the nearby Green Crescent that will provide an important link for bicycles and pedestrians between the Midtown Greenway and Lake Street. It will also supplement the upcoming I-35W Transit & Access Project that includes a northbound/southbound Bus Rapid Transit Line along I-35W. The CSAH 3 (Lake Street) Streetscape Project is a commitment from the public sector to work with the local community to create a sense of place that embraces its diversity and the range of transportation modes.

Upload Map

02 - Socio Economic - CSAH 3 (Lake Street) Streetscape - Combined.pdf

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
Minneapolis	0.34
	0

Total Project Length

Total Project Length	0.34

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

City/Township	Segment Length (Miles)	Total Length (Miles)	Score	Segment Length/Total Length	Housing Score Multiplied by Segment percent
Minneapolis	0.34	0.34	97.0	1.0	97.0
		0	**97**	**1**	**97**

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.34
Total Housing Score	97.0

Measure A: Gaps, Barriers and Continuity/Connections

The CSAH 3 (Lake Street) Streetscape Project may include enhanced transit shelters, trees, and lighting that provide pedestrians with: protection from weather elements, shading, and a physical barrier between the sidewalk and roadway. These streetscaping elements have a traffic calming effect and provide pedestrians with a sense of comfort and safety.

Response (Limit 1,400 characters; approximately 200 words)

This streetscape project supplements projects led by Hennepin County, Minneapolis, and MnDOT that include a roadway reconstruction on Lake Street, a connection between the Midtown Greenway and Lake Street, and an enhanced bus rapid transit station at the I-35W Bridge. These additional projects include ADA compliant sidewalks and pedestrian ramps, bump outs, along with APS. These projects also include elements that improve lighting, shading, and shelter; along with a physical barrier between vehicles and pedestrians. These additional projects are important because they provide pedestrians and cyclists with an alternative route to I-35W.

The Midtown Greenway is located approximately 700 feet north of Lake Street and serves 4000 eastbound/westbound cyclists daily in a parallel fashion to Lake Street. The condition of the greenway is satisfactory and operates at a high level of service since many of the intersections are not at grade. However, local businesses are not accessible directly from the Greenway.

Measure B: Project Improvements

Response (Limit 1,400 characters; approximately 200 words)

Below is a listing of the bicycle and pedestrian crash history from 2009-2013 along the CSAH 3 (Lake Street) Streetscape Project Length:

- Pedestrian: 17 Total Incidents (Severity: 1 K, 0 A, 6 B, 10 C, and 0 P)

- Bicycle: 9 Total Incidents (Severity: 0 K, 0 A, 2 B, 7 C, and 0 P)

The following is a list of safety improvements that will be the result of the CSAH 3 (Lake Street) Streetscape Project:

- Improved lighting (20% reduction)

- Installation of trees which will act as a barrier between pedestrians and vehicles (No reduction data available)

Please note that a majority of pedestrian and bicycle improvements will be the result of the CSAH 3 (Lake Street) Reconstruction Project, the I-35W Transit Access Project, and the previously approved Lake Street HSIP Project that includes the following elements:

- Improved signal timing (37% reduction)

- Pedestrian countdown timers (70% reduction)

- Bumpouts at certain intersections (No reduction data available)

- Conversion of traffic signal from pedestrian mounted to mast arm (51% reduction)

Measure A: Transit Connections

Existing Routes Directly Connected to the Project	11, 18, 21, 27, 39, 53, 133, 135, 146, 156, 460, 464, 465, 467, 470, 472, 475, 476, 477, 478, 479, 491, 492, 535, 552, 553, 554, 558, 568, 578, 579, 597, 684, 695
Planned Transitways Directly Connected to the Project (alignment and mode determined and identified in the 2030 TPP)	I-35W BRT (METRO Orange Line Extension), Nicollet Avenue Arterial BRT
Existing Routes Indirectly Connected Within One-Half Mile of the Project	4, 5, 11, 18, 21, 27, 39, 53, 113, 133, 135, 146, 156, 460, 464, 465, 467, 470, 472, 475, 476, 477, 478, 479, 491, 492, 535, 552, 553, 554, 558, 568, 578, 579, 597, 684, 695
Planned Transitways Indirectly Connected Within One-Half Mile of the Project (alignment and mode determined and identified in the 2030 TPP)	I-35W BRT (METRO Orange Line Extension), Nicollet Avenue Arterial BRT, Chicago Ave BRT
Upload Map	03 - Transit Connections - CSAH 3 (Lake Street) Streetscape - Combined.pdf

Response

Met Council Staff Data Entry Only

Route Ridership Directly Connected	1.3221622E7
Transitway Ridership Directly Connected	1.1776E7
Route Ridership Indirectly Connected	8026963.0
Transitway Ridership Indirectly Connected	6742400.0

Measure: Bicycle Connections

There are sidewalks currently on both sides of Lake Street to accommodate the high volume of pedestrian traffic in the area. The streetscaping project will provide additional amenities for pedestrians such as trees, lighting, and transit shelters. The planned reconstruction of Lake Street will also include ADA compliant sidewalks, pedestrian ramps, and accessible pedestrian signals.

Response (Limit 1,400 characters; approximately 200 words)

Lake Street is not identified as a bicycle route on the Hennepin County or Minneapolis plans. The Midtown Greenway (5.5-mile multi-use trail) is located one block north of Lake Street, and accommodates east-west pedestrian/bicycle traffic. The Greenway connects with paths around the Minneapolis Chain of Lakes, Southwest LRT Trail, and paths along the Mississippi River.

A connection between the Midtown Greenway and Lake Street (Green Crescent) is planned to be included with the upcoming I-35W Transit & Access Project. The Green Crescent will include separated bicycle and pedestrian facilities, streetscaping, and enhancements to the existing bus stops under the I-35W Bridge. In addition, the I-35W Transit & Access Project will include a new Bus Rapid Transit (BRT) station in the median of I-35W near Lake Street with connections to/from Lake Street. The timeline expected for these projects estimates construction to begin in 2017.

Measure: Multimodal Facilities

Response (Limit 1,400 characters; approximately 200 words)

The CSAH 3 (Lake Street) Streetscape Project includes enhancements that will benefit all non-motorized transportation modes.

Transit shelters will be installed to shield individuals from the weather elements and to increase awareness of the presence of a bus stop. It is anticipated that these shelters will be used frequently based on high transit boarding counts and the number of bus routes (20+) that provide services along Lake Street.

Lake Street is not defined as a bicycle route by the Hennepin County Bicycle Transportation Plan or by the Minneapolis Bikeways Master Plan, however, it is approximately one block from the Midtown Greenway which serves 4000 bicyclists per day. As part of the Streetscape Project, bicycle racks and way finding signage may be installed along the corridor for cyclists who wish to visit commercial areas or utilize the transit services.

The Streetscape Project will also provide benefits to pedestrians. The existing lighting structures will be replaced to improve visibility and provide pedestrians with a sense of comfort and safety. Trees will be planted to provide a physical barrier between vehicles and pedestrians. Trees will also provide shade for pedestrians on the sidewalk. Benches, trash receptacles, and newspaper corals may be installed with the project to serve as enhancements for pedestrians.

Transit Projects Not Requiring Construction

If the applicant is completing a transit or TDM application, only Park-and-Ride and other construction projects require completion of the Risk Assessment below. Check the box below if the project does not require the Risk Assessment fields, and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment

1)Project Scope (5 Percent of Points)

Meetings or contacts with stakeholders have occurred Yes

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

2)Layout or Preliminary Plan (5 Percent of Points)

Layout or Preliminary Plan completed

100%

Layout or Preliminary Plan started

50%

Layout or Preliminary Plan has not been started Yes

0%

Anticipated date or date of completion 12/31/2015

3)Environmental Documentation (10 Percent of Points)

EIS

EA Yes

PM

Document Status:

Document approved (include copy of signed cover sheet)

100%

Document submitted to State Aid for review

75%

Document in progress; environmental impacts identified Yes

50%

Document not started

0%

Anticipated date or date of completion/approval 06/30/2016

4)Review of Section 106 Historic Resources (15 Percent of Points)

No known potential for archaeological resources, no historic resources known to be eligible for/listed on the National Register of Historic Places located in the project area, and project is not located on an identified historic bridge Yes

100%

Historic/archeological review under way; determination of no historic properties affected or no adverse effect anticipated

80%

Historic/archaeological review under way; determination of adverse effect anticipated

40%

Unknown impacts to historic/archaeological resources

0%

Anticipated date or date of completion of historic/archeological review: 12/31/2014

Project is located on an identified historic bridge

5)Review of Section 4f/6f Resources (15 Percent of Points)

(4f is publicly owned parks, recreation areas, historic sites, wildlife or waterfowl refuges; 6f is outdoor recreation lands where Land and Water Conservation Funds were used for planning, acquisition, or development of the property)

No Section 4f/6f resources located in the project area Yes

100%

Project is an independent bikeway/walkway project covered by the bikeway/walkway Negative Declaration statement; letter of support received

100%

Section 4f resources present within the project area, but no known adverse effects

80%

Adverse effects (land conversion) to Section 4f/6f resources likely

30%

Unknown impacts to Section 4f/6f resources in the project area

0%

6)Right-of-Way (15 Percent of Points)

Right-of-way or easements not required

100%

Right-of-way or easements has/have been acquired

100%

Right-of-way or easements required, offers made

75%

Right-of-way or easements required, appraisals made

50%

Right-of-way or easements required, parcels identified

25%

Right-of-way or easements required, parcels not identified

0%

Right-of-way or easements identification has not been completed Yes

0%

Anticipated date or date of acquisition 12/31/2016

7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project Yes

100%

Railroad Right-of-Way Agreement is executed (include signature page)

100%

Railroad Right-of-Way Agreement required; Agreement has been initiated

60%

Railroad Right-of-Way Agreement required; negotiations have begun

40%

Railroad Right-of-Way Agreement required; negotiations not begun

0%

Anticipated date or date of executed Agreement

8)Construction Documents/Plan (10 Percent of Points)

Construction plans completed/approved (include signed title sheet)

100%

Construction plans submitted to State Aid for review

75%

Construction plans in progress; at least 30% completion

50%

Construction plans have not been started Yes

0%

Anticipated date or date of completion 12/31/2016

9)Letting

Anticipated Letting Date 07/01/2017

Minneapolis
City of Lakes

Department of
Public Works

Steven A Kotke, P.E.
City Engineer
Director

350 South 5th Street - Room 203
Minneapolis MN 55415

Office 612 673-3000
Fax 612 673-3565
TTY 612 673-2157

November 21, 2014

James N. Grube, P.E.
Director of Transportation and County Engineer
Transportation Department
1600 Prairie Drive
Medina, Minnesota 55340

Re: Letter of Support for Hennepin County's Regional Solicitation Application and Project
CSAH 3 (Lake Street) Roadway Reconstruction/Modernization
Blaisdell Avenue to 1st Avenue and 3rd Avenue to 5th Avenue

Dear Mr. Grube:

The City of Minneapolis supports Hennepin County's federal funding application through the Regional Solicitation for the proposed CSAH 3 (Lake Street) roadway reconstruction/modernization and streetscaping project from Blaisdell Avenue to 1st Avenue and 3rd Avenue to 5th Avenue, which will include the following improvements:

- Roadway reconstruction
- Traffic signal replacement/upgrades
- Sidewalk/trail replacement
- Streetscaping elements

The city supports this county project to reconstruct Lake Street in coordination with the I-35W Lake Street Access project, which will improve capacity and safety for multiple transportation modes. Improvements along this corridor will improve the livability and quality of life for Minneapolis and Hennepin County residents.

Thank you for making us aware of this application effort and the opportunity to provide support. The city looks forward to working with you on this project.

Sincerely,

Steve Kotke
Director of Public Works and City Engineer

Call 311 Minneapolis
City Information and Services

www.ci.minneapolis.mn.us
Affirmative Action Employer

Minnesota Department of Transportation
Metro District
1500 West County Road B-2
Roseville, MN 5511

November 25, 2014

James N. Grube, P.E.
Director of Transportation and County Engineer
Transportation Department
1600 Prairie Drive
Medina, Minnesota 55340

RE: Regional Solicitation Application for CSAH 3 (Lake Street) Roadway Reconstruction/Modernization Improvements:
Blaisdell Avenue to 1st Avenue and 3rd Avenue to 5th Avenue

Dear Mr. Grube:

Thank you for requesting a letter of support from MnDOT for the Metropolitan Council's 2014 Regional Solicitation. Your application for the CSAH 3 (Lake Street) project impacts MnDOT right of way on I-35W.

MnDOT, as the agency with jurisdiction over I-35W, supports this county project to reconstruct Lake Street in coordination with the I-35W Lake Street Access project. Details of any future maintenance agreement with the county will be determined during project development to define how the project will be maintained.

While MnDOT has a significant investment in the I-35W Lake Street Access project in fiscal year 2017, this project currently has no funding from MnDOT.

Sincerely,

Scott McBride, P.E.
Metro District Engineer

Cc: Elaine Koustsoukos, Metropolitan Council
April Crockett, MnDOT Metro District – West Area Manager

Chapter 1

The Lake Street Midtown Greenway Corridor

Introduction

The vision for the Lake Street Midtown Greenway Corridor articulated in this Framework is one of opportunity and reinvestment - revitalizing this once thriving commercial/business center into a major neighborhood and regional amenity.

At the core of this revitalization effort is the significance of 'place.' Most people recognize the beauty and value of the Chain of Lakes and the Mississippi River as places of inspiration, recreation and celebration. But many are unaware of the rich history of Lake Street and the abandoned rail corridor that runs parallel to it. People may visit Uptown or the shops and restaurants at Lyndale and Lake, but the huge potential and unique character of the rest of the corridor have gone largely unnoticed . . . until recently!

This Framework serves to vocalize and catalyze a shared vision for development within and around this corridor. Building on the efforts of political and business leadership along with numerous neighborhood groups and organizations who are pursuing a variety of ongoing project initiatives, **this opportunity is too great to miss.** With the newly formed Midtown Community Works Partnership (initiated in January 1998), composed of elected officials from City and County government joined by CEO's from many major corporations and institutions, a clarity of purpose and a plan for action is emerging. But the challenge is in how to tell this story, how to reach a wide and very mixed audience - how to capture the imagination, energy and commitment needed to turn plans into projects and dreams into reality.

This Framework Plan recognizes and incorporates the conclusions and recommendations contained in the many existing planning studies already completed as the foundation for the work ahead. From an urban design perspective, we can look back into the past to understand what made cities great and then reach into the future to embrace new technologies and the creative partnerships needed to get things done. By applying what we learn, we can build safe communities in which to raise families, find a living wage job and develop places for recreation and recharge.

The focus of this work is on 'placemaking and connections' . . . to provide an environment for both existing neighborhoods and new development opportunities that attaches a high value on the public realm. It is about creating places that are unique, identifiable and memorable - places that are worthy of our affection - encouraging a strong sense of community, a pride of ownership and responsibility to be carried forward for future generations.

Placemaking and Connections

The Significance of Place

The revitalization of the Lake Street Midtown Greenway Corridor will fill a gap in a much larger network of neighborhoods, business districts and recreational systems. It is a key piece of a metropolitan-scaled puzzle, providing a highly desirable east-west link across the city, eventually connecting Saint Paul to the western suburbs. It also provides excellent access to north-south streets and bikeways, creating a new urban movement network.

The success of the Lake Street Midtown Greenway corridor is important for reasons that extend far beyond its immediate borders. While this regeneration will stimulate local growth and initiatives, it will also serve as a model for a new way of thinking about the metropolitan area - underscoring the fact that successes in one portion of the community support successes elsewhere.

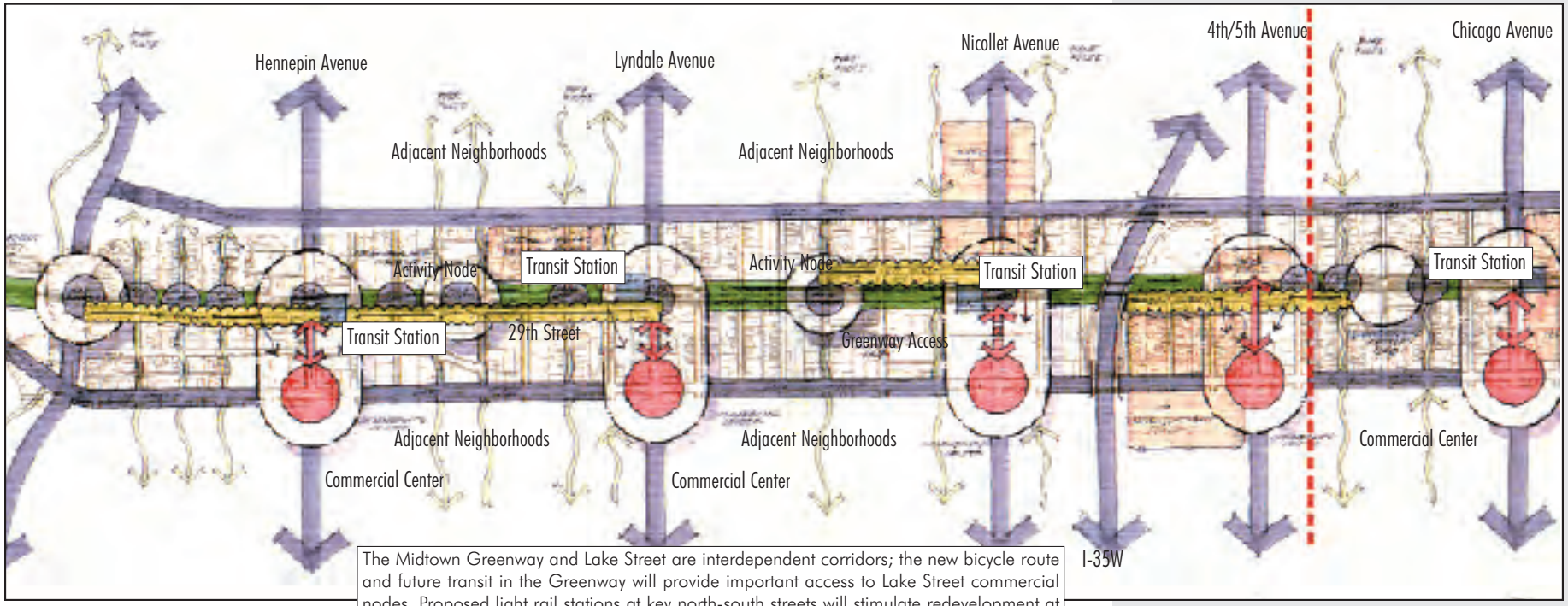
To neighborhoods like those along the Greenway and Lake Street, the goals are simple: keep businesses and residents who already live and work here, and attract new businesses and residents to the area. This can succeed only if the neighborhoods are safe and well maintained, and if the conveniences and amenities of high quality urban living are present.

This Framework is intended to help "guide the market" in the corridor, by identifying new opportunities and uniting all interests - public and private, business and neighborhood resident - behind a shared vision for a revitalized Midtown community. If we do nothing, change will still occur, but it will typically be developer-driven and site specific. This document focuses on the two critical qualities that will "raise the standards" for revitalization: **creating meaningful places and linking them together with a high quality public realm.**

Key Connections - Linking it Together

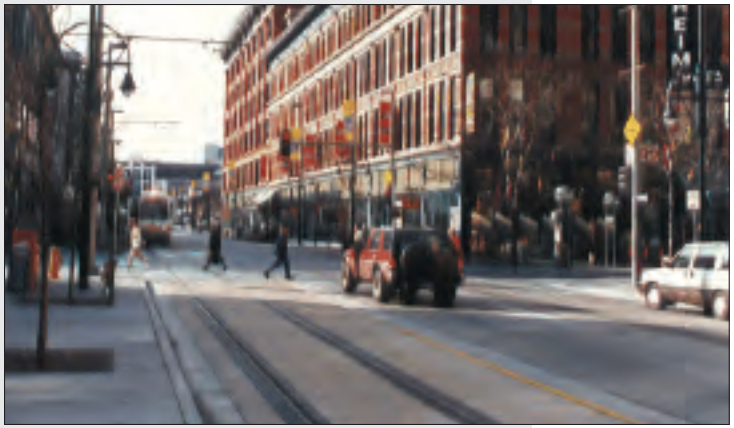
While Lake Street and the Midtown Greenway corridors - running parallel and a block apart - cut a significant east-west swath through much of south Minneapolis, it is their relationship to adjacent neighborhoods on the north and south that is especially important. Historically, the success and decline of the neighborhoods could be measured against the vitality of Lake Street, especially as one moved further east from the Lakes District. The railroad corridor, servicing business and manufacturing facilities, was accepted as a necessary compromise that kept important jobs in the community.

The departure of the railroad (by 2008) and the development of a recreational and commuter bicycle trail in the trench offer a tremendous opportunity to re-think the physical form and character of this entire part of the city. Together, the Greenway and Lake Street act as a joined pair, a redefined armature through the neighborhoods. The accompanying diagram shows the inseparable relationship that exists between the two, especially at the commercial centers, such as Lyndale and Lake, Nicollet and Lake, 4th and Lake, Chicago and Lake, Bloomington and Lake, Hiawatha and Lake and other key nodes from the Chain of Lakes to the Mississippi River.



The Midtown Greenway and Lake Street are interdependent corridors; the new bicycle route and future transit in the Greenway will provide important access to Lake Street commercial nodes. Proposed light rail stations at key north-south streets will stimulate redevelopment at those intersections, further strengthening their commercial viability.

Selby Avenue, 1948. Courtesy MHS



Transit, Mixed Use and the Livable City

Transportation systems have historically determined the form of cities. The streetcar system was the prime generator of form on Lake Street during its maturation in south Minneapolis. The parallel rail corridor, while not a public space, also shaped development by creating a new edge between the neighborhoods to the north and the mixed commercial and industrial uses between Lake Street and 29th Street. While commercial uses always tended to cluster at the major north-south crossroads, there was a remarkable consistency to the retail character of Lake Street from Hiawatha to Hennepin Avenue. Without the streetcar, and with the increased use of the automobile, the character of Lake Street was destined to change.

Purchased by Hennepin County Regional Rail Authority for use as a light rail corridor, the Greenway will once again effect change in land use patterns along Lake Street and adjacent to the Greenway itself. Based on observations of similar light rail "new-starts" in other cities, the areas around proposed stations will see a significant increase in commercial and residential development characterized by a more compact land use pattern at these important nodes. The rail corridor, long a negative space dividing the neighborhood, will become a positive space, attracting significant new investment.

This increase in residential density and commercial activity will certainly bring more people to the Midtown area. Both the Minneapolis Plan and the Metropolitan Council regional Blueprint suggest significant gain in population for these south Minneapolis neighborhoods. This pattern of growth and re-investment cannot be fully realized without improved transit to support it. The potential conflicts caused by increased traffic, business growth and new housing, as described in the Midtown Transportation Composite prepared by SRF Consulting Group for Hennepin County, supports the need for a long-term vision and implementation strategy. Land use, street capacity, infrastructure replacement, access, funding and other issues must match with overall objectives for transit and transportation improvements in the corridor.

Balanced and Integrated Solutions

Strong urban form, an inviting pedestrian realm, availability of living wage jobs and a perception of safety and security are key characteristics of healthy neighborhoods - a shared vision and prized outcome for communities throughout the country. Tree-lined residential streets, life-cycle housing, a variety of nearby goods and services, entertainment and arts attractions, access to local parks and regional open space systems, and good transit connections and traffic circulation will all contribute to the stability and vitality of the Midtown Corridor. The potential is here for the 24-Hour City.

But this also creates new challenges. These positive attributes give rise to a variety of critical issues related to livability and the continuing evolution of our core cities. These issues include traffic conflicts, parking needs, tensions between incompatible land uses, the creep of commercial development into residential neighborhoods and aesthetic concerns including noise, trash and other by-products of all this activity.

So what does this mean? In short, things change and these changes must be addressed through sound strategic thinking joined with decisive action. The goal is to direct implementation activities based on a clear set of desired outcomes and not be forced into a reactionary response to the changes going on around us.

Directed growth and increased density are positive objectives, but can only succeed if the necessary infrastructure is there to support it. The kinds of conflicts and tensions described above will always exist, but better management of these conflicts through quality design, realistic operations/enforcement and balanced land use policy will ensure that the overall vision for the corridor is successful.

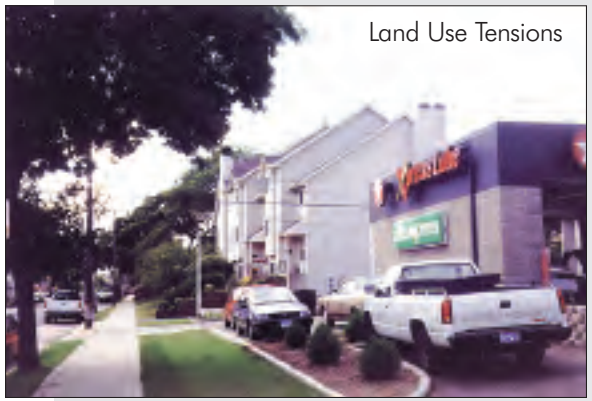
This Framework Plan seeks to balance and integrate solutions for transit and mixed use development throughout the corridor with a focus on:

- Rethinking policy issues - zoning alternatives, site plan requirements, funding for capital projects
- Development strategies that promote transit options as key components
- Development strategies that promote compact development at specific locations more easily facilitated by transit connections
- Regional/neighborhood parking strategies linked to transit at multi-modal stations
- Improvements to public infrastructure and the public realm to enhance existing and attract new business, residential and recreational uses.

This is all about "Urban Stewardship." The way in which cities grow is a contextual issue, not forced or predetermined but an evolution that needs to be directed, nurtured and maintained. The Framework Plan serves to identify the key pieces in this puzzle and also defines a clear set of objectives to describe what success might look like. The challenge is to use these and other planning tools to implement projects that serve to catalyze adjacent development, then adjust as we go along to reach the desired outcome.

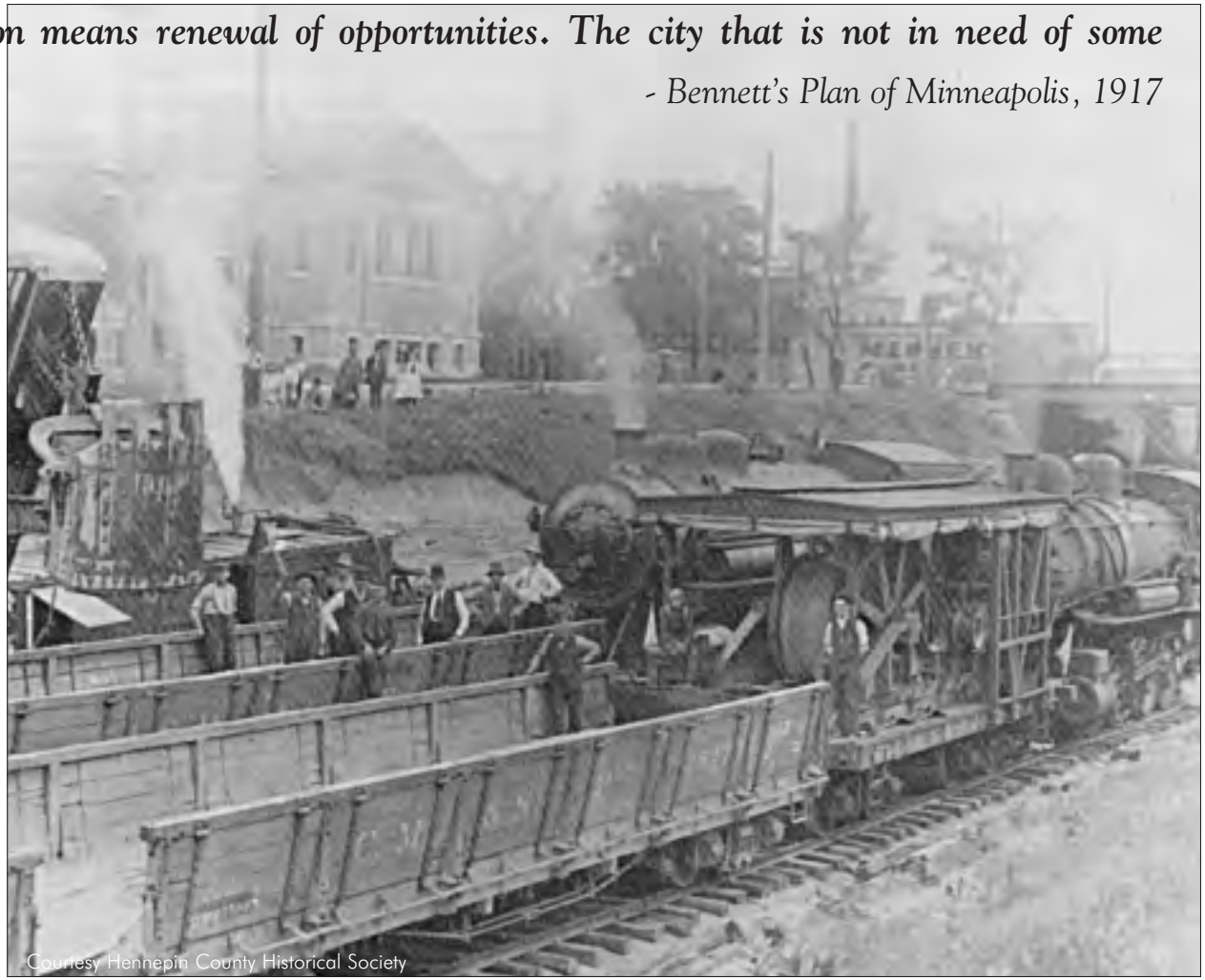
Parking Conflicts

Commercial Activity


Land Use Tensions

"Necessary reconstruction of a city involves necessarily the relocation of its railroads. Reconstruction will always be necessary as long as the city grows. This is a cause for congratulation, because reconstruction means renewal of opportunities. The city that is not in need of some rebuilding is dead."

- Bennett's Plan of Minneapolis, 1917



Excavation of the "Lake Street Depression" (1912-1917), probably near Hennepin Avenue with the Walker Library in the background

Chapter 3

Planning Principles and Design Guidelines

Introduction - The Framework Plan

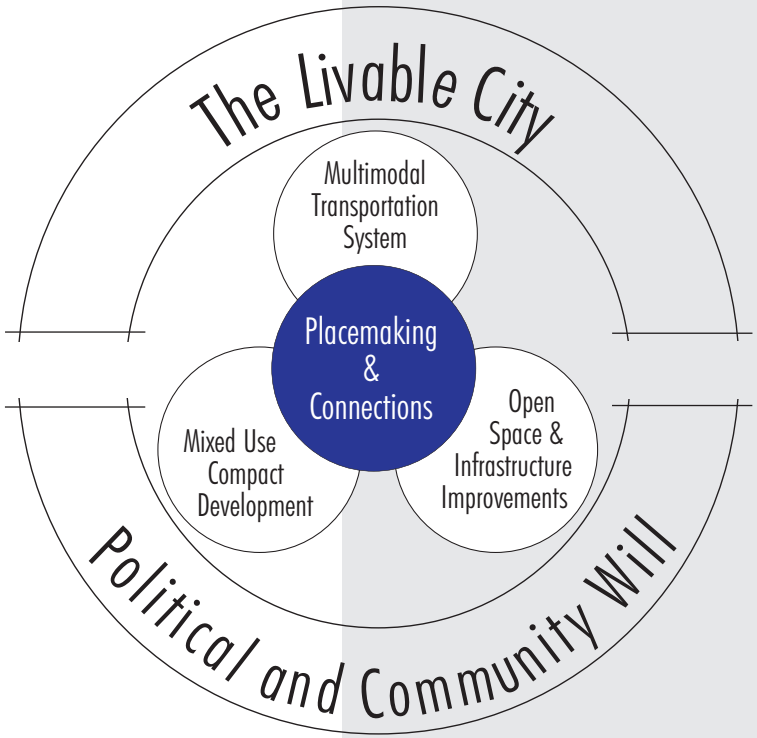
Planning is a process, not a product. A "master plan" is a snapshot in time, and if too prescriptive, it quickly finds its way to the bookshelf. This document is intended to be a flexible "framework" to help civic and political leaders, developers and stakeholders form educated, appropriate decisions about how this urban corridor can and should be enhanced and redeveloped.

The Framework Plan is intended to educate and inform people about the qualities that contribute to good urban places. It seeks to bring focus to the unique opportunities that exist throughout the Lake Street Midtown Greenway Corridor. It also identifies the primary obstacles to successful redevelopment and sets forth a series of guidelines specific to these linked south-side neighborhoods. Above all, it stresses the importance of connecting individual projects together with a high quality public realm to expand the impact of each investment and to strengthen the quality and livability of the entire community.

Building the Livable City - The Foundation and The Structure

Successful revitalization of the Midtown Corridor is dependent upon three essential and interdependent components: a multimodal transportation system; open space and infrastructure improvements; and mixed-use compact development - all supported and energized by the political and community will to succeed. To some degree, each of the three components depends on the other two. For example, while Uptown has experienced significant commercial success, congestion and parking have become more of a problem. Enhanced transit and other open space/infrastructure improvements are certainly part of the solution.

Placemaking and connections relies on the unified vision and shared voices of government agencies, developers, business owners and community residents. Redevelopment of the Midtown Corridor provides a unique opportunity to bring together key stakeholders, forge a common long-view strategy and move forward to implement change.



Urban Planning Principles - Economic Vitality and Quality of Life

For several decades portions of the Midtown Corridor have been perceived as places in decline, suffering from disconnection and disinvestment. This reputation lowered land values, which eventually lured new pioneers to invest in the community and brought new - if modest - stability to the area. As is common with the evolution of urban neighborhoods, those areas experiencing the greatest crisis are often the same areas where dramatic change can occur. It is sometimes as simple as changing perceptions.

Balancing automobile use with other modes of transportation

A mix of uses intensifies activity on the street

The following guiding principles were developed early in this planning process, providing a foundation for the Framework Plan:

Reinforce safe environments

Providing an engaging and safe place for people to live, work, shop and play is essential to this entire effort and requires the transformation of real and perceived negatives - physical, economic and social - into positives.

Be transit, pedestrian and bicycle friendly

The dominance of the automobile in American culture has had a profound impact on the urban landscape. There has recently been a re-awakening to the value of creating places that balance automobile use and other modes of transportation. Creation of this new commuter bike route has tremendous potential to set the tone for new urban redevelopment patterns in south Minneapolis.

Establish links to transit and support transit-oriented development

Lake Street and the Midtown Greenway will, in all likelihood, eventually carry public transit (local service on Lake, longer-range service in the Greenway). There must be frequent connections to transit throughout the corridor, including safe, well designed transit stations, weather protection and many other amenities. Transit-oriented development needs to be anticipated around future transit stations. These hubs will become significant activity areas as transit transforms the city.

Foster a sense of place and community

Community means much more than a physical place; it suggests pride of ownership and interaction between people. It suggests shops that support the immediate area as well as the larger community. It suggests safe and comfortable streets and access to recreation. Private reinvestment has already re-energized Uptown, and the Lyn-Lake and 4th Avenue/Lake nodes are coming alive as well. These areas have become identifiable meeting places with a unique character that draws people back again and again. The Midtown Greenway is a major public investment that will connect these new places, with separate but complementary qualities.

Support compact, mixed use development patterns

The Lake Street Midtown Corridor has always been characterized by a mix of land uses in close proximity to one another. These patterns are still clearly evident in the neighborhoods. Now, with the

consolidation of commercial uses at the major nodes and the promotion of 29th Street and the Greenway as a front door rather than a service door, the patterns of use will change. Still, the mix of uses should be strengthened and, over time, intensified. This should be most apparent with new compact development, including mixed income and multi-family housing and business growth between Lake Street and the Greenway.

Respect architectural form, scale and context

Many traditional architectural forms remain along Lake Street and in the neighborhoods. Two to three story commercial buildings give Lake Street its sense of containment and character. Old, three story walk-up apartments and turn of the century housing reflect the familiar Minneapolis patterns. While it need not replicate older models, new architecture should echo the scale and character of the traditional neighborhoods.

Incorporate environmentally sustainable practices

All matters of sustainability, from stormwater management to the use of recycled materials and the development of "healthy homes" and "green architecture," should be practiced in the corridor to further the area as a model for appropriate contemporary urban revitalization.

Support 'greening' as a key component of corridor development projects

All development and infrastructure improvements should incorporate a strong greening/public realm component. A linked network of open space and dedicated public parks will contribute immeasurably to the quality of life for residents, businesses and visitors in adjacent neighborhoods. The revitalization of this corridor must also provide improved access and connections to the Greenway, to existing parks and to regional recreational systems throughout the Twin Cities.

Balance economic vitality with quality of life

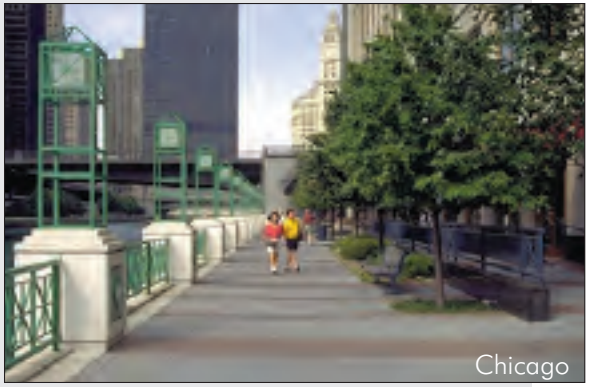
Successful urban environments consist of a mix of land uses, housing options, job opportunities and transit. Economic vitality must be reinforced throughout the corridor by promoting a balance of life-cycle housing, business development and recreational and "greening" opportunities, co-existing in close proximity to create thriving, safe and stable neighborhoods.

Target strategic public improvements to leverage private investment

Significant public investment has been targeted toward this corridor including infrastructure and streetscape improvements, environmental clean-up, and land assembly activities. Private development often follows the lead of these public improvement projects. It is crucial that the City and County continue to join forces with private investors to more effectively identify key development sites and other opportunities to maximize investment decisions in support of the development strategies outlined in this framework plan.

View of a public space between busway lanes on the 16th Street Mall in Denver, Colorado. The 'low floor' buses are accessible, quiet and clean.

This narrowed street in Boulder, Colorado, successfully accommodates bicycles and a pedestrian crossing, while calming traffic.


Chicago

Charleston

Chicago

Corridor Design Guidelines - Promoting Placemaking and Connections

The guidelines that follow were developed in response to the specific issues that face these urban neighborhoods as redevelopment occurs. They call for a new vision for the corridor and adjacent areas, but reflect an understanding of the deeply ingrained development patterns that exist adjacent to the Greenway. First and foremost, they support the concepts of placemaking and connection, which are the building blocks for successful revitalization of the corridor.

The Guidelines:

1. Promote an integrated relationship between new development and the Greenway edge. Make the corridor "Greenway friendly."
2. Promote opportunities for additional public green space, dedicated parks and trail connections along the Greenway edge.
3. Develop a premier public edge along both sides of the greenway, including 29th Street on the south side and a public promenade on the north.
4. Promote development that reinforces and relates to adjacent land uses and appropriate architectural scale, particularly along Lake and Lagoon Streets and at commercial nodes.
5. Locate front doors on the street, (including 29th Street and the Greenway) and relocate service doors, away from the public realm.
6. Promote safe, calmed streets with widened sidewalks. Focus investments toward developing an enlivened pedestrian environment and an improved public realm.
7. Integrate transit with all redevelopment projects, including safe and visually appealing transit stops for future light rail or busways.
8. Support compact development and promote mixed use in the corridor. Create a more vibrant and diverse urban environment.
9. Locate parking either on the street or behind/between buildings along the block. Consolidate parking in structures or municipal lots.
10. Promote opportunities for art in public places.

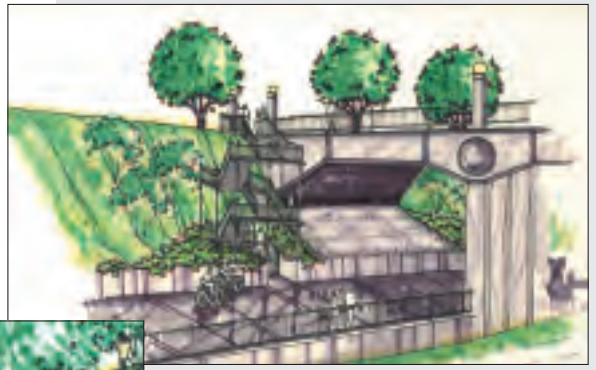
1 Promote an integrated relationship between new development and the Greenway edge. Make the corridor "Greenway friendly."

Based on its history as a railroad service corridor the Greenway trench has been perceived as a necessary compromise in the community. Land values of residential properties near the area have declined in recent years. All the clutter and noise that accompany heavy rail use (open storage, noise, unlighted areas and an untended landscape) combine to create a feeling of abandonment and avoidance. It does not feel safe!

Reversing the negative perception of the corridor - to "turn it inside out" - requires several key moves:

- Make the Greenway a pleasant and inviting experience with the addition of lighting, signage, landscaping and other trail amenities.
- Promote transit use and transit connections as key public amenities in the corridor.
- Require that new development projects front onto the Greenway and along 29th street.
- Re-orient existing businesses and residences to the Greenway by developing new entries and relocating service access and storage areas to internal sites on the block.
- Where relocating entrances onto the greenway is unfeasible, develop pedestrian-friendly facilities along the rim, such as terraces for employees, improved landscaping and additional windows and awnings to improve visual connections to the corridor.
- Coordinate new development with the upgrading of 29th Street and the installation of the north rim public promenade, including a variety of ramp and stair connections to improve access, visibility and activity along the Greenway edge.

The proposed "Urban Village" will face onto a new "Public Promenade" along the north rim of the greenway.



Ramps and stairway connections will strengthen ties between the greenway and surface streets.

2 Promote opportunities for additional public green space, dedicated parks and trail connections along the Greenway edge.

Seek opportunities for a variety of small parks and public spaces.

Identify opportunities for additional public parks and squares as key neighborhood gathering/celebration nodes. (Bryant Park, NYC, by Olin Partnership. Photo by Felice Frankel. Courtesy of Olin Partnership.)

In addition to being an important recreational and commuter bicycle corridor and future transitway, the Midtown Greenway provides a unique opportunity to add valuable open space to an under served sector of the city. Small parks, public squares and gardens and informal green spaces will all contribute to a more sustainable and livable urban environment. Identifying key spaces along the Greenway for the development of new public open space is an essential step in the planning process. A number of guidelines apply:

- Identify opportunities for a wide range of recreational activities to serve people of all ages along the corridor, including playlots, public gardens, strolling paths of varying character and places for resting.
- Establish a variety of landscape types in response to the diverse conditions along the Greenway both in the trench and at the rim. More natural areas, containing native plant communities, will contrast with and augment more structured landscapes such as the 'landscape gallery' at the Urban Village.
- Identify and develop key linkages between the Greenway and nearby parks and open space, on 'green streets.' These connecting streets should focus on calming traffic, emphasizing pedestrian and bicycle access. They should include pedestrian scale lighting, broad sidewalks, well-designed landscaping, and safe crossings of major streets.
- Create new public parks at key locations along the corridor to provide additional public space while supporting and strengthening the impact of existing and proposed private development. Numerous links between the rim and the below-grade corridor are essential to facilitate movement between spaces in and along the Greenway.
- New development must integrate public green space as a key component in their site planning and detailed design work, particularly along the Greenway edge.

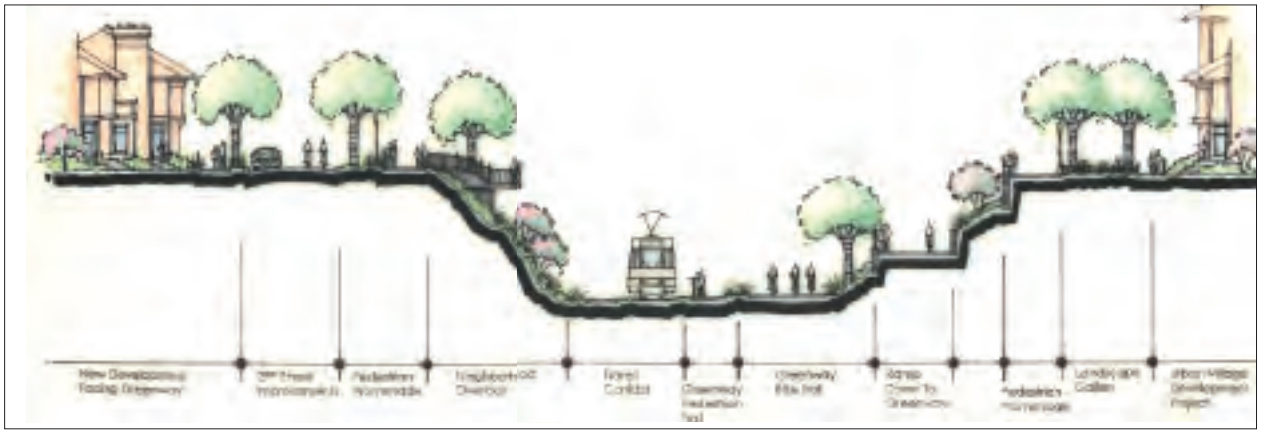
3 Develop a premier public edge along both sides of the Greenway, including 29th Street on the south side and a public promenade on the north.

The success of the Greenway is dependent upon the strength of its relationship with adjacent neighborhoods. Considered an unsightly "no-man's land," there is now the opportunity to transform this forgotten trench into a wonderful neighborhood amenity. The bike trail, new lighting and proposed landscaping will help transform the perception of the corridor. Redevelopment of the public edge along the rim is critical to this effort and several key changes should occur:

- Develop a network of public walks above, adjacent to and connecting with the Greenway trail, linked together to create a series of loops for strolling, watching and interacting with neighbors and Greenway users.
- Develop strong visual links between the Greenway and the surface walkway network to provide eyes on the corridor and increase casual surveillance. Incorporate overlooks and rest areas along the pathway system and on bridges.
- Redevelop 29th Street as a premier public way, accommodating but controlling the automobile, minimizing use by service vehicles, and adding decorative lighting, landscaping and pedestrian amenities such as benches and site furnishings. Explore opportunities to narrow road width in favor of expanded park/open space along the edge.
- Develop landscape galleries - outdoor rooms that act as mini-parks - at the landings where ramps and stairs meet the surface streets. These are important sites for development of unique and inviting public spaces, including seating areas, lighting and landscaping.

A well designed public promenade will transform the character of the greenway edge.

29th Street, as it looks today, is still a local service-oriented street, but provides opportunities for visual and physical ties to the Greenway along the edge.



This drawing of the greenway corridor shows a revitalized 29th Street, with front doors facing onto it, and the pedestrian promenade and 'landscape gallery' across the way.

Buildings fronting on the street strengthen the edge.

Discourage parking lots in front of commercial buildings.

Attention to detail - iron fencing and brick columns - can help screen parking and bring a more urban flavor to the street.

4 Promote development that reinforces and relates to adjacent land uses and appropriate architectural scale, particularly along Lake and Lagoon Streets and at commercial nodes.

Portions of the corridor, such as Hennepin Avenue in Uptown, have a good mix of uses and a strong architectural presence along the street. Other areas, such as east of Hennepin along Lagoon and Nicollet/Lake, have a less distinct street edge/pedestrian realm where buildings are often set back from the street, fronted with parking. Surface parking lots have a major impact on the quality of the public realm in the corridor, creating a hostile pedestrian environment. Policies must be put into place that require a much more pedestrian-friendly, urban character for development.

Guidelines include the following:

- Contain parking between buildings, edged with appropriate urban elements such as ornamental fencing, lighting and landscaping.
- Wherever feasible, develop parking behind buildings. Develop structured parking serving multiple users as densities increase.
- Promote parallel and angled parking on the streets and encourage dedicated bike lanes where space allows.
- Encourage and provide incentives for infill development, promoting compact development patterns and mix of uses.
- Allow no additional surface parking fronting onto intersections or corners. Allow only minimal parking lot frontage along the street and strive to locate new buildings directly adjacent to the sidewalk, strengthening the urban character of the public realm.
- Require active uses at grade, with multiple entries along the length of a block and numerous windows to link interior and exterior spaces.
- Require new architecture to be at least two stories in height: do not accept one-story, stand alone, big-box structures. Integrate larger commercial buildings with "finer-grained" structures to create a more appropriate mix, scale and sense of place.
- Create a gracious and interesting pedestrian realm to encourage and support activities such as transit use, outdoor eating, sitting, observing and buying a paper from the newspaper box.

5 Locate front doors on the street (including 29th Street and the Greenway) and relocate service doors away from the public realm.

The traditional urban pattern in Minneapolis, both in residential and commercial areas, included an alley system to handle service and deliveries. The front door was for people, inviting and free of cars (except parking on the street). Public transit was - and remains - an important part of this street environment. This pattern remains very apparent in residential areas, but commercial areas have changed dramatically. Attention to "front door - back door" issues suggests the following guidelines:

- Design new development to handle service needs in re-created alleys or interior service courts. Reserve the front door for pedestrian use, including transit-related activities. Do not separate the front door from the public sidewalk by parking lots.
- Adapt existing structures, where possible, to reinforce the traditional Minneapolis pattern.
- Address 29th Street with new public entrances and relocate service away from the street. 29th Street will become a new front door to the Greenway instead of the service-oriented corridor that it is today.
- Where possible, adapt existing structures to face onto the Greenway with the addition of doors, windows and related exterior spaces to put eyes on the street and toward the Greenway.

Alleys are traditional service and back door environments.

Front doors invite people into businesses and residences.

6 Promote safe, calmed streets with widened sidewalks. Focus investments toward developing an enlivened pedestrian environment and an improved public realm.

Boulder, Colorado

Landscaping can add tremendous value to pedestrian environments.

Aspen, Colorado

Charleston, S.C.

The use of quality materials can make a walkway more inviting.

Successful urban neighborhoods are characterized by an extensive network of sidewalks, parks and, in many areas of the city, an active pedestrian presence along the street. The automobile has had an enormous impact on urban neighborhoods, compromising the safety and comfort of people in commercial and residential areas alike. To balance these impacts, it is the sidewalk, as noted decades ago by urbanist Jane Jacobs, that visitors remember about cities; it is the sidewalk that makes a city more livable for its residents. An improved public realm will encourage private investment and help stabilize or raise property values along the corridor. It is the cornerstone of successful urban placemaking. The following guidelines address these issues:

- Integrate changes in the physical character of the street as streetscape and public infrastructure projects are funded. Narrow traffic lanes to promote more gracious sidewalks. Provide "bulb-outs," reducing street widths at crossings while calming traffic. Implement creative crosswalk design to promote pedestrian safety, neighborhood identity and sharing of the street.

- Reconsider the sidewalk as more than conveyors of pedestrian traffic. Develop them as public gathering places, providing space for uses such as transit stops, outdoor eating and resting places.

- Accommodate and encourage the elements that invite people to use the sidewalk such as trees, flowers and other landscape elements. Ensure that plantings flourish not simply survive.

- Implement maintenance programs, perhaps through special service districts, along the entire length of the corridor, including Lake Street, the Greenway, and connecting streets.

- Use only quality materials that contribute to the overall character of the street and sidewalk, such as brick paving instead of concrete, iron fencing instead of chain link.

Note: Sketch plans and project lists for each focus area (contained in chapter 4) identify the many key streets recommended for the public realm improvements described above. This includes the primary commercial “crossroad” streets, Lake Street, Lagoon, Excelsior and other pedestrian destinations.

7 Integrate transit with all redevelopment projects, including safe and visually - appealing transit stops for future light rail or busways.

As stated by the Midtown Community Works Transportation Committee, discussion of transit and transportation in the Midtown Corridor must include the following overall vision and key goals:

The Midtown Corridor shall be served by a multi-modal transportation system that supports social and economic enhancements to the area. This balanced, integrated transportation system will provide local and regional connections and will promote the corridor as an attractive, vibrant and desirable place to live, work, shop, play, and invest.

A balanced transportation system will help achieve the following goals:

1. Provide a transportation system that accommodates vehicles, pedestrians, bicyclists, and mass transit, including buses and light rail.
2. Enhance regional and neighborhood marketplace roles through new development and redevelopment.
3. Enhance the livability of the neighborhood by creating a pleasant atmosphere; promoting activity, movement and a sense of place.

The advent of light rail in Minneapolis signals the first system-wide change in public transit in over forty years. Minneapolis was shaped by the streetcar and boasted one of the best systems in the world. There is justified excitement about the return of rail transit, in part because it will start to balance a system too long tilted toward the automobile, but also because of its potential to spur significant urban revitalization. The Greenway corridor was purchased by Hennepin County to accommodate light rail transit. Development needs to respond to this potential by adhering to these principles:

- Anticipate transit in the Greenway, accommodating planned stations along the corridor and providing inviting spaces at the surface, related to ramp/stair access.
- Provide improved bus stops along Lake Street with lighted (and potentially heated) shelters, furnishings and design that integrates into the surrounding streetscape.
- Provide state-of-the-art accommodations for intermodal transportation use (such as bike lockers and park and ride systems) in all design initiatives. Federal financing of intermodal projects will likely be an ongoing resource in the corridor.
- Develop safe and attractive transit connections from the Greenway to the surrounding community.

Light rail transit not only moves people, but is also an important public amenitiy, adding visual interest and activity to the street.

photo by Greg McDonald

8 Support compact development and promote mixed use in the corridor. Create a more vibrant and diverse urban environment.

Higher density, mixed use and active street life are qualities of many vibrant, successful cities

A standard tenet of the new paradigm for urban revitalization recognizes the inherent value that mixed-use development brings to a community. The separation of land uses into discreet places to work, shop, recreate and reside evolved for a variety of reasons over many years, but the benefits of creating 24-hour communities, where land uses and activities mix, is once again being recognized as a major contributor to urban vitality. Ironically, this corridor was an excellent example of a successful mixed-use district before the interstate highway system and the loss of the streetcar began to disassemble and denigrate the community. Several guidelines should be followed for redevelopment:

- Density is not a four-letter word! Create incentives for neighborhoods and developers alike to allow and accept higher densities, through a more compact development pattern in both residential and commercial areas. An educational component is an essential part of this process.

- Modify existing policies using such approaches as an overlay zoning district to allow and encourage mixed-use development along and near the corridor.

- Concentrate commercial uses at the nodes (Lyndale and Lake, Nicollet and Lake, 4th and Lake), developing complementary uses such as mixed-use infill between the commercial nodes.

- Support and accommodate a mix of uses, mixed incomes and increased densities on the north-south streets, with an emphasis on residential use (mostly multi-family) on all but the arterial streets.

Increased density in both commercial and residential uses should be promoted in those areas of the Corridor most able to support it. The diagram on page 13 illustrates this idea that compact development must be supported by improved transit and public infrastructure to be successful.

9 Locate parking either on the street or behind and between buildings along the block. Consolidate parking in structures or municipal lots.

Parking continues to be a primary issue and a key component in any redevelopment strategy for this corridor. The intent is to find balance between the quantity of spaces required to support the existing and proposed land use mix while at the same time addressing the visual character of necessary facilities. There is also a direct relationship among expanding transit systems, transit users and the availability of parking that together support increased density, job growth and other corridor activities and events. Actions to improve parking include:

- Promote strategies for shared parking, such as commercial uses during the day and residential at night.
- Support changes in zoning regulations that would allow fewer spaces per square foot of development based on transit projections for ridership and other key factors.
- Encourage innovative concepts for 'district parking,' including the development of ramps and decks to reduce the negative visual impact of surface parking and the size of footprint required for housing cars.
- Design parking structures to integrate with the character of the surrounding neighborhood, using quality materials and the design elements of nearby structures.
- Provide as much on-street parking as possible, reducing the area required for off-street lots or ramps.
- Where absolutely necessary, locate surface lots away from the street, to ameliorate the impact of parking on the character and urban vitality of commercial nodes.

Street parking and small lots between buildings support this commercial center.

The parking ramp (building on the right) takes direct cues from surrounding architecture.

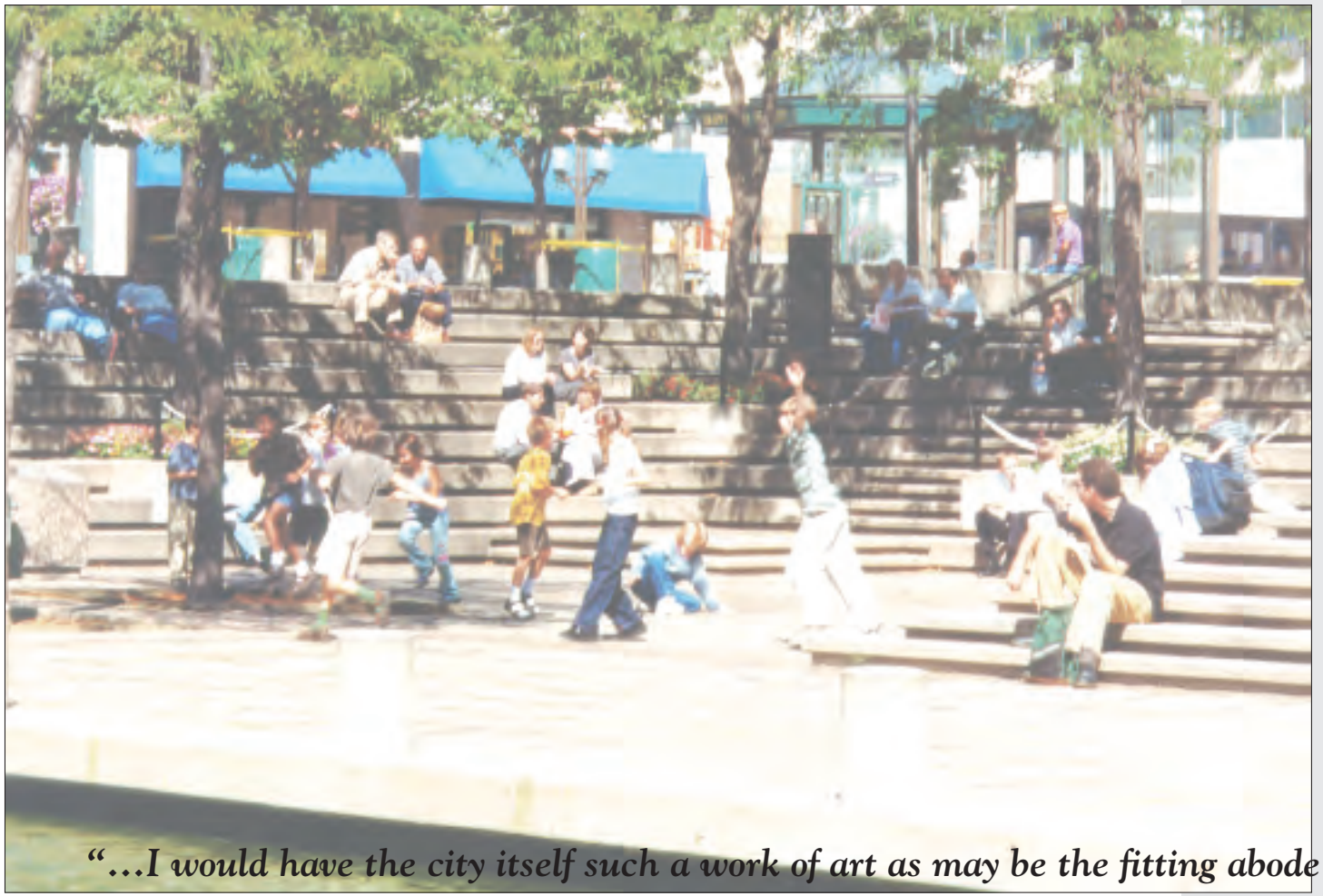
Public art functions at many scales and is intriguing, engaging and sometimes humorous.

Public art can be both functional and aesthetic.

10 Promote opportunities for art in public places.

Public art has long been recognized as a major contributor to the urban environment. It has traditionally set great cities apart from average ones. There are innumerable opportunities for public art to take a significant role in the character and function of the area. Specifically, public art should be applied as follows:

- Use art as a vehicle for placemaking at transit stations or bus stops, and along the Greenway corridor itself, including bridges, at commercial nodes on Lake Street and as neighborhood identifiers.
- Use public art to bring whimsy and delight to the corridor, linking neighborhoods together while acknowledging their diversity.
- Use public art to celebrate the cultural diversity of the neighborhoods along the corridor.
- Create locations for performance art and ephemeral works as key components of the Public Art and Public Greenspace Master Plan.
- Integrate art with infrastructure improvement projects.

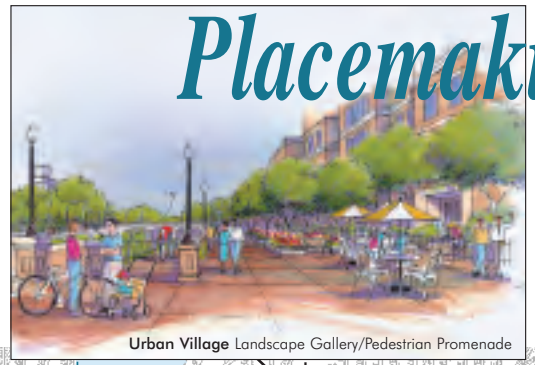


"…I would have the city itself such a work of art as may be the fitting abode of a race of men and women whose lives are devoted to a nobler end than money-getting, and whose efforts shall be inspired and sustained by the grandeur and beauty in which their lives are passed."

-H.W.S. Cleveland, 1888
Address to the Minneapolis Society of Fine Arts

Placemaking and...

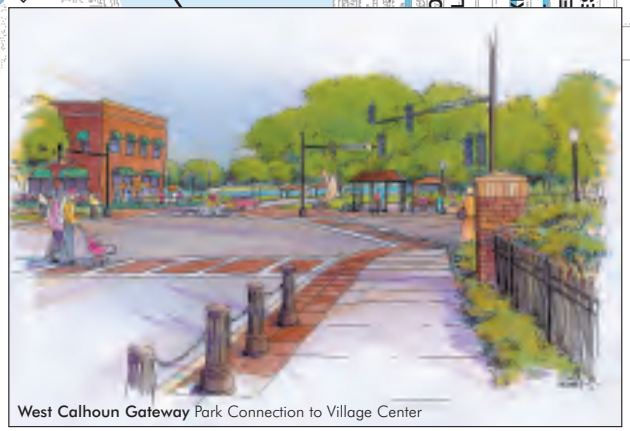
Placemaking is about creating places that are unique, identifiable and memorable - places that are worthy of our affection - encouraging a strong sense of community, a pride of ownership and responsibility to be carried forward for future generations.



Urban Village Landscape Gallery/Pedestrian Promenade

4th & Lake Street 29th Street Public Edge

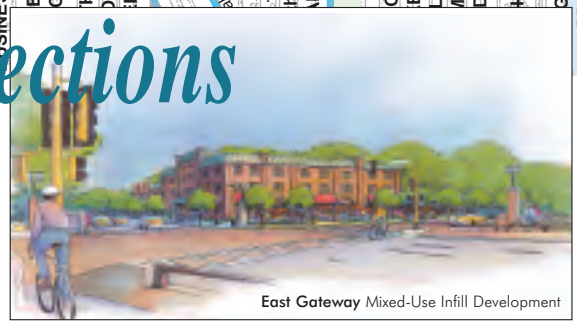
Hiawatha & Lake Street Transit-Oriented Development



West Calhoun Gateway Park Connection to Village Center

Great Lake Center Mixed Use Development

Image courtesy of Ray Harris and KKE



East Gateway Mixed-Use Infill Development

Connections

Creating a network of connecting links including:

Infrastructure Connections - network of streets and bridges.

Transit Connections - bus, future LRT, trolley and other 'people movers.'

Parks, Trails and Open Space Connections - unique mix of existing and new public green space.

Chapter 4

Placemaking: Focus Area Recommendations

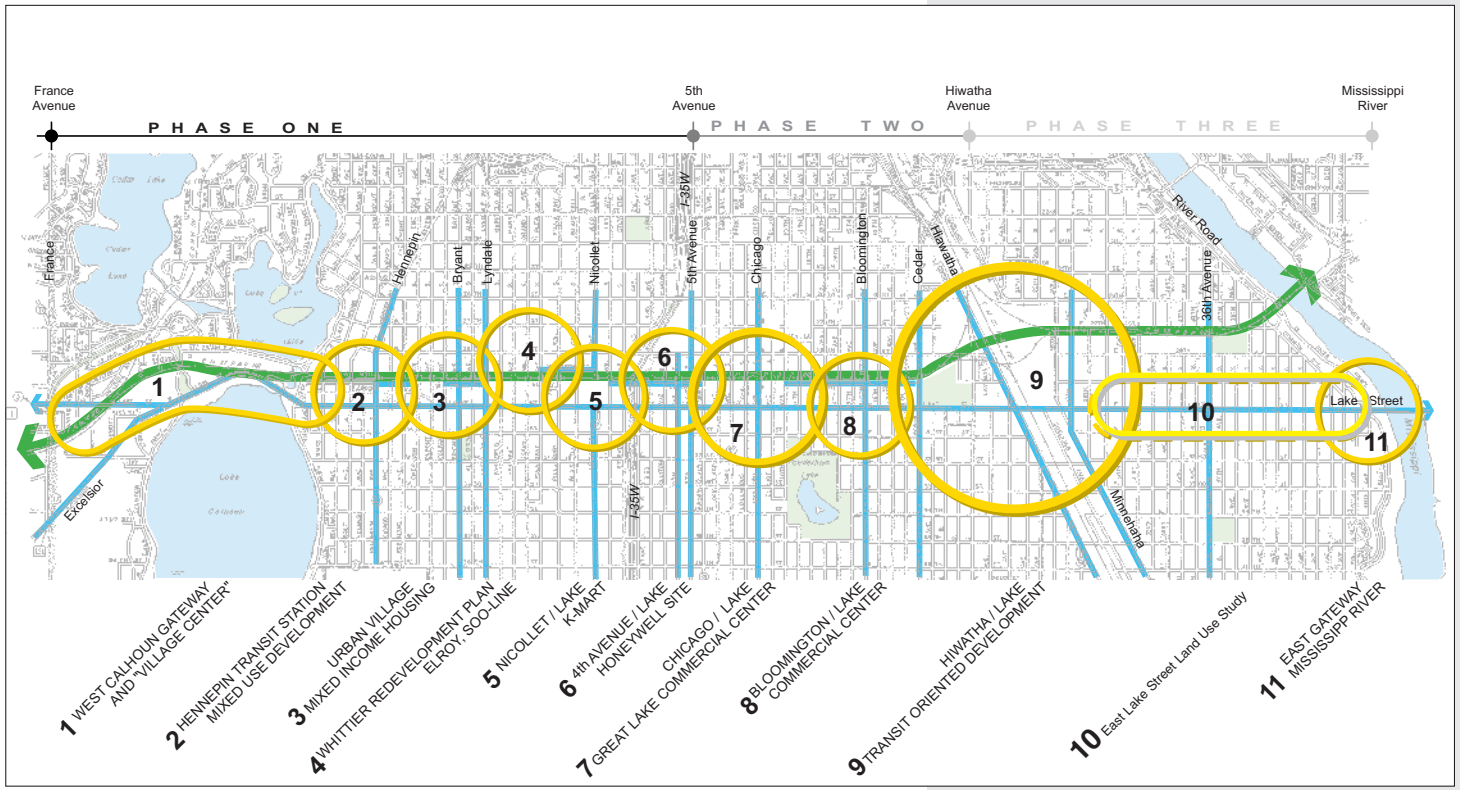
Introduction

The idea of placemaking and connections described in earlier chapters can now be applied in more detail to what we've learned about each of the focus areas mapped below. In shared discussion with neighborhood groups, elected officials and business representatives it is clear that the goal for creating and sustaining memorable places is twofold:

First, is to understand and define the desired character or identity of place-based cultural, market and aesthetic objectives.

And second, to promote specific projects as catalysts for other initiatives throughout the corridor.

Recommendations for each focus area are based on one or more key projects (indicated by the circles on each focus area sketch plan) These projects and the variety of adjacent initiatives related to them work together to provide the basic community building blocks - housing, jobs, transit and recreational amenities - that create active and stable neighborhoods and a strong sense of identity.



I-35W Transit/Access PROJECT

Green Crescent Update

PAC Meeting

September 27, 2012

Hennepin

Minneapolis City of Lakes

Minnesota Department of Transportation

MetroTransit

SEH

EE&K a Perkins Eastman company

Crescent Refinements focus on:

- Project PAC (PAC)
- Minneapolis Bicycle & Pedestrian Advisory Committee (Mpls BAC/PAC)
- State Historical Preservation Office (SHPO)
- MnDOT Cultural Resources Unit (CRU)

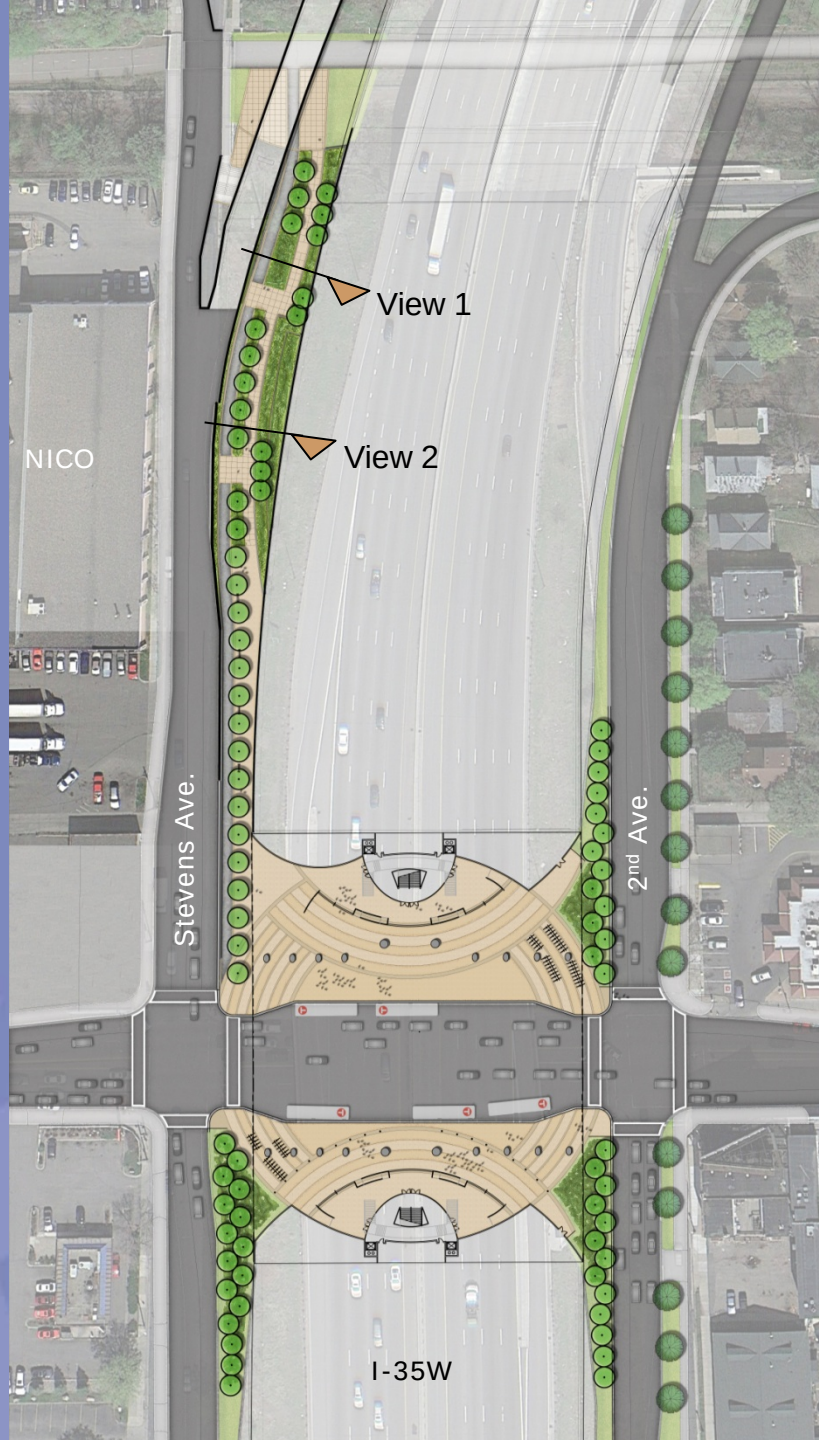
Comments:

- Prefer more direct trails.
- Prefer to keep bikes and pedestrians on separate paths as long as possible
- Discourage mid-block crossing on Stevens Ave
- Naturalize plantings to blend with character of Greenway
- Select materials similar to those of Greenway
- Prefer single row of trees in narrow portion of Crescent

I-35W Transit/Access PROJECT

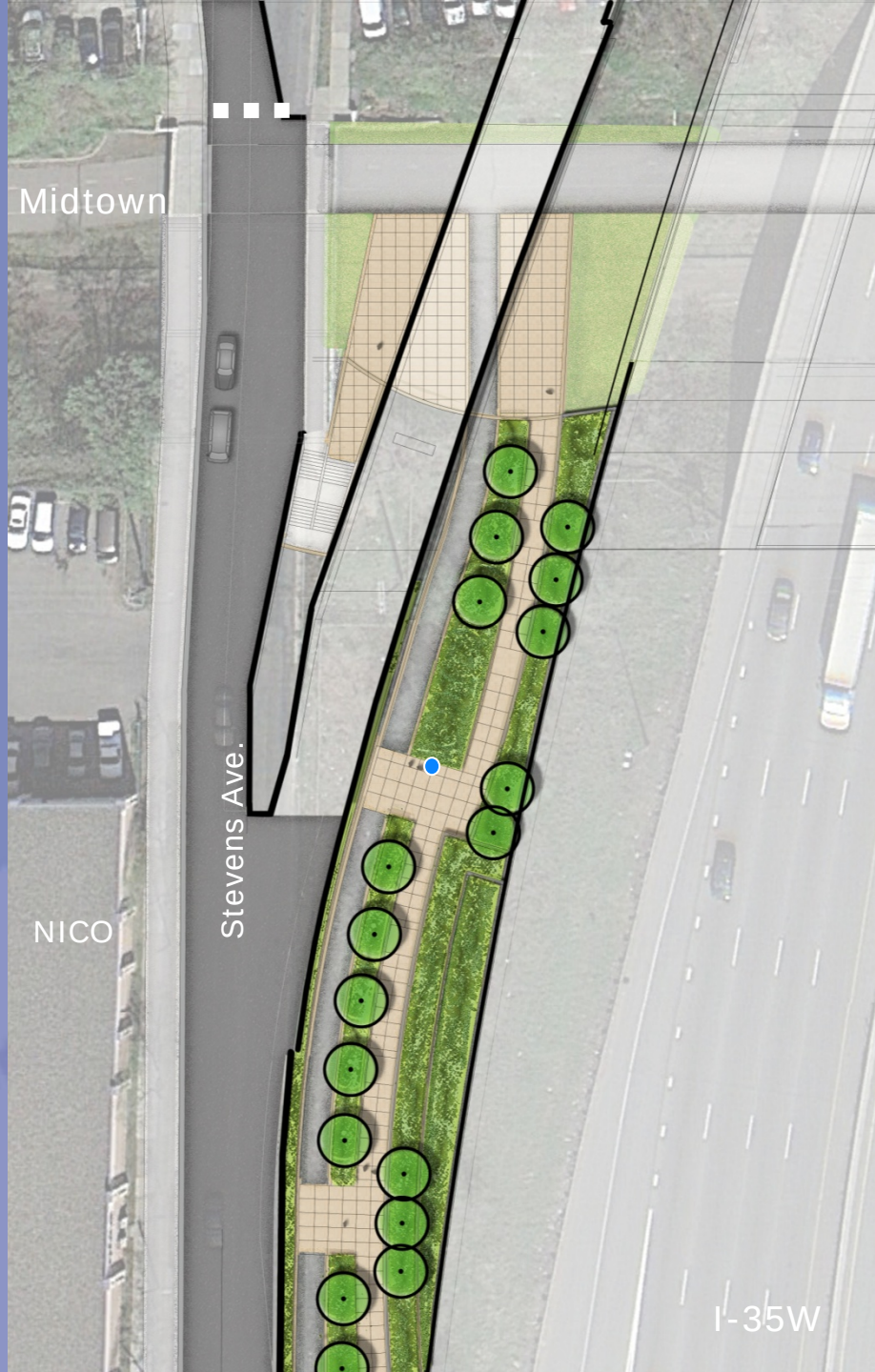
Integrated Station Streetscape

- Transitions Greenway's linear geometry to curvilinear design of BRT station
- Introduces human-scale materials and patterns
- Includes "Nice Ride" bike rentals
- Extends Green Crescent tree canopy across Lake Street south
- Re-greening of 2nd Ave
- Public art opportunity on surfaces and site amenities



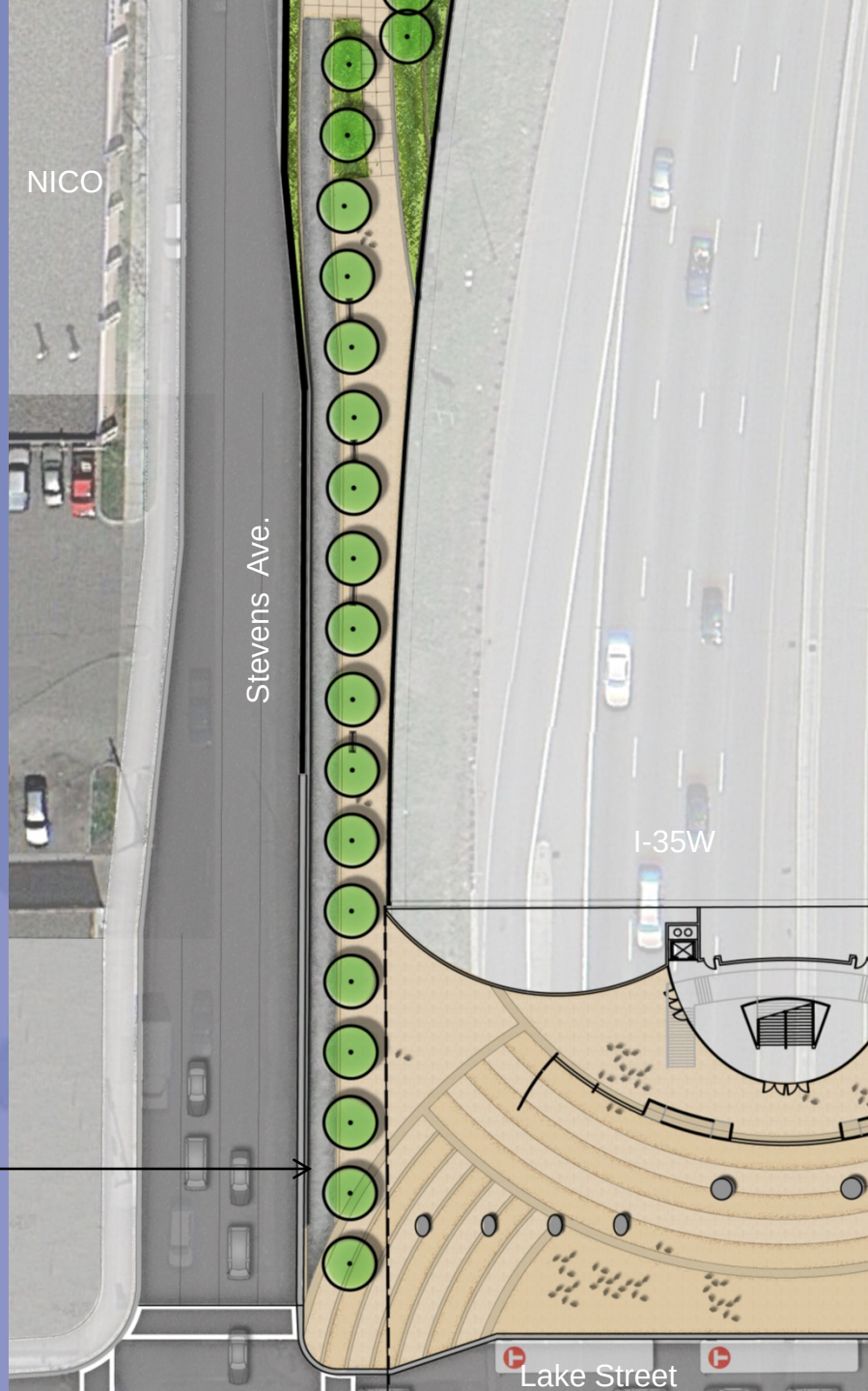
North Segment

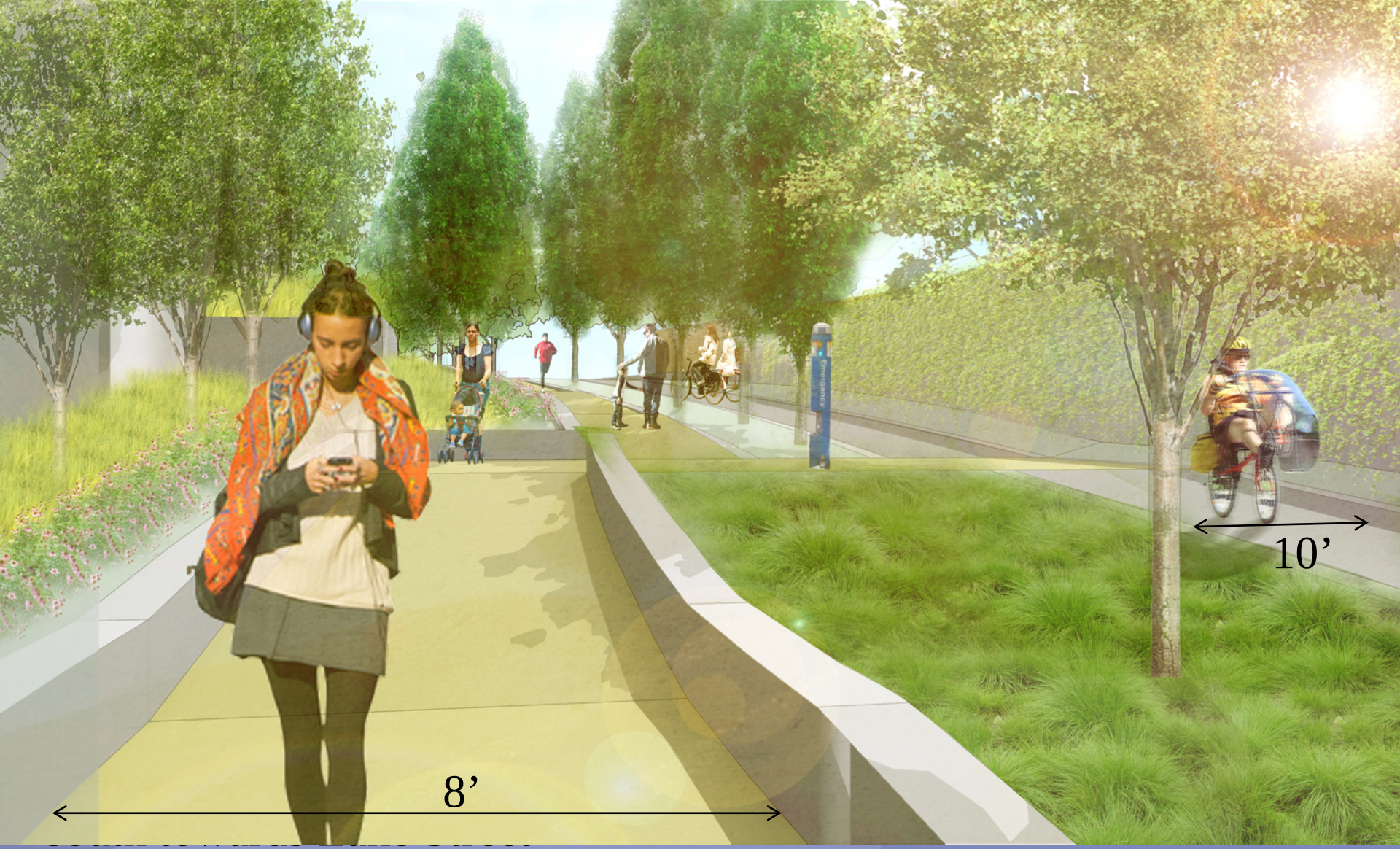
- Greenway plaza area signals Green Crescent-BRT connections
- 8.3 % grade on both pathways
- Width varies from 70ft at Greenway to 30ft where pathways join
- Intermediate connections between bike and pedestrian pathways with emergency pylon
- Short, stepped planter-seat walls reduce scale of highway
- Overstory trees soften space, add human scale
- Stevens Avenue level stairs to Greenway



South Segment

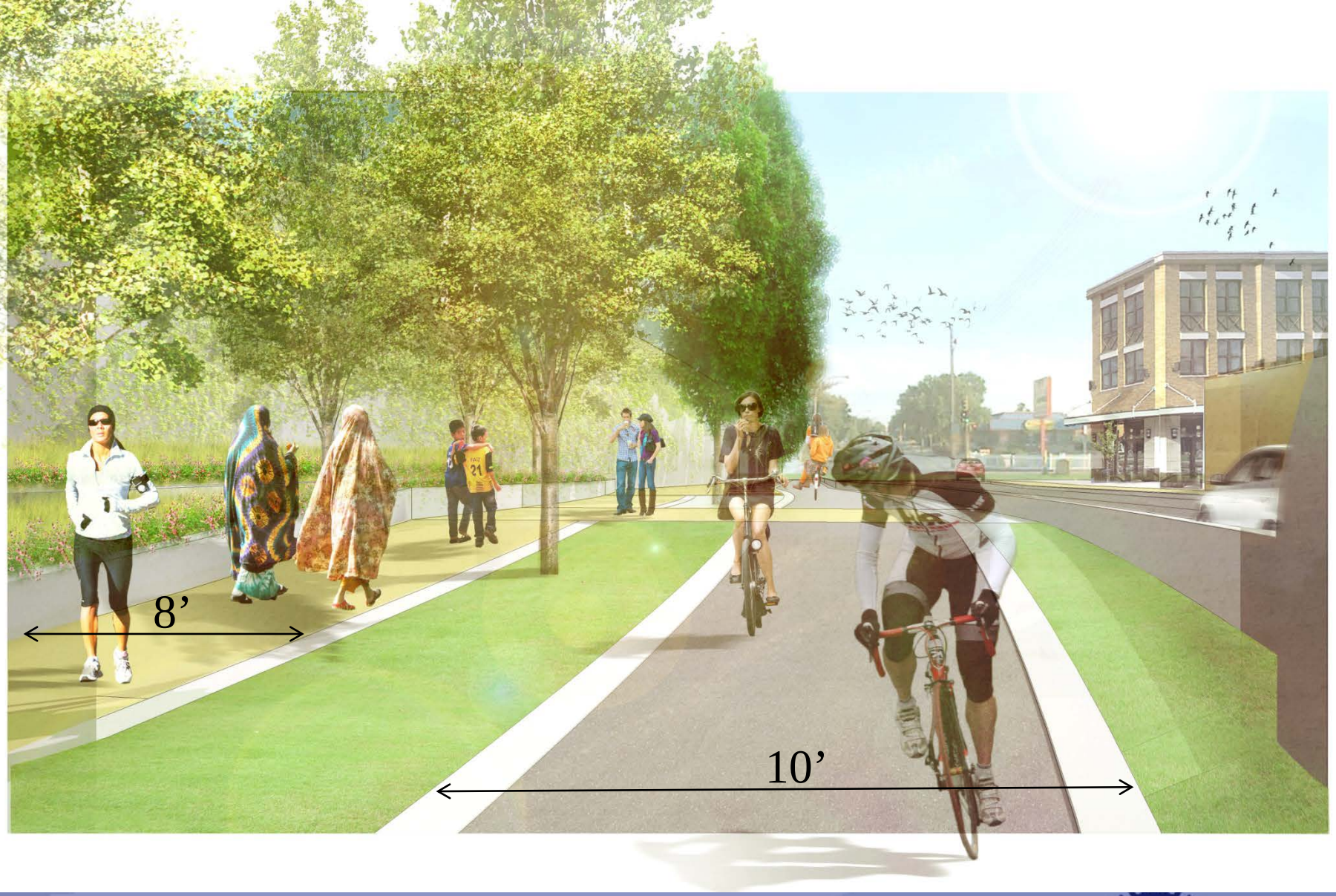
- Gentle, 1.25% grade
- Width narrows from 30ft to 24ft
- Tree row softens bridge walls, reinforces human-scale, and separates bike path from pedestrian sidewalk
- Integrates decorative, human-scale paving patterns into the Station Plaza
- Raised curb for cyclist protection





View 1: South toward Lake Street
Crescent width at landing 48’
Pedestrian trail 8’ wide, Bicycle path 10’ wide

I-35W Transit/Access PROJECT

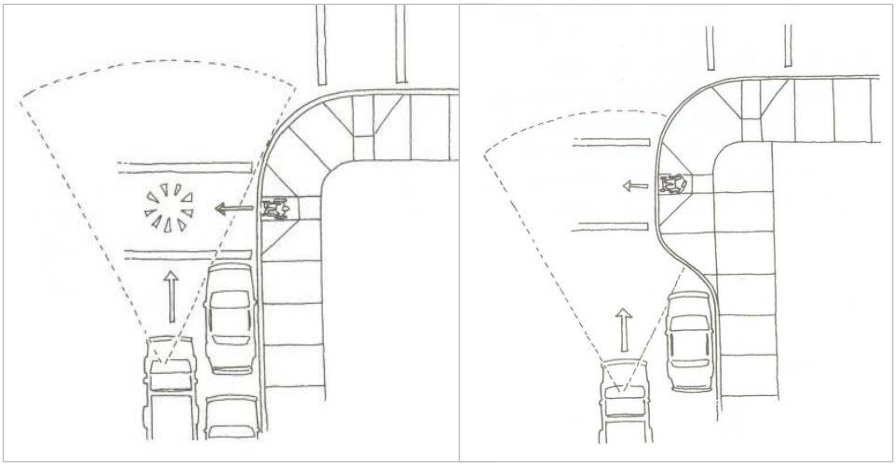


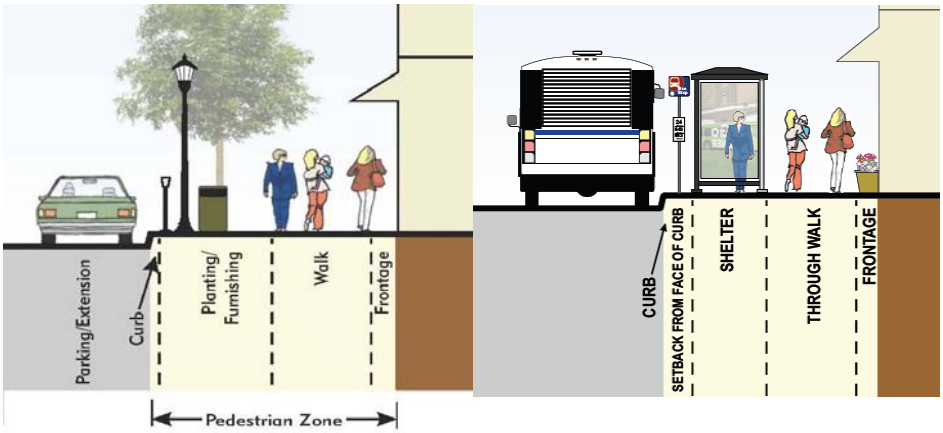
View 2: South toward Lake Street
Crescent width at landing 45’
Pedestrian trail 8’ wide, Bicycle path 10’ wide

I-35W Transit/Access PROJECT

Chapter 10:
Pedestrian Facility Design

ACCESS MINNEAPOLIS
Design Guidelines for Streets & Sidewalks





October 26, 2009

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10 Pedestrian Facility Design

10.0 INTRODUCTION

10.0.1 Principles for Pedestrian Facility Design

The following principles are the basis for the guidance in this document and should guide any improvements or modifications to pedestrian facilities.

- **The pedestrian system should be safe.** Streets, sidewalks, and walkways should be designed to minimize conflicts with motorized and non-motorized vehicle traffic, minimize tripping hazards and protruding objects, and promote a reality and perception of personal safety.
- **The pedestrian system should be accessible to all**. The pedestrian system should be designed for all pedestrians, including people with disabilities, seniors, and youth.
- **The pedestrian system should provide direct and convenient connections.** The pedestrian system should provide continuous and well-connected sidewalks and walkways and be designed in a manner that is responsive to pedestrians' desire to reach their destinations using the shortest and quickest route. This should be achieved by providing minimal delays and direct connections while ensuring safety for all users.
- **The pedestrian system should provide comfortable places to walk.** The pedestrian system should be designed and maintained to promote walking and include elements that create a comfortable walking environment, such as trees, pedestrian-scaled street lighting, buffers from traffic, trash receptacles, places to sit, and a pedestrian-scaled environment.
- **The pedestrian system should enhance the public realm of the City.** The pedestrian system should be designed not only to serve a transportation function, but also to provide public spaces that enhance community interaction, economic vitality, and the image of the City.
- **Pedestrian improvements should be cost-effective and financially sustainable.** Pedestrian improvements should be designed and funded to maximize the benefits of the improvements relative to the cost to build and to maintain the improvements.

10.0.2 Background/Purpose

The intent of the Pedestrian Facility Design Guide (Guide) is to establish guidelines by which the City of Minneapolis will design infrastructure improvements and carry out policies as they relate to pedestrian facilities within City rights-of-way. The Guide was developed as part of the *Minneapolis Pedestrian Master Plan* and is intended to be Chapter 10 of the City's *Design Guidelines for Streets and Sidewalks* developed originally as part of the Access Minneapolis Ten Year Transportation Action Plan (http://www.ci.minneapolis.mn.us/public-works/trans-plan/DesignGuidelines.asp).

The Guide is intended to supersede or supplement the following sections of the *Design Guidelines for Streets and Sidewalks* dated 2/22/08 as indicated below:

- Supersede section 5.1.3 (Pedestrian Zone)
- Supersede section 5.4 (Pedestrian Zone)
- Supersede section 5.8.5 (Crosswalks)
- Supplement section 5.5 (Curb Extensions)

- Supplement section 5.7 (Utilities)
- Supplement section 5.8.1 (Curb Return or Corner Radii)
- Supplement section 5.9.3 (Design of Transit Shelter/Bus Stop Area and Landing Pads)

The Guide is structured to begin at a broad level, first discussing the overall pedestrian system, then becoming more specific as it addresses sidewalk, street corner, and street crossing designs. The last part of the Guide presents elements of the pedestrian system that are not specific to street right-of-way design, such as off-street paths, wayfinding, and site planning.

10.0.3 Relationship to Accessibility Standards

The Americans with Disabilities Act (ADA) of 1990 is a civil rights statute that prohibits discrimination against people with disabilities, and Title II of the ADA applies to the design and construction of pedestrian facilities in the public right-of-way. The current ADA design standard is contained in the ADA Accessibility Guidelines (ADAAG), which were principally developed for buildings and site work that are not directly applicable to sidewalks, street crossings, and related pedestrian facilities in the public right-of-way. The US Access Board has since developed draft Proposed Rights-of-Way Accessibility Guidelines (PROWAG)[1] that provide more specific guidance for the design of pedestrian facilities in the public right-of-way. The PROWAG guidelines are expected to become the new ADA standard and supersede ADAAG once they are adopted by the US Department of Justice and Department of Transportation. In the interim, the Federal Highway Administration has identified the PROWAG guidelines as the current best practice.[2]

This Guide includes much of the guidance from the draft PROWAG guidelines. The *pedestrian access route*, as defined in PROWAG guidelines, is defined as the *Through Walk Zone* in the Pedestrian Design Guide. The Guide is not intended to replace design standards, and design standards will need to be updated to reflect the PROWAG guidance once the PROWAG becomes the new ADA standard.

10.0.4 Relationship to Roadway Design Guidelines

The design of facilities for motor vehicles has a direct impact on the design of pedestrian facilities in a given street corridor. Pedestrian safety, accessibility, mobility, and comfort are enhanced by:

- Slower traffic speeds
- Fewer traffic lanes
- Narrower traffic lanes
- Shorter street crossings
- Clear visibility between pedestrians and vehicles at intersections
- A buffer from traffic provided by wider sidewalks, curbside bike lanes and on-street parking
- Tighter corner radii
- Space in the sidewalk corridor for trees, planted boulevards, transit shelters, and other street furniture

[1] November 23, 2005 draft PROWAG: http://www.access-board.gov/prowac/draft.htm

[2] January 2006FHWA Memorandum: http://www.fhwa.dot.gov/environment/bikeped/prwaa.htm

However, pedestrian needs are often compromised by competing demands for right-of-way space for vehicle movement, transit stops, loading zones, and on-street parking and other curbside uses. The following sections of the *Design Guidelines for Streets and Sidewalks* provide guidance regarding roadway designs while also considering pedestrian needs:

- **Section 2: Framework for Urban Street Design** - includes a street design typology and associated maximum number of desired through lanes for different street types. Following these guidelines will help achieve a better balance among the various transportation modes.
- **Section 3: The Design Process** - includes guidance on determining modal needs and priorities, forecasting traffic volumes and options for intersection treatments and traffic management.
- **Section 4: Design Controls** - addresses the appropriate design speed and design vehicle for different street types, which has a direct impact on speed, roadway width, and corner design, which in turn impacts pedestrian safety and comfort.
- **Section 5.3: Design Guidance for Lane Widths** - addresses appropriate lane widths for different street types, traffic volumes, and modal priorities, all of which must be balanced with pedestrian needs.
- **Section 5.8: Design Guidance for Intersections –** addresses curb return radii, right turn lanes and bike lanes at intersections. Intersections are high risk areas for pedestrians and shall be designed with pedestrian needs in mind.

In addition, the design of streets for bicyclists has benefits for pedestrians. On-street bicycle lanes encourage bicyclists to ride in the streets, thereby reducing potential bicycle-pedestrian conflicts on sidewalks. Curbside bicycle lanes also help to buffer pedestrians from motor vehicle traffic. Chapter 11 of the *Design Guidelines for Streets and Sidewalks* addresses bikeway design.

10.1 PEDESTRIAN NETWORK

Sidewalks are fundamental pedestrian facilities. Sidewalks enable pedestrians to access properties, parks, transit, businesses and employment. They also provide safety from traffic. A high level of connectivity is necessary for an efficient pedestrian network. While Minneapolis has an extensive pedestrian network with sidewalks on over 90% of streets, gaps remain in some locations.

10.1.1 New Sidewalk Construction

Gaps within the current network should be completed as part of public and private construction improvements. Sidewalks are particularly important along non-local streets where higher traffic volumes are likely, where there are existing "cow-paths," and where there are gaps in otherwise contiguous sidewalks.

10.1.1.1 New Street Construction

All new street construction should include sidewalks on both sides, including private streets.

10.1.1.2 Reconstruction and Renovation of Existing Streets

Reconstruction and renovation of existing streets should include construction of sidewalks on both sides where sidewalks do not exist.

10.1.1.3 Infill Development

Infill development should include construction of a continuous sidewalk system adjacent to the development and connecting to the existing sidewalk system. This may require sidewalk construction beyond the property frontage or on an adjacent block.

10.1.1.4 Exceptions

Generally, sidewalks are needed on both sides of all streets. Streets that may require sidewalks on only one side of the street include:

- A street adjacent to a freeway with non-transportation land uses on only one side.
- A street with severe topographic constraints or mature landscaping. These are locations where the provision of a sidewalk would result in building large retaining walls or removing mature trees.

In all cases, streets with sidewalks on one side of the street shall have safe street crossings to allow pedestrians to access the sidewalks on the continuous side of the street. Cul-de-sacs and diverted streets should maintain sidewalk connections.

10.1.2 Street and Walkway Grid

The Minneapolis historic street grid provides a high level of connectivity for walking trips. However, there are some gaps in the street grid system, such as those created by historic railroad development, freeway construction, big box retail, and megastructures. These gaps increase walking distances and reduce the convenience of walking.

10.1.2.1 Street Vacations

The connectivity of current and future pedestrian networks should be maintained or improved in every street and right-of-way vacation request. Otherwise, street vacations may result in large block sizes and increased travel distances, which are particularly problematic for walking.

10.1.2.2 New Streets

Sidewalks are to be provided along all new streets to improve connectivity and facilitate pedestrian-oriented development. New streets are particularly effective when designed to typical Minneapolis block dimensions, or smaller.

10.1.2.3 Walkways and Trails

Where blocks are longer than typical blocks in the surrounding area, creation of off-street pedestrian walkways or multi-use bicycle and pedestrian trails through the block, providing logical connections to other sidewalks and destinations, is encouraged and should be provided where feasible.

10.2 PEDESTRIAN ZONE DESIGN

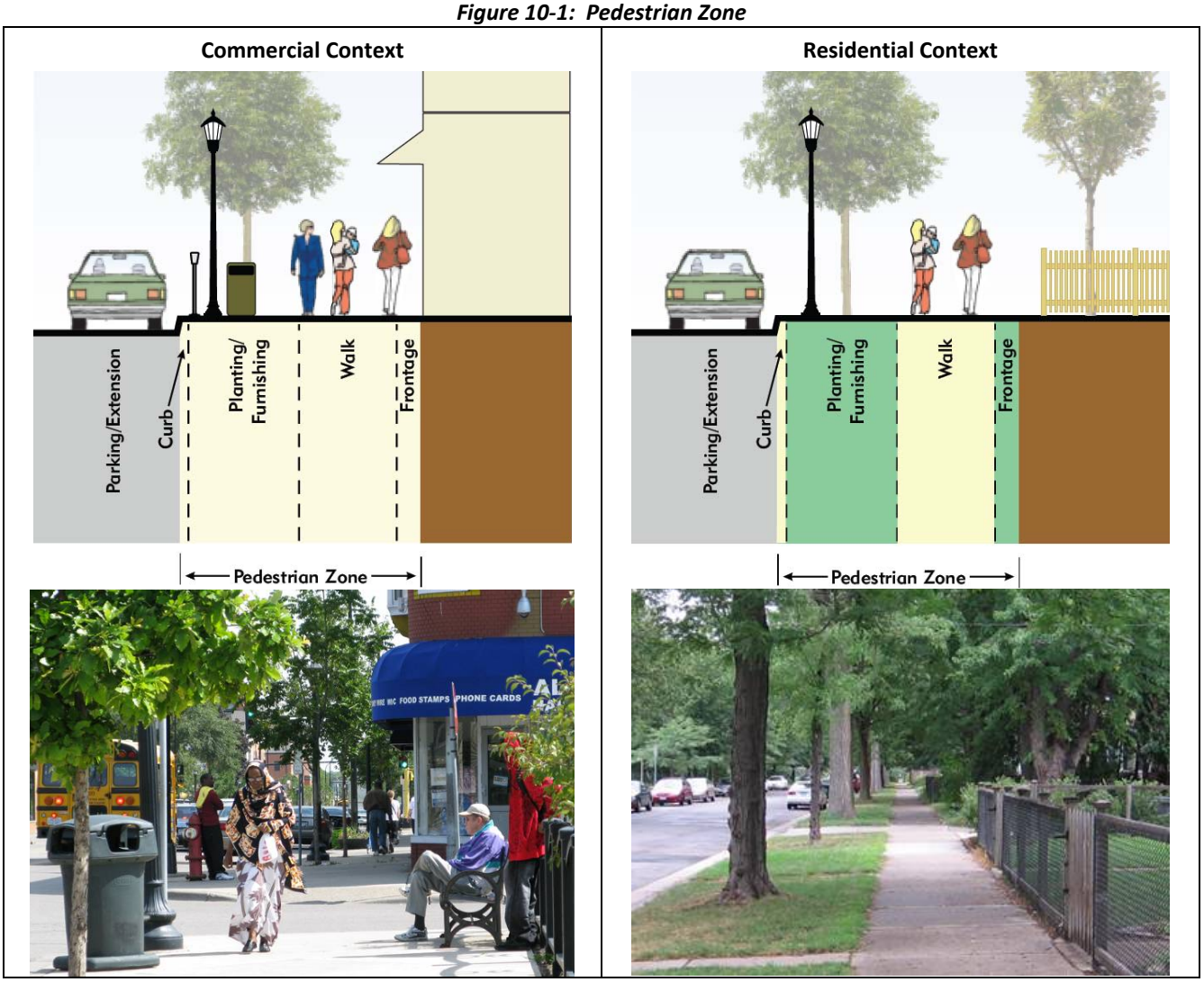
The pedestrian zone – the space between the curb and the property line – plays an important role in providing: safe and efficient movement of pedestrians of all abilities and disabilities; access to properties, on-street parking, and transit; necessary space for above ground street utilities, traffic control, trees and street furniture; and space for sidewalk cafés, street vendors and other active uses.

10.2.1 Pedestrian Zone Organization

The pedestrian zone should be organized into four distinct subzones that maintain an accessible walking path and organize the placement of elements. The four subzones are the Curb Zone, the Planting/Furnishing Zone, the Through Walk Zone, and the Frontage Zone (see Figure 10-1).

The following guidelines are intended for use in street reconstruction or large-scale redevelopment projects when it is feasible to alter curb lines; considerations for constrained conditions on existing narrow sidewalk corridors are addressed in section 10.2.4. Considerations for bridges are addressed in section 10.2.9, and considerations for transit stops are addressed in section 10.4.

Figure 10-1: Pedestrian Zone



10.2.1.1 Frontage Zone

Use: The Frontage Zone is the space at the edge of the walkway adjacent to the property line. It reflects the varying level of activity associated with property frontage and is wider where people are likely to window shop or activities such as sidewalk cafes are allowed. It also reflects the tendency of people to shy away from walls above waist height. The Frontage Zone may also be used as a secondary area for plantings, street furniture and social activities.

Width: 1.5 feet recommended minimum, 1.0 foot acceptable minimum (see Figure 10-7).

Special Considerations: People tend to shy away from a building, wall, fence, steps or railing by at least 1 foot. In constrained conditions away from major pedestrian generators or where there are wide building setbacks, this distance may be decreased. In activity centers and neighborhood commercial nodes, this width should be increased to allow for café tables, seating, benches, planting, and other amenities, as well as higher volumes of retail-related pedestrian activity.

10.2.1.2 Through Walk Zone

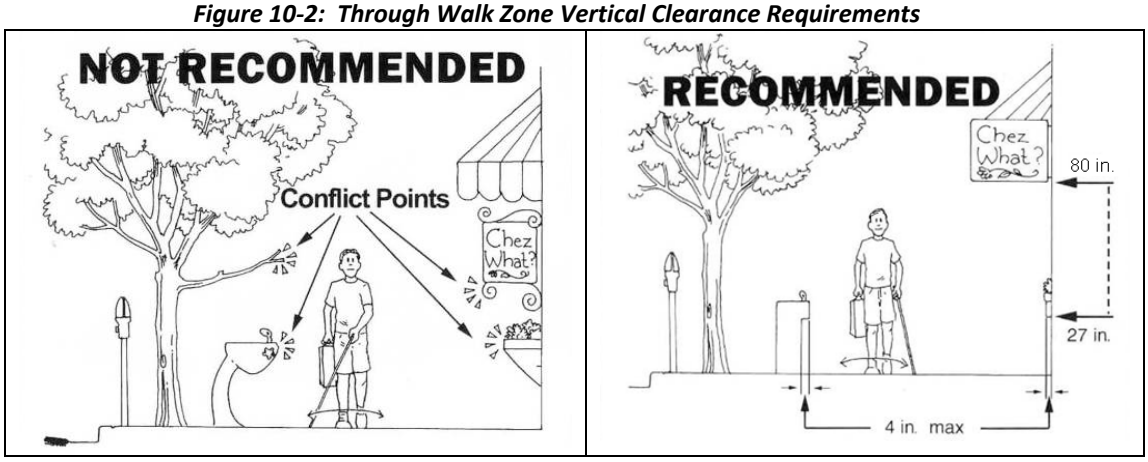
Use: The Through Walk Zone contains the basic sidewalk width or clear area for pedestrian travel and is sized to provide for two directions of pedestrian travel. The Through Walk Zone should have a safe and accessible walking surface and be free of vertical obstructions and protruding objects.

Width: 6.0 feet recommended minimum, 5.0 feet acceptable minimum (see Figure 10-7).

Special considerations:

- 5 feet is the necessary width for two wheelchairs to pass each other.
- 6 feet is the necessary width for two wheelchairs or two people pushing strollers to walk side by side comfortably.
- If 5 feet is used, the Frontage Zone should be clear of steps, fencing, and railings that may impede pedestrian movement.
- For downtown and activity centers, the preferred width may need to be greater than 6 feet.
- Wall- or post-mounted objects placed between 27 and 80 inches above the walking surface may not extend more than 4 inches horizontally to prevent hazards for people with vision impairments (see Figure 10-2).
- Through Walk Zone surfaces should be designed as explained in section 10.2.7 Sidewalk Surface Design.

Figure 10-2: Through Walk Zone Vertical Clearance Requirements



Source: Designing Sidewalks and Trails for Access, Part II, FHWA, 2001.

10.2.1.3 Planting/Furnishing Zone

Use: The Planting/Furnishing Zone contains trees, signs, street lights, utility boxes, planted boulevards, landscaping, planters, bus shelters, bicycle parking and other furniture.

Width: 5.5 feet or more, depending on street type (see Figure 10-7).

Special Considerations:

- The Planting/Furnishing Zone may be extended into the parking lane by the use of curb extensions to provide additional space for trees, pedestrian ramps, bus shelters, bicycle parking, waiting areas, street furniture, or other needs. See section 10.3.5 for more information on curb extensions.
- Bus shelters have significant space requirements; see section 10.4 for more detailed guidance.
- Trees benefit from as much space as possible, as described in Chapter 9. The minimum width required for tree planting is 4 feet; yet this is not desirable for long term tree health and vitality. In constrained conditions, structural soils or other approved structural approach can be used to expand the planting zone underneath the Through Walk Zone.
- For downtown and activity centers, the preferred width may need to be greater.
- *See Chapter 9 of the Design Guidelines for Streets and Sidewalks for additional street tree and boulevard guidelines.*

10.2.1.4 Curb Zone

Use: The Curb Zone is comprised of the top of curb adjacent to the sidewalk. The curb is used primarily for drainage and to discourage motorists from driving onto the Pedestrian Zone.

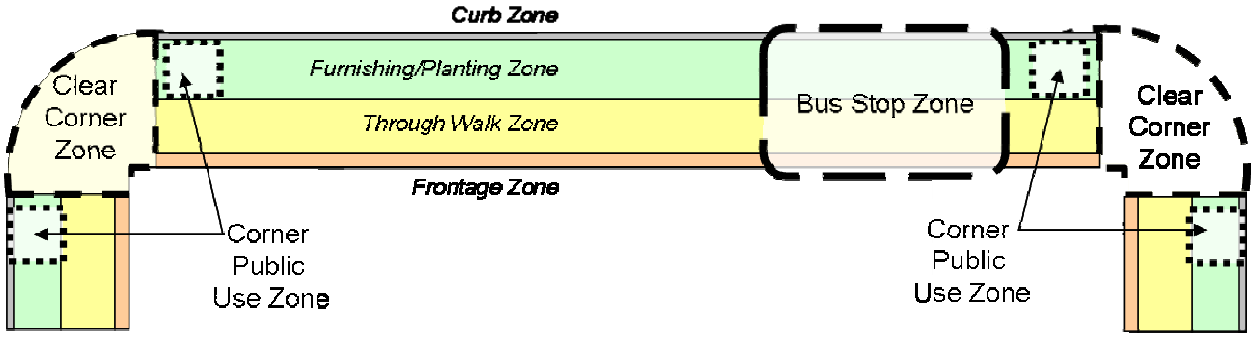
Width: A minimum of 0.5 feet, the width of the top of the curb, will be hard surface.

Special consideration: The top of curb in Minneapolis is typically 6-inches wide from face of curb, made of concrete, and is integrally poured with the gutter. The top of curb is flush with the adjacent use. Fatback curbs used in downtown and along parkways are typically 1.0 feet wide from the face of the curb.

10.2.2 Specialty Zones

In addition to the four primary subzones within the Pedestrian Zone, there are three additional specialty subzones that overlap the Pedestrian Zone, as shown in Figure 10-3: the Clear Corner Zone, the Corner Public Use Zone, and the Bus Stop Zone.

Figure 10-3: Specialty Zones



10.2.2.1 Clear Corner Zone

Use: The Clear Corner Zone is an obstruction-free space between the curb and the lines created by extending the inside sidewalk line to the curb face. Priority use of the Clear Corner Zone shall be for accessible curb ramps and pedestrian call buttons at actuated signals. All other uses should be placed outside of the Clear Corner Zone in the Corner Public Use Zone or Planting/Furnishing Zone.

Size: Size varies, measured by the extension of the inside edge of the sidewalk to the face of curb

Special Considerations:

- There are many existing conditions with vertical elements such as signal poles, street lights, utility poles, and fire hydrants in the Clear Corner Zone. As streets and sidewalks are reconstructed, utilities and traffic control equipment currently located within the Clear Corner Zone should be relocated to the Corner Public Use Zone.
- Surface-level elements such as manhole covers, utility vault covers or signal handholes should be kept out of the Clear Corner Zone to the greatest extent possible. If surface-level elements must remain in the Clear Corner Zone, they must accommodate two accessible curb ramps.
- In narrow Pedestrian Zone corridors, it may be necessary to extend the Clear Corner Zone around the corner beyond the extension of the inside sidewalk lines to the end of radius in order to fit two accessible curb ramps.
- In residential areas with a wide Pedestrian Zone, particularly those with a tight corner radius, it may be possible to plant a boulevard garden in the corner between curb ramps and still fit two accessible curb ramps.

10.2.2.2 Corner Public Use Zone

Use: The Corner Public Use Zone is the portion of the Planting/Furnishing Zone immediately adjacent to the Clear Corner Zone designated for public utilities and traffic control devices, including fire hydrants, traffic signals, street lights, and service cabinets. This space may not be used for street furniture or private temporary uses such as sidewalk cafes, newspaper vending machines, or street vendors.

Size: Size varies, depending upon the size and number of public uses

Special Considerations:

- Service cabinets should be placed in the Corner Public Use Zone opposite bus stops, in order to maintain as clear a Bus Stop Zone as possible.
- At bus stops, it may be necessary to place a trash receptacle in the Corner Public Use Zone in order to maintain clear access to the front and back doors of the bus and in order to service the trash receptacle automatically by a truck. (See section 10.4.4.1)

10.2.2.3 Bus Stop Zone

The Bus Stop Zone is the area behind the curb which provides access to buses, waiting space and facilities for bus passengers, as well as through walk access. The Bus Stop Zone is described in more detail in section 10.4.

10.2.3 Pedestrian Zone Width by Street Design Type

The recommended and minimum pedestrian zone dimensions vary by street type, as shown in Figure 10-7. ***On all street types, the minimum acceptable pedestrian zone width for street reconstruction is 12 feet.*** In general, street types that will have high pedestrian traffic, such as activity centers,

neighborhood commercial nodes, and commercial and community corridors should have wider pedestrian zones. See Section 2.2 for more information on street types. Recommended and minimum pedestrian zone dimensions for bridges are addressed in section 10.2.9 and for transit stops are addressed in section 10.4.

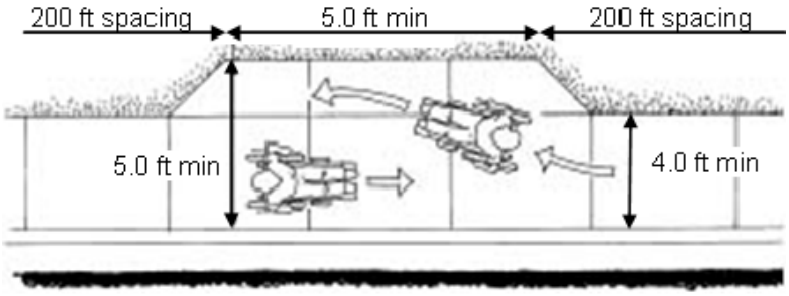
10.2.4 Solutions for Existing Constrained Conditions

The acceptable minimum width in a street reconstruction project for the pedestrian zone is 12 feet from face of curb to property line. However, throughout the city many existing pedestrian zones are narrower, ranging from 8 feet to 10 feet wide and in some circumstances even as narrow as 5-6 feet. When there are opportunities to reconstruct these constrained pedestrian zones, such as with street reconstruction projects or major redevelopment opportunities, these pedestrian zones should be widened to the dimensions shown in Section 10.2.1 and Figure 10-7.

Where existing pedestrian zone widths are less than 12 feet wide, and street reconstruction is not planned, the pedestrian zone width and placement of elements should meet the following criteria (in order of priority):

1. Provide an accessible Through Walk Zone of at least 5 feet continuous or 4 feet continuous with a 5 x 5 foot passing zone every 200 feet (see Figure 10-4).
2. Accommodate expected levels of pedestrian activity.
3. Provide necessary buffering between the active area of the sidewalk and adjacent traffic lanes.
4. Integrate trees, street furniture, and other desired elements into the right-of-way or adjacent properties, as feasible.

Figure 10-4: Minimum Accessible Passing Zone Intervals

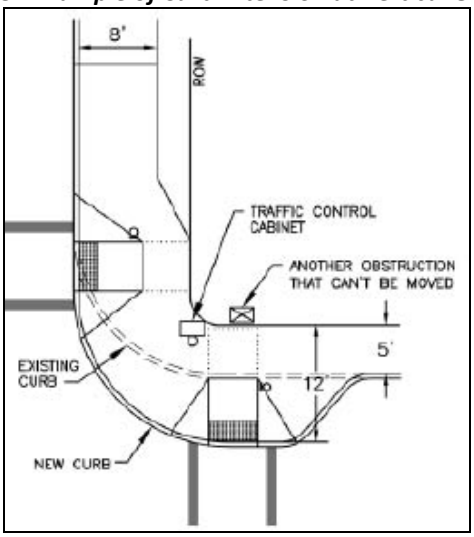


Source: Designing Sidewalks and Trails for Access, Part II, FHWA, 2001.

Potential retrofit solutions for constrained conditions include (in order of priority):

1. **Curb Extensions** – In constrained conditions, curb extensions can be used to create additional space for street trees, street furniture, transit stops at corners or mid-block or to create a bypass around an obstruction as shown in Figure 10-5. See section for additional information.
2. **Relocate Obstacles** - Obstructions in the Through Walk Zone may be moved. As situations allow, this can be achieved by relocating utilities, moving signs, etc.
3. **Create a Bypass around Obstructions** - When obstacles cannot be relocated or removed, a bypass around obstructions could be created, as shown in Figure 10-6.

Figure 10-5: Example of Curb Extension at Vertical Obstruction



Source: Accessible Public Rights-of-Way: Planning and Designing for Alterations, ITE, July 2007

Figure 10-6: Example of a Bypass at Vertical Obstruction

Source: Accessible Public Rights-of-Way: Planning and Designing for Alterations, ITE, July 2007

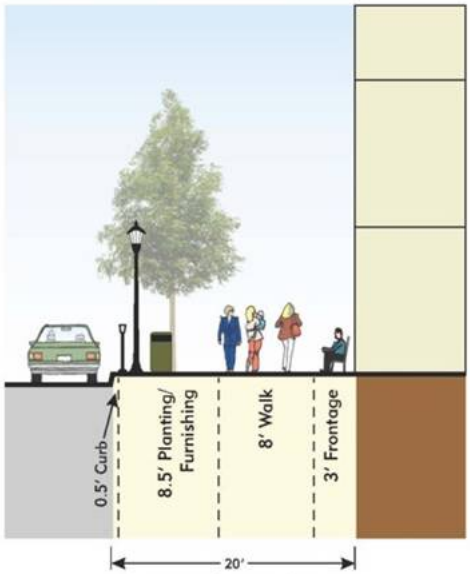
Narrow, curb-attached sidewalks that are less than 8 feet wide present significant challenges, including:

- Insufficient space for the required landing pad for accessible bus stops (see section 10.4).
- Insufficient space for bus shelters.
- Need for special design of driveway sidewalk crossings in order to maintain an accessible sidewalk.
- Difficult conditions for proper snow clearance, due to lack of planting/furnishing zone for snow storage.
- Need to place utility poles and other physical obstructions closer to the roadway than is recommended in order to maintain a required 4 foot Through Walk Zone (with a passing space 5x5 feet every 200 feet).

Figure 10-7: Pedestrian Zone Dimensions by Street Design Type

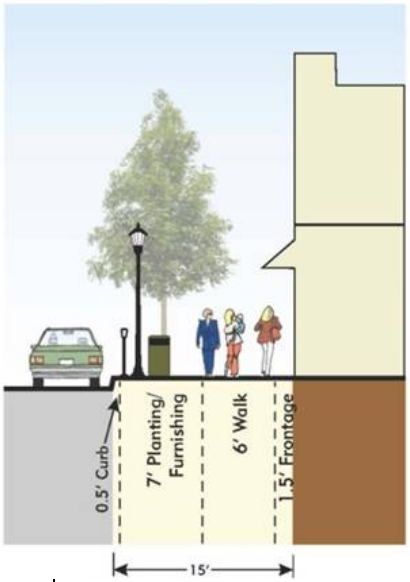
Commercial or Mixed Use Land Use

Activity Center Street Type with High Pedestrian Priority*



Minimum Width	Curb	Planting/ Furnishing	Through Walk	Frontage	Total
Recommended	0.5	8.5	8.0	3.0	**20.0**
Acceptable	0.5	7.0	6.0	1.5	**15.0**

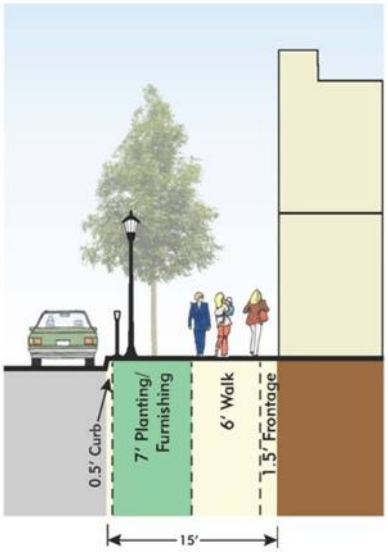
All Non-Local Street Types



Minimum Width	Curb	Planting/ Furnishing	Through Walk	Frontage	Total
Recommended	0.5	7.0	6.0	1.5	**15.0**
Acceptable	0.5	5.5	5.0	1.0	**12.0**

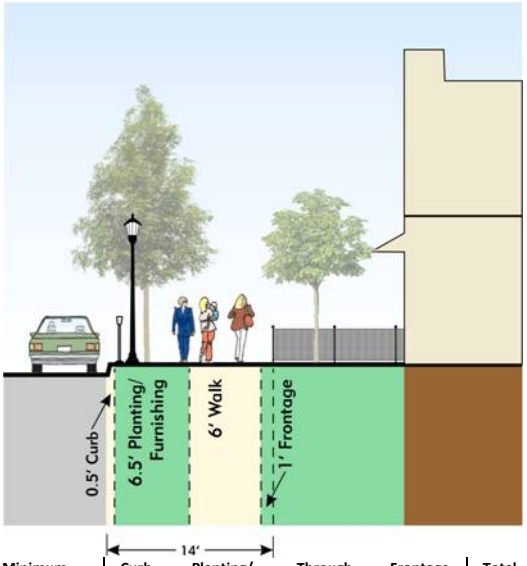
Residential Land Use

All Non-Local Street Types



Minimum Width	Curb	Planting/ Furnishing	Through Walk	Frontage	Total
Recommended	0.5	7.0	6.0	1.5	**15.0**
Acceptable	0.5	5.5	5.0	1.0	**12.0**

Local Street



Minimum Width	Curb	Planting/ Furnishing	Through Walk	Frontage	Total
Recommended	0.5	6.5	6.0	1.0	**14.0**
Acceptable	0.5	5.5	5.0	1.0**	**12.0**

Note: Recommended and minimum pedestrian zone dimensions for bridges are addressed in section 10.2.9 and for transit stops are addressed in section 10.4. See section 2.2 for more information about street design types.

* "Activity Center Street Type with High Pedestrian Priority" are typically streets such as Nicollet Mall or Hennepin Avenue in downtown or other activity centers that are priority pedestrian corridors.

** When a 12.0' Pedestrian Zone is used on local street types, it is desirable that both the Through Walk Zone and the Frontage Zone be constructed of concrete to provide a 6.0' wide sidewalk.

10.2.5 Placement of Elements in the Pedestrian Zone

There are many elements that typically need to be placed in the Pedestrian Zone, including utility poles, utility cabinets, traffic control, trees/landscaping, and street furnishings. These elements need to be organized in a manner that ensures pedestrian accessibility, accommodates the functional requirements for utilities and traffic control, promotes safety and visibility, and makes the most efficient use of the public-right-of-way for the many competing needs within the Pedestrian Zone. Guidance on the placement of various elements within the Pedestrian Zone is shown in Figure 10-8. Underground utilities should be placed in the street, with the exception of electrical conduit and irrigation.

Figure 10-8: Recommended Placement of Utilities and Street Furnishings in the Pedestrian Zone

Element "R" = recommended placement "A" = acceptable placement in constrained conditions	Primary Zones				Specialty Zones				Notes
							Bus Stop		
	Planting/Furnishing	Through Walk	Frontage	Private Property	Clear Corner	Corner Public Use	Front Door	Back Door	
Areaway Covers/ Grates	A	A	A	R			A	A	See section 10.2.7 re: surface design.
Benches	R		A	R					See section See section 10.4 re: bus stops.
Bicycle Lockers/Shelters	R			R					
Bicycle Racks	R		A	R					See chapter 11 re: bicycle facility design.
Bus Shelters	R		A	R					See section 10.4 re: bus stops.
Bus Stop Signs	R					R			18" from face of curb to edge of sign. See section 10.4 re: bus stops.
Fences and Railings				R					
Fire Hydrants	R					R			18" from face of curb to edge of hydrant. 5 ft clear zone recommended.
LRT Catenary Poles	R					R			
Mail Boxes	R		A	A					
Newspaper Boxes & Corrals	R		R	R					See City Ordinance Title 17, Ch 464.
Parking Meters	R								18" from face of curb to edge of meter.
Pedestrian Signal Push Buttons					A	R			See section 10.3.4 re: push button design.
Public Art	R			R					
Sandwich Sign Boards	R		R	R					
Signal Control Boxes	R		A			R			Placement beyond the curb return with sight lines to signals for maintenance. Maintain safe auto and pedestrian sight lines.
Signal Poles	R					R			2.5' from face of curb to centerline of pole.
Street light Service Cabinet	R		A			R			Placement beyond the curb return. Maintain safe auto and pedestrian sight lines.
Street Lights	R					R			2' from back of curb to centerline of pole. See section 7.
Street Signs						R			
Surface Covers (Manholes, Utility Vaults, Signal Hand Holes)	R	A	A		A	R	A	A	See section 10.2.7 re: surface design.
Trees and Landscaping	R		A	R					See chapter 9.
Traffic Signs	R					R			18" from face of curb to edge of sign.
Trash Receptacles	R		A	R		A			Placement depends upon collection method. See section 10.4.4.1.
Utility Poles	R		A	A		R			Frontage Zone or Alley ROW when utility lines are running perpendicular to the roadway
Wayfinding Kiosks	R		A	A					

10.2.6 Encroachments and Active Uses of the Pedestrian Zone

Active uses of the pedestrian zone such as sidewalk cafes and street vendors can substantially improve the walking environment; however, it is necessary to balance their placement with the need to maintain the Through Walk Zone, as well as access to other Pedestrian Zone elements, such as parking meters and bus stops. Similarly, other private elements placed in the Pedestrian Zone must be appropriately placed. This balance is achieved by requiring permits, which allow private activities in the public right-of-way, ensure health and safety standards, and provide the City with a process to review and regulate encroachments. See *Minneapolis City Code of Ordinances, Title 5 Building Code, Chapter 95 Projections and Encroachments*.

10.2.6.1 Stairs/Ramps/Doors

Impacts to the pedestrian right-of-way from private entryways should be limited to the Frontage Zone. One method to mitigate the potential impacts from new development is by recessing entryways. During sidewalk reconstruction, the new sidewalk, while following ADA standards, should be constructed to avoid conflict between opening doors and the sidewalk surface. Stairways, including railings, should be designed as to not extend into the Through Walk Zone.

10.2.6.2 Commercial Signs

Commercial signs extending over public right-of-way should be hung so that there is at least 8 feet of clearance above the sidewalk. Signs should not extend more than 6 inches from the exterior wall. Signs projecting over public alleys should allow 15 feet of clearance above the alley.

Sandwich boards should be placed in the Planting/Furnishing Zone or Frontage Zone to avoid encroaching upon the Through Walk Zone.

See *Minneapolis City Code of Ordinances, Title 5 Building Code, Chapter 109 Signs and Billboards* and *Title 20 Zoning Code, Chapter 543 On-Premise Signs, Chapter 544 Off-Premise Advertising and Billboards, and Chapter 95 Projections and Encroachments.*.

10.2.6.3 Sidewalk Cafes

The City's Sidewalk Café regulations require that sidewalk cafes be designed and operated as follows:

- For sidewalks 12 feet or narrower: A minimum of 4 feet of clear, unobstructed Through Walk Zone must be maintained between all obstructions and the edge of sidewalk cafés when the existing sidewalk is 12 feet or less. The Through Walk Zone must widen to 6 feet for a minimum of 6 feet every 30 feet to provide ample room for two or more wheelchairs, strollers, or pedestrians to pass. When two neighboring cafes fall within the 30 foot zone, both will equally share the 6 foot zone.
- For sidewalks wider than 12 feet: A minimum of 6 feet of clear, unobstructed Through Walk Zone must be maintained between all obstructions and the edge of sidewalk cafés.
- Tables and heating elements must be aligned as straight as possible.
- Cafes must be in a physically delineated area, either marked by structural devices such as planters or stanchions or with painted markings on the sidewalk.
- Wait staff are not allowed to block the pedestrian walkway when taking or delivery orders.
- Sidewalk cafes may not be located within 10 feet of a designated bus stop, taxi stand, traffic signal, crosswalk, pedestrian curb cut or active loading zone.

- A minimum vertical height of 6'6" must be maintained between the sidewalk and the lowest edge of table umbrellas or awnings if the umbrella or awning extends over the edge of the café boundary.

In addition to these standards, the following guidelines are recommended:

- The Through Walk Zone widths recommended in section 10.2.1 and Figure 10-7 are wider than the existing sidewalk café regulations. These wider widths should be used when possible, particularly in activity centers and other locations with high pedestrian activity.
- A straight and continuous Through Walk Zone from one end of the block to the other should be maintained to the greatest extent possible.
- Fencing around sidewalk cafes should be in compliance with PROWAG guidelines (R302.4) and MUTCD standards. Fences should be continuous, stable and rigid. A continuous edge should be provided no more than 6 inches from the ground, and an upper rail should be provided at a minimum of 3 feet above the ground. Support members should not protrude into the Through Walk Zone.
- The placement of sidewalk cafes must be managed. Sidewalk cafes are mobile objects and may encroach upon the Through Walk Zone if not properly managed. The City's Regulatory Services Department enforces the sidewalk café ordinance.

See *Minneapolis City Code of Ordinances, Title 13 Licenses and Business Regulations, Chapter265. Special Permits for Specific Businesses and Uses, Article VII Sidewalk Cafes*.

10.2.6.4 Street Vendors

Street vendors, such as those on Nicollet Mall add to the liveliness of the street. Street vendors should be allowed in activity centers, neighborhood commercial nodes, and community and commercial corridors wherever the width of the Pedestrian Zone allows. Vending should take place in the Planting/Furnishing Zone and not encroach upon the Through Walk Zone. A minimum of four feet of clear unobstructed pedestrian Through Walk Zone must be provided around street vendor stands, and the recommended widths recommended in section 10.2.1 and Figure 10-7 should be used when possible, particularly in activity centers.

See *Minneapolis City Code of Ordinances, Title 13 Licenses and Business Regulations, Chapter 323 Peddlers and Chapter 331 Sidewalk Flower Cart Vendors.*

10.2.7 Sidewalk Surface Design

The Through Walk Zone should provide a safe and accessible surface for walking, rolling wheelchairs, and people using walkers, crutches and walking canes. Sidewalks should be level, firm, stable and slip resistant and avoid excessive vibrations for wheelchair users.

10.2.7.1 Material and Surface Finish

The standard sidewalk material in Minneapolis is concrete pavement. This material is used on the majority of sidewalks in Minneapolis, and typical sidewalk panel sizes are approximately 6 x 6 feet. In some cases, however, it may be desirable to enhance the streetscape by using enhanced paving materials such as scored sidewalks, pavers, colored concrete, stone or other approved paving material.

Enhanced paving materials often have more frequently-spaced joints that can create uncomfortable or painful vibrations for wheelchair users if pavers are not properly constructed or maintained. PROWAG advises:

> Surfaces with individual units laid out of plane and those that are heavily textured, rough, or chamfered, will greatly increase rolling resistance and will subject pedestrians who use wheelchairs, scooters, and rolling walkers to the stressful (and often painful) effects of vibration. It is highly desirable to minimize surface discontinuities; when discontinuities on the pedestrian access route are unavoidable, they should be widely separated. (PROWAG R301.5)

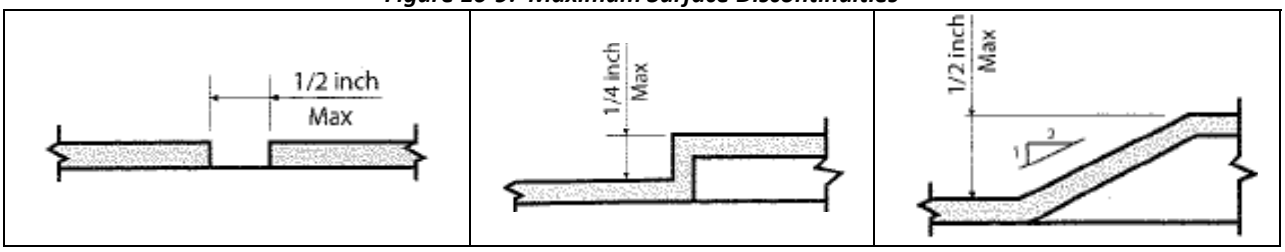
Therefore, when selecting a design and material for sidewalk surfaces, the following must be considered:

- **Surface Discontinuities** – Surface discontinuities may not exceed ½ inch maximum (openings should not permit the passage of a ½ inch sphere), and vertical discontinuities between ¼ and ½ inch maximum must be beveled at 1:2 minimum (PROWAG R301.5), as shown in Figure 10-9.
- **Mn/DOT Construction Specifications** - Mn/DOT standard specifications require that joints between panels be formed with a ¼ inch rounding tool and that sidewalk surfaces be constructed with a maximum 3/16 inch variation in surface over a 10 foot plane.
- **Panel/Paver Size** – The more frequently-spaced the joints between paver units or sidewalk panels, the more opportunities there are for excessive surface discontinuities to be present at the time of construction or to develop over time. Larger panel sizes generally ensure a more comfortable and accessible surface for all pedestrians. Smaller decorative pavers that add architectural detail may be placed at the edges of the Through Walk Zone, thereby minimizing potential excessive vibrations for wheelchair users, while also improving the aesthetic design as shown in Figure 10-10.
- **Material -** Material must be slip-resistant and durable and resistant to chipping, breakage, deterioration, or corrosion resulting from snow removal equipment and solvents. Some stone pavers are more slippery in wet or icy conditions than concrete.
- **Cost -** Special paving materials generally have higher initial costs, as well as long-term maintenance costs.
- **Decorative Scoring** – Concrete sidewalks may be enhanced with a decorative design by scoring smaller panel sizes and finishing the edge of each panel with a smooth border instead of a continuous broom finish (see Figure 10-10). Decorative scoring must be carefully constructed to minimize the surface discontinuities not only between scored sidewalk panels, but also between the smoothed border and broom finish within each panel.
- **Stamped and Etched Designs** – Concrete sidewalks may also be stamped or etched with designs, as shown in Figure 10-11. As with decorative scoring, stamped and etched designs must be carefully designed and constructed to minimize surface discontinuities. Stamped and etched designs are typically placed on only a few sidewalks panels per block, which helps to minimize surface discontinuities.

See *Special Provisions for the Construction of Concrete Sidewalks, Curb and Gutter, Alleys and Drive Approaches* for design standards.

See also Section 10.5.3.5 Textured and Colored Pavement Crosswalks.

Figure 10-9: Maximum Surface Discontinuities



Source: NvDOT Field Guide for Accessible Public Rights of Way

Figure 10-10: Decorative Sidewalk Scoring and Pavers in the Planting/Furnishing Zone

Location: Marquette Avenue S

Figure 10-11: Stamped Sidewalk Design

Location: Franklin Avenue

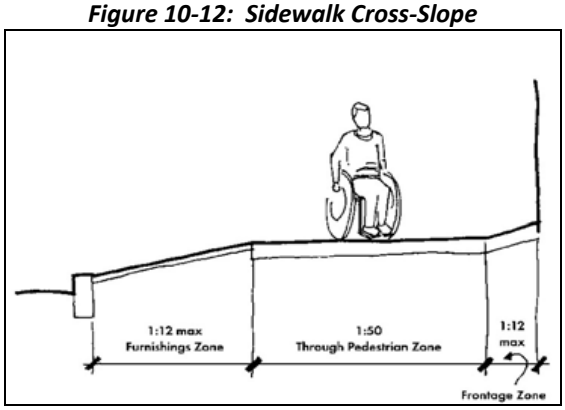
10.2.7.2 Sidewalk Grade and Cross-Slope

Sidewalk running grade should be no greater than 5% unless the public sidewalk is following a public street with a running grade greater than 5%. Sidewalks should slope towards the curb to allow for stormwater drainage. The cross slope on the Through Walk Zone should be no greater than 2%.

To achieve an acceptable cross-slope in locations with exceptional topographic conditions, the Planting/Furnishing Zone and Frontage Zone may have a steeper cross-slope as long as the 2% cross-slope is maintained for the minimum Through Walk Zone width, as shown in Figure 10-12. Allow enough space for the opening of parked car doors. The exception to this design is at transit stops, which require a level loading area (see section 10.4.2.1).

See *Special Provisions for the Construction of Concrete Sidewalks, Curb and Gutter, Alleys and Drive Approaches* for more City standards.

Figure 10-12: Sidewalk Cross-Slope



Source: Santa Barbara Pedestrian Master Plan

10.2.7.3 Grates

Areaway ventilation grates, tree grates, and other types of grates which serve as a walkable surface within the Pedestrian Zone should be designed as follows:

- Openings should not allow the passage of a ½ inch sphere; and
- Openings should be oriented so that the long dimension is perpendicular or diagonal to the dominant direction of travel.

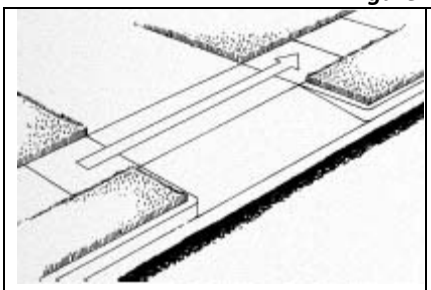
10.2.8 Driveway, Alley, & Railroad Crossings of Sidewalks

Driveway and alley entrances and railroad crossings expose pedestrians to potential hazards.

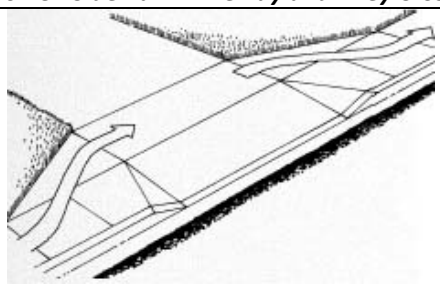
10.2.8.1 Driveways and Alleys

- **Sidewalk Width and Grade** - The width and grade of the Through Walk Zone should continue across driveways and alleys as shown in Figure 10-13, consistent with the recommended widths in section 10.2.1.2 (6 feet recommended, 5 feet acceptable). Driveways over the Through Walk Zone of sidewalks may not exceed a 2 percent cross slope. The ramp portion of a driveway entrance should be located within the Curb and Planting/Furnishing Zone wherever possible. The grade of driveway entrances in the Curb and Planting/Furnishing Zone may not exceed a 12 percent grade. In existing constrained conditions, the Through Walk Zone width may be reduced to 4 feet, and the sidewalk may be jogged back, as shown in Figure 10-13. The slope of driveways for the first 20' behind the public right-of-way should not exceed 4 percent.

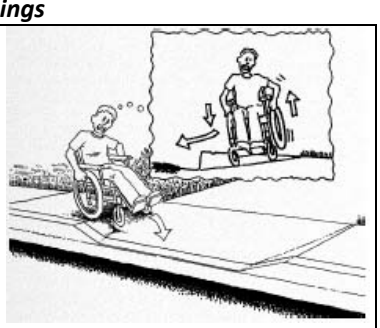
Figure 10-13: Sidewalk Driveway and Alley Crossings



DESIRABLE: Through Walk Zone maintained across driveway.



ACCEPTABLE: Jogged sidewalk. Note that Minneapolis standard curb design uses returned, not flared edges, as shown in this image.

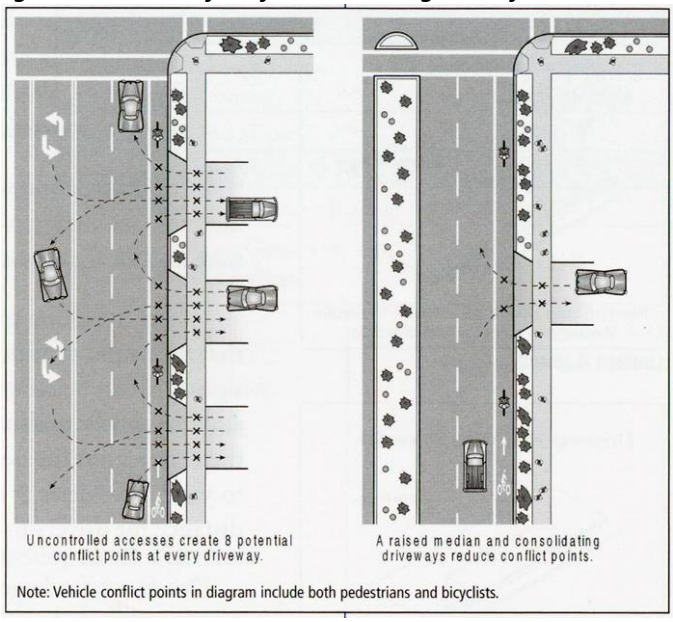


UNACCEPTABLE: Driveway cuts through the Through Walk Zone creating accessibility problems.

Source: Designing Sidewalks and Trails for Access, FHWA.

- **Access Management** - Driveway entrances to buildings should be consolidated whenever possible to reduce the frequency of curb cuts on any given block face. Less frequent spacing will minimize vehicle conflicts with pedestrians on sidewalks as shown in Figure 10-14 and will provide more space for street furniture, street trees, and lighting, as well as street parking.

Figure 10-14: Benefits of Access Management for Pedestrians



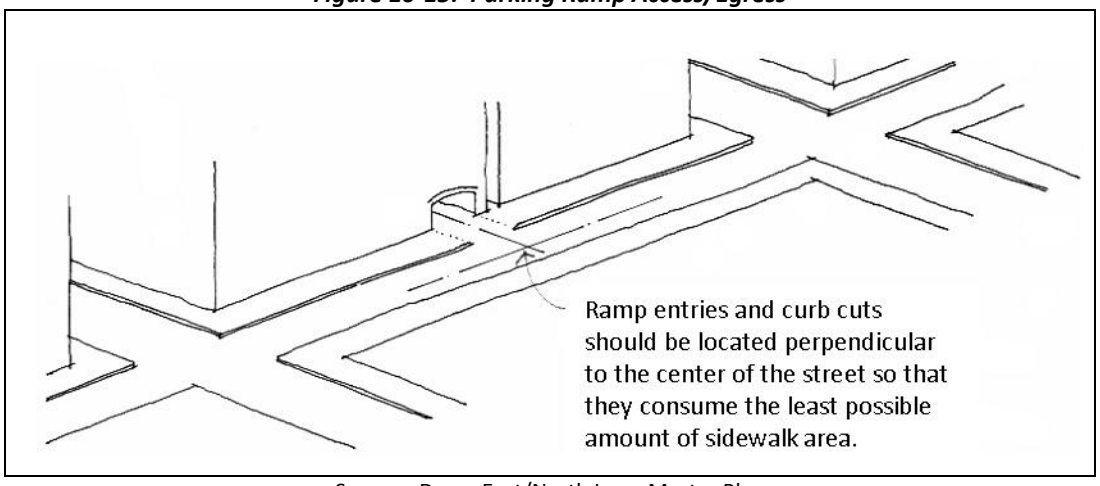
Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO.

- **Driveway and Alley Width -** Driveway and alley widths should be minimized to reduce entrance speeds, maximize landscaping opportunities, and reduce pedestrian exposure at vehicle access points. Driveways widths are regulated by *Chapter 541, Off-Street Parking and Loading* in the zoning code and vary by zoning district; the minimum driveway width is typically 12 feet, and the maximum driveway width is typically 25 feet. New alleys should be a minimum of 14 feet unless they are reconstructing an existing condition, where they can be a minimum of 12 feet wide.
- **Driveway Location** - Driveways should be located away from intersections in order to minimize conflicts with pedestrians at corners and in crosswalks. Driveways should be a minimum of 30 feet clear of the intersection of two major streets and a minimum of 20 feet from all other

intersections. Driveways are discouraged for residential properties with access to an alley, except on corner lots, where the driveway curb cut can be located from the side yard.

- **Parking Ramp and Vehicular Building Access/Egress** – Access to and egress from parking ramps should be designed perpendicular to the street in a single curb cut, as shown in Figure 10-15. This design promotes good visibility between pedestrians and vehicles and minimizes potential conflict points between pedestrians and vehicles. In large developments, it is recommended that vehicular curb cuts be located midblock and be limited to one curb cut per block face.

Figure 10-15: Parking Ramp Access/Egress



Source: Down East/North Loop Master Plan

- **Other Considerations** - Parked cars should not block the sidewalk crossing driveways.

See *Special Provisions for the Construction of Concrete Sidewalks, Curb and Gutter, Alleys and Drive Approaches* for more information.

10.2.8.2 At-Grade Railroad Crossings

When not properly designed, rail crossings can be barriers to wheelchairs, strollers, carts, and other wheeled items used by pedestrians, as shown in Figure 10-16, and can encourage pedestrians to walk in the street across railroad tracks. There are several existing railroad crossings in Minneapolis that have concrete sidewalks on both side of the tracks, but ballasted track or crumbling asphalt across the tracks.

Figure 10-16: Wheelchair Wheel Stuck in Flangeway

Source: Rail Reflections Magazine, Issue 18, Transportation Safety Board of Canada.

Where sidewalks are needed on both sides of a railroad crossing, a continuous sidewalk with a firm and stable surface must be provided. It is also recommended that the Planting/Furnishing Zone be carried

across the railroad crossing to separate the street crossing from the pedestrian crossing and prevent vehicles from driving on the sidewalk, as shown in Figure 10-17; this is particularly important at multi-track railroad crossings where crossings are long.

Figure 10-17: Planting/Furnishing Zone across Railroad Crossing

Location: 11th Avenue NE; Source: Google Streetview

Openings for wheel flanges at pedestrian crossings of railroad tracks should be designed to prevent wheelchair wheels from becoming stuck in the tracks. Additional guidance on rail crossing design is available in the PROWAG.

10.2.9 Sidewalks on Bridges

Bridges provide pedestrians with connections across major barriers, such as rivers, freeways, railroads, and creeks. Because bridges are expensive to construct and maintain, they are much less frequently spaced than the rest of the street and sidewalk network. Bridges are essential connections in areas with otherwise poor pedestrian connectivity and must be designed to provide safe, comfortable and appealing pedestrian connections.

Bridges can present particular challenges in providing a pedestrian zone that is adequately sized, safe and attractive for pedestrians. Many bridges in Minneapolis have been built with minimal sidewalk space (typically 5-8 feet), and some have sidewalks on only one side. Bridges often have wide vehicle lanes and a wide shoulder, typically matching the width of approaching streets. Unlike on street approaches to bridges where on-street parking helps to buffer pedestrians from traffic and provide some side friction to slow vehicle speeds, pedestrians are unprotected from fast moving vehicles. In addition, bridges do not have the benefit of adjacent land uses, which provide "eyes on the street" and lighting to provide pedestrians with a sense of personal security.

10.2.9.1 Pedestrian Zone Organization and Widths

Pedestrian facilities on bridges have the same organization and functional needs for the pedestrian zone as do pedestrian facilities on streets (see section 10.2.1). The organization and width of the pedestrian zone on bridges is as follows:

- **Curb/Furnishings Zone** – The Curb and Planting/Furnishing Zones are combined on bridges. This zone provides a buffer between the roadway and the Through Walk Zone, space for temporary snow storage on bridges, and space for signage. It also provides a curb to discourage vehicles from driving onto the sidewalk. Because most bridges do not have on-street parking to buffer pedestrians from moving traffic, it is essential that this zone provide sufficient width to buffer pedestrians from moving traffic. The width of this zone should be a minimum of 2 feet wide. On longer bridges, which typically have higher vehicle operating speeds, this zone may need to

be wider or a barrier rail provided. Additional width will also be required if seasonal plantings and/or street furnishings are desired on the bridge.

- **Through Walk Zone** – This zone provides an accessible clear walking space for pedestrians, as well as bicyclists who prefer to ride on sidewalks.[3] As shown in Figure 10-18, the recommended Through Walk Zone on bridges is 8 feet on non-local street types and 6 feet on local street types. (See section 2.2 for more information on street design types.) Bridges that connect to multi-use trails often serve bicyclists who do not feel comfortable riding in on-street bike lanes. If the bridge connects to a multi-use trail, as do many of the Mississippi River bridges, the Through Walk Zone should be a minimum of 10 feet wide.
- **Frontage Zone** – This zone reflects the tendency of people to shy away from the precipice of a bridge. It should be a minimum of 2 feet wide.

It should be noted that the necessary width for snow clearance equipment on bridge sidewalks is typically 8-9 feet.

Figure 10-18: Minimum Pedestrian Zone Width on Bridges

Type of Bridge	Curb/Furnishing Zone	Through Walk Zone	Frontage Zone	Total Width
Bridge on Local Street Design Type	2′	6′	2′	10′
Bridge on Non-Local Street Design Types	2′	8′	2′	12′
Bridge Connecting to Multi-Use Trail	2′	10′	2′	14′

See section 2.2 for more information on street design types.

10.2.9.2 Lighting

Bridges do not have the benefit of light coming from adjacent land uses such as store fronts and residences. In addition to lighting for vehicle movement, all bridges with pedestrian facilities should have pedestrian-scaled lighting to provide a safe pathway. Lighting may be placed in the Planting/Furnishing Zone if appropriate Through Walk Zone widths and space for snow clearance equipment can be maintained, or it may be incorporated into bridge railings/fencing. Lighting placed on the inside of the sidewalk, as shown in Figure 10-19, instead of the outside railing, helps define the separation between roadway and pedestrian facilities.

10.2.9.3 Barriers from Traffic

Longer bridges that promote higher vehicle speeds and bridges along arterial routes should provide a barrier from traffic to give pedestrians a sense of enclosure and safety. The Federal Highway Administration recommends a railing or barrier measuring at least 42 inches in height for roads with heavy traffic or high speeds, although Mn/DOT allows barriers of 36 inches, see Figure 10-19. The barrier styles chosen should match the site and context of the bridge.

10.2.9.4 Railings

The outside railings on bridges should be well-designed to provide an appealing pedestrian environment, as shown in Figure 10-19. Use of chain-link fence on bridges is not recommended. On bridges where bicycles may legally ride on the sidewalk (all sidewalks outside business districts), a 54 inch high railing should be used to protect bicyclists from falling over the edge of the bridge.

[3] Bicyclists are permitted sidewalk users outside of business districts under state statute.

Figure 10-19: Example of Pedestrian Barrier and Pedestrian Scale Lighting on Bridge

Location: Lake Street bridge over the Mississippi River

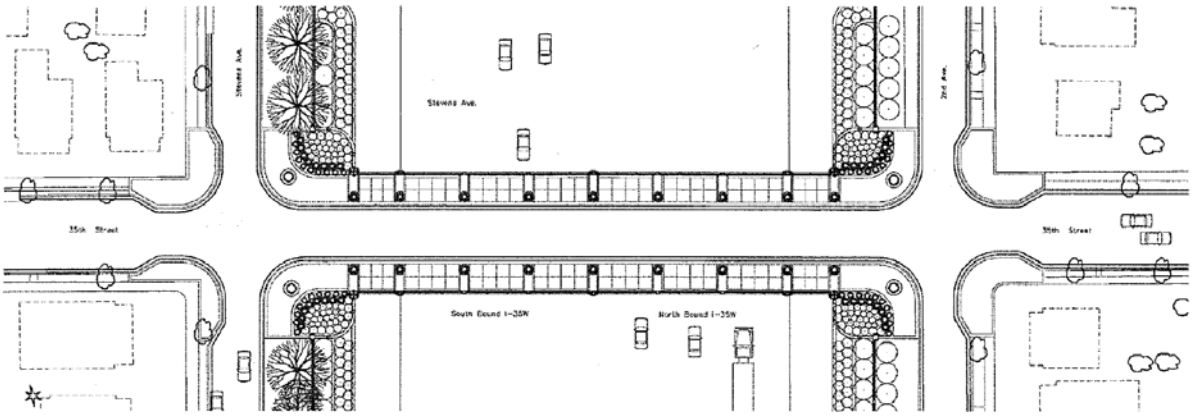
10.2.9.5 Visibility

Pedestrian facilities on bridges must be designed to provide adequate sight lines between pedestrians and vehicles at intersections at the ends of bridges. High fencing and overgrown vegetation should be avoided.

10.2.9.6 Retrofitting pedestrian improvements on bridges

Many existing bridges in Minneapolis have narrow sidewalks and a shoulder lane that is the same width as the parking lane on the approaching street. In most circumstances, parking is restricted on bridges, so a parking lane is not needed, but a shoulder for disabled vehicles is usually required.[4] The shoulder may typically be 6 feet wide on either side of the bridge, which also provides space for a bike lane; it does not need to be the full width of a typical parking lane. This provides an opportunity to retrofit many bridges to widen sidewalks and narrow the vehicle shoulder within the existing bridge width. Where the approaching street on either side of the bridge has a parking lane, curb extensions may be constructed to match the curb line of the street with the curb line of the bridge, as shown in Figure 10-20.

Figure 10-20: Conceptual Bridge Design



Source: I-35W Access Project

[4] There may be some circumstances on very short bridges where a shoulder for disabled vehicles is not needed.

10.2.10 Sidewalks under Bridges

Pedestrian facilities under bridges are often unappealing pedestrian environments due to poor lighting, blocked sight lines, narrow sidewalks, and bridge pier design that create locations for people to hide. In addition, under bridge environments do not have the benefit of adjacent land uses that provide "eyes on the street." Real and perceived personal security is significant concern in under bridge environments.

The principles of Crime Prevention Through Environmental Design (CPTED) should be applied to the design of pedestrian facilities under bridges, and the creation of entrapment or habitation areas should be avoided. Pedestrian facilities under bridges should be designed with adequate physical space for pedestrians, proper lighting, clear sight lines, and architectural treatments that create an inviting, human-scaled pedestrian environment.

10.2.10.1 Pedestrian Zone Organization and Widths

Pedestrian facilities under bridges have the same organization and functional needs for the pedestrian zone as do pedestrian facilities on streets. The organization and width of the pedestrian zone under bridges is the same as that shown for streets in section 10.2.1. The total width should be a minimum of 12 feet.

10.2.10.2 Pier Design and Placement

The design and placement of bridge piers should provide good visibility between the street and the sidewalk and avoid creation of hiding places where criminals could lurk unseen.

10.2.10.3 Retaining Wall Design

The design of retaining walls under bridges should incorporate design treatments to create a pedestrian scale environment.

10.2.10.4 Lighting

Lighting is paramount to how safe pedestrians feel traveling under bridges. Sidewalks under bridges should have pedestrian-scaled lighting. Pedestrian lighting under bridges can be an opportunity for a community gateway though public art or architectural lighting. Exclusive use of utilitarian "wallpaks" should be avoided. *See Section 7 for further guidance on City's Lighting Policy.*

10.2.10.5 Snow and Ice Clearance

Sidewalks under bridges do not have the benefit of sunlight to melt snow and ice. They must be designed to minimize snow and ice accumulation, and they must be maintained to ensure proper snow and ice clearance.

10.3 STREET CORNERS

Pedestrian activities are often concentrated at street corners. Corners are where the transition between sidewalk grade and crosswalk grade are made for wheelchair users. Corners are where pedestrians meet, wait to cross or for a bus, and often stop to talk. Each corner of an intersection should be analyzed to determine the best design given the various conditions that exist at each intersection corner along a corridor.

Unfortunately, other design considerations sometimes erode the space available for pedestrian activities at corners, because many other elements are placed at corners, such as traffic signal poles, fire

hydrants, and traffic signal control boxes. Additionally, turning vehicles can erode the corner space by requiring larger turning radii.

10.3.1 Elements of Good Corner Design

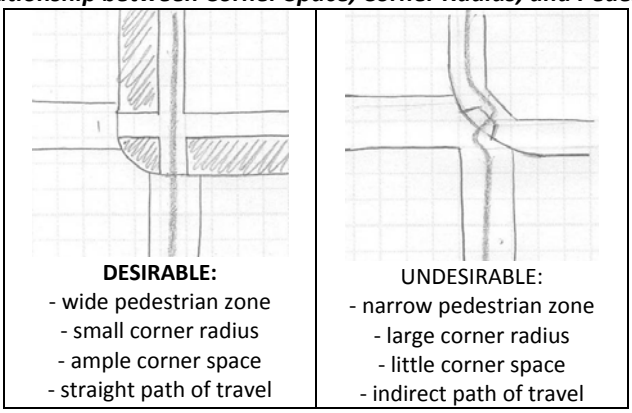
Good corners exhibit the following attributes:

- *Clear Space:* Corners should be clear of obstructions, and have enough space to accommodate the number of pedestrians for the site conditions. For example, activity centers, neighborhood commercial nodes, and community and commercial corridors require more pedestrian space than neighborhood intersections. They should also have enough room for curb ramps, for transit stops where appropriate, and for social interaction.
- *Visibility:* It is critical that pedestrians, cyclists and motorists have a good view of each other at intersections.
- *Legibility:* Symbols, marks, and signs used at corners should clearly indicate what actions the pedestrian, cyclists, and motorists are expected to take.
- *Accessibility:* All corner design features shall meet accessibility standards.

10.3.1.1 Corner Space

The most desirable corner condition for pedestrians is a wide pedestrian zone and small corner radius. This scenario provides the most corner space and makes it easy to align the sidewalks, curb ramps and crosswalks, which provides the most direct and likely path of travel for pedestrians, minimizes the likelihood of pedestrians crossing outside of the crosswalk, and minimizes the maneuvering that wheelchair users must perform to use the ramp, as shown in Figure 10-21.

Figure 10-21: Relationship between Corner Space, Corner Radius, and Pedestrian Zone Width



10.3.1.2 Visibility at Corners

It is critical that pedestrians at the corner have a good view of the travel lanes and that motorists in the travel lanes can easily see waiting pedestrians. Visibility between motorists and pedestrians is often impeded by parked vehicles near the intersection. Visibility may also be impeded by other vertical elements, such as buildings, fences, hedges and walls.

Current parking ordinances restrict parking within the vicinity of intersections as a way to increase the visibility of pedestrians. Minneapolis ordinance prohibits on-street parking near intersections as follows:

- Within 20 feet of a legal pedestrian crossing (whether marked or unmarked) at an intersection.

- Within 30 feet of the approach of any flashing school signal stop sign, traffic-control signal, or school sign at the side of a roadway.
- Within 5 feet of an alleyway or driveway.

Curb extensions (see section 10.3.5) are an excellent technique for increasing visibility particularly for shorter pedestrians, such as wheelchair users and children, because they physically restrict parking near intersections. Thus curb extensions do not remove parking, but simply formalize it.

Visibility can also be impeded by wide corner radii, which place curb ramps and sidewalks further back from the intersection. Tighter turning radii can improve visibility in some instances (see section 10.3.2).

See *Minneapolis City Code of Ordinances, Title 18 Traffic Code, Chapter 478 Parking, Stopping, and Standing.*

10.3.2 Curb Return or Corner Radii

The curb return is the curved connection of curbs where two streets come together to form an intersection. The purpose of the curb return is to guide vehicles in turning corners and to separate vehicular traffic from pedestrian areas at intersection corners. Large curb radii allow motorists to maintain a high speed while turning right, which puts pedestrians at risk. Reduced corner radii force vehicles to slow down. In general, the smallest practical curb return radii should be used at city intersections to provide adequate space for properly aligned curb ramps, shorten the length of pedestrian crosswalks, manage the speed of turning vehicles, and provide adequate space at the corner for curb ramps.

See Section 5.8.1, Curb Return or Corner Radii for more information about corner radii. In addition to the guidance in section 5.8.1, where turning movements are prohibited, such as at one-way streets, a tight (5 foot) corner radius should be used.

10.3.3 Curb Ramps

Access for people with disabilities is critical to an interconnected and continuous pedestrian system and curb ramps are one of the key design features that make sidewalks accessible. Curb ramps provide access for people, such as those who use wheelchairs or other mobility aids, who would otherwise be excluded from the sidewalk because of the barrier created by the curb. This accessibility extends to many other sidewalk users, including parents with strollers/wagons, children on bicycles, adults with rolling luggage, elderly pedestrians walking to/from stores with collapsible grocery carts, and those using walkers, etc.

10.3.3.1 Number of Ramps

Curb ramps must be provided at all legal crossings. At a typical intersection, there should be **two curb ramps** at each corner, regardless of traffic control. Use of small turning radii and curb extensions can help to accommodate two curb ramps at each corner. In some circumstances, it may not be possible to fit two curb ramps, depending upon corner radius and sidewalk width, and, although least desirable, a single diagonal ramp must be used.

10.3.3.2 Types of Curb Ramps

There are a variety of curb ramp design options, the basics of which are shown in Figure 10-25. In general, the most desirable configuration for curb ramps is to have curb ramps placed perpendicular to the curb and aligned with the direction of travel, as shown in Figure 10-25, Curb Ramp Types 1 and 2. This provides continuity in the direction of travel that helps to guide visually impaired pedestrians across

the intersection and is convenient and efficient to all pedestrians. This also benefits drivers as they know to expect which direction pedestrians will travel. Curb ramps in line with the direction of travel also add to an orderly appearance to the streetscape. However, because it is not always possible to provide two perpendicular ramps, Figure 10-25 also provides several other design options for curb ramps in more constrained conditions.

The Mn/DOT standard curb ramp template, which the City uses, does not currently allow for all of these curb ramp types. Additional design options such as those shown in Figure 10-25 are needed to accommodate accessible curb ramps on typical Minneapolis corners. The current design standard requires 10 feet from the face of curb to the back of ramp landing, which is more space than exists on many Minneapolis corners.

10.3.3.3 Technical Details

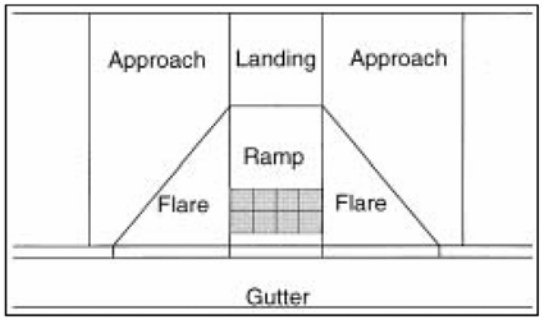
The current PROWAG guidelines recommend the following design dimensions for the curb ramp components shown in Figure 10-22:

- **Ramp Running Slope:** 5.0% minimum and 8.3% maximum on perpendicular and parallel ramps not to exceed 15.0 foot ramp length; 5.0% maximum on blended transitions
- **Ramp Cross Slope:** 2% maximum
- **Ramp Width:** 4.0 foot minimum (It is desirable to maintain the same width as the Through Walk Zone.)
- **Landing Dimensions:** 4.0 x 4.0 foot minimum
- **Landing Cross Slope:** 2% maximum
- **Flared Side Cross Slope**:10% maximum

Returned Edges: Flared sides are not required. Returned edges as shown in Source: Designing Sidewalks and Trails for Access, FHWA.

- Figure 10-23 can aid in aligning curb ramps with sidewalks and crosswalks and aid in wayfinding for visually impaired people. Returned edges may be used if protected from cross travel by turf grass, landscaping, street furniture, or other vertical obstruction.
- **Gutter Counter Slope:** 5% maximum
- **Detectable Warnings:** Required on all ramps
- **Clear Space at Ramp Bottom:** 4.0 x 4.0 foot minimum (free of vehicle movement)

Figure 10-22: Curb Ramp Components



Source: Designing Sidewalks and Trails for Access, FHWA.

Figure 10-23: Curb Ramp with Returned Edges

Source: Accessible Public Rights-of-Way: Planning and Designing for Alterations, ITE, July 2007

10.3.3.4 Drainage

The designer should ensure that stormwater drains should be on the upstream side of the curb ramp to reduce the potential for pools at the ramp. The gutter slope should be designed to direct water across ramp landings to avoid pooling at the bottom of the curb ramp.

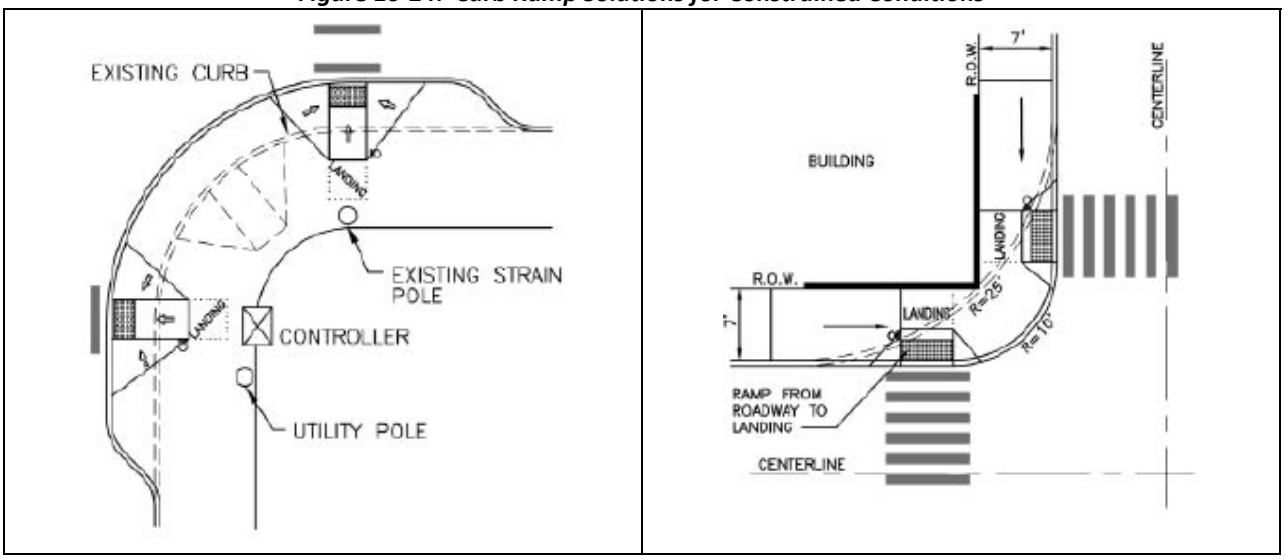
10.3.3.5 Obstructions

Curb ramps and crosswalks must remain clear of obstacles. Existing obstructions in curb ramps should be moved as opportunities and budgets allow. No new pole, utility or other impediment should be placed in the curb ramp return areas.

10.3.3.6 Solutions for Constrained Conditions

There are many constrained corner conditions in Minneapolis that make it very difficult to fit two perpendicular curb ramps per corner. In these cases, it may be necessary to use curb extensions, tighter corner radii or to a combination parallel and perpendicular ramp, as shown in Figure 10-24.

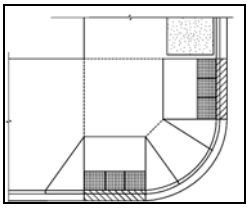
Figure 10-24: Curb Ramp Solutions for Constrained Conditions



Source: Accessible Public Rights-of-Way: Planning and Designing for Alterations, ITE, July 2007

Figure 10-25: Curb Ramp Types

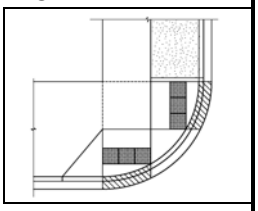
1. Perpendicular Ramps on Tangent — DESIRABLE



Pros:
- Ramp is in line with Through Walk Zone and crosswalk.
- Aids snow clearing because plows travel straight along edge of ramp.
- Optional returned edge next to planted boulevard reduces impervious surface, allows placement next to vertical obstructions, and aids wayfinding for visually impaired users.

Cons:
- Requires sufficient physical space – typically 10 feet behind the curb - which requires a small curb radius and/or large Pedestrian Zone.

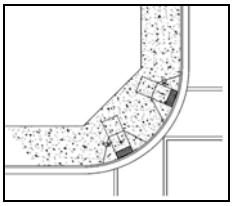
2. Directional Ramps on Radius — DESIRABLE



Pros:
- Ramp is in line with Through Walk Zone and crosswalk.
- Accommodates wider radius and/or narrower Pedestrian Zone than type #1.
- Aids snow clearing because plows travel straight along edge of ramp.
- Optional returned edge next to planted boulevard reduces impervious surface, allows placement next to vertical obstructions, and aids wayfinding for visually impaired users.

Cons:
- More complicated grade requirements to provide level landing at ramp bottom.

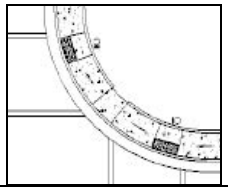
3. Dual Diagonal Ramps (Perpendicular Ramps on Radius) — ACCEPTABLE



Pros:
- Accommodates wider radius and/or narrower Pedestrian Zone than types #1 & 2.
- Can be built on corners of any radius and along Pedestrian Zones of any width.

Cons:
- May require additional right of way behind typical sidewalk intersection for necessary grades.
- Curb ramps do not align with the direction of travel.
- Snow plows more likely to leave wedge of snow in front of ramps and can be difficult for property owners to locate ramps under snow for clearance.

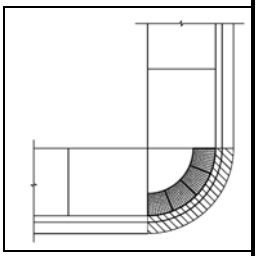
4. Parallel Ramps — ACCEPTABLE



Pros:
- Easier to fit in constrained conditions.

Cons:
- Curb ramps do not align with the direction of travel.
- Multiple grade changes are required in the Through Walk Zone.

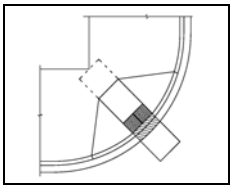
5. Blended Transition — ACCEPTABLE



Pros:
- Easier to fit in constrained conditions.
- Ramp is in line with the Through Walk Zone.

Cons:
- Lack of a raised curb may encourage vehicles to drive onto the curb ramp.
- Curved truncated dome plate not available in cast iron, Mn/DOT approved material.
- Although ramp is in line with Through Walk Zone, diagonal travel is possible.
- Requires crosswalk markings closer to intersection.
- Landing at-grade with gutter increases potential for pooling and debris accumulation.
- Snow plows leave wedge of snow in front of ramp.

6. Single Diagonal — UNDESIRABLE



Pros:
- Easier to fit in constrained conditions.

Cons:
- Curb ramps do not align with the direction of travel.
- Provides unclear information to drivers of pedestrians' crossing intentions.
- Wheeled users are steered to the center of the intersection and need to make a directional adjustment in the roadway.
- Requires crosswalk markings closer to intersection.
- May not allow proper spacing for pedestrian signals.
- Snow plows leave wedge of snow in front of ramp.

10.3.4 Locating Pedestrian Signal Call Buttons

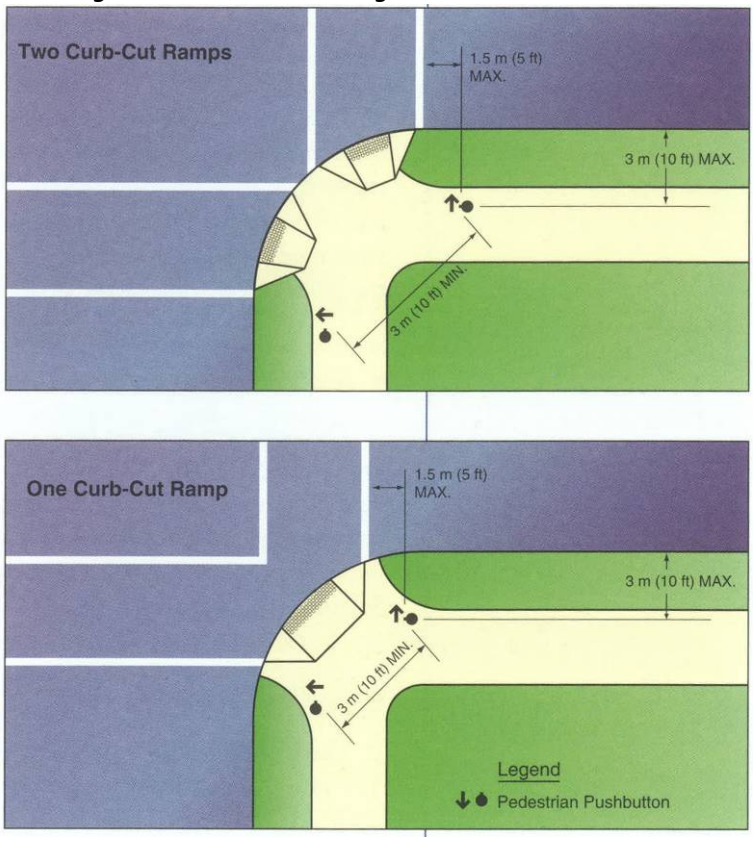
When pedestrian signal call buttons are used, they should be located within the Corner Public Use Zone or Clear Corner Zone as follows:

- The call button must be accessible from the level landing at the top of a curb ramp or from the dropped landing of a parallel curb ramp.
- The control face of the accessible pedestrian signal shall be installed to face the intersection and be parallel to the direction of the crosswalk it serves.
- Accessible pedestrian signals must be 10.0 feet minimum from other accessible pedestrian signals at a crossing and 5.0 feet from other signals in a median or island. (See Figure 10-26)
- Place the device no closer than 30 inches from the curb, no more than 5 ft from the crosswalk, extended and within 10 ft of curb, unless curb ramp is longer than 10 ft.

Pushbuttons should follow Mn/DOT 3833 specifications unless otherwise noted on signal plans.

See section 10.5.5.4 for more information on the use of pedestrian signal call buttons.

Figure 10-26: Pedestrian Signal Call Button Placement



Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO.

10.3.5 Curb Extensions

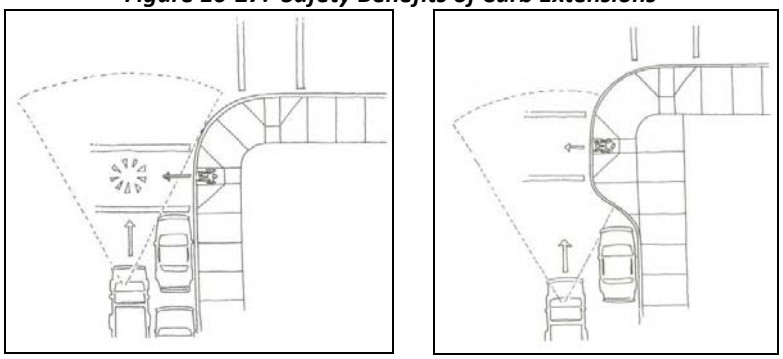
Curb extensions, which are also known as "bump-outs, bulb-outs, neckdowns, and chokers", are an extension of the pedestrian zone into the on-street parking lane. Curb extensions are typically used at intersections, but they may also be used at mid-block locations.

10.3.5.1 Purpose

Curb extensions have many benefits, including:

- Improved sight lines between vehicles and pedestrians (see Figure 10-27)
- Reduced crosswalk distance, thereby reducing pedestrian exposure to potential vehicle conflicts.
- Curb extensions can slow the speed of turning vehicles by decreasing turning radii and visually narrowing the roadway.
- Additional corner space to fit two perpendicular curb ramps per corner, utilities and traffic control, street furniture, trees and landscaping, transit facilities, bicycle parking, and sidewalk cafes.
- Additional pervious space for plantings and stormwater management.

Figure 10-27: Safety Benefits of Curb Extensions



Source: Designing Sidewalks and Trails for Access, FHWA.

10.3.5.2 Locations

Curb extensions can be installed on all streets where on-street parking is allowed. Specific priority areas for curb extensions include:

- New or reconstructed streets
- Streets where the pedestrian zone is less than 12 feet.
- Community and commercial corridors
- Wide streets with long crossing times
- Activity centers and neighborhood commercial nodes
- Primary Transit Network (PTN) streets

Although typically used at intersections, curb extensions may be used at midblock locations to provide additional sidewalk space for landscaping, bus shelters, seating, stormwater treatment, and bike parking, and improve pedestrian visibility and safety at mid-block crossings, as shown in Figure 10-28.

Figure 10-28: Midblock Curb Extension

Location: Ann Arbor, Michigan

Although curb extensions have many benefits, they may not be appropriate in all circumstances. Curb extensions may have the following disadvantages:

- They may be more expensive to construct than alternative designs.
- They can reduce flexibility of the roadway in construction routing.
- They may cause traffic to queue behind a stopped bus, thus causing traffic congestion.
- They prevent the use of the parking lane during peak travel periods.
- They can reduce future flexibility in making changes to the location of bus zones, bike lanes, roadway lane layout, or crosswalks.
- They may result in traffic back-up if the resulting through traffic, including left turns, is restricted to one lane so that left-turning cars block through traffic.

10.3.5.3 Design

The design of curb ramps should account for the following:

- **Width** - Curb extensions should be a minimum of 6 feet wide and be typically 2 feet narrower than the parking lane width, such that the curb and gutter of the curb extension is outside the vehicular travel lane or bicycle travel lane.
- **Length** - Curb extensions should be at least 30 feet in length. This minimum is based on typical crosswalk dimensions (10-15 feet) and ordinances requiring no parking 20 feet of a crosswalk or 30 feet of a stop sign. Additional length may be desired, depending on the furnishings and/or uses that need to be accommodated on the curb extension.
- **Taper** - The taper length will be determined based on the quantity of on-street parking stalls desired and snow removal/storage requirements. In some locations, the extended curb may need to be marked to improve visibility for snowplow operators.
- **Curb Ramp Placement** - It is desirable that curb extensions be designed to fit two perpendicular curb ramps aligned with the sidewalk and crosswalk.
- **Drainage** - Curb extensions need to be carefully designed to drain properly and to avoid ice, leaf and road debris buildup.

- **Transit Stops** - Where curb extensions are provided at transit stops, they should be the length of the bus stop, as it can be difficult for a bus to exit or re-enter traffic around a curb extension. *See Section 5.9, Transit Stops for more information.*
- **Tree Planting** - Trees may be grouped at curb extensions instead of along the entire block face, allowing more space for pedestrian through movement adjacent to the parking lane when space is tight. In all cases, street trees and plantings shall not interfere with visibility at corners; as such street trees shall be at least 20 feet from intersections. In addition, tree placement should not interfere with street lighting.
- **Bicycle Lanes** - Curb extensions shall not encroach upon designated bike lanes or routes. Where bike lanes use a painted inside edge, the bike lane shall be painted continuously along the curb extension to prevent the extension from encroaching into the bike lane. On neighborhood streets where bikes can travel in mixed flow with vehicles, curb extensions should not force cyclists to merge unexpectedly with cars at the end of the block. *See Chapter 11, Bicycle Facility Design for further information.*

10.3.6 Corner Geometry Retrofit Guidance

Changing the geometry of corners can be expensive because a street's drainage inlet is typically placed at or near an intersection with another street. In some cases it may be possible to alter the geometry of the corner with a detached curb extension or detached corner radius retrofit, which do not alter existing drainage infrastructure, as shown in Figure 10-29.

The geometry of a corner can also be altered through striping a tighter turn, or a narrower roadway. Striping techniques may be used as a temporary solution to test the effect of a certain tool before an investment is made on more permanent infrastructure. In some cases, the striping may be enough and can be a permanent solution.

These types of retrofits are not typically used in Minneapolis and are considered experimental.

Figure 10-29: Corner Radius and Curb Extension Retrofit Examples

Source: Pedestrian Bicycle Information Clearinghouse

10.4 BUS STOPS

Bus stops are critical elements of the transit system, the pedestrian system, and the public realm of the city. Bus stops and the streets on which they are located should be designed to accommodate waiting transit passengers, through walking pedestrians, bus shelters, and other street furniture and public infrastructure typically sited near bus stops.

The purpose of this section is to address the design of bus stops within the stop area. It does not address the location of bus stops (near-side vs. mid-block vs. far-side), which is addressed in section 5.9.

Because there are many competing needs for space at bus stops (turning lanes at intersections, utility boxes, manholes, street lights, trees, bus shelters, trash receptacles, benches, etc.), it is important to identify bus stop design needs early in the street design process.

10.4.1 Bus Stop Sign

All bus stops must have a bus stop sign to indicate to transit passengers and bus drivers where passengers should stand to board the bus. The bus stop sign should be at the front of the stop immediately adjacent to the Accessible Front Door Zone. At near side bus stops, the bus stop sign may be placed in the Corner Public Use Zone (see section 10.2.2.2).

10.4.2 Bus Stop Clear Zones

Bus stops need to have clear and accessible paths to and from the bus. There are three clear zones within the bus stop sidewalk area, as described below and as illustrated in Figure 10-30.

10.4.2.1 Accessible Front Door Zone

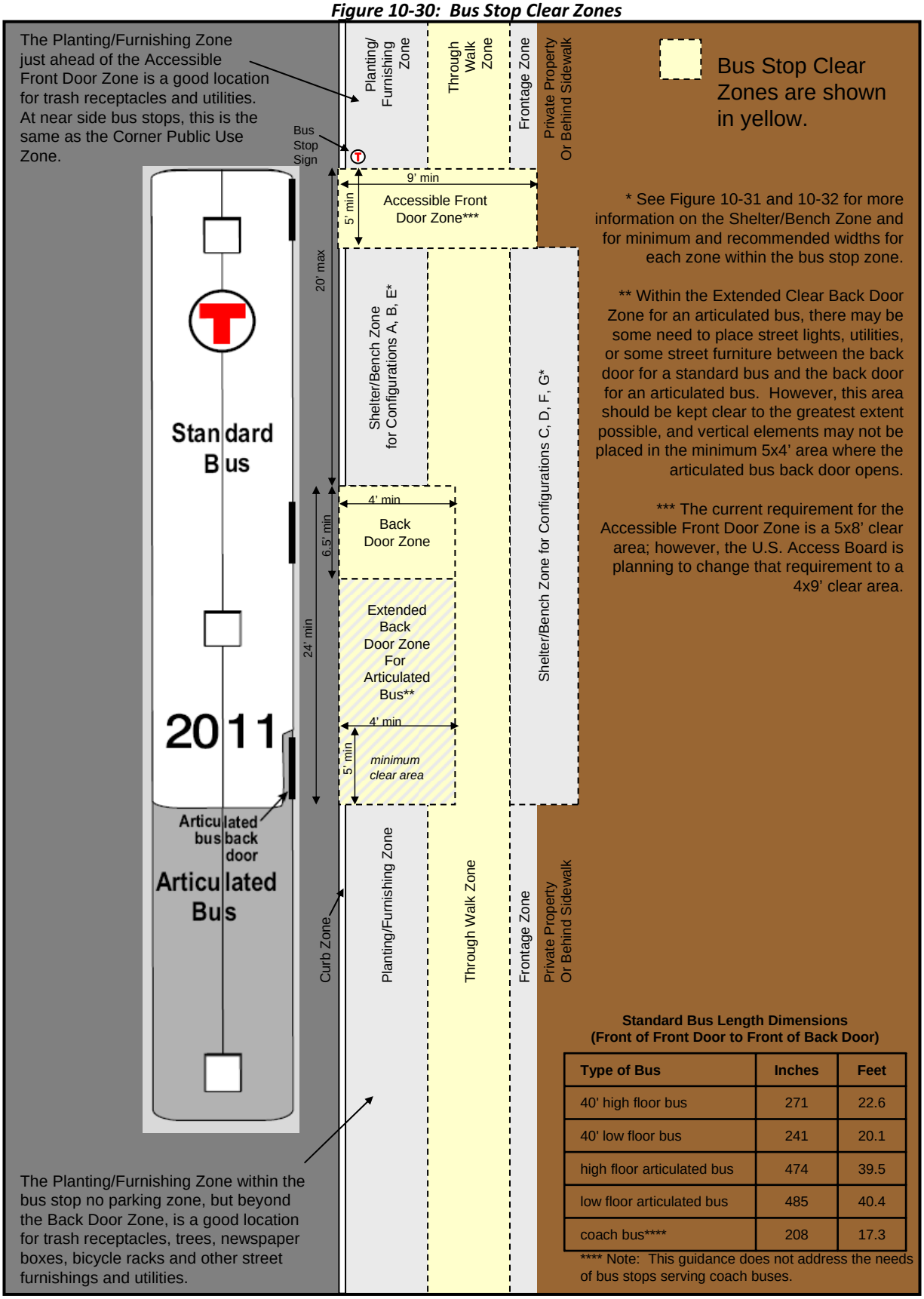
All bus stops must have a minimum 5x8' Accessible Front Door Zone to load and unload bus passengers and service wheelchair lifts at the bus' front door and should have a recommended minimum 5x9' Accessible Front Door Zone[5]. Measured from the bus stop sign, it must be at least 5' long (along curb) and 8-9' wide (8' minimum, 9' recommended - from the face of curb toward the property line). It may overlap with the Through Walk Zone. It must be constructed of a firm, stable and slip resistant surface and have a maximum cross-slope of 2% perpendicular to the curb. The Accessible Front Door Zone should be provided outside of the shelter, rather than through a shelter with a removed back panel, as may currently exist in some locations.

10.4.2.2 Through Walk Zone

All bus stops must have an accessible Through Walk Zone, as described in section 10.3.1. The recommended Through Walk Zone width at bus stops is 6 feet plus an additional 1.5 feet Frontage Zone width, and the minimum Through Walk Zone width at bus stops is 5 feet plus an additional 1 feet Frontage Zone width. In some activity centers, additional width may be needed. In existing constrained conditions where street reconstruction is not possible, the Through Walk Zone may be narrowed to 5 feet continuous or 4 feet continuous with a 5 x 5 foot passing zone every 200 feet.

[5] While the current requirement for the Accessible Front Door Zone is a 5x8' clear area, the U.S. Access Board is considering changing that requirement to a 4x9' clear area because 9' is actually needed for a wheelchair to exit the ramp and turn on the sidewalk, and 4' is an acceptable width for wheelchair access to buses.

Figure 10-30: Bus Stop Clear Zones



* See Figure 10-31 and 10-32 for more information on the Shelter/Bench Zone and for minimum and recommended widths for each zone within the bus stop zone.

** Within the Extended Clear Back Door Zone for an articulated bus, there may be some need to place street lights, utilities, or some street furniture between the back door for a standard bus and the back door for an articulated bus. However, this area should be kept clear to the greatest extent possible, and vertical elements may not be placed in the minimum 5x4' area where the articulated bus back door opens.

*** The current requirement for the Accessible Front Door Zone is a 5x8' clear area; however, the U.S. Access Board is planning to change that requirement to a 4x9' clear area.

Standard Bus Length Dimensions
(Front of Front Door to Front of Back Door)

Type of Bus	Inches	Feet
40' high floor bus	271	22.6
40' low floor bus	241	20.1
high floor articulated bus	474	39.5
low floor articulated bus	485	40.4
coach bus****	208	17.3

**** Note: This guidance does not address the needs of bus stops serving coach buses.

10.4.2.3 Back Door Zone

All bus stops should have a clear Back Door Zone to provide access to and from the back door of the bus. It may overlap with the Through Walk Zone. It should be located a maximum of 20' back from the front of the Accessible Front Door Zone. The length of the Back Door Zone depends upon transit operations and vehicle design: (a) 6.5' for standard 40' buses (assuming both high floor and low floor vehicles), (b) 24' for both standard 40' buses and 60' articulated buses (assuming both high floor and low floor vehicles), or (c) 40' or longer to service front door of second 40' bus, as illustrated in Figure 10-30. The Back Door Zone should be a minimum of 4' deep from the face of curb, and it must connect to the Through Walk Zone via a minimum 4' wide clear walking path. It should be constructed of a firm, walkable surface, free of tripping hazards. In residential areas, turf grass may be an acceptable walking surface.

If the Clear Back Door Zone is extended for an articulated bus, there may be some need to place street lights, utilities, or some street furniture between the back door for a standard bus and the back door for an articulated bus. However, this area should be kept clear to the greatest extent possible, and vertical elements should not be placed in the area adjacent to where the articulated bus back door opens.

10.4.3 Shelter / Bench Zone

There are two basic locations for the placement of bus shelters and bus benches, as shown in Figure 10-30: within the Planting/Furnishing Zone adjacent between the curb and the sidewalk or in the Frontage Zone/private property area at the back of sidewalk. Within these two basic locations, there are several options for placement of shelters and benches, as described below.

10.4.3.1 Bus Shelters

At bus stops where passenger volumes warrant a shelter, the shelter must be placed outside of the clear zones identified in section 10.4.2. All bus shelters must have a minimum 36x48" clear zone within the shelter and a recommended 5' and minimum 4' wide accessible walking route from the bus shelter entrance to the Through Walk Zone and from the bus shelter entrance to the Accessible Front Door Zone.

Where a shelter is warranted, a standard shelter (typically 5x13') should be used wherever possible. A narrow shelter (typically 2.5 x 13') may be used where a standard shelter is not feasible; however, a standard shelter is preferred for passenger comfort. Because shelters need to provide a 30x48" clear wheelchair space, the functional minimum width for a narrow shelter is considered to be 4', although only 2.5' is a permanent fixture (for typical 2.5' wide narrow shelters).

Bus shelters must be designed to provide clear visibility between the street and transit passengers inside the shelter for both personal security and for transit operations purposes. On shelters with advertising panels, the ad panels should not be placed to obscure the visibility of waiting transit passengers from the street.

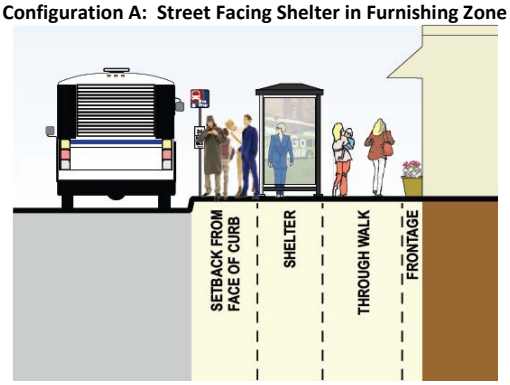
In general, shelters should have closed back walls to provide shelter from wind and rain. Extra long shelters that serve very high passenger volumes may need to have limited open back walls to provide sufficient access between the Through Walk Zone and the Back Door Zone.

There are 4 placement options for bus shelters as shown in Figure 10-31:

- Configuration A: Street-Facing Shelter in the Furnishing Zone
- Configuration B: Sidewalk-Facing Shelter in the Furnishing Zone
- Configuration C: Shelter behind Sidewalk or on Private Property
- Configuration D: Shelter in Frontage Zone

Figure 10-31: Bus Shelter Placement Options

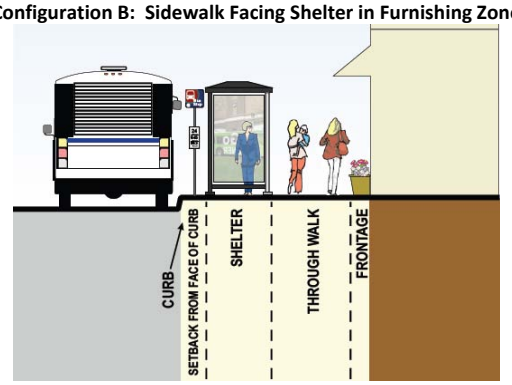
Configuration A: Street Facing Shelter in Furnishing Zone



	Curb/ Furnishing				
	Setback from Face of Curb	Shelter*	Through Walk	Frontage	Total
A1-Standard Shelter					
Recommended Minimum	5.0′	5.0′	6.0′	1.5′	**17.5′**
Acceptable Minimum	4.0′	5.0′	5.0′	1.0′	**15.0′**
A2-Narrow Shelter					
Recommended Minimum	5.0′	4.0′	6.0′	1.5′	**16.5′**
Acceptable Minimum	4.0′	4.0′	5.0′	1.0′	**14.0′**

Benefits of this configuration: Transit passengers separated from pedestrians. Shelter setback from curb gives buses flexibility to stop behind queued vehicle to board/alight passengers. Ample space for street furnishings. **Note:** This configuration has no acceptable minimums in existing constrained conditions because other configurations are a more efficient use of space.

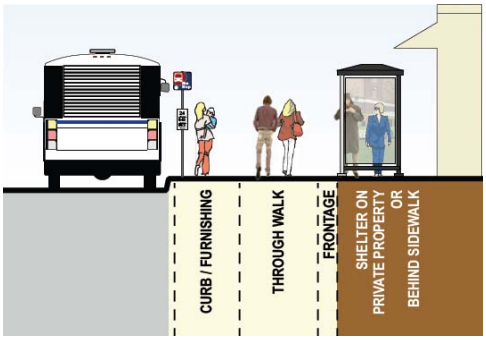
Configuration B: Sidewalk Facing Shelter in Furnishing Zone



	Curb/ Furnishing				
	Setback from Face of Curb	Shelter*	Through Walk	Frontage	Total
B1-Standard Shelter					
Recommended Minimum	2.0′	5.0′	6.0′	1.5′	**14.5′**
Acceptable Minimum	2.0′	5.0′	5.0′	1.0′	**13.0′**
B2-Narrow Shelter					
Recommended Minimum	2.0′	4.0′	6.0′	1.5′	**13.5′**
Acceptable Minimum	2.0′	4.0′	5.0′	1.0′	**12.0′**
Acceptable Existing Condition	2.0′	4.0′	4.0′**	0′	**10.0′**

Benefits of this configuration: Accommodates full size shelter with less width than Configurations A or D. Space for street furnishings. **Note:** When a narrow shelter is used in this configuration, the back wall should be transparent.

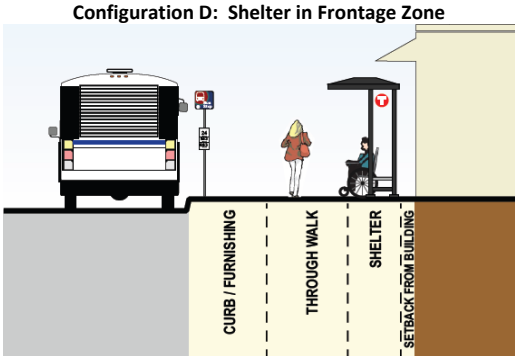
Configuration C: Shelter on Private Property or Behind Sidewalk



	Curb/ Furnishing	Through Walk	Frontage	Shelter	Total
Recommended Minimum	*See Figure 10-7*				
Acceptable Minimum	*See Figure 10-7*				
Acceptable Existing Condition	3.0′	5.0′	1.0′	-	**9.0′**

Benefits of this configuration: Accommodates a full-size shelter in with less width than Configurations A & B. Shelter setback from curb gives buses flexibility to stop behind queued vehicle to board/alight passengers. **Note:** 9′ is the recommended minimum width for the Accessible Front Door Zone. ***

Configuration D: Shelter in Frontage Zone



	Curb / Furnishing	Through Walk	Frontage		
			Shelter*	Setback from Building	Total
D1-Standard Shelter					
Recommended Minimum	6.0′	6.0′	5.0′	1.0′	**18.0′**
Acceptable Minimum	4.0′	5.0′	5.0′	1.0′	**15.0′**
D2-Narrow Shelter					
Recommended Minimum	6.0′	6.0′	4.0′	1.0′	**17.0′**
Acceptable Minimum	4.0′	5.0′	4.0′	1.0′	**14.0′**
Acceptable Existing Condition	1.5′	4.0′**	4.0′	1.0′	**10.5′**

Benefits of this configuration: Shelter setback from curb gives buses flexibility to stop behind queued vehicle to board/alight passengers.

* These dimensions assume a standard shelter width of 5.0′ and a functional narrow shelter width of 4.0′ (to accommodate the depth of a wheelchair, although the footing of a narrow shelter may be narrower than 4.0′).

** A 4.0′ Through Walk Zone with a narrow shelter is acceptable in existing constrained conditions if the footing of the shelter is 3.0′ or narrower, allowing an additional 1.0′ for the Through Walk Zone when the shelter is empty

*** It should be noted that while the current requirement for the Accessible Front Door Zone is a 5x8′ clear area, the U.S. Access Board is planning to change that requirement to a 4x9′ clear area. Therefore, it is desirable to provide a minimum 5x9′ clear area.

10.4.3.2 Benches

Where a bench is used at a transit stop, the bench must be placed outside of the clear zones identified in section 10.4.2. A minimum 36x48" clear zone must be provided on at least one side of the bench for a wheelchair user to sit. Benches should not be used in addition to bus shelters unless transit passenger volumes warrant additional seating, as unneeded benches can block the Back Door Zone and clutter the bus stop. Benches with advertising panels must be designed and placed at the bus stop to serve waiting transit passengers, not simply to provide a surface for advertising.

There are 3 basic placement options for benches, as shown in Figure 10-32:

- Configuration E: Street-Facing Bench in the Furnishing Zone
- Configuration F: Bench in Frontage Zone
- Configuration G: Bench behind Sidewalk or on Private Property

10.4.4 Other Street Furniture and Utilities

10.4.4.1 Trash Receptacles

Trash receptacles are an important component of a bus stop because they serve waiting transit passengers and help to keep the bus stop clean. Trash receptacles must be placed outside of the clear zones identified in section 10.4.2. The ideal location for trash receptacles is in the Corner Public Use Zone at near-side bus stops or in the Planting/Furnishing Zone within the bus stop no parking zone, but beyond the Back Door Zone, as shown in Figure 10-30. Trash receptacles may also be placed in the shelter/bench zone shown in Figure 10-30, provided they do not block access to the shelter or bench, do not block advertising panels on shelters, and are in a location where they may be serviced. Many trash receptacles in Minneapolis are serviced automatically by garbage trucks that lift them from the sidewalk, remove the trash, and place them back on the sidewalk; these receptacles may require more sidewalk space than manually-serviced receptacles. Trash receptacles may be placed in the Frontage Zone if they are manually-serviced and do not block the Through Walk Zone.

10.4.4.2 Street Lights and Utilities

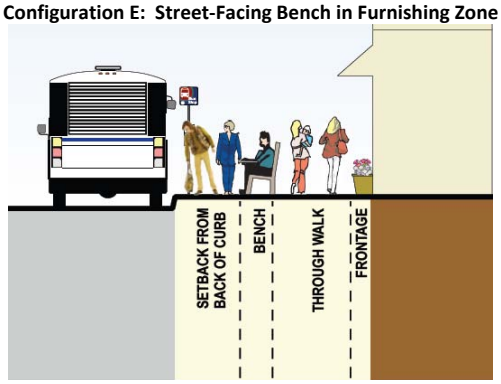
Street lights, utility boxes, manholes and other public and private utilities and infrastructure must be placed outside of the clear zones identified in section 10.4.2 and in a location that does not interfere with the placement of bus shelters or benches within the Shelter/Bench zone. *See also section 10.2.5.*

10.4.4.3 Other Street Furniture

Bus stops should have adequate space for trees, newspaper boxes, bicycle racks, and other street furnishings. These elements must be placed outside of the clear zones identified in section 10.4.2. The ideal location for these furnishings is in Planting/Furnishing Zone within the bus stop no parking zone, but beyond the Back Door Zone. Furnishings may also be located to a limited extent in the Frontage Zone, as shown in Figure 10-30.

Figure 10-32: Bus Bench Placement Options

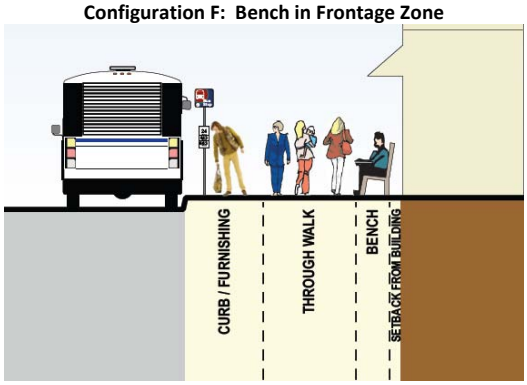
Configuration E: Street-Facing Bench in Furnishing Zone



	Curb/ Furnishing				
	Setback from Face of Curb	Bench*	Through Walk	Frontage	Total
Recommended Minimum	5.0′	2.5′	6.0′	1.5′	**15.0′**
Acceptable Minimum	4.0′	2.5′	5.0′	1.0′	**12.5′**
Acceptable Existing Condition with Protected Curb Lane *	2.5′	2.5′	5.0′	1.0′	**11.0′**

Note: If the curb traffic lane at the bus stop is a parking lane or bike lane, the setback from face of curb may be narrowed to 2.5′ in existing constrained conditions if reconstruction is not possible.

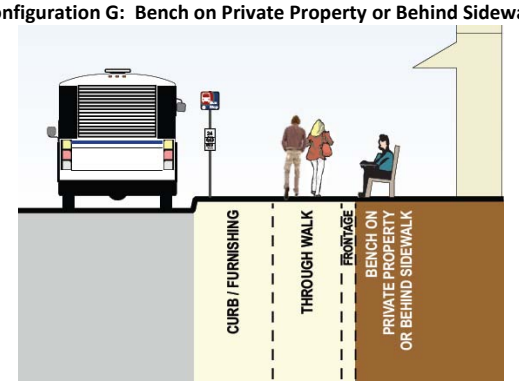
Configuration F: Bench in Frontage Zone



	Curb / Furnishing	Through Walk	Frontage		
			Bench*	Setback from Building	Total
Recommended Minimum	6.0′	7.0′	2.5′	1.0′	**16.5′**
Acceptable Minimum	4.0′	6.0′	2.5′	1.0′	**13.5′**
Acceptable Existing Condition	1.5′	5.0′	2.5′	1.0′	**10.0′**

Note: These Through Walk Zone dimensions assume a seated person on the bench will encroach 1.0′ into the Through Walk Zone.

Configuration G: Bench on Private Property or Behind Sidewalk



	Curb/ Furnishing	Through Walk	Frontage	Bench	Total
Recommended Minimum	*See Figure 10-7*				
Acceptable Minimum	*See Figure 10-7*				
Acceptable Existing Condition	3.0′	5.0′	1.0′	-	**9.0′**

Note: 9 feet is the minimum recommended width required for the Accessible Front Door Zone.**

* Note: These dimensions assume a standard bench depth of 2.5′.

** It should be noted that while the current requirement for the Accessible Front Door Zone is a 5x8′ clear area, the U.S. Access Board is planning to change that requirement to a 4x9′ clear area. Therefore, it is desirable to provide a minimum 5x9′ clear area.

10.4.5 Solutions for Existing Constrained Conditions

There are existing bus stops in Minneapolis that do not meet these bus stop design guidelines. Examples include bus stops where the shelter blocks the back door of the bus, or a full size shelter is placed in the Through Walk Zone, or the Accessible Front Door Zone is provided through the inside of the shelter without a back panel.

When there are opportunities to reconstruct these bus stops, such as with street reconstruction projects or major redevelopment opportunities, the recommended widths and placement of elements in these bus stop design guidelines should be followed. When it is not possible to meet all of the recommendations in these guidelines because of the location of utilities, street lights, driveways, or other constraints, the design of bus stops should meet the following criteria (in order of priority):

1. Provide an Accessible Front Door Zone and accessible Through Walk Zone as described in sections 10.4.2.1 and 10.4.2.2.
2. Provide a clear Back Door Zone as described in section 10.4.2.3.
3. Provide seating and/or shelter for waiting transit passengers, as well as space for a trash receptacle, as passenger volumes warrant.
4. Accommodate expected levels of transit passengers and expected levels of pedestrian activity relative to the physical space provided for each.
5. Integrate trees and other street furniture into the right-of-way or adjacent properties, as feasible.

10.5 STREET CROSSINGS

Pedestrians have a right to safe, accessible and convenient street crossings. Street crossings that are not designed with pedestrian needs in mind often result in unsafe pedestrian or driver behavior and discourage people from walking.

10.5.1 Legal Crosswalk Definition

Whether marked or unmarked, legal crosswalks exist at all legs of all intersections where sidewalks normally exist, including T-intersections, except where closed by ordinance and appropriately signed. Legal crosswalks also exist at marked midblock crossings. Minnesota state statute defines a legal crosswalk as:

> (1) that portion of a roadway ordinarily included with the prolongation or connection of the lateral lines of sidewalks at intersections; (2) any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings on the surface. [6]

At legal crosswalks, motorists are required to stop for pedestrians who have entered the crosswalk. Pedestrians are also permitted to cross the street between intersections, provided they yield right of way to vehicles and they do not cross between adjacent intersections with traffic signals.[7]

10.5.2 Elements of Safe, Accessible and Convenient Crossings

Good pedestrian street crossing design is characterized by:

- Appropriate frequency of crossing opportunities.
- Minimal exposure to vehicles.
- Minimal out of direction travel.
- Minimal delay to pedestrians waiting to cross the street.
- Sufficient signal time and traffic gaps for pedestrians to cross the street.
- Good visibility between drivers and pedestrians (see section 10.3.1.2).
- Clear driver expectations of where and when pedestrians will cross the street.
- Clear pedestrian expectations of where and when it is safe to cross the street

10.5.2.1 Frequency of Crossing Opportunities

Pedestrians should have safe, accessible and convenient crossing opportunities at reasonable distances. Pedestrians will cross the street where it is convenient and generally will not travel out of direction. What constitutes a reasonable distance between crossing opportunities depends on the context of land uses and pedestrian activity along a street. However, in general, pedestrian street crossing opportunities should at approximately the same spacing as the street grid in the surrounding neighborhood.

To ensure that there are safe crossing opportunities at reasonable distances, some crosswalks will warrant pavement markings and/or other treatments (see section 10.5.3), and midblock crossings may be appropriate in some situations (see section 10.5.8.1).

[6] Minnesota State Statutes, Chapter 169.01.

[7] Minnesota State Statutes, Chapter 169.21.

10.5.2.2 Pedestrian Delay

Minimizing pedestrian delay in crossing the street increases pedestrian convenience and reduces the likelihood that pedestrians will cross the street in an unsafe manner. Pedestrian delay may be minimized by maintaining short signal cycles at signalized intersections (see section 10.5.5.1) and by ensuring that pedestrians have sufficient frequency and length of gaps in traffic at uncontrolled intersections.

10.5.2.3 Crossing Distance

Short street crossings improve pedestrian safety and convenience. Pedestrian crossing distance should be minimized to the greatest extent possible. AASHTO states:

> Short crosswalks help pedestrians cross streets. Excessive crossing distances increase the pedestrian exposure time, increase the potential of vehicle-pedestrian conflict, and add to vehicle delay. Pedestrian comfort and safety when crossing wide intersections is an essential component of pedestrian facility design. At signalized intersections, reducing the distance pedestrians need to cross an intersection can usually improve the signal timing of the intersection. Where the pedestrian crossing time is the controlling factor, reducing the distance needed for a pedestrian to cross a main street permits the green time for the major street traffic to be increased proportionally. Thus, under certain conditions, reducing the arterial street throat width on an intersection approach may actually increase the capacity of the street.[8]

Short crossing distances may be achieved through:

- curb extensions (see section 10.3.5)
- median refuge islands (see section 10.5.6)
- realignment of crosswalk at offset or diagonal intersections
- vehicle and parking lane widths (see section 5.3)
- number of vehicle lanes (see section 2.2.10.2)

10.5.2.4 Visibility

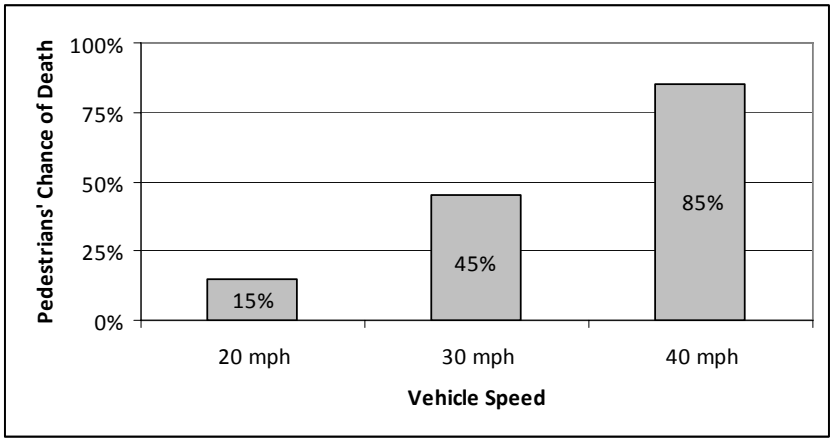
Pedestrians need to be visible to vehicle drivers approaching within the roadway. At the same time, pedestrians need to be able to see those same vehicles. With typical intersections that include parking along the roadway, pedestrians standing on the curb are often obscured from a vehicle driver's view. *See section 10.3.1.2 Visibility at Corners for more information.*

10.5.2.5 Managing Vehicle Speeds

Motor vehicle speeds have a huge impact on pedestrian safety, such that the likelihood of serious injury or death rises significantly with each speed increment, as shown in Figure 10-33. Faster vehicle speeds make it much more difficult for pedestrians to judge safe gaps in traffic for crossing. Thus, it is paramount that streets should be designed and operated with speed management in mind. Most streets in Minneapolis have posted speed of 30 mph. *Refer to section 4.4 for more information on roadway design and operating speeds.*

[8] Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO

Figure 10-33: Pedestrians' Chance of Death if Hit by Motor Vehicle



Source: Killing Speed and Saving Lives, UK Department of Transportation.

10.5.3 Crosswalk Markings

10.5.3.1 Purpose

The purpose of crosswalk markings is to:

- Indicate to pedestrians preferred crossing locations.
- Alert road users of likely pedestrian crossing locations.
- Legally designate midblock crosswalks.

In addition, crosswalks markings also help to:

- Prevent vehicular traffic from blocking the pedestrian path when stopping for a stop sign or red light.
- Align pedestrians to cross in the crosswalk, not the parallel traffic lane.
- Remind turning drivers of potential conflicts with pedestrians.

10.5.3.2 Location

Crosswalk markings are a basic tool for directing pedestrians safely across the street and warning drivers of pedestrian crossings. It is not necessary or practical to mark all legal crosswalks. Many crosswalks, particularly on local residential streets, are safe without crosswalk markings. Crosswalk markings need to be maintained, and it is important to balance the maintenance costs with the benefits that crosswalk markings provide.

The decision about where to mark crosswalks should be based upon sound engineering judgment. In general, marked crosswalks and other safety treatments should be prioritized at locations where pedestrians are vulnerable to conflicts with vehicles due to:

- High pedestrian and vehicular volumes, such as in business districts, major bus stops, universities
- Vulnerable populations such as children, senior citizens, people with disabilities, or hospital patients
- Difficult roadway conditions for pedestrians to cross, such as wide crossing distances, high traffic speeds, complex intersection geometry

Marked crosswalks are one form of pedestrian safety enhancement. In general, they may be safely used alone at traffic signal and stop sign controlled intersections. However, in many cases, at uncontrolled intersections, crosswalk markings should be used in combination with other treatments because they may not alone provide a safe crossing.[9] In these situations, additional treatments (e.g., curb extensions, raised crossing islands, traffic signals, roadway narrowing, enhanced overhead lighting, traffic calming measures) should be employed to create a safe crossing.

Minneapolis' current policy is to *always* mark crosswalks at the following types of locations:

- Signalized intersections
- Designated midblock crosswalks
- School patrolled crossings

10.5.3.3 Design

Crosswalk markings must be visible to both the pedestrian and the driver. In general, pedestrians can see crosswalk markings much more easily than drivers because they are closer to the intersection and approaching it at a different angle. For drivers, longitudinal markings are more highly visible than the two transverse lines (see Figure 10-34). Transverse and longitudinal styles are typically used in Minneapolis.

- **Standard (Transverse) Crosswalk Markings -** A standard crosswalk consists of two transverse (parallel) lines, each 6 inches in width and striped 15 feet apart in downtown and activity centers and 10 feet in other locations. To improve visibility of transverse markings, a 12-inch line width can be used instead of a 6-inch line width.
- **High-visibility (Longitudinal) Crosswalk Markings** - A high-visibility crosswalk consists of longitudinal lines striped parallel to the direction of traffic. The longitudinal lines should be between 12 and 24 inches in width and spaced 12 to 60 inches apart. The markings may be striped to avoid the wheel paths of vehicles, reducing maintenance needs (see Figure 10-35). The longitudinal lines may be used alone or in addition to transverse lines, thus creating a ladder-style crossing.

At marked crosswalks, curb ramps and other sloped areas should be wholly contained within the crosswalk makings, excluding any flared sides. The crosswalk lines should extend the full length of the crossing.

Longitudinal markings should be used where there is a need to alert drivers to unexpected pedestrian crossings, to alert drivers to particularly vulnerable pedestrian users, or to channelize pedestrians to a preferred crossing location. They may be appropriate at the following locations:

[9] A 1995 study by the UNC Highway Safety Research Center on the safety of marked crosswalks at uncontrolled intersections found that crosswalks markings should not be used alone without additional treatments at the following types of uncontrolled intersections:

Where the speed limit exceeds 40 miles per hour.

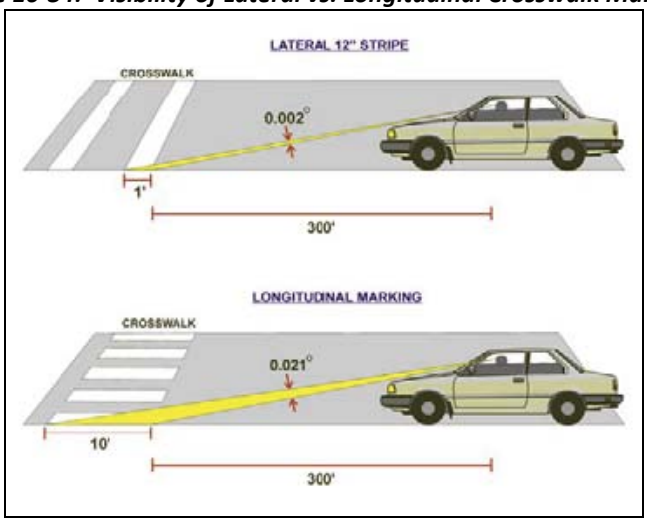
On a roadway with four or more lanes without a raised median or crossing island that has (or will soon have) an ADT of 12,000 or greater.

On a roadway with four or more lanes with a raised median or crossing island that has (or soon will have) an ADT of 15,000 or greater.

- Mid-block crosswalks, including mid-block trail crossings
- Uncontrolled intersections where crosswalk markings are needed
- Selected school patrolled crossings where there is a need to provide additional driver awareness of pedestrians or to channelize pedestrians to a particular crossing leg
- Intersections with complex geometry or unusual signal operations where there may be a need to direct pedestrians to preferred crossing locations or alert drivers of significant vehicular-pedestrian conflicts
- Marked crosswalks on higher speed roadways (40 mph or greater)

Longitudinal markings require more pavement marking material than transverse markings, and as a result have higher installation costs. Staggered spacing on longitudinal markings to avoid vehicle wheel paths can, however, reduce maintenance costs (see Figure 10-35).

Figure 10-34: Visibility of Lateral vs. Longitudinal Crosswalk Markings



Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO

Figure 10-35: Staggered Spacing of Longitudinal Crosswalk Markings

10.5.3.4 Crosswalk Materials

Options for crosswalk marking materials include latex paint, epoxy, inlay tape and thermoplastic. Although initially more costly than paint, both inlay tape and thermoplastic provide better performance over the life of the crosswalk markings. Inlay tape is recommended for new and resurfaced pavement, while thermoplastic may be a better option on rougher pavement surfaces. Both inlay tape and

thermoplastic are more visible and less slippery than paint when wet. Most crosswalks in Minneapolis are currently marked with latex paint once every other year; reflective roadway tape and thermoplastic materials have been used in selective locations.

10.5.3.5 Textured and Colored Pavement Crosswalks

Colored and textured crosswalk design treatments are sometimes used to enhance the streetscape. While textured and color pavement treatments may improve the quality of the urban design and can help to create an environment that attracts more pedestrians, it does not typically improve pedestrian safety. Often textured and colored pavement is not as visible to drivers as to pedestrians. When colored pavement is used, crosswalks should be supplemented with white lines to establish the legal crosswalk and increase visibility. Another way to increase visibility is to imbed a crosswalk within paving of a contrasting color.

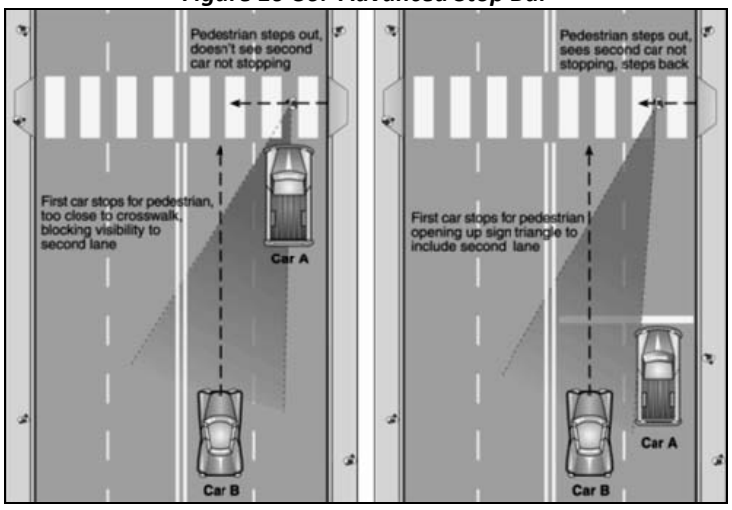
In addition, care should be taken to ensure that the material used in these crosswalks is smooth, non-slip, and viable. Some textured crosswalks can be uncomfortable to cross in wheelchairs, painful to pedestrians with sensitive (such as spinal) injuries, and frustrating to those using canes, high heels, rolling luggage, or grocery carts. Avoid using a paving system that may shift and/or settle or that includes a high degree of jarring or vibration on wheelchair wheels.

See also section 10.2.7.1 on sidewalk surface design.

10.5.3.6 Advance Stop Bar Markings and Locations

Multi-lane roadways present a unique threat to pedestrians crossing, as vehicles in one lane can block the visibility of a motorist traveling in the adjacent lane. The law dictates that vehicles must stop to pedestrians in a crosswalk. Placing a stop bar 20 to 50 feet ahead of the crosswalk improves visibility for both the motorist and the pedestrian. Striping a line before the crosswalk also gives an extra indication to the driver that it is their responsibility to stop. This measure is illustrated in Figure 10-36. This application is appropriate at any crossing on multilane roadways or designated midblock crosswalks.

Figure 10-36: Advanced Stop Bar



10.5.4 Signs

Pedestrian crossing signs alert drivers that there are pedestrians in the area and remind them that automobiles must stop for pedestrians in the crosswalk. Pedestrian crossing signs are especially

important at school crossings, mid-block crossings, and unsignalized locations with high pedestrian volume.

10.5.4.1 Standard Signs

Pedestrian signs should be placed according to MMUTCD standards. The pedestrian crossing standard, with an arrow pointing down to the crosswalk, is generally easily understood by the public (see Figure 10-37). Primary location for pedestrian crossing signs should be in advance of crosswalk and the supplemental location should be at the crosswalk. Pedestrian signs in school zones should follow the City of Minneapolis School Pedestrian Safety Toolbox.

Figure 10-37: MMUTCD Pedestrian crossing sign

10.5.4.2 Supplemental Signs

Supplemental post mounted signs can improve visibility of crosswalks. Overhead signs can be used to draw attention to the presence of a crosswalk and can also be supplemented by flashing beacons. Various design options are available, ranging from static signs to flashing lights that activate when a pedestrian pushes a button at the curb.

Another way to draw attention to a crosswalk and educate the motorist at the same time is to place a paddle board or removable sign directly in the crosswalk, as shown in Figure 10-38. The sign states the law and draws attention to the crosswalk directly. This tool is often used at downtown activity center locations with many pedestrian generators and near schools. In-street signs increase rates of vehicles yielding to pedestrians, especially on slow-speed streets. They should not be used on high-speed, multi-lane roadways.

Figure 10-38: Removable In-Street Pedestrian Crossing Sign

10.5.5 Signals

There are approximately 800 traffic signals in Minneapolis, nearly all of which have pedestrian signal heads. Pedestrian signals direct pedestrian traffic by communicating when pedestrians are supposed to cross the street. Pedestrian signal heads should be installed at all signalized intersections where there are pedestrian crossings.

10.5.5.1 Cycle Lengths / Pedestrian Delay

Longer signal cycles (simply, the overall time a motorist has to wait for the next 'green light') create more delay for pedestrians waiting to cross the street and can lead to impatient pedestrians crossing against the signal. Therefore, signal cycles and pedestrian delay in high pedestrian areas should be kept to the minimum needed to accommodate pedestrian crossing intervals and vehicular demand.

10.5.5.2 Crossing Interval / Crossing Time

The proposed 2009 MUTCD will require that signal timing for the pedestrian clearance time be based on a pedestrian crossing speed of 3.5 feet per second, and the total Walk plus Flashing Don't Walk time be based on 3.0 feet per second. Most signals in Minneapolis currently meet this standard, and it should be used in all future signal timings.

10.5.5.3 Countdown Timers

The countdown timer (see Figure 10-39) shows the number of seconds remaining until the steady "upraised hand" signal is shown. Countdown signals benefit pedestrians by allowing them to anticipate when the traffic light will change. Pedestrians can use this information to decide if they have enough time to cross the street and judge whether or not to enter the intersection.

Countdown timers are standard in all new signal installations in Minneapolis (as of 2008), and the proposed 2009 MUTCD will require that all signalized intersections use countdown signals where pedestrian crosswalks exist.

Figure 10-39: Pedestrian Countdown Timer

10.5.5.4 Pedestrian Detection / Push Buttons

Pedestrian traffic signals operate in three modes:

- *Pre-timed signals* - Pre-timed signals do not require pedestrian push buttons because the pedestrians are given a walk signal for every legal crossing every cycle. This type of signal is common in downtown. Approximately two-thirds of Minneapolis signals operate in this mode.
- *Semi-actuated signals* - These signals require pedestrian activation for crossing the major street and no pedestrian activation for crossing the minor street. Both the traffic Green signal and "WALK" signal phases are ON for the major street when no other movement requests are detected. The pedestrian is required to push the button to activate the "WALK" signal to cross the major street. These signals tend to be at intersections where streets are unequal in volume and are primarily done as an effort to maximize the efficiency of vehicular movements. Approximately one-third of Minneapolis signals operate in this mode.
- *Fully-actuated signals* – Fully-actuated signals have pedestrian activation for all legal crossings. The traffic green signal phase is on for the major street when no other movement requests are detected. The pedestrian is required to push the button to activate the "WALK" signal to cross all streets. Less than two percent of Minneapolis signals operate in this mode.

With any actuated signal, pedestrians must be detected through pushing a button. In most actuated situations, the WALK signal occurs with the parallel green signal at the next signal cycle, resulting in a delay for pedestrians of up to one minute after pushing the button. This can cause frustration for pedestrians who don't know if the push button is working and if the signal system has received the pedestrian's call. When actuated signals are used, it is essential that push buttons be convenient to use and well-maintained. They should clearly display the direction of crossing, have a large button, and be placed in accessible location (see section 10.3.4 and Figure 10-40). It is also desirable that push buttons have a visual indication that the button has been pushed.

There are also a variety of new technologies for detecting pedestrians through activating infrared, digital cameras or other types of detectors.

Figure 10-40: Pedestrian Signal Call Button

10.5.5.5 Accessible Pedestrian Signals

Accessible pedestrian signals (APS) provide the information in the WALK and DON'T WALK visual indications in standard pedestrian signals to blind and low vision pedestrians through audible and vibro-tactile indications of the WALK interval. The audible indication of the WALK interval is provided by tone or speech message. Pedestrian signal devices provide tactile and visual signs on the face of the device or its housing or mounting to indicate crosswalk direction for the crosswalk served by that pedestrian signal. Signs include a tactile arrow aligned parallel to the crosswalk direction. APS may also provide street name information in audible format.

Installation of APS should follow the City's APS evaluation criteria presented to City Council in the draft APS transition plan (2009), under which all traffic signals will be evaluated and prioritized for APS installation over a 10 year period.

See also Section 10.3.4 on locating pedestrian signal call buttons.

10.5.5.6 Flashing Warning Beacons and Half Signals

Flashing warning lights can give a pedestrian crosswalk more visibility to motorists. These are located adjacent to, or in advance of, the crosswalk and accompany pedestrian crossing signs. They are generally push-button activated. These should be used where pedestrian traffic is intermittent and no other traffic control is present.

Half signals are located at street-arterial intersections. They are pedestrian-actuated signals that stop arterial traffic only, leaving the lower volume street unsignalized. The signal is only activated when pedestrians are present.

Other advanced signal types, such as HAWK signals[10], are in the MUTCD 'experimental' category and may be available for installation on a case-by-case basis.

[10] The pedestrian beacon, or HAWK signal, is currently in experimental use by the FHWA and is proposed for approval in the 2009 MUTCD. These signals are pedestrian actuated and are appropriate at otherwise unsignalized crossings. The HAWK signal has three signal lights, two red lights side by side over a red light. When not activated, the lights are not illuminated. When a pedestrian activates the signal via a push button, the signal begins flashing yellow and then solid yellow, advising drivers to prepare to stop. The signal switches to a solid red for drivers and shows the pedestrian a "Walk" indication. Finally, the red lights flash alternately indicating that motorists may proceed when safe, after coming to a full stop. Meanwhile the pedestrian is shown a flashing "Don't Walk" and countdown signal.

10.5.5.7 Leading Pedestrian Intervals

A 'Leading Pedestrian Interval'[11] displays a two to four second WALK signal in advance of the vehicular Green indication, so that vehicles have an all-red interval. This interval follows an all-red clearance phase. This signal phase allows pedestrians to establish a presence in the intersection and reduces vehicle pedestrian conflicts. It can be particularly effective where there are turning vehicle conflicts with pedestrians.

10.5.6 Pedestrian Refuge and Median Islands

Adding a pedestrian refuge island or median island in the center of a roadway can provide a safe place for pedestrians to wait for a gap in traffic, where they are removed from vehicles. Pedestrian refuge islands are particularly useful at unsignalized crossings or at signals with wide crossings where a pedestrian has a difficult time making it across the whole intersection during one walk phase Refuge islands create a safer crossing by shortening crossing distances and simplifying the crossing. Refuge islands should not be used to justify a signal timing that does not allow pedestrians to cross in one signal cycle.

10.5.6.1 Center Median Islands

The design of center median islands should account for the following:

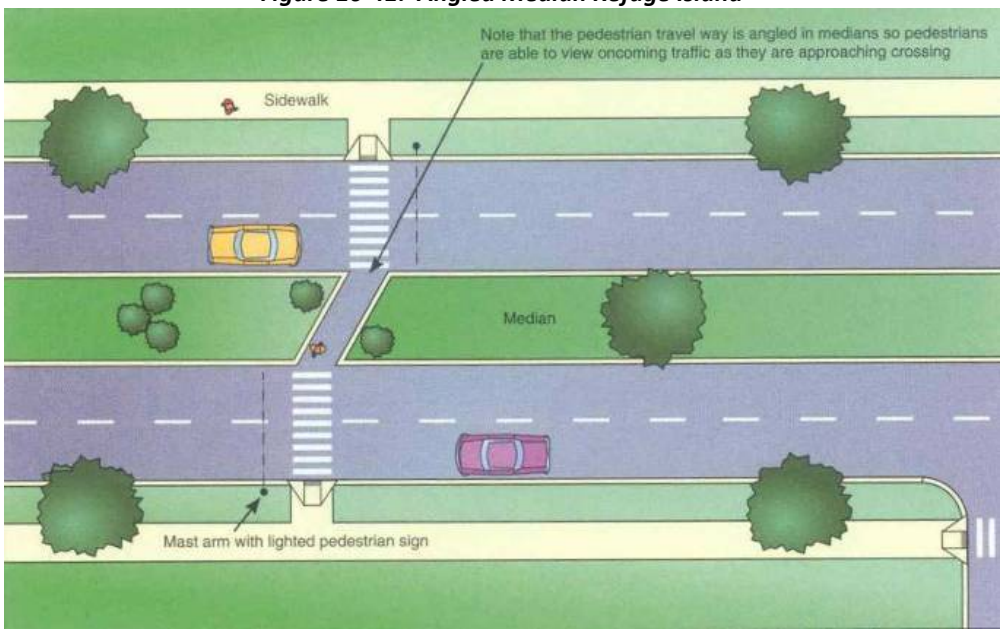
- **Location** - AASHTO recommends that medians should be considered where the crossing distance exceeds 60 feet (roughly 5 lanes), but can be used at intersections with shorter crossing distances with a recognized need.
- **Width -** 6 feet or wider
- **Accessibility -** Center medians should be designed in accordance with requirements of the ADA and PROWAG at crossings to ensure that the refuge island does not act as an obstruction to crossing the roadway.
- **Alignment** - An angled or staggered cut-through on pedestrian refuge (see Figure 10-41) benefits pedestrian safety by "steering" pedestrians so they face oncoming traffic as they move across the island. To improve wayfinding for pedestrians with visual impairments, the ends of the cuts should be aligned with the crosswalks (and fitted with a detectable warning strip).
- **Snow Clearance** – Pedestrian refuge islands require additional snow clearance responsibilities for the City, unlike snow clearance of sidewalks, which is the responsibility of adjacent property owners.
- **Other Considerations -** At unsignalized and/or mid-block locations, refuge islands may be supplemented with other treatments such as crosswalk markings, signs, or signals to allow a safer crossing.

It should be noted that planted center medians do not always benefit pedestrians. Planted center medians do not provide a pedestrian refuge at intersections if left turn lanes eliminate the planted center median at intersections, which is a common design. They can take away space from the Planting/Furnishing Zone, which may be more useful to pedestrians in providing space for shade trees along sidewalks, transit shelters, and street furnishings. Planted center medians are also sometimes used to eliminate cross-street access for traffic calming or access management purposes; in these cases,

[11] The City's current central computer system does not accommodate Leading Pedestrian Interval, but planned system upgrades in 2011-2012 may accommodate the feature in the future.

pedestrian access across the center median should be maintained at intersecting streets, as shown in Figure 10-42.

Figure 10-41: Angled Median Refuge Island



Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO

Figure 10-42: Median Refuge Island with Pedestrian Access

Location: Marshall Avenue, St. Paul

10.5.6.2 Channelized Right Turn Lanes

Channelized right turn lanes should not be used in new construction, except where unique street geometry requires them. Where they are required, a well-designed raised corner island can provide a refuge for pedestrians crossing multiple lanes at a complex intersection (See Chapter 5, Figure 5-11 Angle of Dedicated Right-Turn Lane).

If an unsignalized urban right-turn lane is provided, it should be designed for slow speeds (5-10 mph), high pedestrian visibility and clear yield-to-pedestrian signs and markings. Adding pedestrian refuge

islands to a problematic intersection is often a beneficial alternative to redesigning an entire intersection.

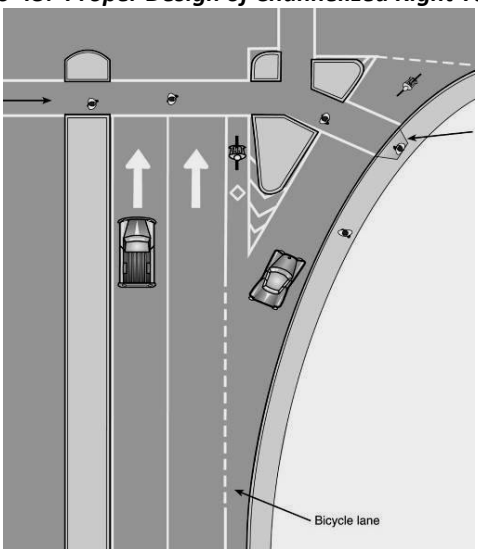
AASHTO recommends that pedestrian crossings to corner islands meet the following criteria:

- The pedestrian crossings should be at 90 degrees across the turn lane and placed where the motorist can easily see the pedestrian crossing ahead.
- Pedestrians and motorists should be able to easily see each other.
- The design should encourage low-vehicle-turning speeds.

Figure 10-43 shows an example of a well-designed right slip turn lane with pedestrian refuge islands.

Underused free right-turn lanes should be removed to provide additional pedestrian space and to reduce both the speed of turning vehicles and pedestrian exposure. Reclaimed space from free right turn lane removal can be developed into space for public plazas or used for street furniture and/or small-scale plantings.

Figure 10-43: Proper Design of Channelized Right Turn Lane



10.5.7 Lighting

Proper lighting has a beneficial effect on the safety level of the pedestrian. Adequate lighting should be provided at both unsignalized and signalized intersections if pedestrians are present during nighttime hours. Lighting should not only highlight the presence of intersection crosswalks, but also mid-block crossings.

See Section 7 for further guidance on City's Lighting Policy.

10.5.8 Unique Types of Crossings

10.5.8.1 Mid-Block

Mid-block crossings may be appropriate for unusually long blocks with pedestrian generators, such as schools, stadiums, museums, office buildings, etc.. These types of crossings generally require special design treatment such as marked crosswalks, raised medians, curb extensions, pedestrian signals and signs to indicate to drivers that pedestrians may cross.

Certain locations such as those with sparse land use, low pedestrian volumes, or poor driver visibility should be avoided as they work against driver expectations and decrease safety for pedestrians.

10.5.8.2 Freeway Ramps

Crossings across freeway ramps can be more dangerous than typical pedestrian crossings. Automobiles exiting from the freeways are traveling at higher speeds and are transitioning from a pedestrian-free environment. Vehicles entering freeways are accelerating and focused on merge maneuvers. Additionally, pedestrians typically have to walk across multiple lanes. Freeway on-ramps and off-ramps in urban areas should be designed as urban intersections where the on-street design speed dictates turning radii. The AASHTO *Guide for the Planning, Design, and Operation of Pedestrian Facilities* provides the following guidance on the intended entrance/exit speed, "Design the exits for 20 mph at ramp-street situations in urban environments" (p.79). Freeway ramps should have clear sight lines.

10.5.8.3 Cul-de-Sacs/Diverters/Closed Streets

Cul-de-sacs, diverters, and closed streets interrupt the street grid. Crossings at these locations should emphasize maintaining the same pedestrian connectivity and accessibility as a standard intersection.

10.5.8.4 Raised Intersections and Raised Crossings

Raised intersections elevate the entire plane of the intersection and crosswalks to three or four inches above the surrounding streets. These intersections slow traffic and increase pedestrian visibility. Properly designed raised intersections are suitable for buses and trucks but should have warning signs for drivers. Raised intersections are appropriate and effective in school zones, urban intersections, business districts and other areas where pedestrian movements are a priority.

Raised crossings are a similar application, but at a midblock crossing. Raised crossings are used selectively throughout the city. This raised height gives pedestrians higher visibility as they cross the street and also acts as a traffic calming device because cars need to slow down as they approach the change in grade. In Minneapolis, raised crossings are used in limited locations such as along the parkway system, where automobile speeds are below 30 mph and there is steady pedestrian traffic due to the parkway trail system. Raised crossings should not be used on collector or arterial streets, bus routes, or any intersection approach with stop signs or signal control devices to reduce speeds. They can occasionally be used at mid-block crossings with appropriate warning signage. Drainage should be considered during design due to the crossing extending curb to curb. Modifications to the design, by providing a French drain at the gutter, can facilitate adequate drainage.

Raised intersections and raised crossings are not currently allowed on Minnesota State Aid Streets.

Figure 10-44: Raised Intersection

Location: Oak Park, Illinois

10.5.8.5 Roundabouts

Roundabouts are increasingly popular for use in place of signals at relatively busy intersections. The primary purpose of roundabouts is to provide motor vehicles with free-flowing mobility at reduced speeds through an intersection.

Research suggests that there may be fewer vehicle-pedestrian conflicts and crashes at properly designed single-lane roundabout intersections versus typical signalized or unsignalized intersections. However, there is some concern that it is difficult for pedestrians with vision impairments to obtain cues concerning gap availability for crossing near roundabouts, particularly at multi-lane roundabouts. Currently underway national research should lead to appropriate solutions in the short term.

10.5.8.6 Grade-Separated Crossings

Grade separated crossings (above via bridge or beneath via underpass) are often located across freeways, parkways, and rail lines, and often represent the only option to cross a significant barrier. These are more expensive than at-grade crossings due to the cost of the structure and/or excavation. The designer should recognize that they often make pedestrians walk farther, which discourages pedestrians from using them at all. To be well designed and functional, grade-separated crossings should pay special attention to accessibility, user comfort and personal safety, including preserving good sight lines.

See also sections 10.6.2.2 and 10.6.2.3 on non-motorized bridges and underpasses.

10.5.8.7 Prohibited Crossings

Prohibited pedestrians crossings are a tool of last resort and should be avoided unless strong safety concern warrants their use.

10.6 OTHER PEDESTRIAN NETWORKS

In addition to the sidewalk system, Minneapolis has other important networks that are key to pedestrian circulation, including the Skyway System and the off-street path system. This section provides the appropriate guidelines for these off-street pedestrian networks.

10.6.1 Skyway System

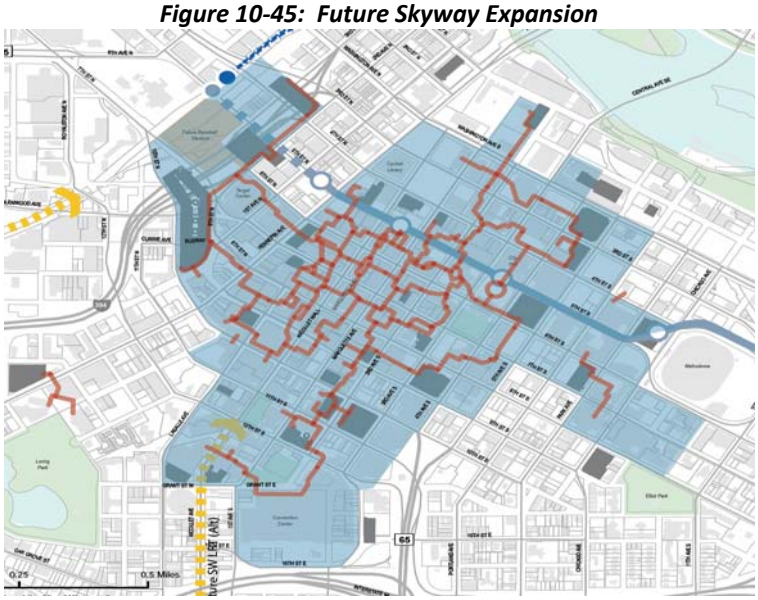
Minneapolis has an extensive downtown Skyway System that provides convenient access between offices, retail, hotels and parking ramps. It has played a key role in maintaining and enhancing the economic health of downtown Minneapolis. However, it also has had the effect of minimizing street-level retail and street-level pedestrian activity. While it provides convenient access for those who use it regularly, it can be confusing and difficult to navigate for those who don't use them regularly.

City Policy directs continued improvement and limited expansion of the Downtown Skyway System. The guidance in this section is based upon the City's 2003 *Downtown East North Loop Master Plan* and the 2007 *Access Minneapolis Downtown Transportation Action Plan*.

10.6.1.1 Appropriate Locations

The existing Skyway System should be completed and expanded within the core of downtown and to other key high-intensity uses, such as the new Ballpark, as shown in Figure 10-45. Limiting Skyway System expansion to this core area facilitates street-level land uses and pedestrian activity in growing residential neighborhoods, while also ensuring that new skyways will have sufficient use for safety and security.

Figure 10-45: Future Skyway Expansion



Source: Access Minneapolis Downtown Transportation Action Plan, 2007.

10.6.1.2 Design and Placement

New skyways should be integrated into building architecture to physically and visually connect the sidewalk with the skyway through the use of highly visible vertical circulation and skyway concourses located along the outside the perimeter of buildings, such as the new Target Store on Nicollet Mall (see Figure 10-46), therefore making the skyway system legible and less confusing for pedestrians, especially visitors to downtown.

Figure 10-46: Highly Visible Vertical Skyway Access

Location: Target Building, Nicollet Mall; Source: Downtown East/North Loop Plan

In addition to providing legible vertical connections between the Skyway System and the sidewalk system within buildings, skyway stair towers at the edges of the Skyway System are also recommended to facilitate convenient access between sidewalks and skyways.

10.6.1.3 Hours of Operation

The standard hours of operation as provided in the Minneapolis Skyway System Standards and Procedures Manual are 6:30am-10:00pm Monday-Friday, 9:30am-8:00pm Saturday, and noon-6:00pm

Sunday. Because the Skyway System is privately owned and has multiple owners, these operating hours are encouraged, but are not mandatory.

10.6.1.4 Wayfinding

The Skyway System has a standard wayfinding signage system, including building signs and system maps. Although voluntary, most building owners have adopted this standard signage, and it is recommended for use in all downtown skyways. The standard wayfinding signage includes signage identifying skyway entries at street level.

10.6.2 Non-Motorized Trails, Bridges, Underpasses and Stairs

Off-street pedestrian facilities have unique design standards. The same design issues that are addressed above for on-street facilities will be covered here in the context of trails, pedestrian bridges, underpasses and stairs.

10.6.2.1 Non-Motorized Trails

Public multi-use trail design shall follow the Mn/DOT Bikeway Facility Design Manual and AASHTO Guidelines. Major features of that guidance include:

- **Width -** A minimum width of 10 feet is required for multi-use bicycle and pedestrian paths. The width for pedestrian-only walkways should follow the guidance in Section 10.2 for the Through Walk Zone, as well as a clear zone on either side of the walkway.
- **Grade** – The cross-slope for trails is the same as for sidewalks: maximum 2%.
- **Surface Material -** Pathways shall be built to meet Mn/DOT Bikeway Facility Design Manual and ADA standards and should be easily maintained over time.
- **Lighting** – Multi-use and pedestrian trails should be adequately lit to provide personal security and safety at street crossings.

10.6.2.2 Non-Motorized Bridges

Minneapolis currently has two-types of non-motorized bridges: freeway/street crossing bridges and creek/water bridges. Though these bridges provide connections, they can be psychological barriers to pedestrians because the spans can be long, which makes pedestrians feel isolated and vulnerable. Bridges should be designed to make pedestrians feel safe and well protected from the elements.

- **Width –** The minimum width should be the width of approaching trail plus 2 feet or 12 feet, whichever is greater.
- **Grade** – The approach of bridges should be a maximum 5% grade.
- **Surface Material –** Non-slip - typically wood or concrete.
- **Lighting** – As necessary for user safety. Users should be able to identify other trail users from a distance and the upcoming trail alignment. Lighting should not create sharp differences in brightness, as this works against effective illumination.

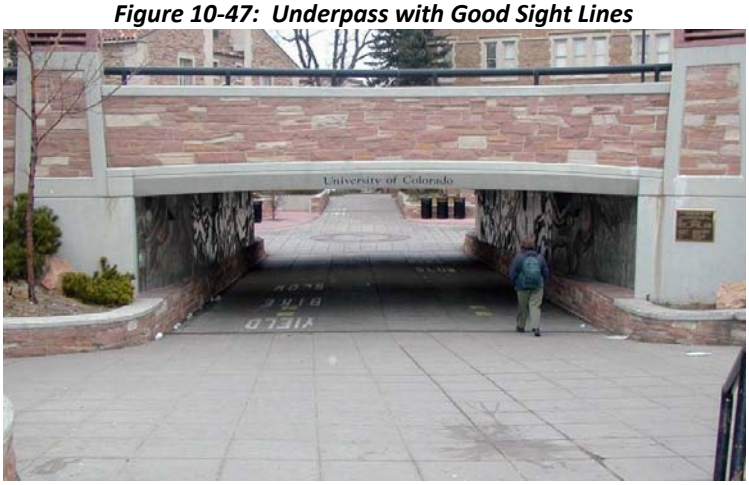
10.6.2.3 Non-Motorized Underpasses

- **Width and Vertical Clearance -** The minimum width should be the width of approaching trail plus 2 feet or 12 feet, whichever is greater. Wider openings and underpass widths are desired

as they create a more inviting space to pass through (see Figure 10-47). Recommended vertical clearance of 10 feet, with 8 feet minimum.

- **Grade –** The approach of bridges should be a maximum 5% grade.
- **Surface Material –** Place trail paving material through the underpass – typically bituminous.
- **Lighting –** As necessary for user safety. Users should be able to identify other trail users from a distance and the upcoming trail alignment. Lighting should be recessed and vandal resistant.

Figure 10-47: Underpass with Good Sight Lines



Location: Boulder, Colorado

10.6.2.4 Stairs

Stairs should be avoided along paths and trails. When unavoidable, an alternative accessible route shall be provided. Handrails shall be provided along stairways per ADA guidelines.

10.7 WAYFINDING

Improving the ease of navigation for pedestrians is an easy way to encourage people to walk and improve the overall pedestrian environment. Orientation signs also significantly improve a tourist's experience in a new environment.

10.7.1 Placement and Orientation

Wayfinding signs should be located where larger numbers of pedestrians who are generally not familiar with an area congregate, such as cultural institutions, convention centers, entertainment districts, sports arenas, transit stations, and major tourist destinations. The wayfinding system should allow users to orient themselves and determine routes and distances to adjacent destinations.

Signs and/or kiosks should be placed not only at the destinations but also at critical wayfinding decision points along a route if other visual cues do provide adequate guidance. Wayfinding should be located at highly visible locations along block faces and should have enough adjacent space for multiple people to view it at once.

Wayfinding elements are best located in the Planting/Furnishing zone where they can be oriented at pedestrian eye level. Wayfinding shall not encroach upon the pedestrian Through Walk Zone, the Clear Corner Zone, or the clear zones at transit stops. No wayfinding elements should be placed so low that they might be obscured by snow banks.

Street signs also provide valuable wayfinding information for pedestrians and should be oriented towards both pedestrians and motorists.

The placement of wayfinding elements should be coordinated with other street furniture.

10.7.2 Wayfinding Design

The wayfinding system should be coordinated system of signs, maps and/or kiosks with a distinct visual appearance that will heighten city identity and allow users to quickly and easily find the wayfinding elements. This will help to make wayfinding information more identifiable citywide, decrease overall production costs, and facilitate map updating, reproduction and installation. Graphic design standards including fonts, colors, and pictographs should be standardized for wayfinding elements citywide and should consider legibility for a majority of the population. Wayfinding elements should be resistant to vandalism and designed for ease of maintenance and updating.

10.7.3 Wayfinding Infrastructure Maintenance

Over time, wayfinding signage and kiosks will become outdated or damaged and will require ongoing maintenance. Currently, there is no dedicated funding source for maintenance of wayfinding signage in Minneapolis. Responsibility for maintenance funding of wayfinding signage must be established before any wayfinding infrastructure is installed.

10.8 SITE PLANNING

While generally not part of the public right-of-way, the development of a site can have a significant impact on the pedestrian environment. The City's Comprehensive Plan policies provide general guidance that supports traditional urban design. This section addresses site design guidance that acknowledges pedestrians and accounts for both their safety and convenience.

10.8.1 Building Facade

Building design, whether it is a storefront, an apartment, a light industrial or an office building, has strong influence on the pedestrian environment, especially those that are located on, or are in close proximity to, the street right-of-way. Well-designed buildings should incorporate pedestrian scaled building materials and elements, such as signs and lighting; promote pedestrian activity by adding visual interest to the street; add to a sense of safety through window opacity; and provide clearly defined principal entrances fronting the street. The City of Minneapolis *Great Streets Façade Design Guide* provides additional guidance on designing and redesigning pedestrian-friendly storefronts.

10.8.2 Human-scale Building Massing, Height and Step-backs

The massing of a building can have a significant impact on pedestrian zone aesthetics and comfort (i.e. generation of wind currents, access to light and shadowing effectsand sunlight). Building mass and height in close proximity to the public right-of-way should be pedestrian scaled. The use of building step-backs in upper floors of taller buildings can lessen negative impacts on allow for additional building height and density without adversely impacting the pedestrian environment.

10.8.3 Building Setback

Building setbacks can alleviate problems associated with limited right-of-way space in constrained conditions by allowing more space for the pedestrian zone. Building setbacks can provide pocket parks along corridors or at corners to allow space for pedestrians to gather and relax.

10.8.4 Building Entrance Location

When designing larger buildings, where the building façade occupies a majority of the block length, consideration should be given to locating the building entrances towards the corner of the block. This will encourage pedestrians to cross at intersections versus mid-block. This is particularly important if a primary destination for building occupants, such as a transit stop or parking lot, is located directly across the street.

10.8.5 Walkways

Site planning can enhance the pedestrian network by providing pedestrian connections through long blocks. Walkways should be located in a manner that facilitates pedestrians' desire lines between the public sidewalk and building entrances and conversely, between building entrances and transit facilities and street crossings. Site planning can also enhance the pedestrian system by providing pedestrian connections through long blocks.

10.8.6 Parking Lots

Screening of parking lots adjacent to the street right-of-way helps define the pedestrian zone while also mitigating less desirable views. Parking lot screening needs to be done in a manner that does not compromise pedestrian sight lines and safety. In addition, parking lots should be located to the rear or interior of the site.

10.8.7 Stormwater Runoff

To the extent possible, stormwater runoff and snow melt from commercial or industrial buildings and parking lots across a public walkway is prohibited by zoning code.

10.9 CLOSURES, SAFETY, AND ACCESSIBILITY IN WORK ZONES

Sidewalk closures and work zone construction can have a negative impact on the pedestrian network connectivity, accessibility and safety. AASHTO advises that there are three considerations for pedestrian safety in work zones:

- *Separate pedestrians from conflicts with work site vehicles, equipment, and operations.*
- *Separate pedestrians from conflicts with mainline traffic moving through or around the work site.*
- *Provide pedestrians with a safe, accessible, and convenient travel path that duplicates, as nearly as possible, the most desirable characteristics of sidewalks or footpaths.*

When a construction or work zone impedes on a pedestrian through way an alternate accessible and safe route must be provided. The alternate route should be provided on the same side of the street to the maximum extent feasible because same-side access does not increase pedestrian exposure and risk of accident consequent upon added street crossings.

When the alternate route is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it should be protected with a continuous, stable and rigid barricade or channelizing device. A continuous edge should be provided no more than 6 inches from the ground, and an upper rail should be provided at a minimum of 3 feet above the ground. Support members should not protrude into the Through Walk Zone. Figure 10-48 shows several examples of effective pedestrian facility design in work zones.

Part 6D.01 of the MUTCD requires that alternate and temporary pedestrian routes, including surfaces, pedestrian ramps, and vertical clearance, must be designed according to ADA standards and ultimately should be designed to the equivalent dimensions of the replaced pedestrian route. Chapter 6D of the MMUTCD, *Pedestrian and Worker Safety* is the standard to be followed for all pedestrian paths and detours in work zones. This chapter provides a *Pedestrian Considerations in Temporary Traffic Zones Check List* to ensure accessibility compliance.

Figure 10-48: Examples of Well-Designed Pedestrian Facilities in Work Zones

10.10 REFERENCE PUBLICATIONS

Peer City Pedestrian Plans and Guidelines

- Better Streets Plan, 2008; San Francisco, CA (SF)
- City of Edina Transportation Policy, April 2005, Edina, MN (ETP)
- Creating Livable Streets: Street Design Guidelines for 2040, 2002; Metro Council, OR
- Guidance on Pedestrian Rail Crossing Design, 2007; California Public Utilities Commission
- Kansas City Walkability Plan, 2003; Kansas City, MO
- Planning and Designing for Pedestrians: Model Guidelines for the San Diego Region, 2002; San Diego Association of Governments, CA
- Portland Pedestrian Design Guide, 1998; City of Portland, OR (Portland)
- Oakland Pedestrian Master Plan, 2002; City of Oakland, CA
- Requirements for Openings, Construction and Repair in the Public Way: ADA Standards, 2007; City of Chicago, IL (Chicago ADA Standards)
- Santa Barbara Pedestrian Master Plan, 2006; Santa Barbara, CA (Santa Barbara)
- Street Design Manual, 2002; City of San Diego, CA (San Diego)
- Streetscape Design Manual, 1993; City and County of Denver, CO (Denver)
- Streetscape Guidelines for the City of Chicago Streetscape and Urban Design Program, 2003; City of Chicago, IL (Chicago)
- Seattle Right-of-Way Improvements Manual, 2006; City of Seattle, WA

Internet Resources

- Design for Health Resource Library, 2008; www.designforhealth.net
- National Committee on Uniform Traffic Control Devices, 2008; www.ncutcd.org
- Pedestrian and Bicycle Information Center, 2008; www.walkinginfo.org

National Standards

- A Policy on Geometric Design of Highways and Streets, 5th Edition; American Association of State Highway and Transportation Officials
- Accessible Public Rights-of-Way: Planning and Designing for Alterations, ITE, July 2007; http://www.access-board.gov/prowac/alterations/guide.htm
- Designing for Pedestrian Safety, 2007; Highway Safety Research Center (HSRC)

- Designing Sidewalks and Trails for Access, 2001; Federal Highway Administration (FHWA); http://www.fhwa.dot.gov/environment/sidewalk2/index.htm
- Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004; American Association of State Highway and Transportation Officials (AASHTO)
- Manual on Uniform Traffic Control Devices, 2003; Federal Highway Administration (MUTCD)
- Revised Draft Guidelines for Accessible Public Rights-of-Way, November 23, 2005, US Access Board; http://www.access-board.gov/prowac/draft.htm

State of Minnesota

- Minnesota Manual on Uniform Traffic Control Devices, 2008; Mn/DOT (MMUTCD)
- Standard Specifications for Construction, 2005; Mn /DOT
- Mn/DOT Bikeway Facility Design Manual, 2007

City of Minneapolis

- City of Minneapolis Accessible Signal Installation Guidelines, 2007; Department of Public Works
- Design Guidelines for Streets and Sidewalks, Access Minneapolis, February 22, 2008; Department of Public Works ; http://www.ci.minneapolis.mn.us/public%2Dworks/trans%2Dplan/DesignGuidelines.asp
- School Pedestrian Safety Toolbox, 2007; Department of Public Works
- Special Provisions for the Construction of Concrete Sidewalks, Curb, Curb and Gutter, Alleys and Drive Approaches, 2007; Department of Public Works
- Traffic Calming for Neighborhoods, 2000; City of Minneapolis

Minneapolis Street Lighting Policy

Prepared By Public Works
City Council Approved January 9, 2009

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The Minneapolis Street Lighting Policy was written to address four key issues: plan, standards, process and funding.

Plan

The Street Lighting Plan portion of the Policy addresses that there are three different area types Pedestrian, Central Business District-Centroid, and Residential. The areas were defined using "Access Minneapolis" as a guide. Each area has different lighting requirements due to the area usage and a different process for addressing street lighting. Area types may be changed following a neighborhood initiated process. A map has been created to show the areas.

Standards

Street lighting in Minneapolis must meet performance, material, and equipment requirements to be considered standard street lighting. Performance requirements are based on the Illuminating Engineers Society guidance. The lighting performance metrics that are considered by the City in designing lighting systems are: lighting levels (footcandles), uniformity (contrast between bright and dark spots), and veiling luminance (glare). Street lighting standards also include material and equipment requirements that are based on durability, workability, and cost of the equipment. Equipment used for street lighting must be approved by the Minneapolis Public Works Department.

Process

Street lighting will be installed with street reconstruction projects in all area types. There is the opportunity for affected property owners to opt-out of installations in Pedestrian, CBD, and Residential areas. The process to opt-out is done by a one-phase petition. Areas that are supportive of installing a stand-alone street lighting project must follow a two-phase petition process.

Phase 1 of the petition process is initiated by the affected properties. Phase 2 of the petition process is a mailing that is prepared by the City of Minneapolis and sent to all affected property tax payers on record. The required approval percentage for the petition to be considered to be successful is 35%, or greater, for Phase 1 and 70%, or greater, in Phase 2. Only the Phase 2 portion of the petition process will be used when the street lighting project is concurrent with a street reconstruction project. Street lighting will also be considered as part of major developments. Lighting systems that reach the end of service life will be replaced at the cost of the adjacent properties if supported by those property owners. When street lighting reaches the end of service life the area will follow a modified Phase 2 petition to gather support of the replacement or the removal of the lighting system.

Funding

Street Lighting installations and removals where necessary, are funded by a Uniform Street Lighting Assessment (USLA) charged to the adjacent assessable properties in the project area. These assessments can be "bought down" with neighborhood, grant, or other non-city funding sources. Operation and Maintenance of street lighting systems that are installed using Minneapolis standards for performance, design, and material is funded by the City's general fund.

SECTION 1

Minneapolis Street Lighting Plan

The Minneapolis Street Lighting Plan is comprised of three different area types: Residential, Pedestrian, and Central Business District- centroid. These areas have different lighting needs, where the lighting environment for Residential is most basic while the CBD presents an environment that is more complex and the lighting needs are greater. Identification of these areas is primarily set by the city's Ten Year Action Plan (Access Minneapolis). Access Minneapolis identifies high pedestrian activity areas and these areas are illustrated on the following Area Map.

The map identifies the boundaries for CBD and Pedestrian areas. The CBD is located in the downtown core while Pedestrian areas are spread throughout the city and identified on the map as Activity Centers, Commercial Nodes and Pedestrian Priority Corridors. Areas not identified by boundaries on the map are considered to be Residential areas. Parkways are identified on the map and have a lighting plan as approved by the Minneapolis Park and Recreation Board. Alleys are not shown on the map and shall remain a wood pole system.

Pedestrian areas provide for a greater scrutiny, as these areas are often located within Residential areas and are not confined to one particular segment of the City. To better identify these areas, consideration must be given to the factors that conclude a street lighting need that is above that of a Residential area. These factors include defining Pedestrian areas as meeting one or more of the three listed:

1. Activity Centers – A place that supports a wide range of commercial, office, and residential uses.

2. Neighborhood Commercial Node – An area comprised of a handful of small and medium sized businesses focused around one intersection.

3. Pedestrian Priority Corridor - Any of the below listed areas/corridors, streets that serve pedestrian generators, or segments that fill gaps, or make connections, in the system
   - Commercial Corridors – A street that has traditionally served as a boundary connecting a number of neighborhoods and serves as a focal point for activity.
   - Community Corridors – A street that supports new residential development from low to high density in specified areas, as well as increased housing diversity in neighborhoods.
   - Primary Transit Network Street – Network of all-day transit with at least 15 minute frequency for 18 hours of the day.

These areas are further defined in the Design Guidelines for Streets and Sidewalks.

Developments may cause land use to change over time resulting in the creation of Pedestrian areas that are not included on the original area map. The process for changing the Street Lighting Plan designation of a Residential area to a Pedestrian area is as follows:

1. The process is initiated by block, business, or neighborhood organization.
   The minimum size of a Pedestrian area is a neighborhood commercial node.

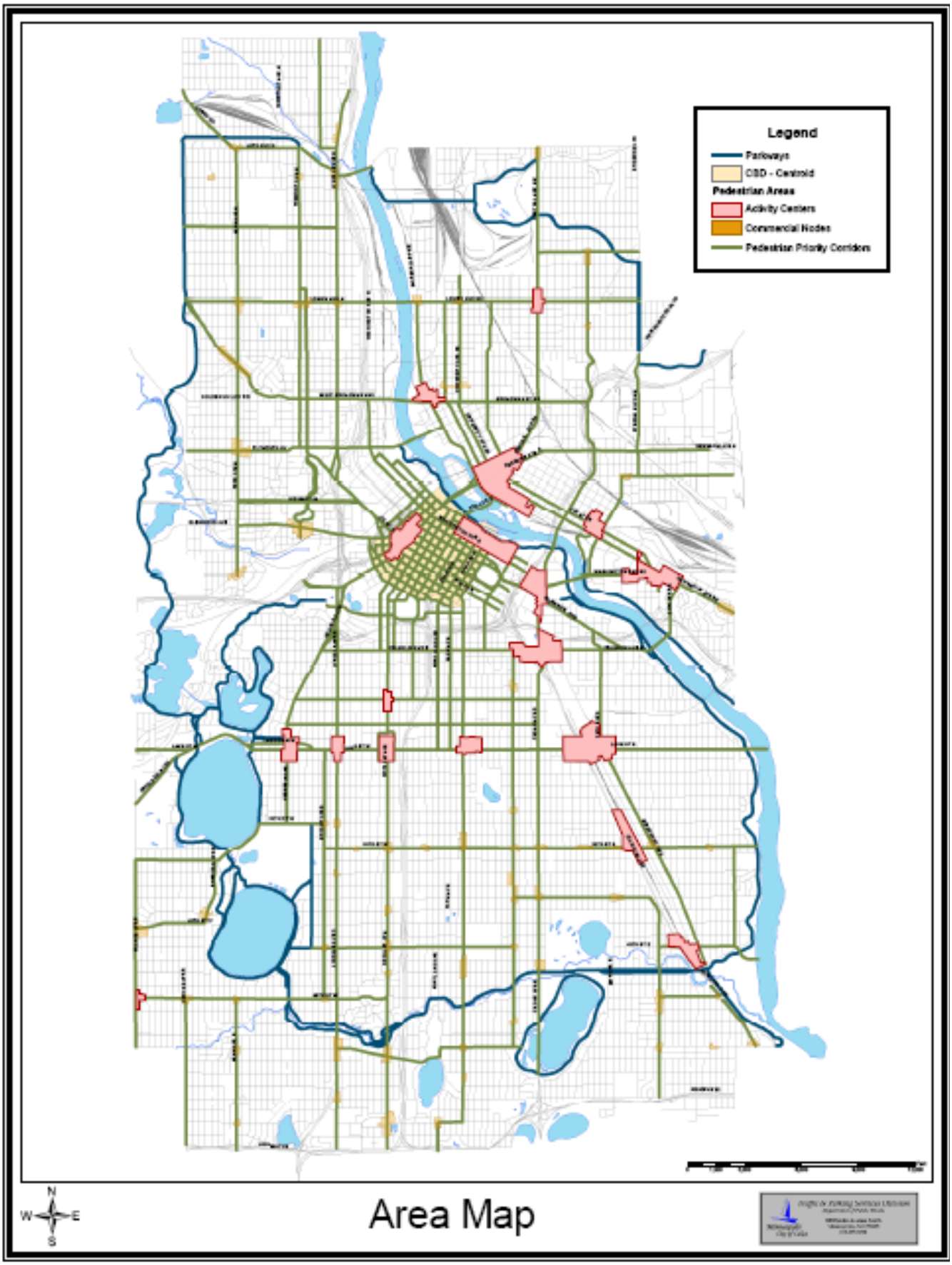
2. The group provides a written request to Public Works- Traffic requesting the street lighting designation change and providing reason.

3. The request is shared with the council member for the area for initial feedback and comments.

The request is forwarded to the neighborhood and/or business association/group as appropriate for comments and support.

4. If the street meets the place type characteristics, as defined above, the request is considered for recommendation by Public Works to the City Council Transportation and Public Works committee for approval to change the area designation.

5. The street lighting area map is updated and changed appropriately.


Legend
Parkways
CBD - Centroid
Pedestrian Areas
Activity Centers
Commercial Nodes
Pedestrian Priority Corridors
N
W
E
S
Area Map

SECTION 2

Street Lighting Standards

Standards for street lighting in Minneapolis fall into one of two broad categories: performance and materials/equipment. The standards will be regularly updated as technology advances. In order to more easily facilitate changing standards, the technical details will be included in a separate document from the Street Lighting Policy.

Performance

The performance standards for the City of Minneapolis follow the guidelines set by the Illuminating Engineers Society (IES). The current Minneapolis performance standards are based on the IES adopted RP-8-00 report. There are three criteria that lighting systems will be designed to: Foot Candle levels (amount of light), Uniformity (contrast between bright and dark spots), and Veiling Luminance (Glare). The performance standards for each area type are defined in the table below.

Criteria/Area	Central Business District-Centroid	Pedestrian Areas	Residential Areas
Foot Candles (amount of light)	1.5 to 2.0 fc	0.8 to 1.2 fc	0.3 to 0.6 fc
Uniformity (Contrast between bright and dark spots)	3 to 1 max	3 to 1 max	6 to 1 max
Veiling Luminance (Glare)	0.3 to 1 max	0.3 to 1 max	0.4 to 1 max

Lighting Above the City Performance Standard

Lighting will be installed to Minneapolis Standards for lighting levels. If additional lighting is desired and is reasonable for the area and the environment, then it may be approved. Environmental concerns and energy use are factors that will be considered to limit the amount of lighting over-standard. If lighting above the City Standards is installed then full cost (operation, maintenance, and installation) of that "extra" lighting will be charged to the adjacent properties. The installation charge is a one-time cost that may be paid over the term of the assessment. The operation and maintenance charges are annual charges.

Materials/Equipment

Poles and Fixtures used for street lighting must be approved for use by the City of Minneapolis. Approval is based on operation, maintenance, and cost criteria. There are 4 styles of decorative fixtures that are currently approved, the lantern, acorn, teardrop, and shoebox. These fixtures are available in different levels of cut-off without changing the daytime aesthetics. There are currently four levels of light cutoff. In order of least to most they are: non-cutoff, semi-cutoff, cutoff, and full cutoff. Higher levels of cutoff perform better at higher mounting heights. The following table lists the fixtures in use in the City of Minneapolis, the current level of cutoff, the proposed level of cutoff and the required modifications to make the change.

A goal of the City of Minneapolis Street Lighting Policy is to have all fixtures be at least full cut-off. There are two fixtures, the acorn and lantern styles, that currently do not meet the full cut-off standard. To meet this goal, Public Works will specify full cut-off fixtures as part of any fixture procurement

process. If the vendors do not successfully bid full cut-off, Public Works will seek City Council approval for design exceptions or other fixture styles to this full cut-off fixture policy.

Fixture Style	Existing Cutoff Level	Proposed Cutoff Level	Comments
Shoebox	Semi-cutoff	Full cutoff	Change from drop lens to flat lens
Modern shoebox	Full cutoff	Full cutoff	
Teardrop	Cut-off	Full cutoff	Add a skirt (similar to the parkway light)
Latern	Semi-cutoff	Full Cutoff	Fixture change out
Acorn	Non-cutoff	Full cutoff	Change globe
Cobra - Xcel wood pole	Semi-cutoff	Full cutoff	Fixture change out

Lantern

Acorn

Teardrop

Shoebox

“Modern Shoebox”

Parkway fixture

There are a number of light sources on the market. The City of Minneapolis currently uses high pressure sodium (HPS) in most lighting applications. This is due to cost and service life. Other options are metal halide (MH), induction, and Light Emitting Diode (LED) technology. The City will continuously research lighting technologies as these technologies become feasible. The City is currently procuring LED fixtures for the purpose of testing and will evaluate this fixture based on performance and price.

Centrally controlled, adaptive, and other smart lighting options are being explored. The City will be implementing a test in Downtown Minneapolis starting in 2009. These smart lighting systems provide communication links to the lighting system to proactively troubleshoot the system.

More detailed information is included in the Street Lighting Standards supplemental document.

SECTION 3

Process for the Installation of Street Lighting

This section will describe when different area types will receive, or be able to install, new lighting systems. This section will also include information on: the end of service life, lighting for developments, the two-phased petition process, and remaining approval process.

A. Pedestrian and CBD Areas

Pedestrian/CBD areas can receive lighting in two ways:

1. As part of a capital improvement street reconstruction project.
2. As a stand-alone street lighting project.

Capital Improvement Street Reconstruction Projects
New lighting systems will be installed with street reconstruction projects in Pedestrian and CBD areas and the cost will be assessed using the Uniform Street Lighting Assessment method, unless the area submits a petition to the city requesting that lighting not be installed. This will be done with the use of the Phase 2 petition mailing by the City. The required "opt-out" petition approval percentage is 70% for lighting to not be installed as part of a street reconstruction project in a Pedestrian or CBD area.

Stand-alone Street Lighting Project
Areas that are not likely to have the street reconstructed in the near future (within 5 years) are able to have street lighting installed by opt-in petition and paying an assessment for the cost of installation. Opting-in to a lighting project will follow a two-phase petition effort. Phase 1 will be used to document general support and shall equal or exceed 35% within a six month time period. If successful, then the Phase 2 petition is conducted via a formal petition mailing sent out by the City of Minneapolis. In order to move forward with a street lighting project, 70% of the affected owners/tax payers have to agree to support and fund the project using the Uniform Street Lighting Assessment. Other funds may be used to buy down the assessments such as grant dollars or neighborhood funds. The minimum project size to install street lighting is a neighborhood business node in Pedestrian areas; and one block, both sides of the street, in the CBD.

B. Residential Areas

Residential areas can receive lighting in two ways:

1. As part of a capital improvement street reconstruction project.
2. As a stand-alone street lighting project.

Capital Improvement Street Reconstruction Projects

New lighting systems will be installed with street reconstruction projects in Residential areas and the cost will be assessed using the Uniform Street Lighting Assessment method, unless the area submits a petition to the city requesting that lighting not be installed. This will be accomplished through the Phase 2 petition mailing by the City. The required "opt-out" petition approval percentage is 51% for lighting to not be installed as part of a street reconstruction project in a Residential area.

Stand-alone Street Lighting Project

Residential areas that are not likely to have the street reconstructed in the near future (within 5 years) are able to have street lighting installed by opt-in petition and paying an assessment for the cost of installation. Opting-in to a lighting project will follow a two-phase petition effort. Phase 1 will be used to document general support and shall equal or exceed 35% within a six month time period. If successful, then the Phase 2 petition is conducted via a formal petition mailing sent out from the City of Minneapolis. In order to move forward with a street lighting project, 70% of the affected owners have to agree to support and fund the project using the Uniform Street Lighting Assessment. Other funds may be used to buy down the assessments such as grant dollars or neighborhood funds. The minimum project size to install street lighting is 4 contiguous blocks, both sides of the street, in Residential areas.

C. End of Service Life

The lighting infrastructure that the City of Minneapolis installs is designed to last approximately 20 to 30 years. At some point, the cost to maintain the street lighting system becomes more than its present value and/or safety concerns have resulted in the infrastructure reaching the end of its usable service life. The end of service life will be determined by the City Engineer. The end of service life shall occur after all previous street lighting assessments, if any, are paid in full. When the end of service life is reached, there are options for how to proceed depending on the area type as described in the following sections.

Pedestrian and CBD Areas

When lighting infrastructure reaches the end of service life in a Pedestrian area or the Central Business District, the system will be replaced unless 70% opt out through the petition process. The cost for the new street lighting system will be assessed to the property owners. It is possible that some of the existing infrastructure may be used for the new installation, such as underground conduit and some foundations. The reuse of infrastructure components can reduce the cost of the replacement system. (Advancements in technology and changes in electrical standards may reduce the ability to reuse existing infrastructure.)

Residential Areas

There are two options for lighting systems that have reached the end of their service life in Residential areas. The affected properties will determine which option to choose. The selection of which option to use will follow a petition process similar to the one that is used for the initial installation. Opting-in to a replacement lighting project will follow a modified Phase 2 petition that is conducted via a formal petition mailing sent out from the City of Minneapolis. The modified petition will give property owners two choices, a) replace the lighting or b) revert back to the wood pole. In order to move forward with a street lighting project (non-wood pole), 70% of the affected owners have to agree to support and fund the project using the Uniform Street Lighting Assessment.

The cost for replacement of the lighting system or the removal/reverting back to the wood pole system will be assessed to the affected properties. Other funds may be used to buy down the assessments such as grant dollars or neighborhood funds.

D. Development Projects

The process for the installation of street lighting with development projects will vary by area type, size and disturbance to the boulevard and curb areas.

Developments that occur in Pedestrian Areas and the Central Business District and include the replacement of large segments of boulevard and curb, shall install street lighting at the same time as their development construction. A significant number of developments do this today. A complete lighting system (both sides of the street and designed to the City's lighting standards) should be installed if feasible. This is funded 100% by the development, unless other funds are contributed by grants, neighborhood, or other adjacent property owners.

Developments occurring in Residential areas are encouraged to install lighting at the time of their construction. A complete lighting system (both sides of the street and designed to the City's lighting standards) should be installed if feasible.

When properties are developed in the City of Minneapolis, they could be large or small in scale, they can also occur in the different street lighting area types (Residential, Pedestrian, or CBD). The location, size, and scope of work for the development are factors that can assist in the determination of whether or not to install street lighting as part of the project.

When projects are submitted to Minneapolis Development Review and/or Preliminary Design Review, this will be the time to determine the magnitude of disruption. The more extensive the disruption, the more feasible to install lighting, especially in Residential areas.

There is a cost savings to install street lighting at the same time that there is roadway and/or boulevard excavation. Most of the savings comes with the ability to place the underground conduit behind the curb and not needing to trench or directional bore it into place or replace sidewalks. There is also a savings due to exposing the utilities and restoring the boulevard is done only once. Likewise install lighting at a later date results in future disruption (boulevards or sidewalks) and construction impacts to the adjacent properties.

When projects are large in scale and cover multiple lots or are multi-million dollar projects, it is logical to install street lighting at the same time, the additional cost for lighting is relatively insignificant. When the development is just a renovation of an interior of a building and does not include work in the right-of-way, it is not the appropriate time to require the installation of street lighting. Developments that occur in Pedestrian and CBD areas should be strongly encouraged to install lighting, more so than developments occurring in Residential areas.

The timing of street reconstruction for the area is also a determining factor for whether to include street lighting with the development. If a street reconstruction project is scheduled to occur within 5 years, it makes sense to install lighting with the street project and not the development project.

The City of Minneapolis will own lighting systems that are located in the public right-of-way, and designed and installed to the City standards. To meet City standards, there must be only one lighting system. This means that the lighting installed as part of the development must result in the removal of the existing wooden pole or prior lighting system, if applicable. If the installation of a new lighting

system does not result in the removal of the existing lighting system, the charge for the operation and maintenance of these additional lights will be assessed, or charged, to the property owner/tax payer.

E. Gathering Petition Support

Gathering support for street lighting projects will occur two phases.

Phase 1

The first phase will be initiated by and consist of the neighborhood or business association, gathering general support by a petition. The neighborhood/block club/business association will work with city staff to determine project boundaries and select the hardware style and city staff will provide the current Uniform Street Lighting Assessment Rate. Then a dated Phase 1 petition form and designated for this area is provided by the City to the community to begin the petition process. When the general support equals or exceeds 35% within the six month time period, the information can be submitted to the City of Minneapolis Public Works which will review and validate the signatures and addresses according to current tax records.

Phase 2

Based on a successful Phase 1 petition, or when a street lighting system has reached the end of service life, a formal Phase 2 petition mailing will be prepared by the City of Minneapolis. The Phase 2 petition mailing ensures that all property owners are given the appropriate street lighting information, and the owners can make their decision whether to support the project based on this information. The mailing will be sent to the listed tax payers on record. The mailing will define the proposed project boundaries, estimated project cost, Uniform Street Lighting Assessment rate, information on the remainder of the process, and a form to complete and return to the City. The returnable form will provide the property address, a space to check “yes” or “no” on the support of the project, and a space for the owner/tax payer’s signature.

The City will tabulate results of the returned Phase 2 forms to determine the support level for the project. If the support reaches 70%, the proposed street lighting project will be forwarded to begin the Minneapolis City Council approval process. The petition is an advisory tool used to gauge the support for the street lighting project.

F. City Council Approval Process

When a street lighting project has received the 70% approval support from the property owners, the next steps will be to designate the project, set a public hearing, and receive direction to prepare assessments. The assessment procedure and public hearing process for street lighting is the same as other improvement projects as set out Chapter 10, Section 8 of the City’s Charter. Design and construction will begin only after the 30 day appeal process has passed. If there is an appeal, Public Works and City attorney staff will confer and determine whether to proceed with the project or return to City Council for further action.

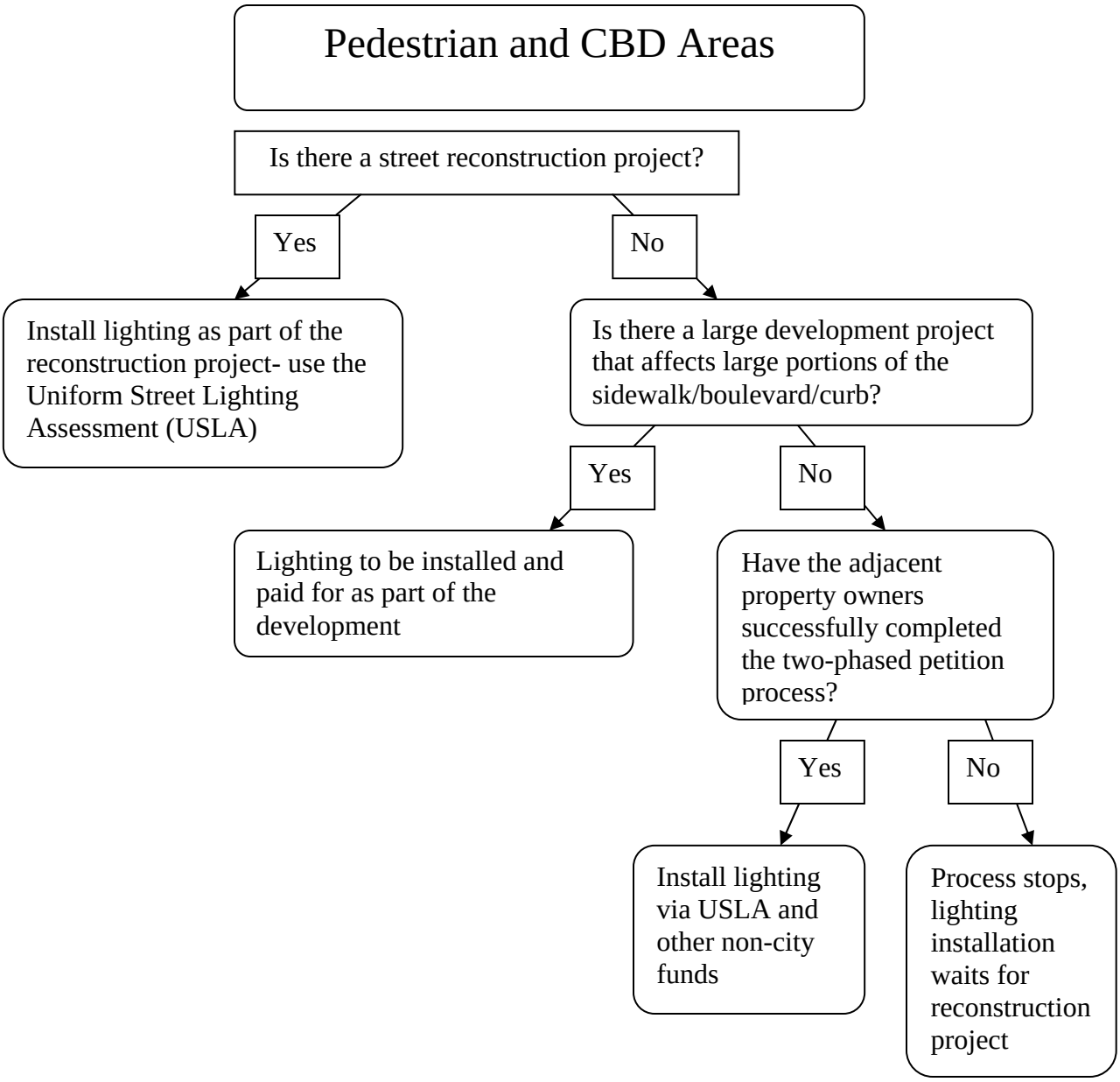
The following table shows a typical annual timeline for an opt-in street lighting.

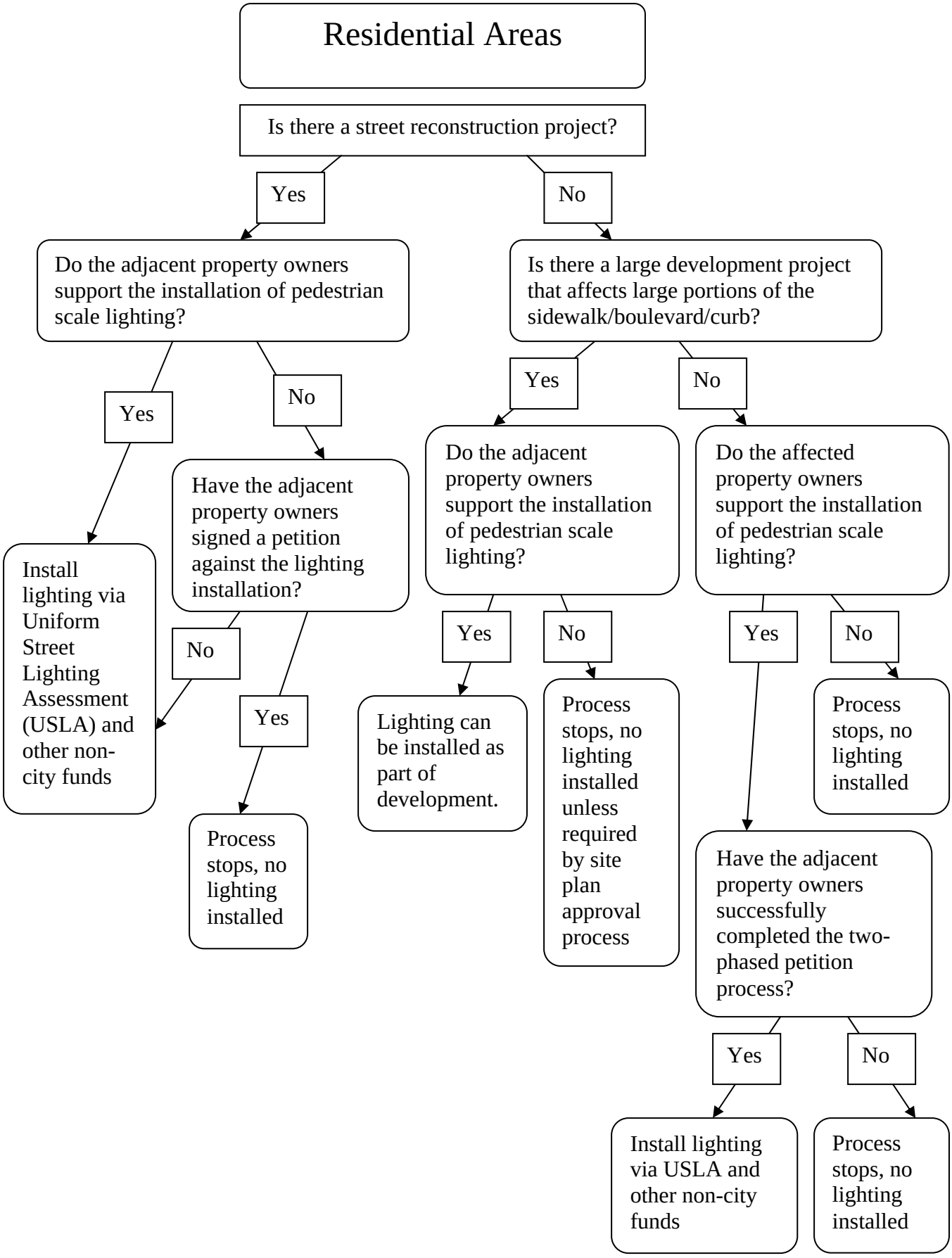
Timeline for Requesting Stand Alone Street Lighting Projects

Step	time needed	number of weeks	Starting Month
Community Requests to start process	0.25 month	1	on of before September year 0
Phase 1 Petition Process (neighborhood support) on-going- validate reached percentage	6 months maximum	24	October yr 0
Phase 2 Petition Process (city mailing)	2 to 3 months	12	April yr 1
Public Works reviews returned mailings- verify signatures and tabulates support	1 month	4	July yr 1
Council Member Update	0.25 month	1	August yr 1
Project Designation by City Council (time includes letter preparation and required time before the public hearing)	1.5 month	6	Mid-August yr 1
Public Hearing (TPW) and Project Approval	1 month	4	October yr 1
Appeal Process	1.5 month	6	November yr 1
Design Project	2 months	8	Mid-December yr 1
Bid project	1.5 months	6	Mid-February yr 2
Begin Construction			April yr 2

The timeline may be modified the first year, resulting in construction starting later, mid summer versus April.

The following charts show the decision making process for the installation of street lighting in Pedestrian, CBD, and Residential areas.


Pedestrian and CBD Areas
Is there a street reconstruction project?
Yes
No
Install lighting as part of the reconstruction project- use the Uniform Street Lighting Assessment (USLA)
Is there a large development project that affects large portions of the sidewalk/boulevard/curb?
Yes
No
Lighting to be installed and paid for as part of the development
Have the adjacent property owners successfully completed the two-phased petition process?
Yes
No
Install lighting via USLA and other non-city funds
Process stops, lighting installation waits for reconstruction project


Residential Areas
Is there a street reconstruction project?
Yes
No
Do the adjacent property owners support the installation of pedestrian scale lighting?
Is there a large development project that affects large portions of the sidewalk/boulevard/curb?
Yes
No
Yes
No
Install lighting via Uniform Street Lighting Assessment (USLA) and other non-city funds
Have the adjacent property owners signed a petition against the lighting installation?
No
Yes
Process stops, no lighting installed
Yes
No
Do the adjacent property owners support the installation of pedestrian scale lighting?
Do the affected property owners support the installation of pedestrian scale lighting?
Yes
No
Yes
No
Lighting can be installed as part of development.
Process stops, no lighting installed unless required by site plan approval process
Process stops, no lighting installed
Have the adjacent property owners successfully completed the two-phased petition process?
Yes
No
Install lighting via USLA and other non-city funds
Process stops, no lighting installed

SECTION 4

Funding Street Lighting

The funding for street lighting projects varies based on the process used to install the lighting. The installation of street lighting is either associated with a 1) street reconstruction project, or 2) a stand-alone street lighting project that was initiated by the citizens, neighborhood and/or business association.

Street Lighting with Street Reconstruction Projects

Street lighting will be installed as part of a street reconstruction project , unless 70% of the property owners in the Pedestrian areas and the Central Business District, or 51% of the property owners in Residential areas, opt-out through a petition process. The cost for street lighting will be paid by the Uniform Street Lighting Assessment (USLA) charged to all assessable property owners within the project area.

Street Lighting Stand Alone Projects

Street lighting can be installed in advance of a street reconstruction project in Pedestrian, CBD, and Residential Areas. These projects will occur when 70% of the property owners opt-in through a petition process. The capital cost for these installations will be paid by a Uniform Street Lighting Assessment (USLA) charged to the assessable properties adjacent to the project.

Neighborhoods, grants, or other funds can also be used to fund the installation of street lighting. Such funds can be used to "buy down" the assessments. If funding other than assessments are greater than the total street lighting project cost, an assessment would not be necessary.

The Uniform Street Lighting Assessment rate will differ due to installation costs of such systems between area types (Residential versus, Pedestrian or CBD) and will be set annually for all such projects. The Residential rate is expected to be less than the Pedestrian/CBD rate due to the reduced costs of boulevard (sidewalk) replacement. The USLA rate paid over a period up to 20 years. The cost of a lighting project includes preliminary engineering, administration, design, installation, inspection, and final closeout.

Operation and Maintenance Costs

Street lighting that has been installed in the public street right-of-way and to city standards (lighting levels and equipment used) will be owned by the City. The operation and maintenance costs for city owned lighting will be paid out of the City's general fund.

See section 2 for lighting costs above the city standard.

City of Minneapolis
5320 Weekly Volume Report - Mon 06/20/2011 - Sun 06/26/2011

Location ID:	5320	**Type:**	SPOT
Located On:	Lake St W	**BETWEEN:**	Blaisdell Av S AND Nicollet Av S
Direction	2-WAY		
Community:	Whittier	**Period:**	Mon 06/20/2011 - Sun 06/26/2011
AADT:	20235		

Start Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg
12:00 AM			337	344				341
1:00 AM			216	318				267
2:00 AM			135	164				150
3:00 AM			105	121				113
4:00 AM			121	127				124
5:00 AM			223	219				221
6:00 AM			546	567				557
7:00 AM			938	1039				989
8:00 AM			1051	1080				1066
9:00 AM			968	1007				988
10:00 AM			962	1012				987
11:00 AM		1223	1252					1238
12:00 PM		1389	1428					1409
1:00 PM		1391	1448					1420
2:00 PM		1407	1519					1463
3:00 PM		1596	1584					1590
4:00 PM		1614	1747					1681
5:00 PM		1666	1697					1682
6:00 PM		1419	1499					1459
7:00 PM		1216	1276					1246
8:00 PM		1195	1077					1136
9:00 PM		1042	1016					1029
10:00 PM		765	748					757
11:00 PM		538	565					552
Total	**0**	**16461**	**22458**	**5998**	**0**	**0**	**0**	
24HrTotal			22063	22854				22459
AM Pk Hr			11:00					
AM Peak			1252					1252
PM Pk Hr			4:00					
PM Peak			1747					1747
% Peak Hr			7.78%					8.00%
% Peak Hr			7.55%	7.64%				7.60%

MnCMAT Crash Data
Bike and Ped's crashes
CSAH 3 (Lake Street)
Blaisdell Avenue to 1st Avenue
3rd Avenue to 5th Avenue
Minneapolis
2009 - 2010

	Rd Num	Mile Point	Left/Right	Co	City	Dist	Crash_Num	Month	Day	Year	DyWk	Time	Rd_Dir	Elem	Rely	Investigat	Sev	NumKilled	Diag			Num Veh	Junc	SL	Type		Loc1	TCD	LIT	Wthr1	Wthr2	Surf	Char	Desgn	WZ	V1Type	V1Dir	V1Act	V1Fac1	V1Fac2	V1Phys	V1Age	V1Sex	V2Type	V2Dir	V2Act	V2Fac1	V2Fac2	V2Phys	V2Age	V2Sex
Blaisdell Avenue to 1st Avenue	003	12.28		27	2585	M	101290069	5	9	2010	SUN	1400	Z	NV	1	3	C	0	90	Other		1	4	30	7	Pedestrian	1	1	1	1	0	1	1	4	98	1	7	5	2	0	1	68	F	51	3	31	1	0	1	20	F
	003	12.28		27	2585	M	101390344	5	19	2010	WED	1953	Z	NV	1	3	C	0	90	Other		1	7	30	6	Bicyclist	1	1	1	1	1	1	1	5	98	1	7	5	2	0	1	29	F	53	1	1	1	1	1	21	F
	003	12.28		27	2585	M	103080270	11	4	2010	THU	1730	Z	NV	1	3	C	0	90	Other		1	7	30	7	Pedestrian	1	1	1	1	0	1	1	4	98	1	3	54	2	0	1	48	F	51	5	35	1	0	1	27	F
	003	12.28		27	2585	M	103270084	11	23	2010	TUE	930	Z	NV	1	3	K	1	90	Other		1	4	30	7	Pedestrian	1	1	2	1	1	1	1	4	98	3	3	6	2	8	99	899	Z	51	1	31	1	1	98	70	F
	003	12.37		27	2585	M	103000081	10	27	2010	WED	730	Z	NV	1	3	C	0	90	Other		1	4	10	7	Pedestrian	6	1	2	3	5	2	1	90	98	1	5	1	21	21	99	898	M	51	5	48	1	1	1	61	F
	003	12.37		27	2585	M	101230117	5	3	2010	MON	2035	Z	NV	1	3	B	0	90	Other		1	7	30	7	Pedestrian	1	1	4	3	0	2	1	5	98	1	6	6	15	0	1	21	M	51	MC	31	1	0	1	41	M
	003	21.37		27	2585	M	103430233	12	9	2010	THU	1820	Z	NV	2	3	B	0	90	Other		1	99	30	7	Pedestrian	99	1	4	1	0	2	1	99	98	2	MC	1	2	0	99	899	Z	51	MC	35	99	0	1	29	M
	Total						7																																														
3rd Avenue to 5th Avenue	003	12.66		27	2585	M	92970089	10	24	2009	SAT	1215	E	NV	1	3	B	0	90	Other		1	1	30	7	Pedestrian	1	98	1	1	0	1	1	5	98	3	3	1	1	0	90	33	M	51	3	21	90	0	1	31	M
	003	12.67		27	2585	M	103340237	10	23	2010	SAT	1800	Z	NV	2	0	B	0	90	Other		1	0	NL	6	Bicyclist	0	98	1	1	0	1	0	0	98	3	3	5	0	0	0	898	Z	53	MC	51	0	0	98	57	F
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	003	12.80		27	2585	M	92690117	9	26	2009	SAT	2017	S	NV	1	3	C	0	90	Other		1	7	35	7	Pedestrian	1	98	4	1	0	1	1	5	98	4	7	1	1	0	1	27	M	51	5	34	17	0	5	27	F
	Total						4																																												

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
		CSAH 3 (Lake Street) From Blaisdell ave to 1st Avenue 2011 -2013- created on 11-04-2014 by rile1che																																						
		Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.																							**PERSON1**								**PERSON2**							
Rd Num	**Mile Pt**	**CO**	**CITY**	**DOW**	**MONTH**	**DAY**	**YEAR**	**TIME**	**SEV**	**NUM_KILLED**	**NUM_VEH**	**JUNC**	**SL**	**TYPE**	**DIAG**	**LOC1**	**TCD**	**LIT**	**WTHR1**	**WTHR2**	**SURF**	**CHAR**	**DESGN**	**ACC_NUM**	**VTYPE**	**DIR**	**ACT**	**FAC1**	**FAC2**	**PHYS**	**AGE**	**SEX**	**VTYPE**	**DIR**	**ACT**	**FAC1**	**FAC2**	**PHYS**	**AGE**	**SEX**
3		27	2585	2-Mon	9	16	2013	0945	B	0	1	4	30	7	5	1	1	1	1	0	1	1	4	132590053	3	3	5	2	0	1	33	F	51	98	35	1	0	98	56	F
3		27	2585	5-Thu	4	14	2011	2211	B	0	1	4	30	7	5	1	1	4	3	2	2	1	5	111050136	3	1	6	2	0	1	26	F	51	7	35	1	0	1	41	M
3		27	2585	1-Sun	7	3	2011	0027	C	0	1	4	30	6	5	1	1	3	1	0	1	1	4	111860099	53	3	6	2	0	1	20	M	1	3	6	1	0	1	43	M
3		27	2585	6-Fri	1	6	2012	1755	C	0	1	7	30	6	5	1	1	4	2	0	1	1	5	120060143	1	5	1	1	0	1	37	F	53	3	33	5	0	1	19	M
3		27	2585	2-Mon	7	16	2012	0025	C	0	1	4	30	6	5	1	1	4	1	0	1	1	5	121980005	3	3	1	15	0	1	31	M	53	98	1	1	0	3	900	M
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Total Crashes																								7																

CSAH 3 (Lake Street) from MUN 1686 (3rd Avenue) to MUN 1589 (5th Avenue) 2011 - 2013 - created on 11-04-2014 by rile1che

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

																								PERSON1								PERSON2							
Rd Num	Mile Pt	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV	NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX
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3		27	2585	6-Fri	8	30	2013	2150	C	0	0	4	30	6	6	1	4	4	1	1	1	1	8	132430008	53	98	56	2	0	98	27	M								
3		27	2585	7-Sat	3	19	2011	1520	C	0	1	1	30	7	8	1	98	1	1	1	1	1	90	110830022	1	5	1	1	1	1	67	M	51	98	39	0	0	98	6	M
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3		27	2585	5-Thu	8	11	2011	1625	C	0	1	7	30	6	9	1	4	1	1	1	1	1	8	112230146	1	5	1	2	3	99	899	Z	53	98	0	0	0	98	31	M
3		27	2585	6-Fri	7	26	2013	1840	B	0	1	8	30	6	90	90	98	1	2	99	1	1	5	132070153	1	5	17	11	90	99	901	M	53	98	90	1	1	1	17	M
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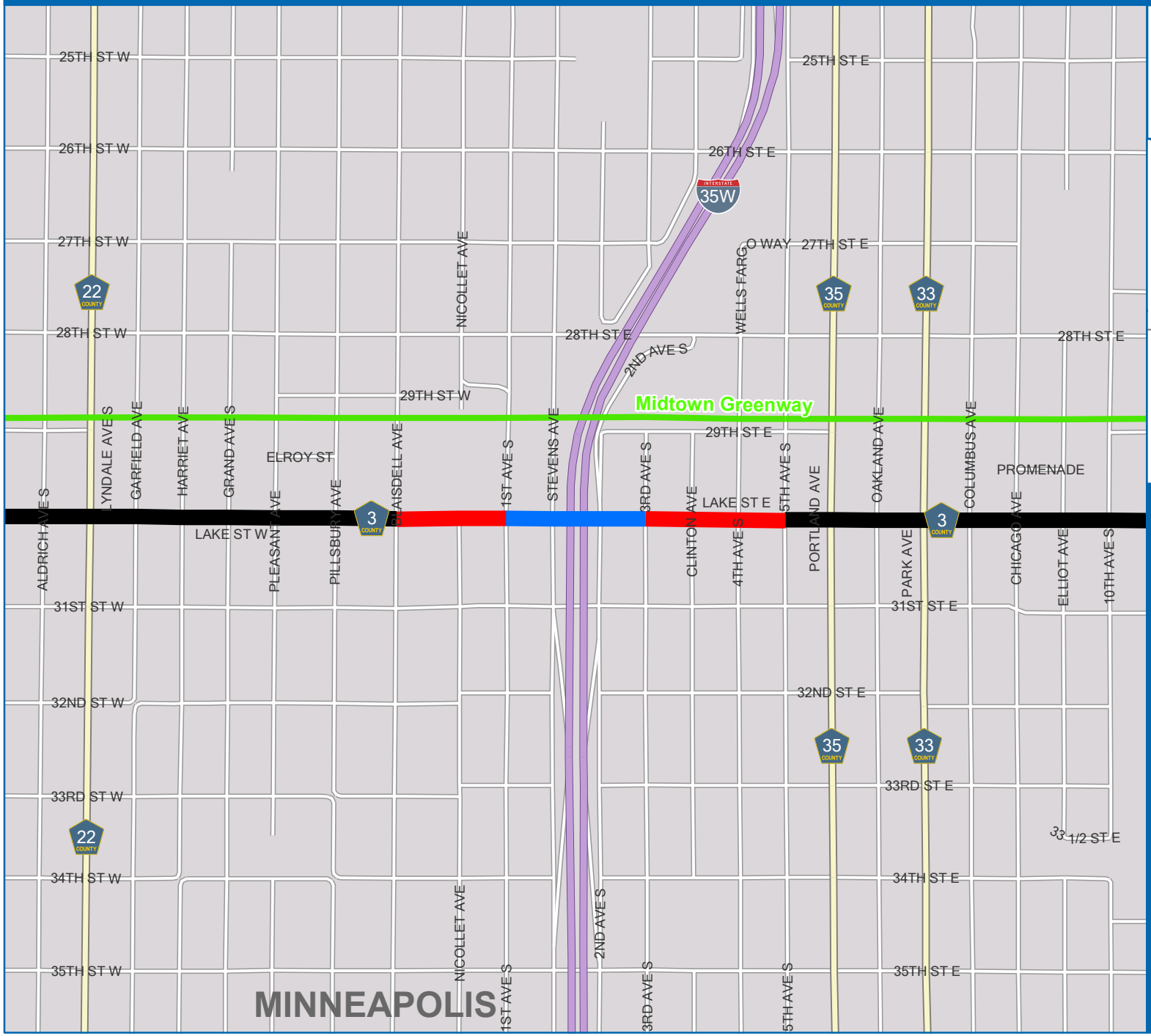
Total Crashes																								8																

Project Location Map - CSAH 3 (Lake Street) Streetscaping

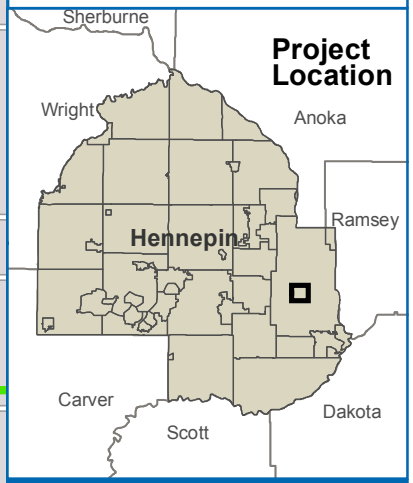
From Blaisdell Ave to 1st Ave S & From 3rd Ave S to 5th Ave S

▶ Transportation

Hennepin County Public Works



- I-35W Transit/Access Project
- CSAH 3 (Lake St) Streetscaping
- Completed Streetscaping Projects



Produced by Hennepin County Public Works Transportation Department.

This map has been created for informational purposes only and is not considered a legally recorded map or document. Hennepin County makes no warranty, representation, or guarantee as to the content, accuracy, timeliness, or completeness of any of the information provided herein.

Hennepin County
Public Works

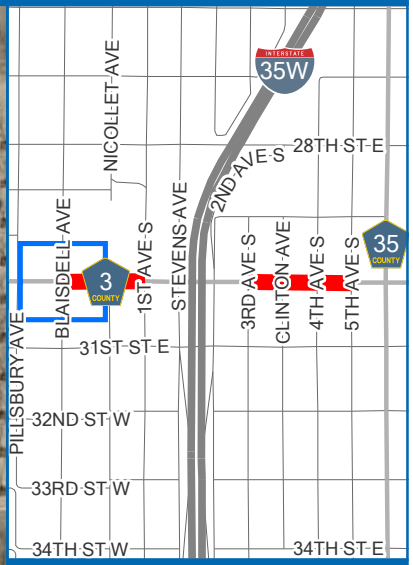
0 600 1,200
Feet

Aerial Maps - CSAH 3 (Lake Street) Streetscaping

From Blaisdell Ave to 1st Ave S & From 3rd Ave S 5th Ave S

▶ Transportation

Hennepin County Public Works



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Published: 11/13/2014

Hennepin County
Public Works

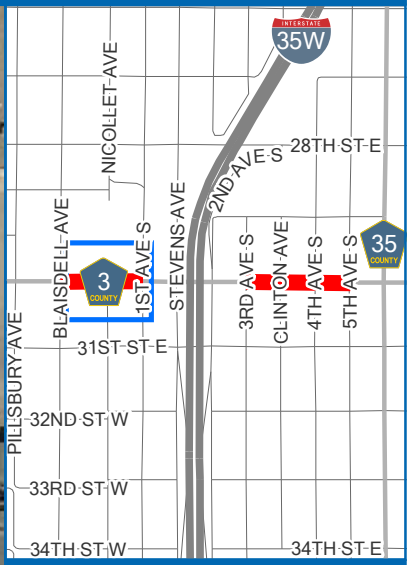
0 50 100
Feet

Aerial Maps - CSAH 3 (Lake Street) Streetscaping

From Blaisdell Ave to 1st Ave S & From 3rd Ave S 5th Ave S

▶ Transportation

Hennepin County Public Works



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Hennepin County
Public Works

0 50 100
Feet

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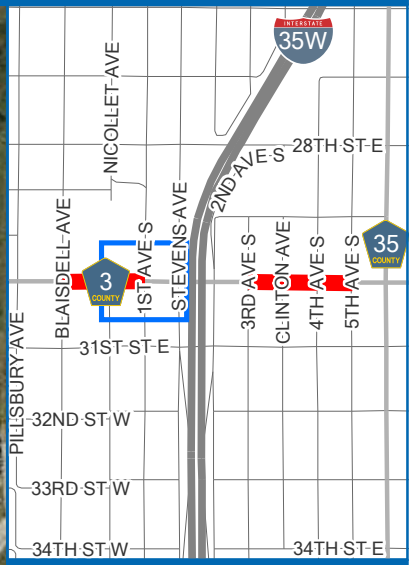
▶ Transportation

Hennepin County Public Works



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Hennepin County
Public Works

0 50 100
Feet

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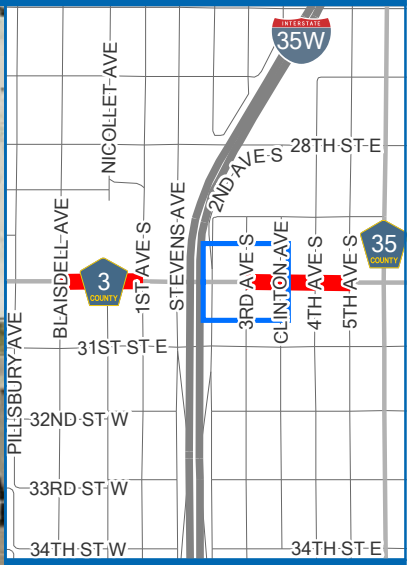
▶ Transportation

Hennepin County Public Works



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Hennepin County
Public Works

0 50 100
Feet

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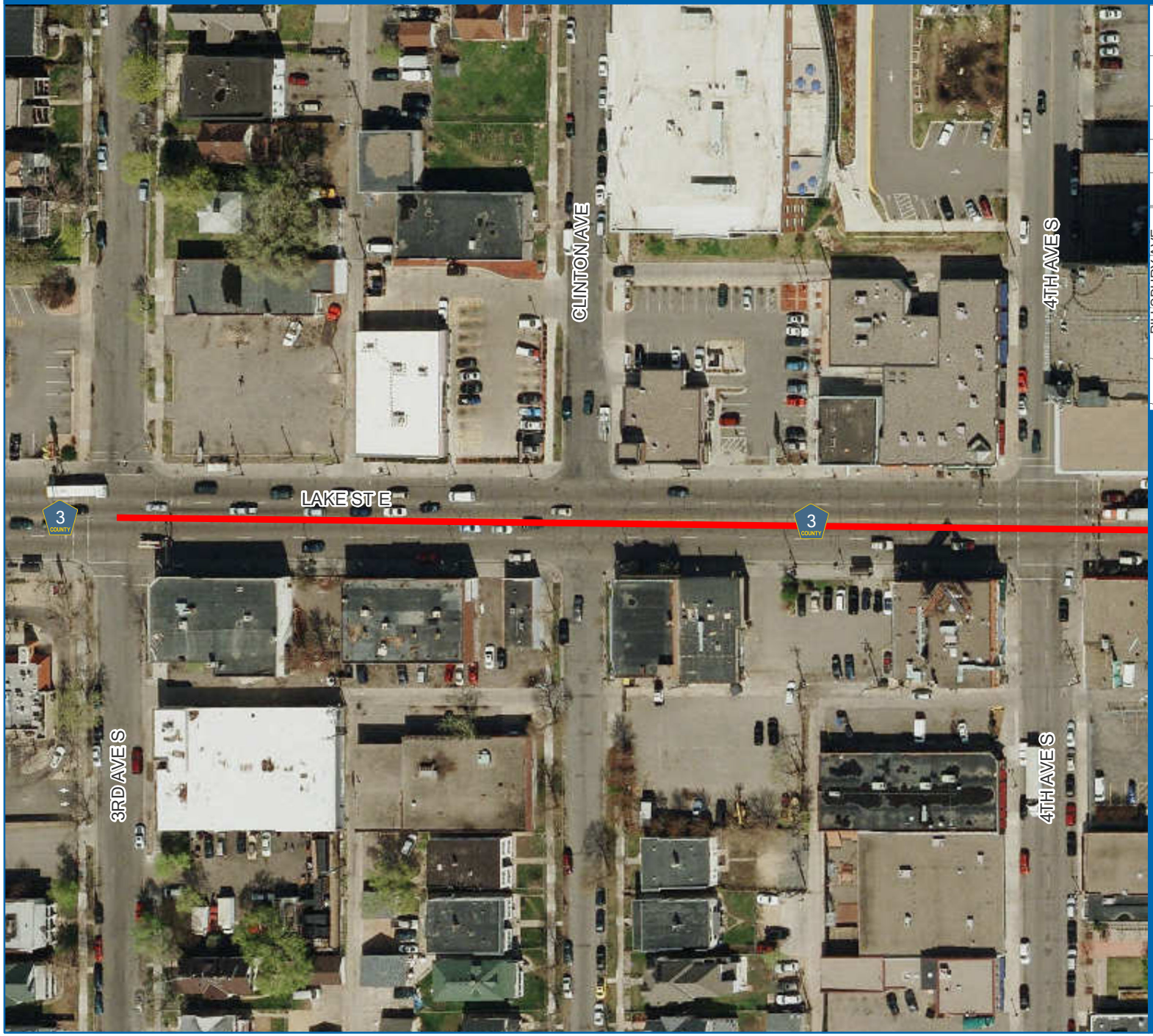
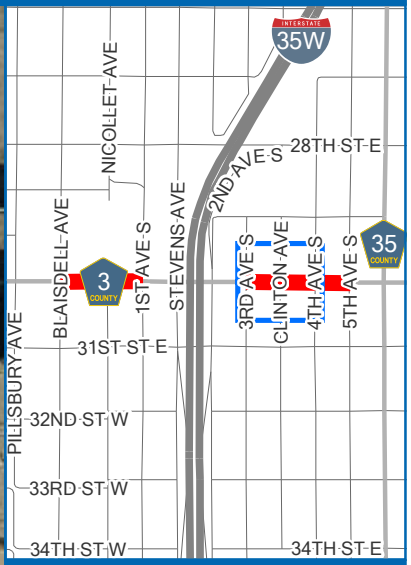
From Blaisdell Ave to 1st Ave S & From 3rd Ave S 5th Ave S

▶ Transportation

Hennepin County Public Works





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Hennepin County
Public Works

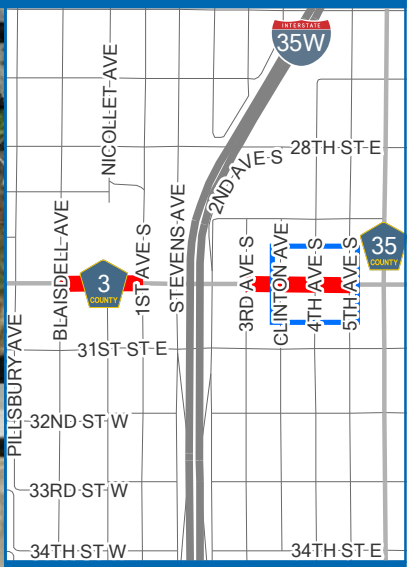
0 50 100
Feet

Aerial Maps - CSAH 3 (Lake Street) Streetscaping

From Blaisdell Ave to 1st Ave S & From 3rd Ave S 5th Ave S

▶ Transportation

Hennepin County Public Works



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Hennepin County
Public Works

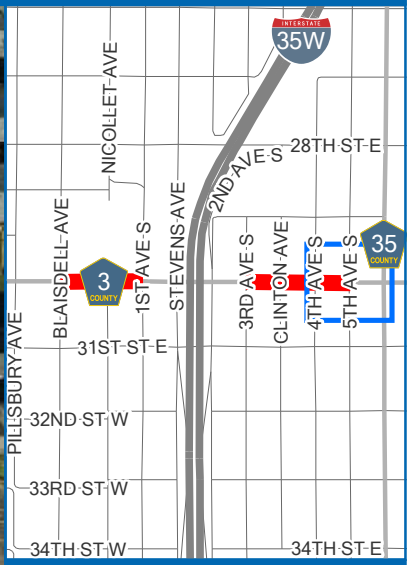
0 50 100
Feet

Aerial Maps - CSAH 3 (Lake Street) Streetscaping

From Blaisdell Ave to 1st Ave S & From 3rd Ave S 5th Ave S

▶ Transportation

Hennepin County Public Works



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Published: 11/13/2014

Hennepin County
Public Works

0 50 100
Feet

Existing Lighting

Existing Street Trees
(Along < 25% of Project)

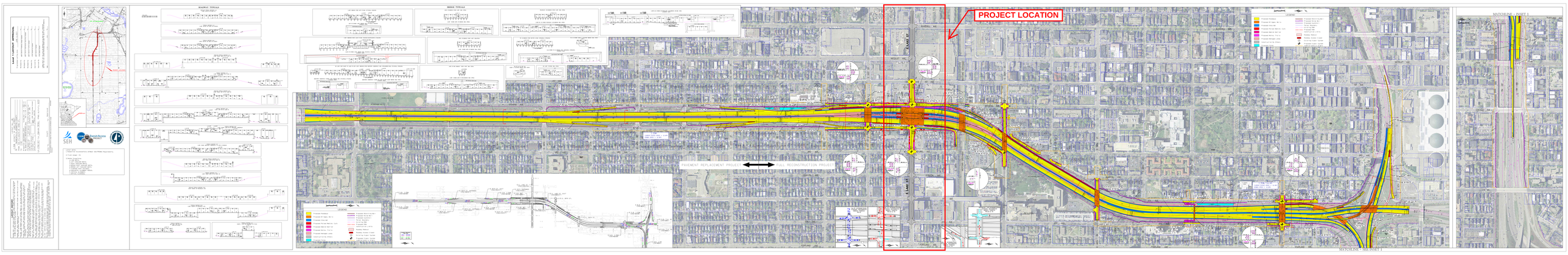
Existing Signal Cabinet

Existing Trash Receptacle

Proposed Street Trees and Lighting

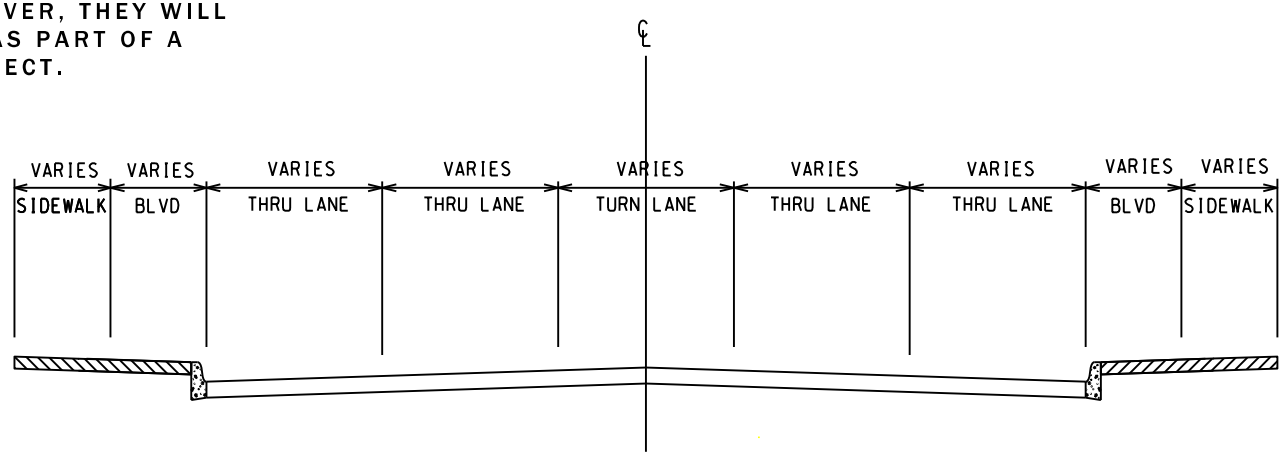
Proposed Bus Shelter

Proposed Fencing, Trash Receptacle, and Bench

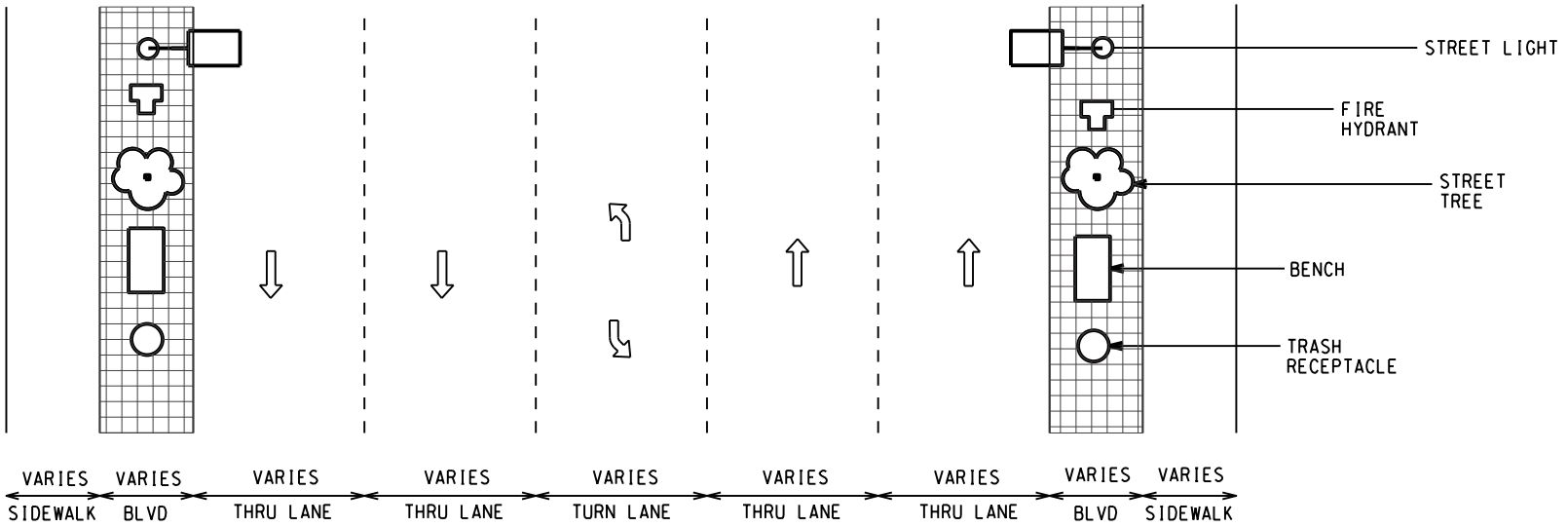

LEVEL 3 LAYOUT APPROVAL
PROJECT LOCATION
PAVEMENT REPLACEMENT PROJECT
FULL RECONSTRUCTION PROJECT
ROADWAY TYPICALS
MEDIAN TYPICALS
LEGEND
MATCHLINE - INSET 1
MATCHLINE - INSET 1

NOTE: STREETSCAPING ELEMENTS SUCH AS TREES, LIGHTING AND BENCHES ARE NOT PART OF THIS PROJECT. HOWEVER, THEY WILL BE INSTALLED AS PART OF A SEPARATE PROJECT.

PROPOSED TYPICAL SECTION



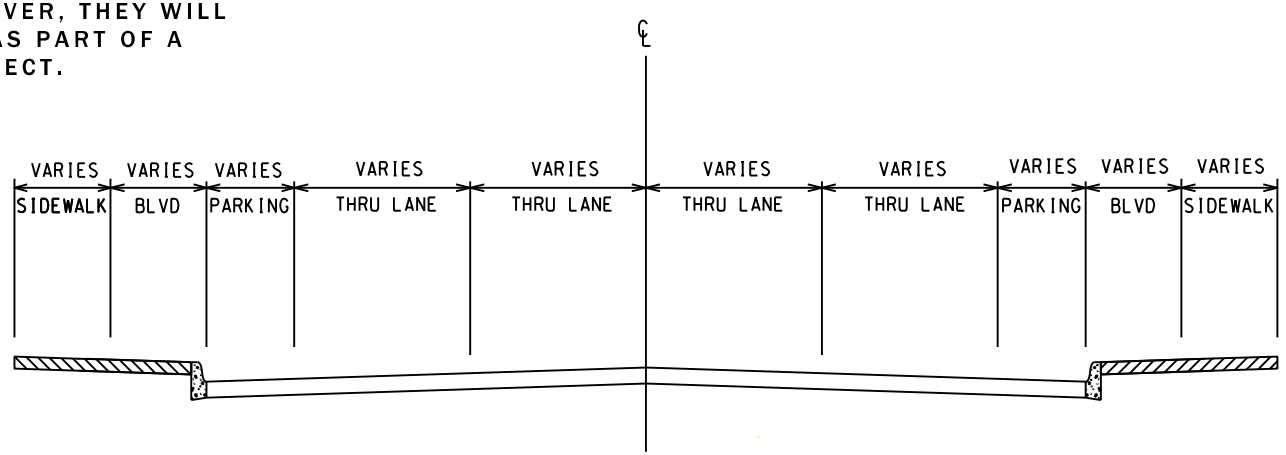
PROPOSED LAYOUT PLAN



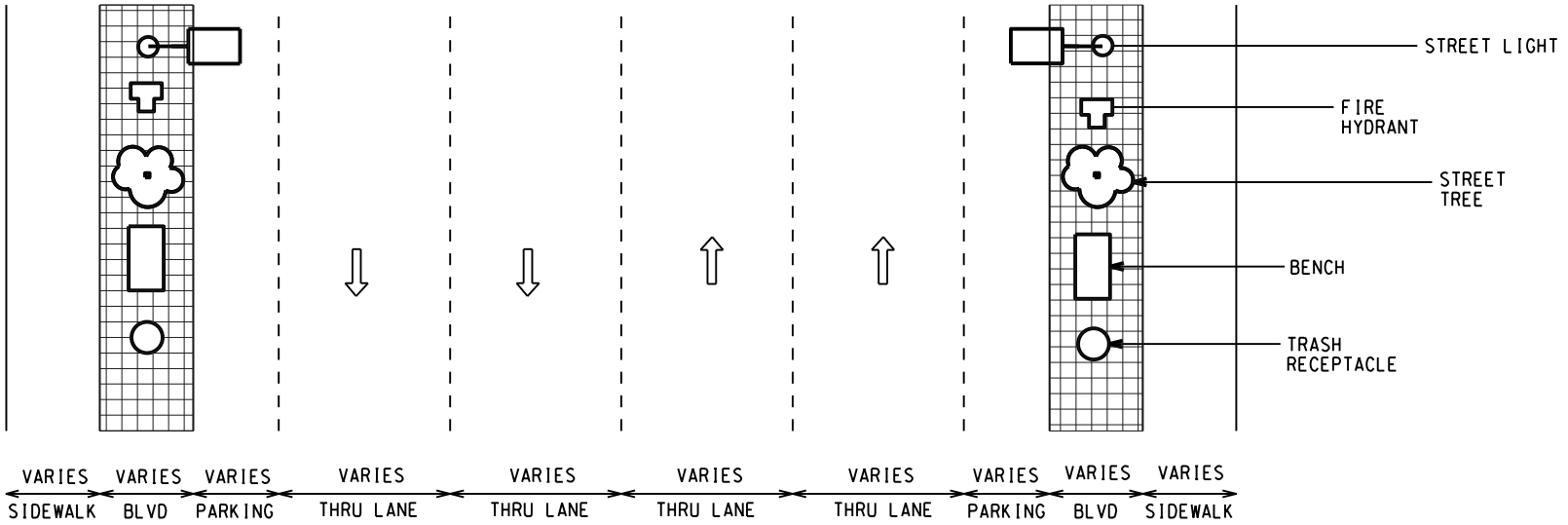
Hennepin	HENNEPIN COUNTY	TYPICAL SECTION - INTERSECTION WITH LEFT TURN LANES
		CSAH 3 (LAKE STREET) RECONSTRUCTION

NOTE: STREETSCAPING ELEMENTS SUCH AS TREES, LIGHTING AND BENCHES ARE NOT PART OF THIS PROJECT. HOWEVER, THEY WILL BE INSTALLED AS PART OF A SEPARATE PROJECT.

PROPOSED TYPICAL SECTION



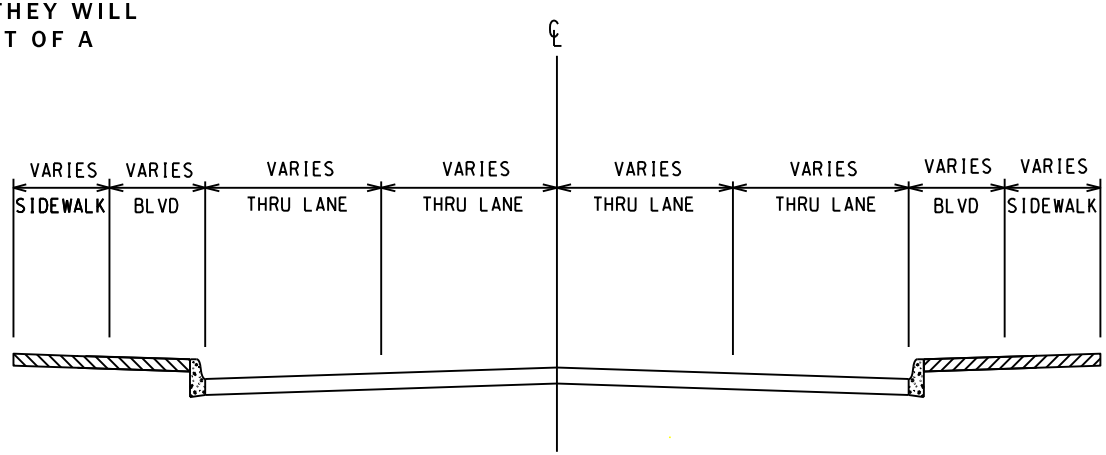
PROPOSED LAYOUT PLAN



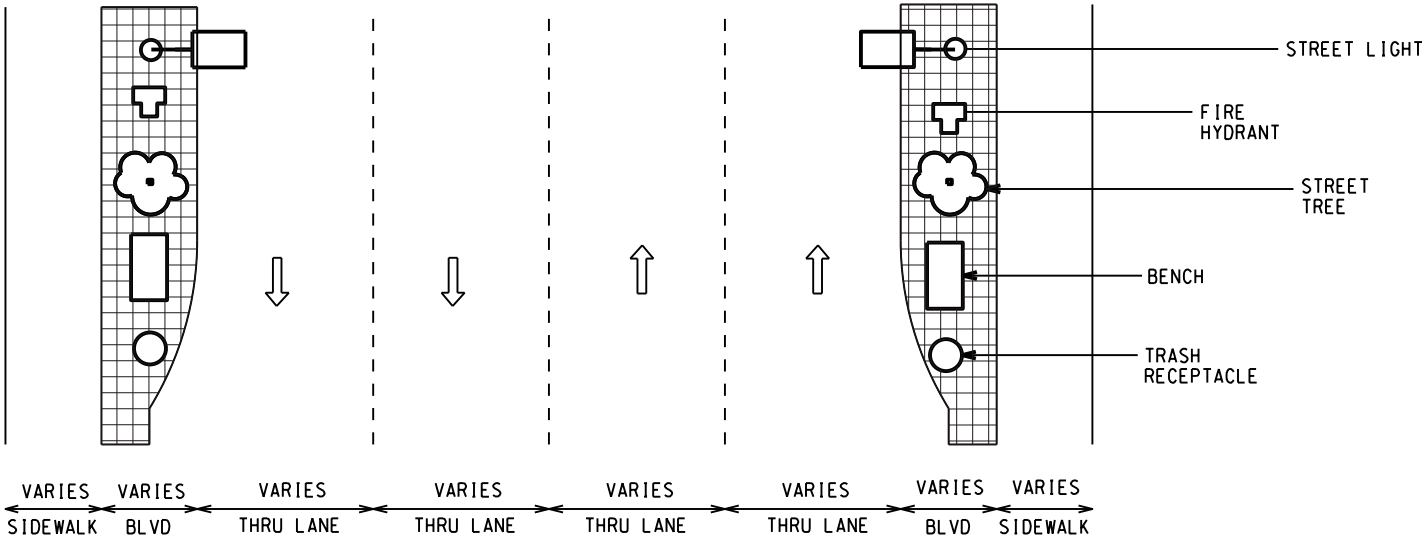
Hennepin	HENNEPIN COUNTY	TYPICAL SECTION - MID-BLOCK WITH PARKING
		CSAH 3 (LAKE STREET) RECONSTRUCTION

NOTE: STREETSCAPING ELEMENTS SUCH AS TREES, LIGHTING AND BENCHES ARE NOT PART OF THIS PROJECT. HOWEVER, THEY WILL BE INSTALLED AS PART OF A SEPARATE PROJECT.

PROPOSED TYPICAL SECTION



PROPOSED LAYOUT PLAN



Hennepin	HENNEPIN COUNTY	TYPICAL SECTION - INTERSECTION WITH BUMP OUTS
		CSAH 3 (LAKE STREET) RECONSTRUCTION

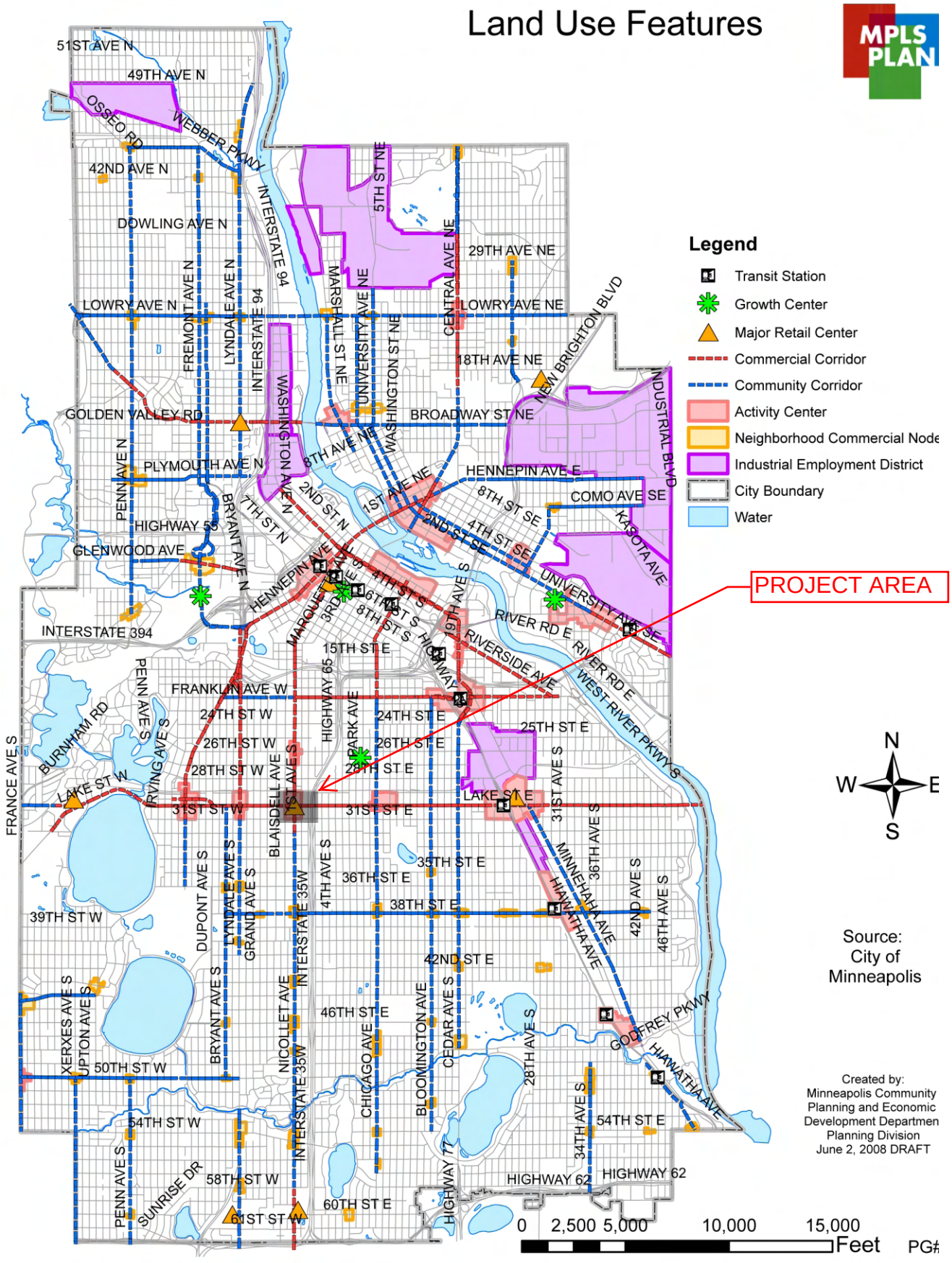


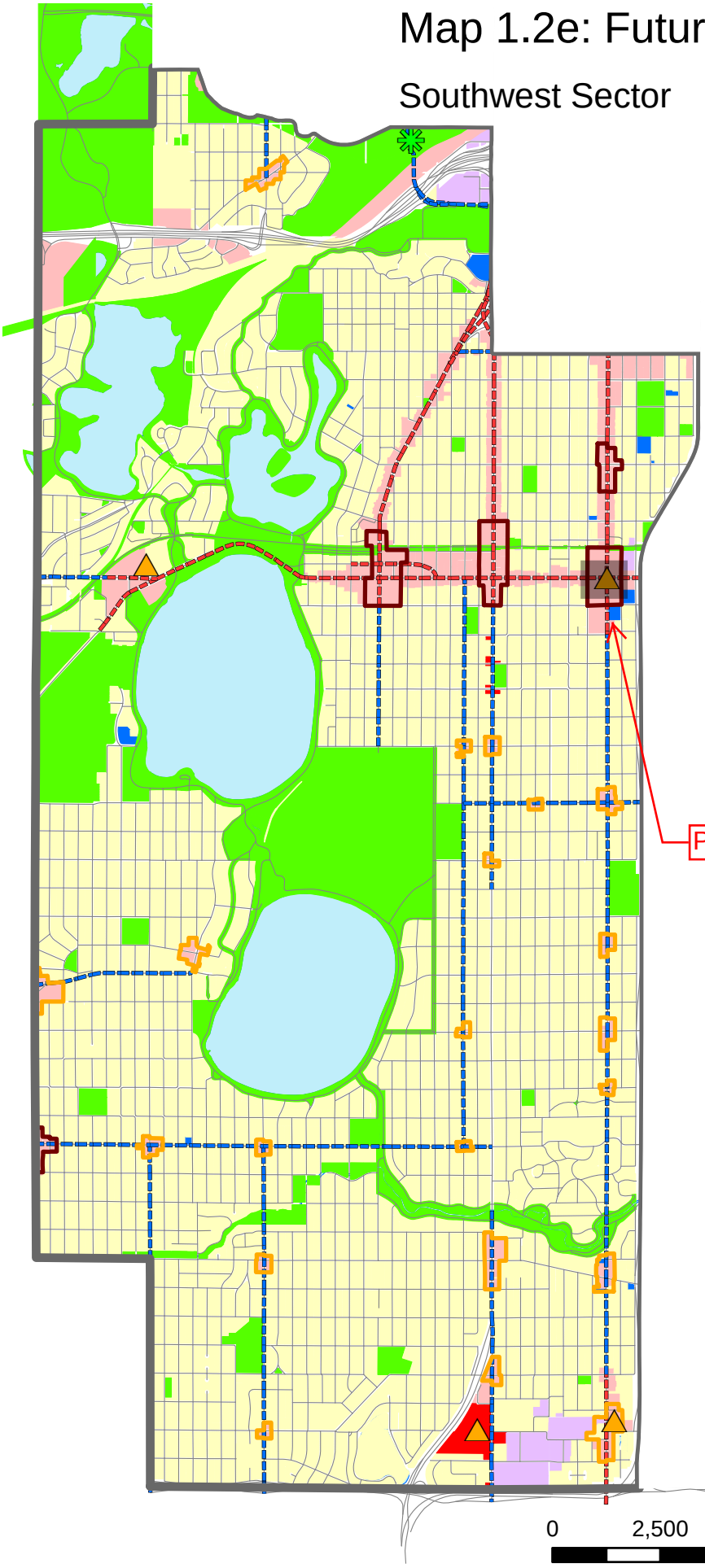
FIGURE 6 - LAND USE FEATURES

Map 1.2d: Future Land Use

South Sector

Map 1.2e: Future Land Use

Southwest Sector



Legend

- Transit Station
- Growth Center
- Major Retail Center
- Activity Center
- Neighborhood Commercial Node
- Industrial Employment District
- Commercial Corridor
- Community Corridor
- Urban Neighborhood
- Mixed Use
- Commercial
- Public and Institutional
- Transitional Industrial
- Industrial
- Parks and Open Space
- Water

Urban neighborhood contains a range of residential densities, with a limited amount of other uses appropriate in a residential setting.

For more details on categories, see narrative in land use chapter.

N
W E
S

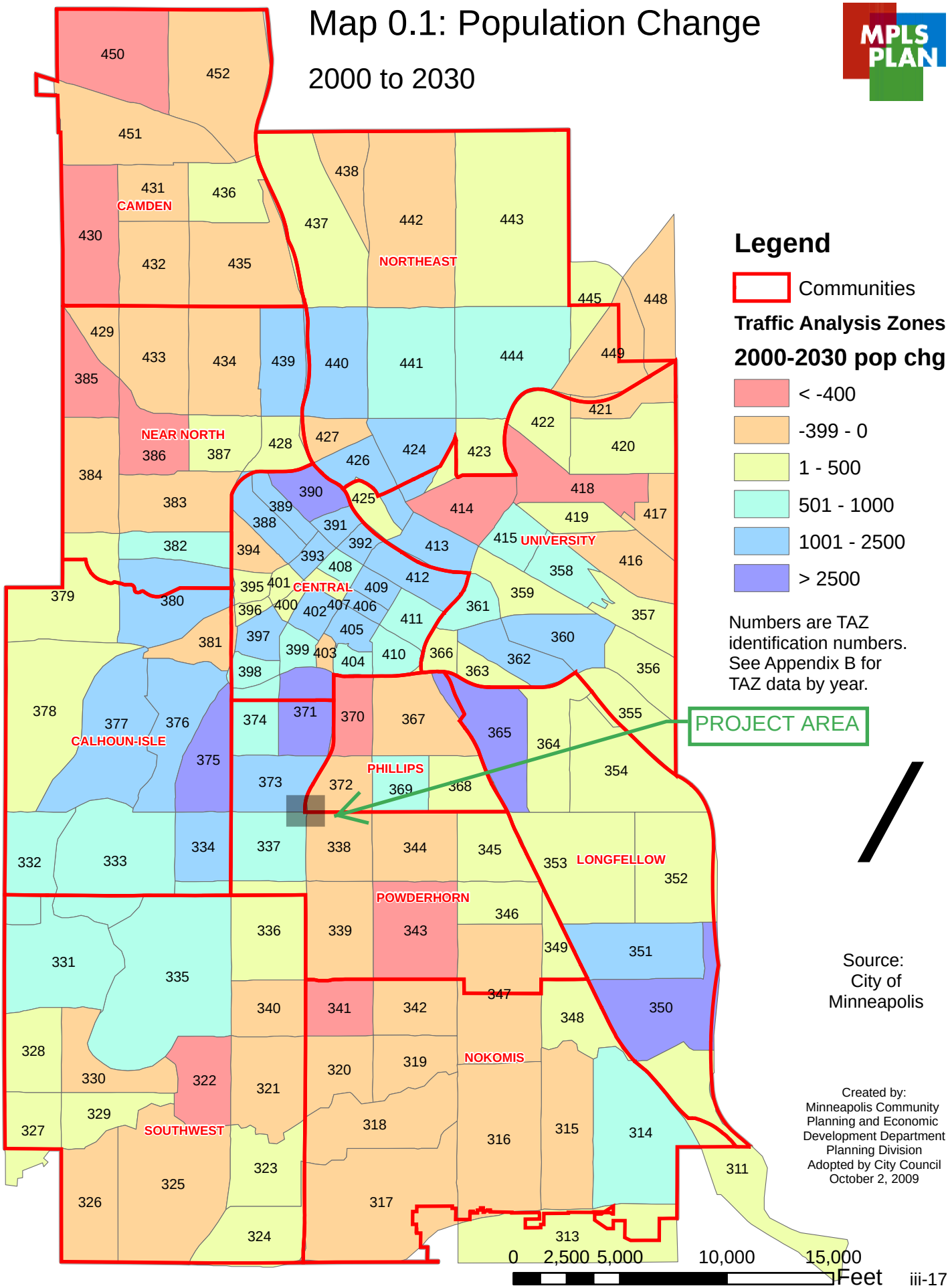
Source: City of Minneapolis

Created by:
Minneapolis Community Planning and Economic Development Department
Planning Division
Adopted by City Council
October 2, 2009

0 2,500 5,000 10,000 Feet

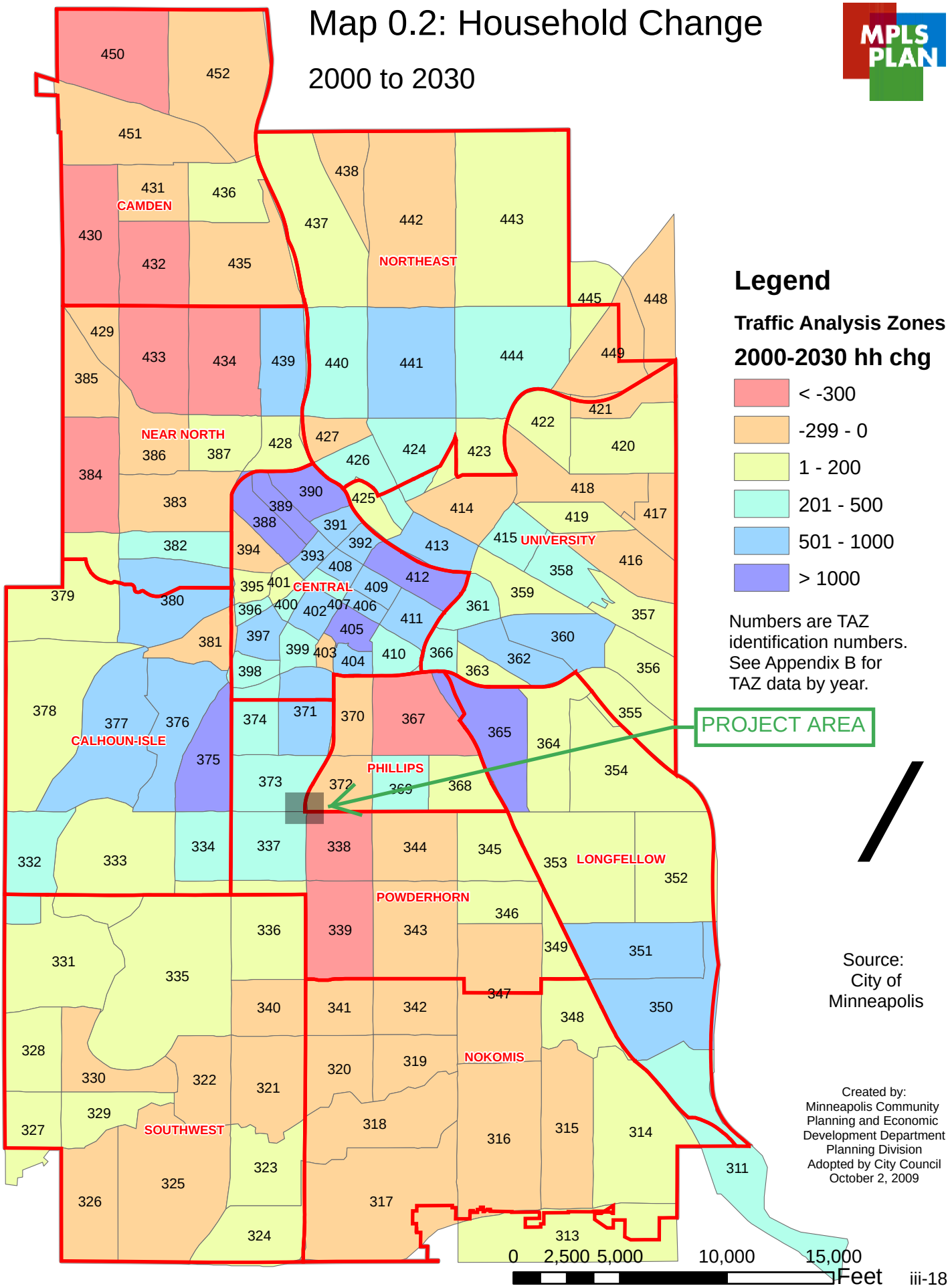
Map 0.1: Population Change

2000 to 2030



Map 0.2: Household Change

2000 to 2030



Legend

Traffic Analysis Zones

2000-2030 hh chg

- < -300
- -299 - 0
- 1 - 200
- 201 - 500
- 501 - 1000
- > 1000

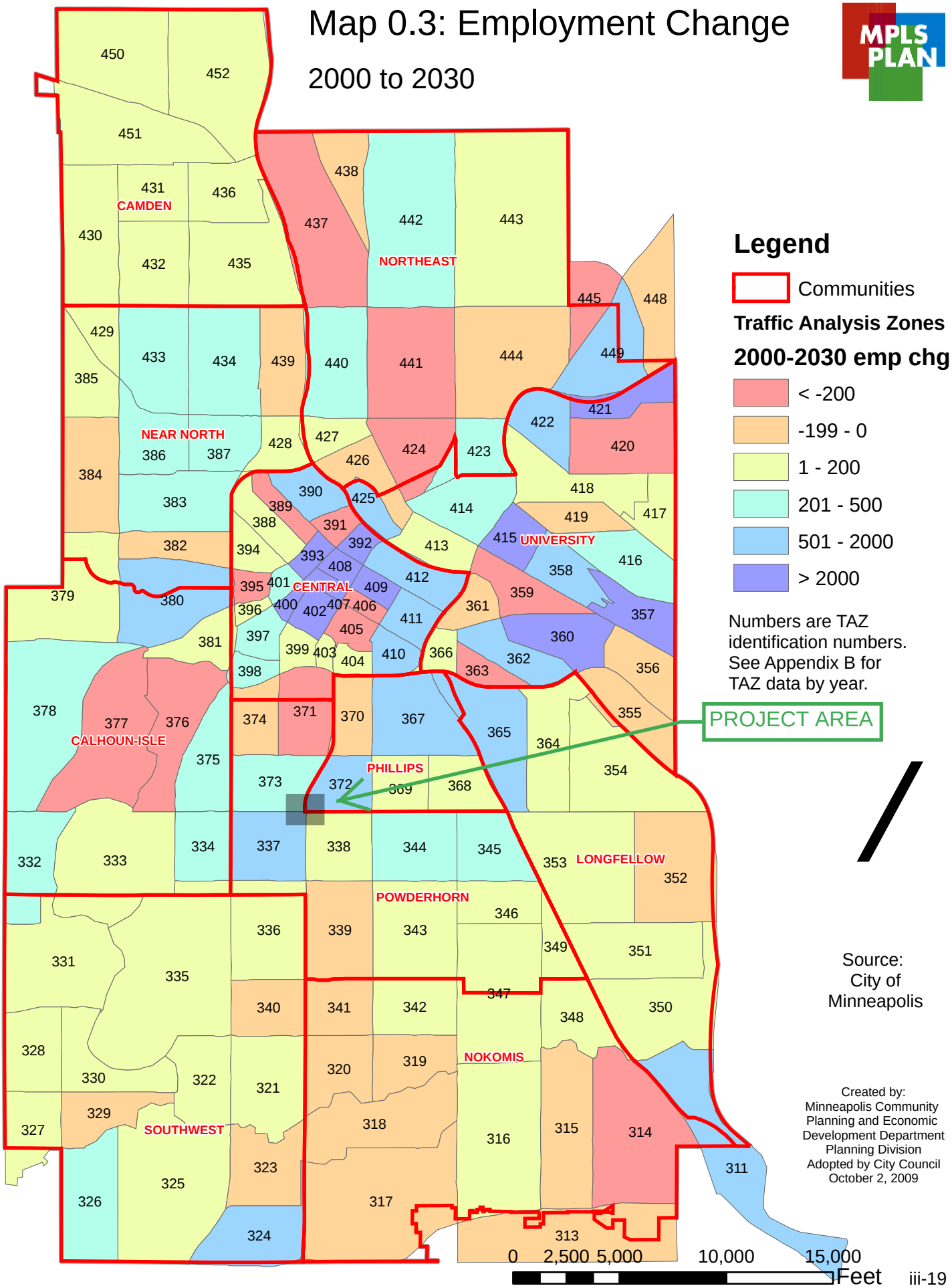
Numbers are TAZ identification numbers. See Appendix B for TAZ data by year.

Source: City of Minneapolis

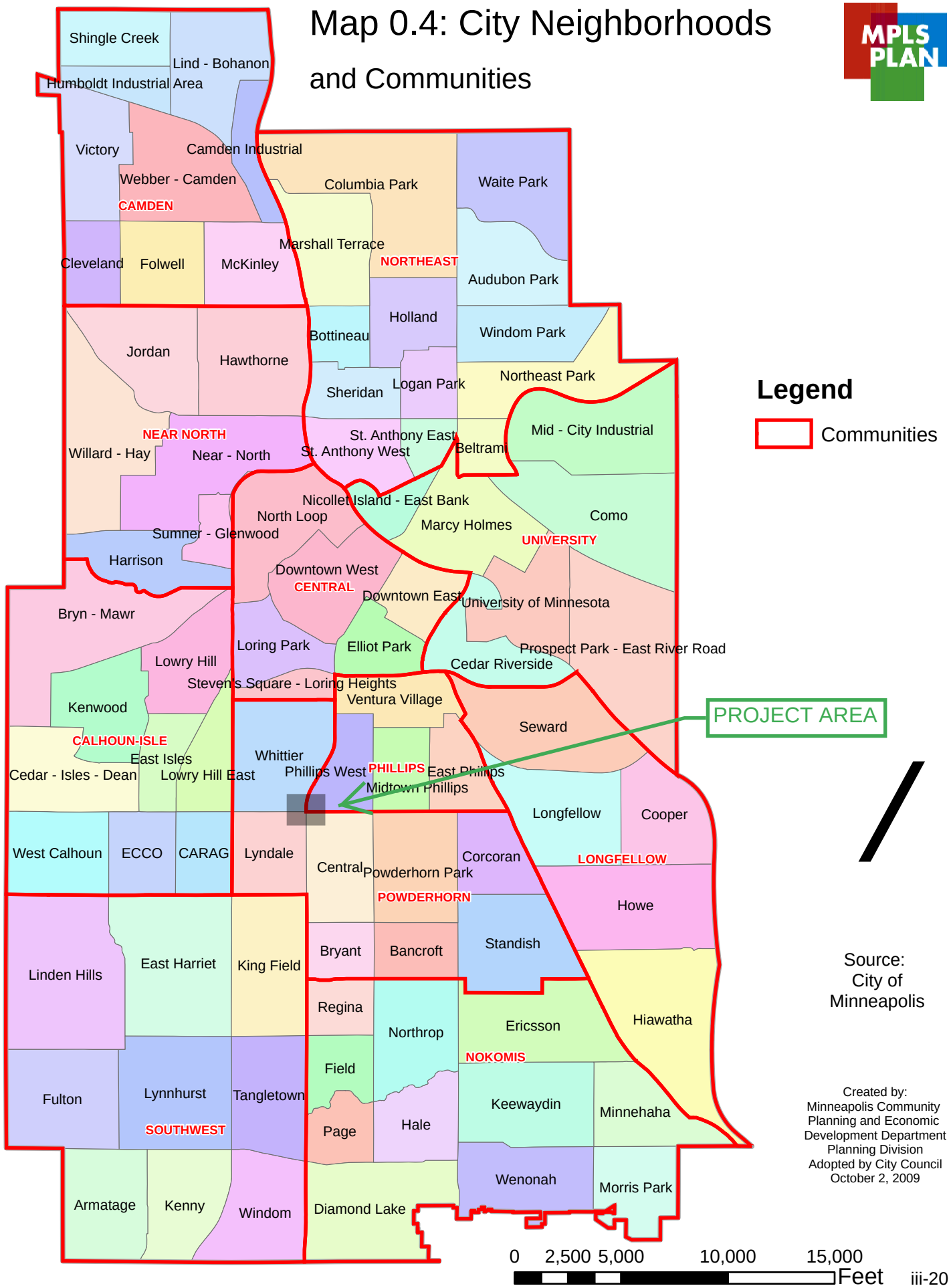
Created by:
Minneapolis Community Planning and Economic Development Department
Planning Division
Adopted by City Council
October 2, 2009

Map 0.3: Employment Change

2000 to 2030

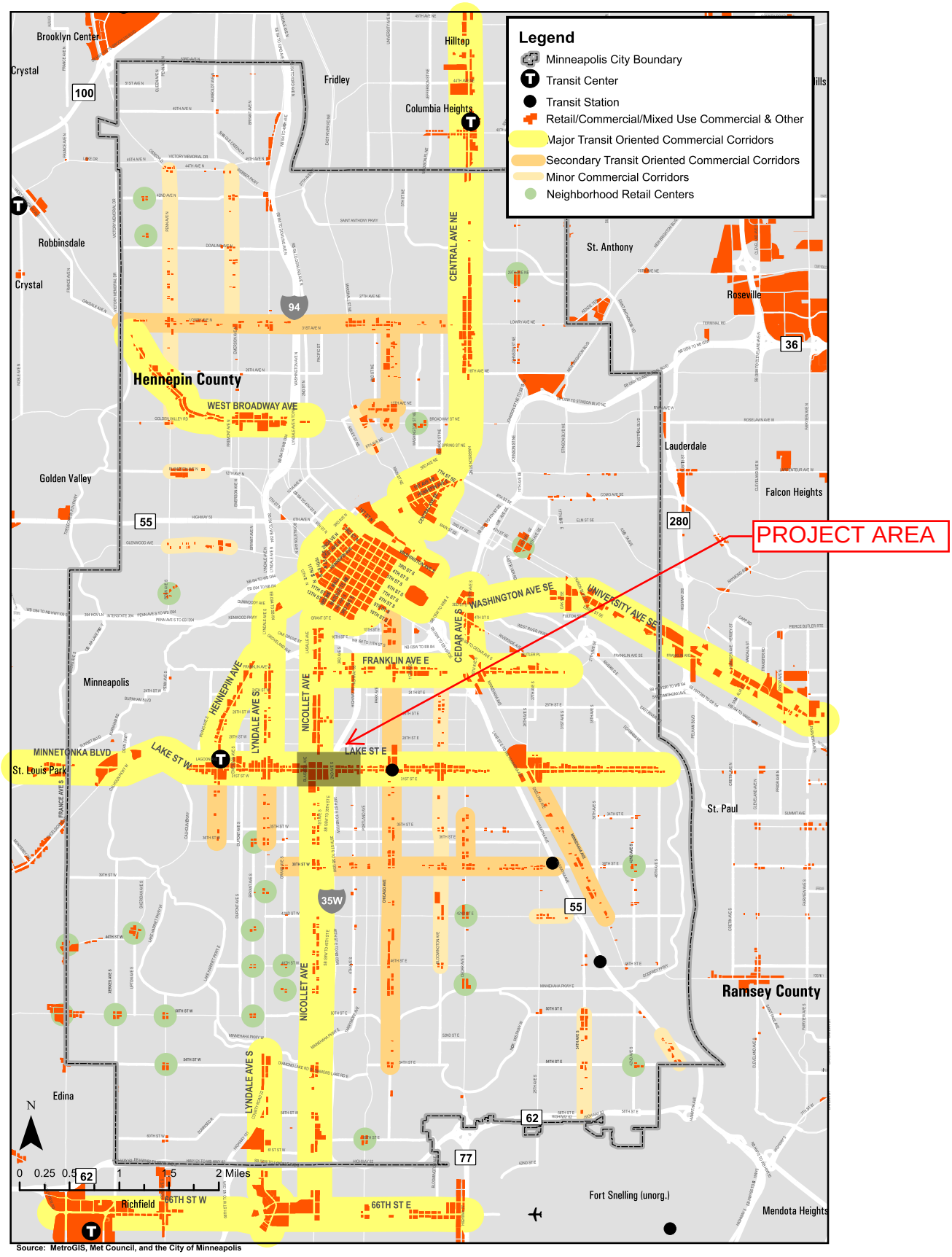


Map 0.4: City Neighborhoods and Communities



Source: City of Minneapolis

Created by:
Minneapolis Community Planning and Economic Development Department
Planning Division
Adopted by City Council
October 2, 2009



Source: MetroGIS, Met Council, and the City of Minneapolis

FIGURE 4 - HISTORIC DEVELOPMENT & TRANSPORTATION PATTERNS

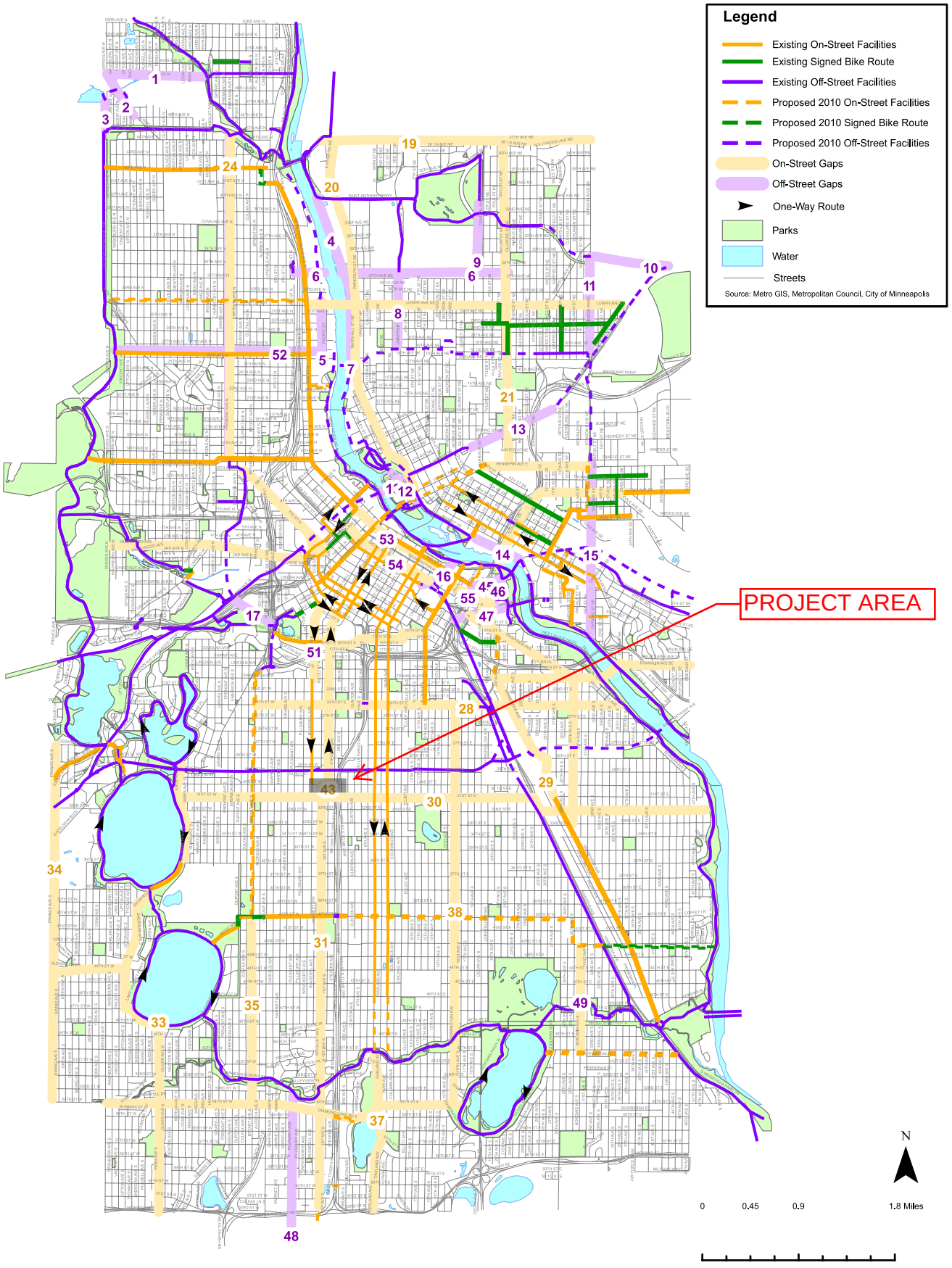
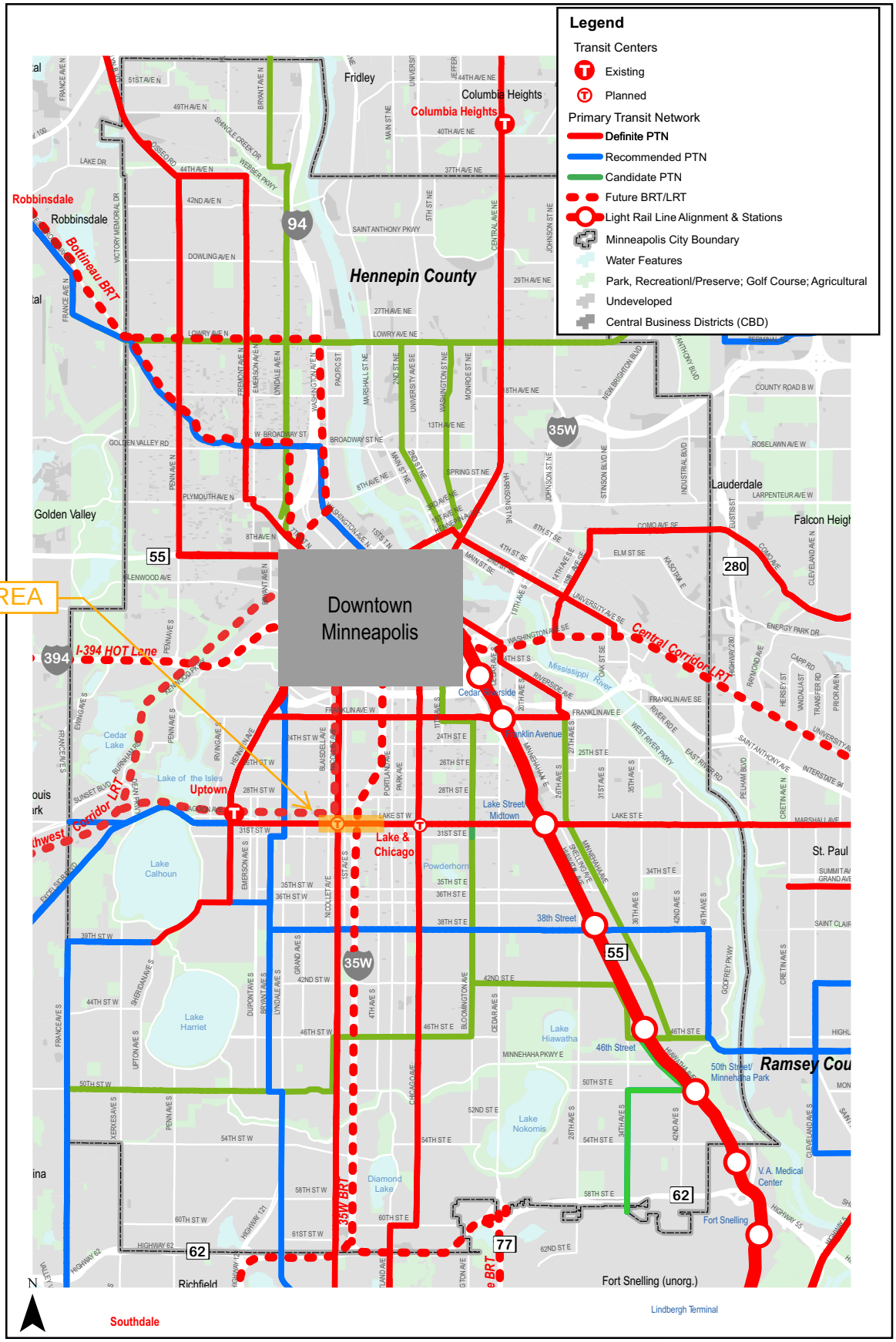


FIGURE 9 - EXISTING BICYCLE FACILITIES



Source: MetroGIS, Met Council, and the City of Minneapolis

FIGURE 20 - PRIMARY TRANSIT NETWORK

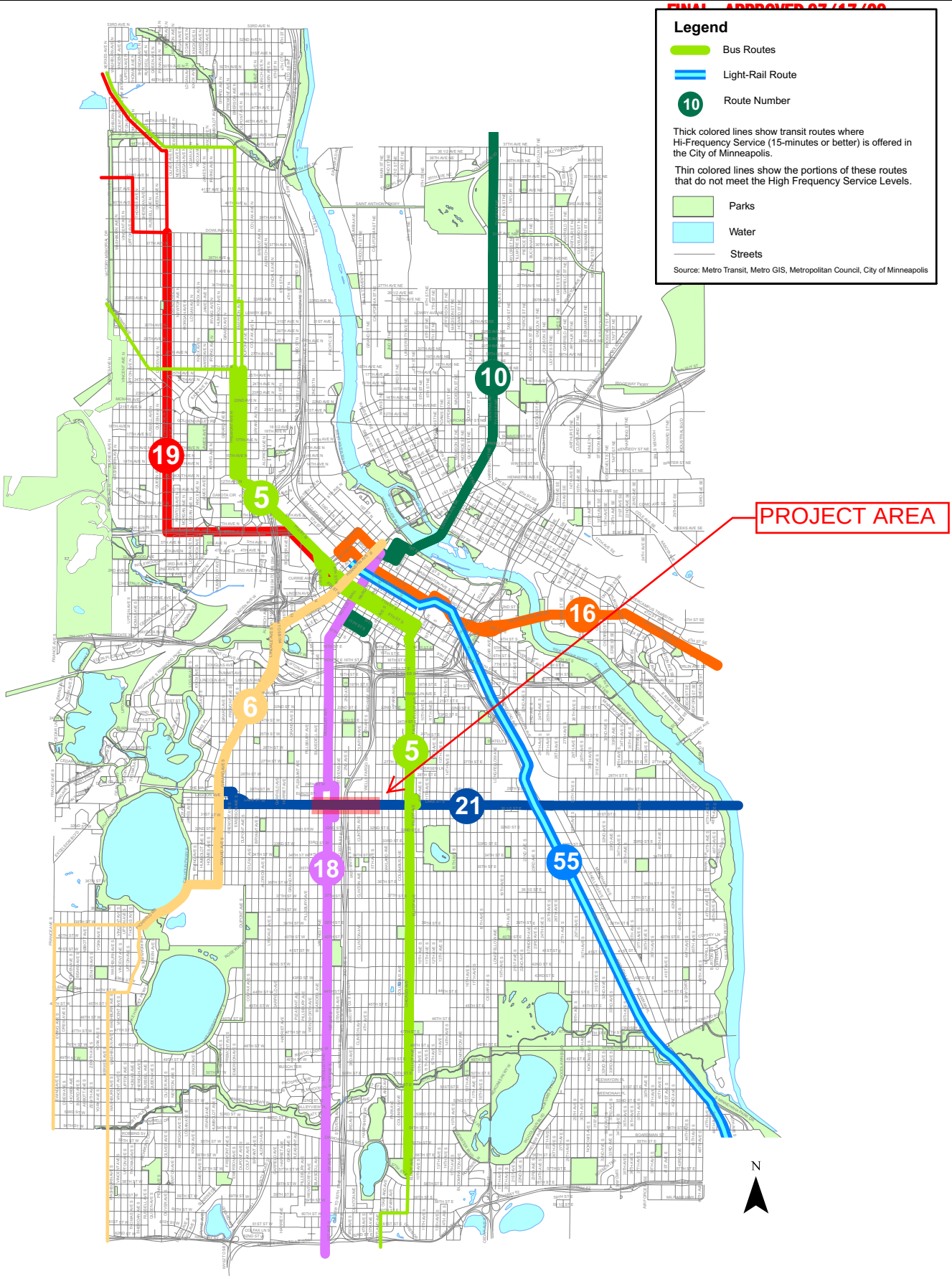
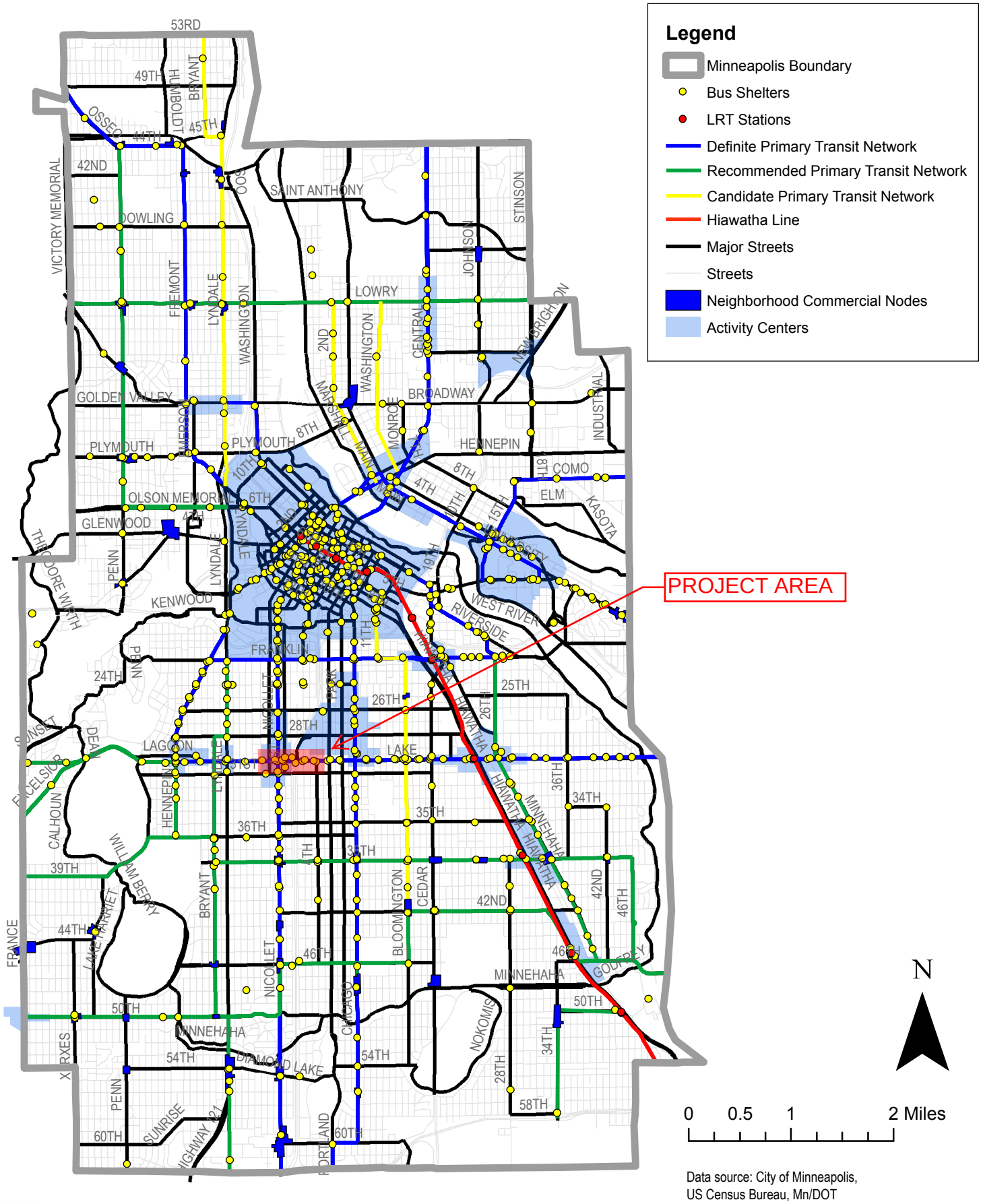


FIGURE 13 - HI-FREQUENCY TRANSIT NETWORK



Street Furniture Priority Locations

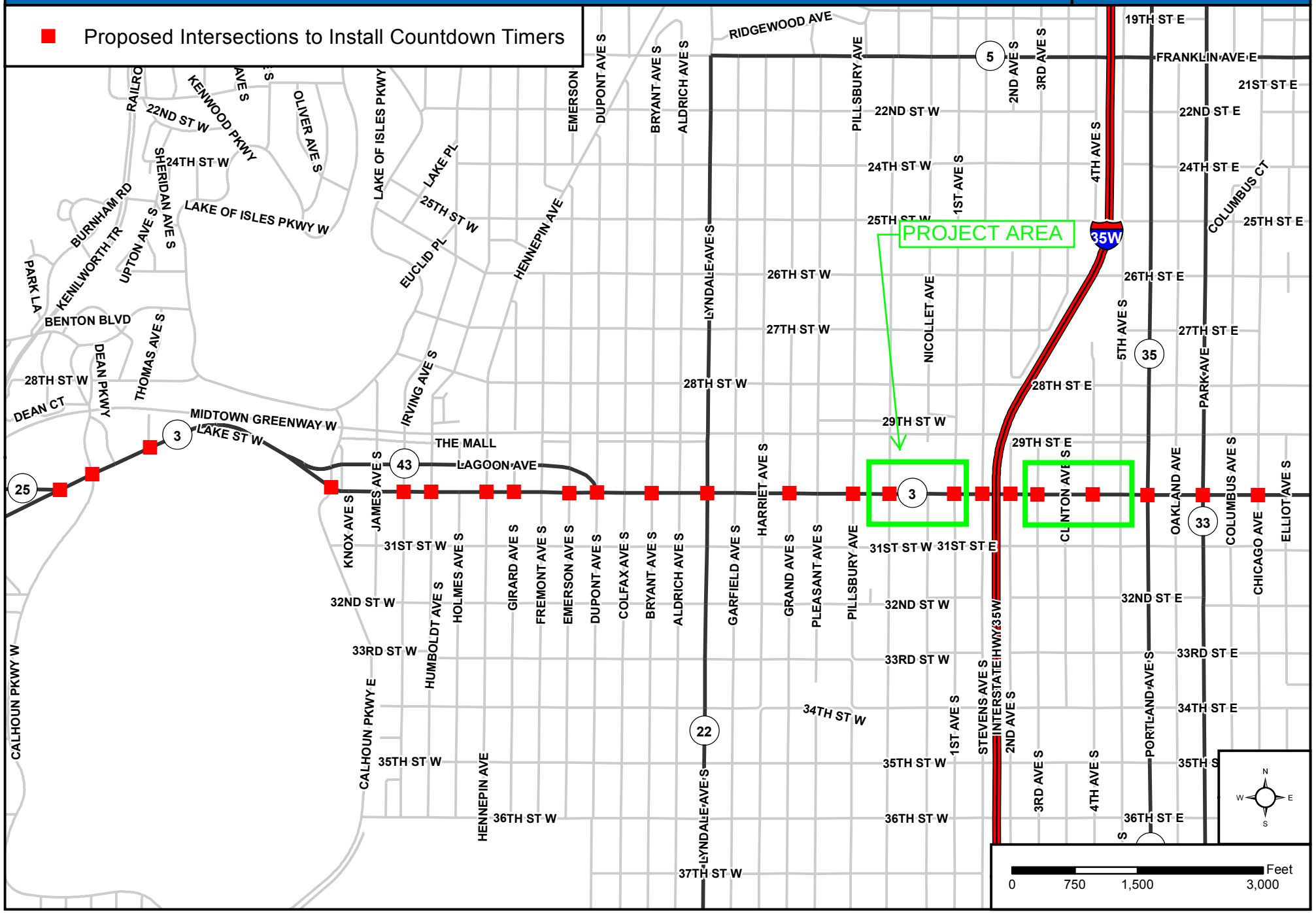
Coordinated Street Furniture Program

City of Minneapolis

SP 027-030-036 CSAH 003 (Lake Street) Countdown Timers

From Excelsior Boulevard to Chicago Avenue

Hennepin TRANSPORTATION PLANNING DIVISION

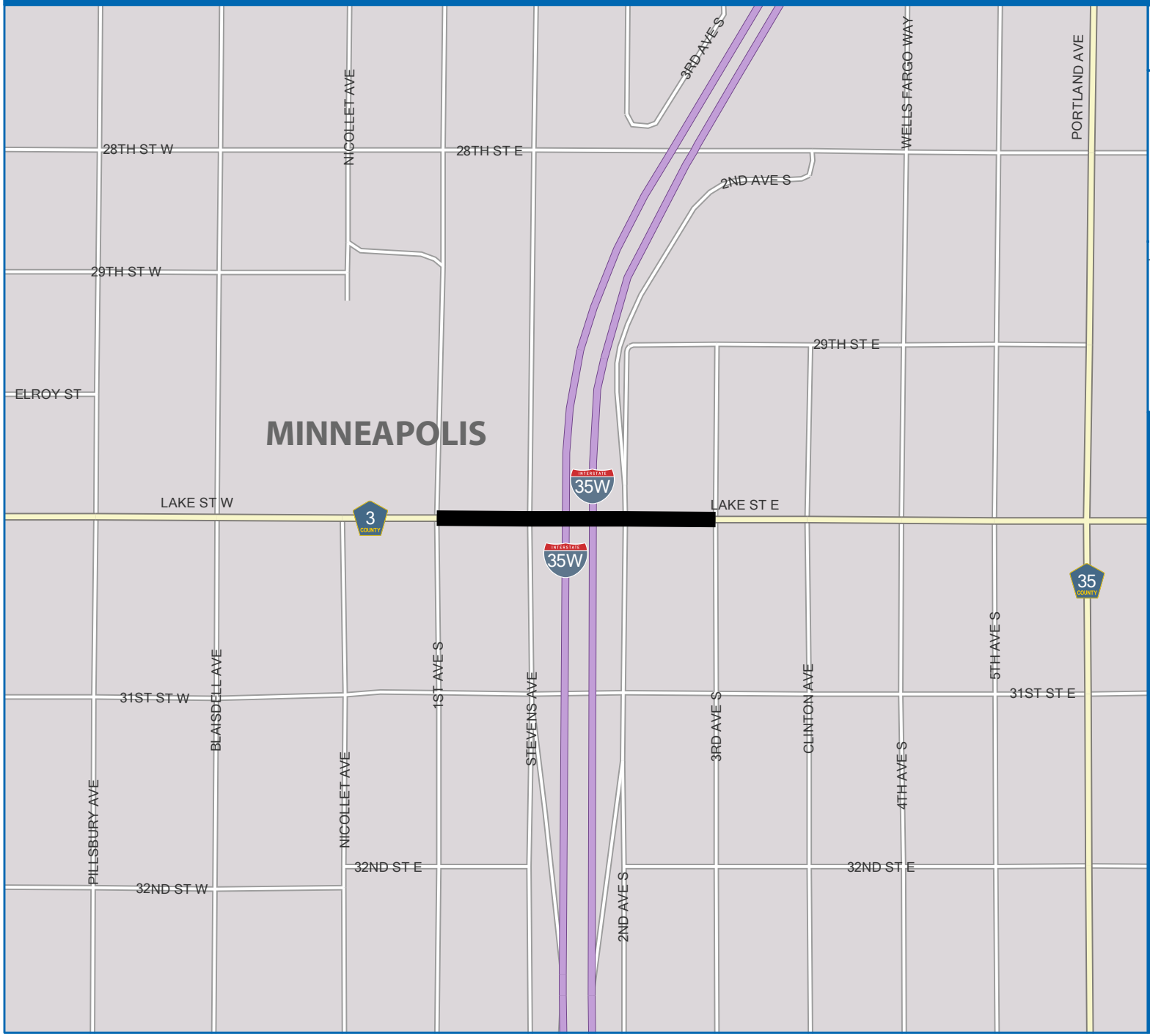


Project Location

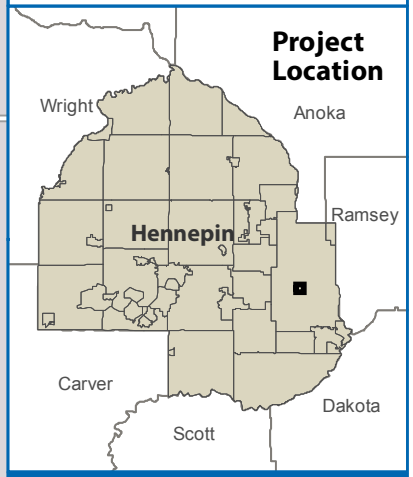
Project Number: 2986401 | CSAH 3 | Minneapolis

▶ Transportation

Hennepin County Public Works



Project Location



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Published: 9/24/2013

Hennepin County
Public Works

0 0.05 0.1
Miles

HENNEPIN COUNTY
MINNESOTA

2014 CAPITAL BUDGET
AND 2014-2018 CAPITAL IMPROVEMENT PLAN

Major Program: Public Works
Department: Transportation
Building:

Project Name: CSAH 3 - Participate in New Access Between Lake Street (CSAH 3) and I-35W
Project Number: 2986401
Funding Start: 2009 **Funding Complete:** 2015

Description & Location

The project will replace the limited access to/from I-35W at 31st Street East with more complete access at Lake Street (CSAH 3) in Minneapolis. The current limited access at 31st Street East provides only for southbound on-traffic and northbound off-traffic.

Purpose & Justification:

The purpose of the project is to provide better access between I-35W and Lake Street (CSAH 3) and provide transit improvements for the area including a new Orange Line Bus Rapid Transit (BRT) station in the median of I-35W with connections to/from Lake Street, the Midtown Greenway, Nicollet Avenue and I-35W. Better access will improve the socio-economic environment of the area. The area contains several sizable employers.

Project's Effect On Annual Operating Budget

No impact to department staff or annual operating cost.

Notes

The amount budgeted for the project reflects only the county's cost of participation. The $396,000 in Other Funding is municipal funds.

Cost Breakdown	Total
Land Acquisition	
Construction	
Consulting	$7,320,000
Furnishings/Equipment	
Contingency	
TOTAL	$7,320,000

Funding Source	Previous Appropriations	2014 Estimate	2015 Estimate	2016 Estimate	2017 Estimate	2018 Estimate	Beyond 2018 Estimate	TOTAL
Property tax	$40,000		$40,000					$80,000
Bonding								
Federal	$4,400,000							$4,400,000
State	$2,444,000							$2,444,000
Enterprise income								
Other	$396,000							$396,000
TOTAL	$7,280,000		$40,000					$7,320,000

CITY OF MINNEAPOLIS

CAPITAL IMPROVEMENT PROJECTS
2014 CONSTRUCTION
PROPOSED: 2015 - 2019 CAPITAL PLAN

N

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS

May 15, 2014

SUBJECT TO CHANGE

LEGEND

- BIK20 BIKE
- SWK01 SIDEWALK
- BR101 BRIDGE
- PV001 PARKWAY
- PV006 PAVING
- PV056 RESURFACING
- PV061 HIGH VOLUME RESURFACING
- PV074 CSAH
- TR008 TRAFFIC
- SW004 CSO
- SW011 TUNNEL
- SA001 SANITARY SEWER
- SA036 I & I REMOVAL
- WTR12 WATER

2015 SIDEWALK REPAIR UNDER PENN & PENN EAST

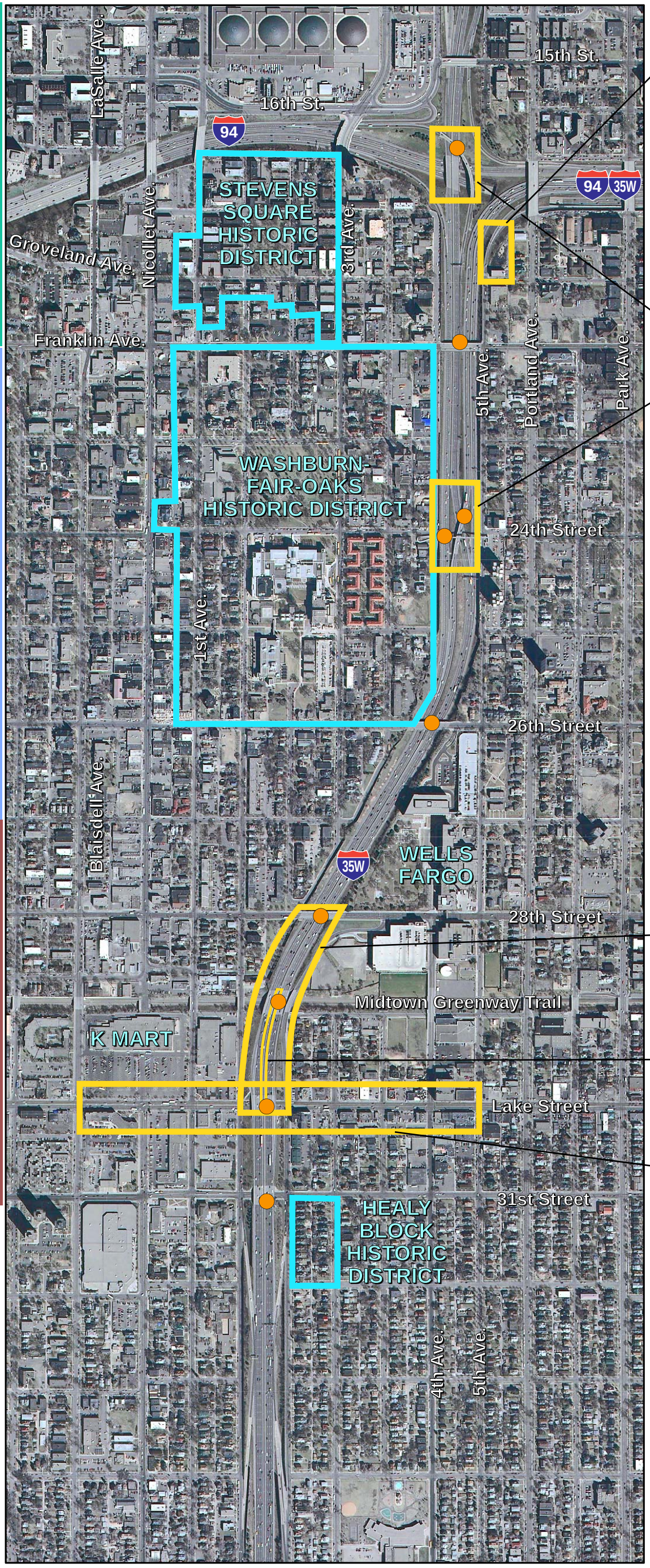
	ID	PROJECT NAME	2014	2015	2016	2017	2018	2019
BIKE	BIK20	Hiawatha LRT Trail Lighting						
	BIK20	Bluff St Bike Trail						
MISC	SWK01	Defective Hazardous Sidewalks/Complete Gaps Citywide	2014	2015	2016	2017	2018	
	PV072	Pedestrian Improvement Project (see Paving section below)						
			2014	2015	2016	2017	2018	2019
BRIDGE	BR101	Major Bridge Repair & Rehabilitation (4210 2013 = Bridge Number / Year)						
	BR106	1st Ave S over HCRRA						
	BR110	St Anthony Parkway Bridge (North Town Bridge) & California St						
	BR111	10th Ave SE Bridge Arch Rehabilitation						
	BR116	Bridge 9 Improvements						
	BR117	1st St N Bridge over Bassett's Creek (Storm Sewer Project)						
	BR123	28th Ave S over Minnehaha Creek						
	BR126	40th St Pedestrian/Bicycle Bridge						
	BR127	Nicollet Ave over Minnehaha Creek						
	BR130	7th Street Ramp Bridge over 35W						
			2014	2015	2016	2017	2018	2019
PAVING	PV001	Parkway Paving (Parkway Paving / Parkway Sealcoating) PAVE / SEALCOAT	P 2014 S 2014	P 2015 S 2015	P 2016 S 2016	P 2017 S 2017	P 2018 S 2018	P Future S Future
	PV006	Alley Renovation 2014 2015 - 2019						
	PV019	6th Ave N (5th St N to dead end north of Washington Ave N)						
	PV027	Hennepin/Lyndale (Groveland to EB Ramp north of Dunwoody Blvd)						
	PV054	8th St S, Hennepin Ave to Chicago Ave						
	PV056	Asphalt Pavement Resurfacing Program						
	PV059	Major Pavement Maintenance (Sealcoating) 2014						
	PV061	High Volume Reconditioning						
	PV063	Unpaved Alley Construction (Not on Map)						
	PV067	Nawadaha Blvd & Minnehaha Ave						
	PV068	LaSalle Ave (Grant to 8th St S)						
	PV069	Penn Ave S (north of 54th St W to 50th St W)						
	PV070	15th Ave S & 4th St S Reconstruction						
	PV072	Pedestrian Improvement Project						
	PV073	26th Ave N (W Broadway to Lyndale Ave N)						
	PV074	CSAH & MnDOT Cooperative Projects						
	PV076	38th St E, Hiawatha to Minnehaha						
	PV080	18th Ave NE, Monroe St NE to Johnson St NE						
	PV083	Minnehaha Ave, 24th St E to 26th Ave S (Expanded Program)						
	PV084	54th St W, Penn Ave S to Lyndale Ave S						
	PV086	26th Ave N - Wirth to Broadway and Lyndale to River						
	PV087	34th Ave S - 54th St E to Minnehaha Pkwy (Expanded Program)						
	PV094	4th St SE - 25th Ave SE to 29th Ave SE						
	PV095	4th St N & S, 2nd Ave N to 4th Ave S						
	PV096	42nd Ave N, Xerxes Ave N to Lyndale Ave N						
	PV097	18th Ave NE Trail Gap						
	PV098	Hiawatha Trail Gap, 28th St E to 32nd St E						
	PV099	26th St & 28th St Buffered Bike Lanes (Hiawatha to 35W)						
	PV101	29th St W from Fremont to Lyndale						
	PV103	61st St W, Lyndale Ave S to Nicollet Ave S						
	PV104	ADA Ramp Replacement Program (2014 projects shown on map)						
	PV00R	Reimbursable Paving Projects (Not on Map)						
			2014	2015	2016	2017	2018	2019
TRAFFIC	TR008	Parkway Street Light Replacement Citywide						
	TR010	Traffic Management Systems						
	TR011	City Street Light Renovation Citywide						
	TR021	Traffic Signals Shown on map as:						
	TR022	Traffic & Safety Improvements (2014 Projects on Map)						
	TR024	Pedestrian Level Lighting (Not on Map)						
	TR025	Sign Replacement (Not on Map)						
	TR00R	Reimbursable Transportation Projects Citywide						
			2014	2015	2016	2017	2018	2019
STORM DRAIN	SW004	Implementation of US EPA Storm Water Regulations Citywide						
	SW005	1 Combined Sewer Overflow Improvements						
	SW011	Storm Drains & Tunnels Rehabilitation Program						
	SW018	Flood Areas 29 & 30 - Fulton Neighborhood						
	SW032	I-35W Storm Tunnel Reconstruction (New Tunnel Segment)						
	SW033	Flood Area 22 - Sibley Field Holding Pond						
	SW034	Flood Area 21 - Bloomington Holding Pond						
	SW039	Flood Mitigation w/Alternative Storm water Management (Not on Map)						
	SW99R	Reimbursable Sanitary Sewer Projects						
			2014	2015	2016	2017	2018	2019
SANITARY	SA001	Sanitary Sewer and Tunnel Rehabilitation Citywide						
	SA036	Infiltration & Inflow Removal Program						
	SA99R	Reimbursable Sanitary Sewer Projects (not on map)						
			2014	2015	2016	2017	2018	2019
WATER	WTR12	Water Distribution Improvements (not on map) Citywide						
	WTR18	Hiawatha Water Maintenance Facility (not on map) Citywide						
	WTR23	Treatment Infrastructure Improvements (not on map) Citywide						
	WTR24	Fridley Filter Rehabilitation (not on map)						
	WTR25	Ground Water Supply (not on map)						
	WTR26	Recarbonation System Replacement (not on map)						
	WTR27	Meter Replacement Program (not on map)						
	WTR28	Ultrafiltration Module Replacement (not on map)						
	WTR0R	Reimbursable Water main Projects (not on map) Citywide						

Project Area Segments

I-94 Segment

I-35W North Segment

I-35W South Segment



New Ramp Bridge – The 5th Avenue entrance to NB I-35W requires a new ramp bridge over the new system connection to EB I-94.

Replacement of 2 Freeway System Bridges — The bridges indicated below are nearly 45 years old and are both structurally and functionally deficient. Both bridges also carry significant traffic and are priorities for replacement and reconfiguration.

- **I-94 WB Flyover from I-35W NB** – This flyover is commonly congested and is the site of frequent crashes.
- **I-35W SB Braid Bridge and 24th St. Pedestrian Bridge** – Replacement of the Braid Bridge is expected to interact with possible replacement of the 24th St. pedestrian bridge, which is above the Braid Bridge.

(Bridge replacements are proposed at locations denoted with " ● .")

New Lake St. and 28th St. Access –

- To NB I-35W from Lake St.
- To Lake St. from SB I-35W
- To 28th St. from NB I-35W

Area under consideration for new BRT station location – BRT station implementation must provide pedestrians with connections to both Lake St. and the Midtown Greenway.

Lake St. Improvements from Blaisdell Ave. to 5th Ave. – Design must include an effective connection from Lake St., which runs beneath I-35W, to the planned freeway-level BRT station.

LEGEND

- Bridge Replacements Proposed
- Historic Districts
- Major Design Elements

North

0 800 1,600

Approximate scale in feet

EXHIBIT 1
Study Area Map
I-35W-Lake Street Transit/Access Project

Regional Economy

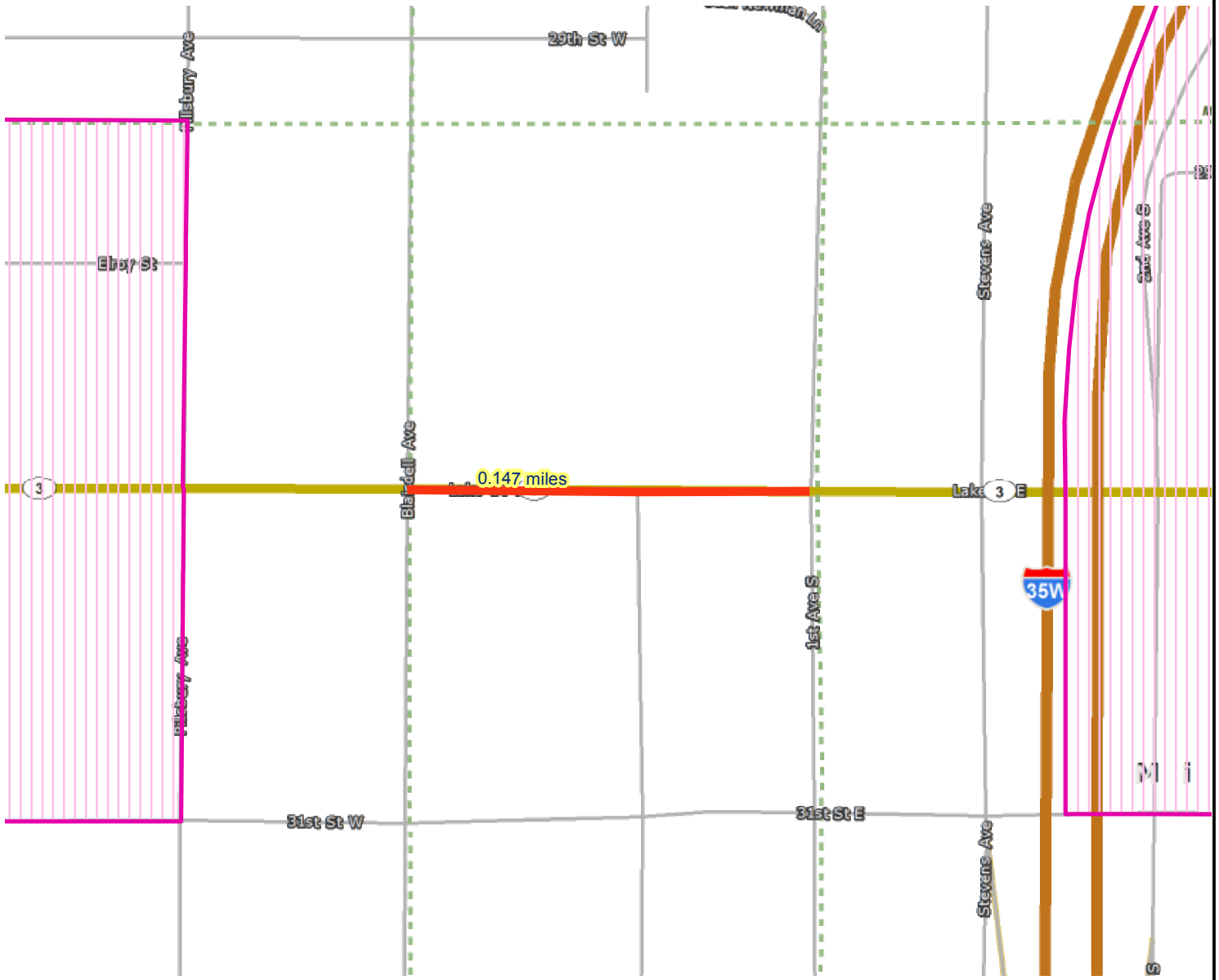
Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment A | Map ID: 1415630353541

Results

Project **NOT IN** area of Job Concentration.

Project **NOT IN** to area of Manufacturing and Distribution.

Project **NOT CONNECTED** to area of Education Institutions.



Project
Manfacturing/Distribution Centers
PostSecondary Education Centers
Job Concentration Centers

0 0.035 0.07 0.14 0.21 0.28 Miles

Created: 11/10/2014
LandscapeRSA5

For complete disclaimer of accuracy, please visit
http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN COUNCIL

Regional Economy

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment B | Map ID: 1415630464941

Results

Project **IN** area of Job Concentration.

Project **NOT IN** to area of Manufacturing and Distribution.

Project **NOT CONNECTED** to area of Education Institutions.

Created: 11/10/2014
LandscapeRSA5

For complete disclaimer of accuracy, please visit
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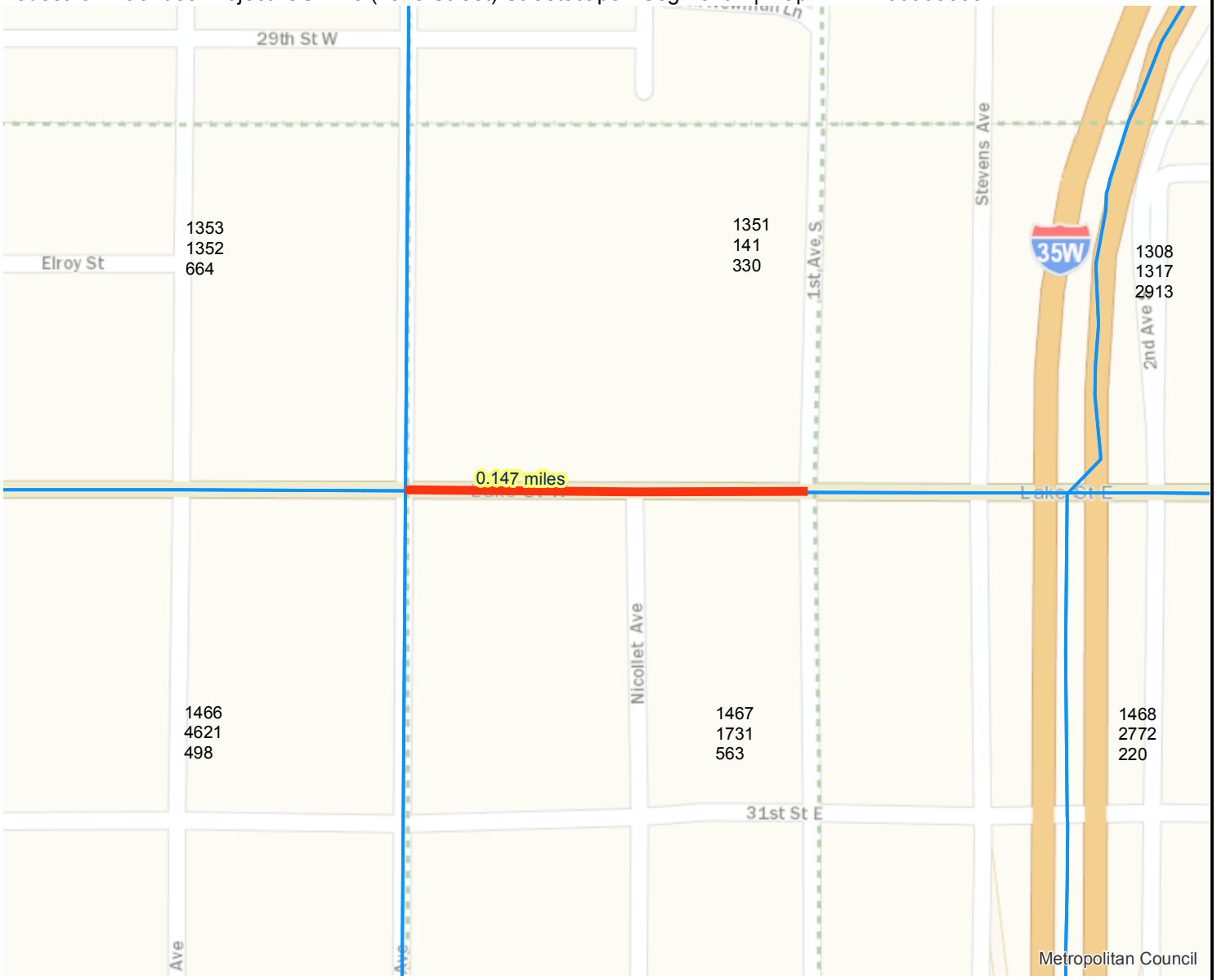
METROPOLITAN COUNCIL

Population Summary

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment A | Map ID: 1415630353541



Results

Within HALF Mile of project:
Total Population: 34559
Total Employment: 13382

Project
School
2010 TAZ

0 0.035 0.07 0.14 0.21 0.28 Miles

Created: 11/10/2014
LandscapeRSA4

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http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

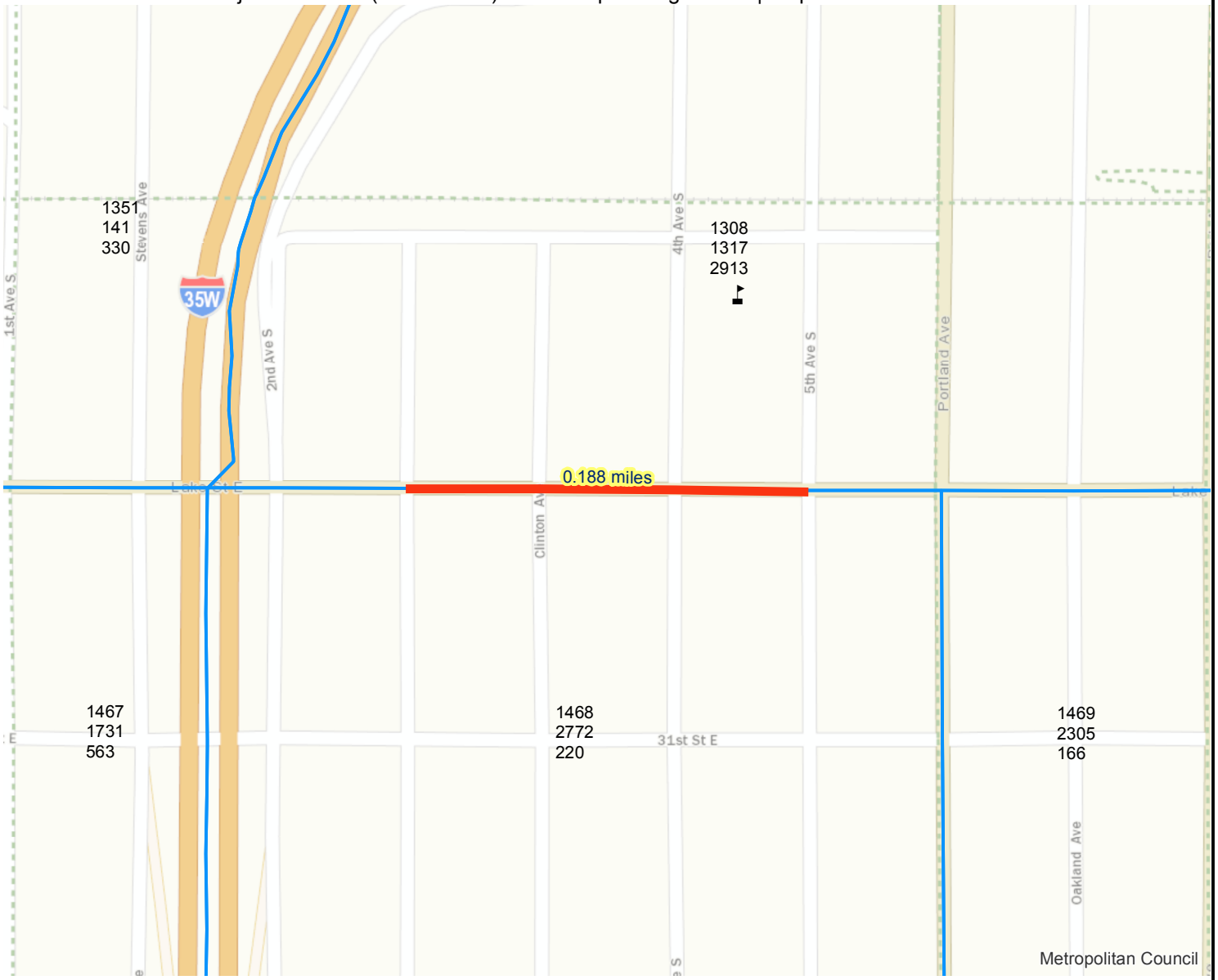
METROPOLITAN COUNCIL

Population Summary

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment B | Map ID: 1415630464941

Results

Within HALF Mile of project:
Total Population: 31143
Total Employment: 15719



Project
School
2010 TAZ

0 0.045 0.09 0.18 0.27 0.36 Miles

Created: 11/10/2014
LandscapeRSA4

For complete disclaimer of accuracy, please visit
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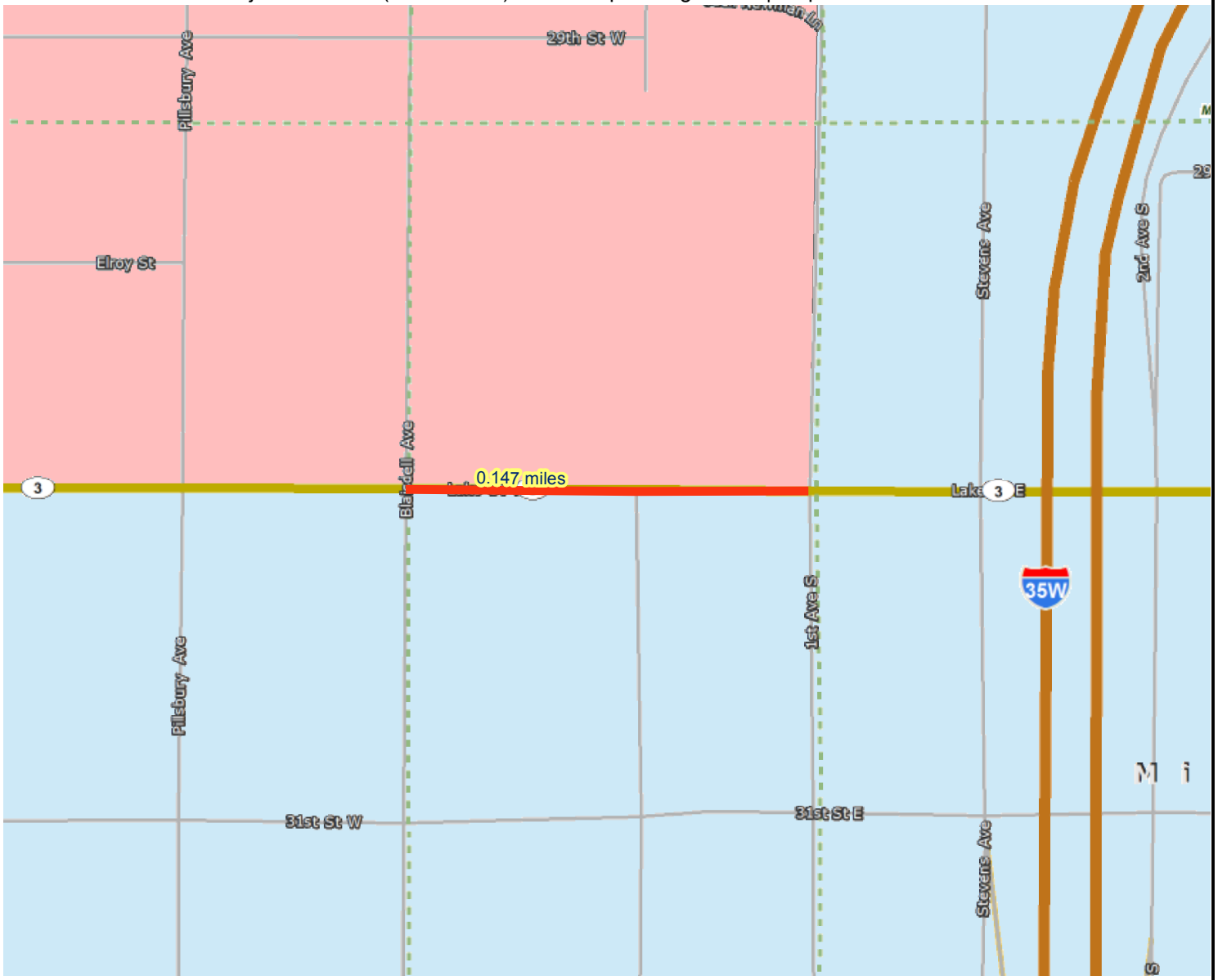
METROPOLITAN COUNCIL

Socio-Economic Conditions

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment A | Map ID: 1415630353541

Results

Project **IN** a concentrated area of poverty.



Project

Concentrated area of poverty

Racially concentrated area of poverty

Above reg'l avg conc of race/poverty

0 0.035 0.07 0.14 0.21 0.28 Miles

Created: 11/10/2014
LandscapeRSA2

For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

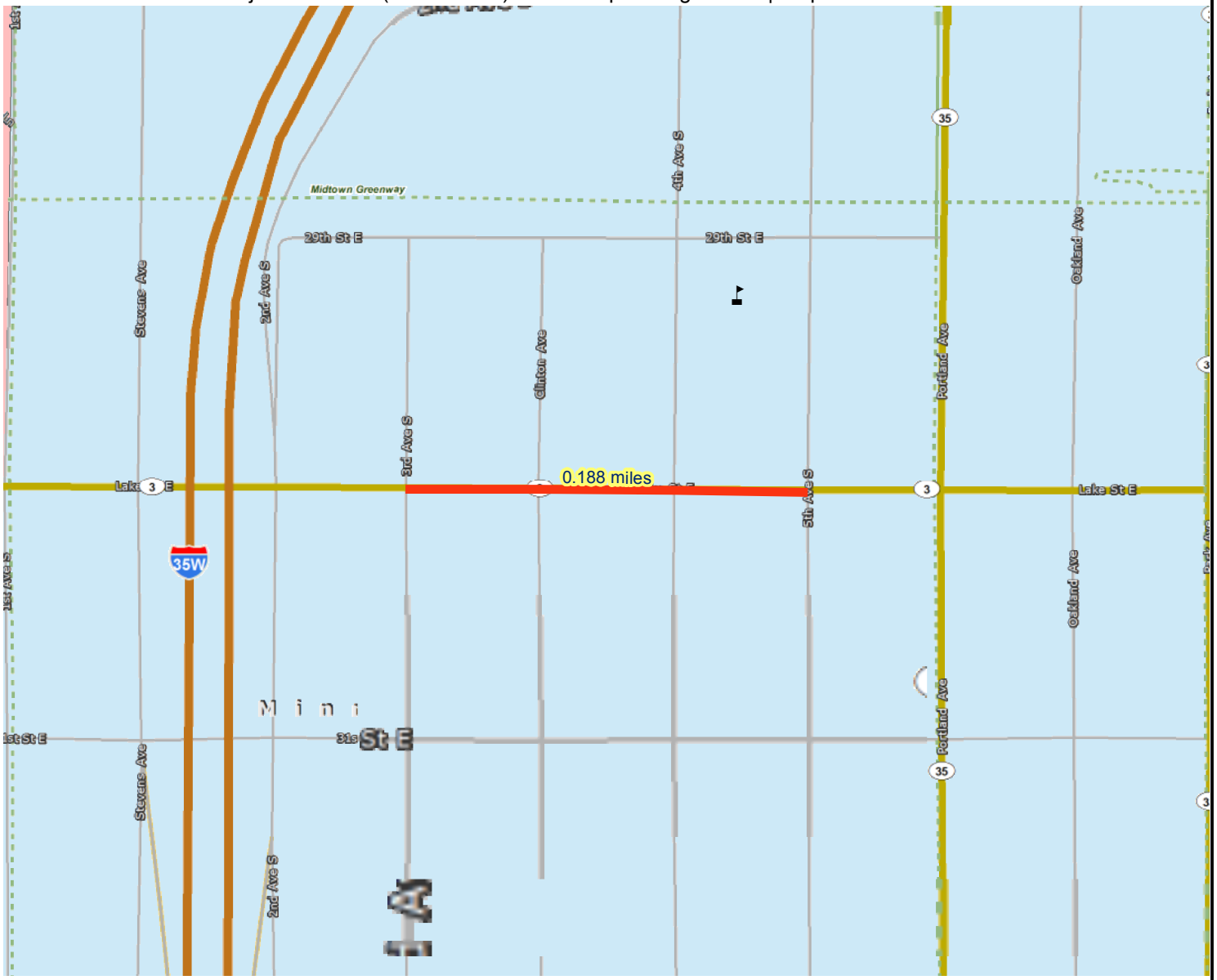
METROPOLITAN COUNCIL

Socio-Economic Conditions

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment B | Map ID: 1415630464941

Results

Project **IN** a racially concentrated area of poverty.



Project

Racially concentrated area of poverty

Concentrated area of poverty

Above reg'l avg conc of race/poverty

School

0 0.045 0.09 0.18 0.27 0.36 Miles

Created: 11/10/2014
LandscapeRSA2

For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN COUNCIL

Transit Connections

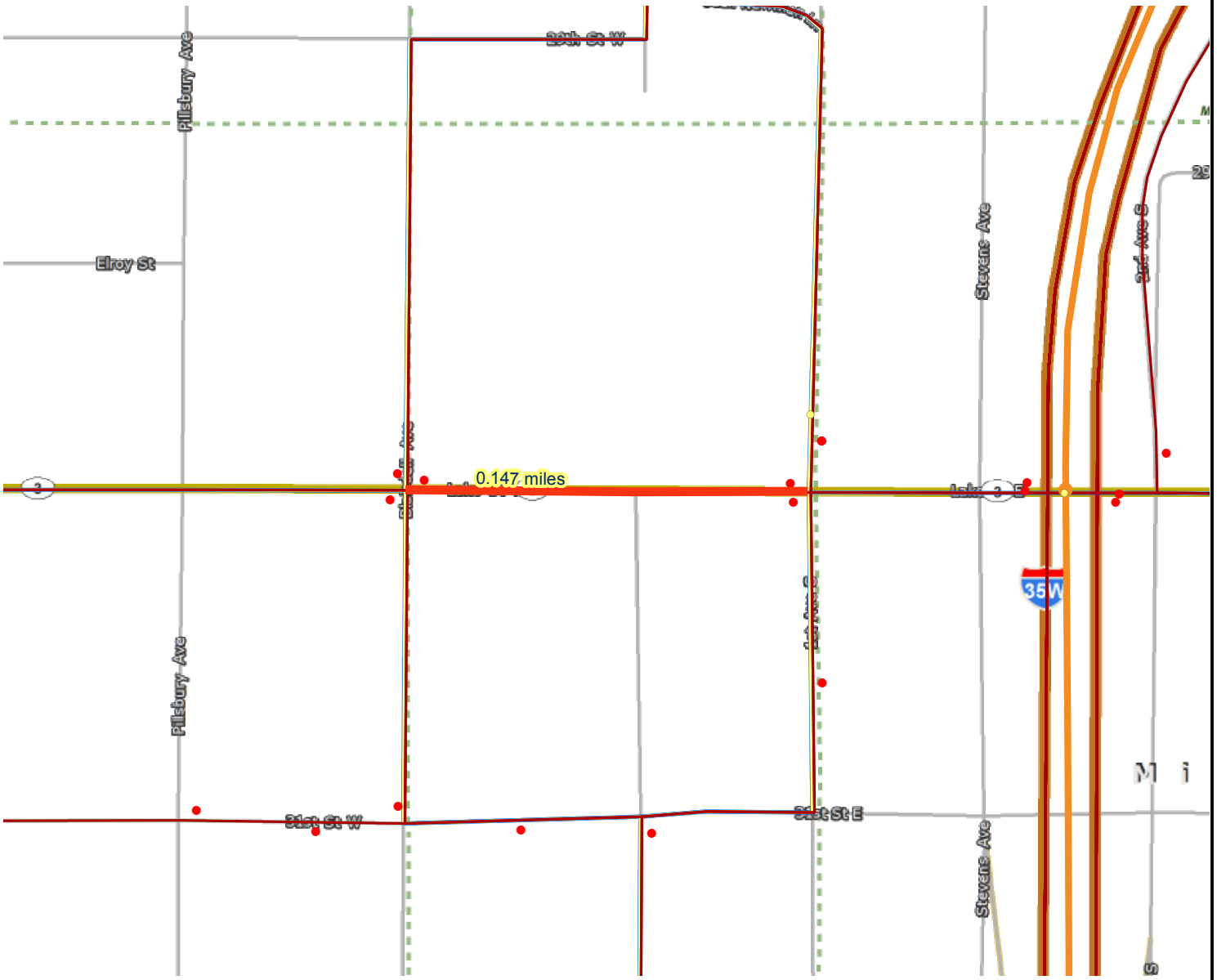
Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment A | Map ID: 1415630353541

Results

Transit with a Direct Connection to project:
18 21 53 133 135 146 156 460 464 465 467
470 472 475 476 477 478 479 491 492 535 552
553 554 558 568 578 579 597 684 695
*Orange Line
*Lake
*Nicollet

Transit within HALF mile of project:
4 11 18 21 27 39 53 113 133 135 146
156 460 464 465 467 470 472 475 476 477 478
479 491 492 535 552 553 554 558 568 578 579
597 684 695
*Orange Line
*Lake
*Nicollet

**indicates Planned Alignments*



Project
Active Stop
Arterial BRT
BRT, Orange Line
Transit Routes
Planned Alignments
BRT, Orange Line
Arterial BRT

0 0.035 0.07 0.14 0.21 0.28 Miles

Created: 11/10/2014
LandscapeRSA3

For complete disclaimer of accuracy, please visit
http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN COUNCIL

Transit Connections

Pedestrian Facilities Project: CSAH 3 (Lake Street) Streetscape - Segment B | Map ID: 1415630464941

Results

Transit with a Direct Connection to project:
11 21 27 39 53 133 135 146 156 460 464
465 467 470 472 475 476 477 478 479 491 492
535 552 553 554 558 578 579 597 684 695
*Orange Line
*Lake

Transit within HALF mile of project:
5 11 18 21 27 39 53 133 135 146 156
460 464 465 467 470 472 475 476 477 478 479
491 492 535 552 553 554 558 568 578 579 597
684 695
*Orange Line
*Chicago-Fremont
*Lake
*Nicollet

**indicates Planned Alignments*

Project
School
BRT, Orange Line
Planned Alignments
BRT, Orange Line
Active Stop
Arterial BRT
Transit Routes
Arterial BRT

0 0.045 0.09 0.18 0.27 0.36 Miles

Created: 11/10/2014
LandscapeRSA3

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METROPOLITAN COUNCIL