4. Ten-Year Action Plan

In an ideal world, with unlimited resources, the city and its partner agencies would simply set out to address as quickly as possible all of the identified transportation needs. But resources are limited and all of these needs cannot be addressed within the next ten years. In many cases, additional detailed planning work is needed to determine appropriate priorities for action. Thus, the Citywide Ten-Year Transportation Action Plan articulates a clear set of objectives and identifies the most important *initial* steps that need to be taken to accomplish these objectives. These objectives, and the associated actions, are NOT listed in order of priority. All objectives are considered of equal priority. It should be noted as well that all capital projects must still go through the Capital Improvement Program (CIP) and Capital Long-Range Improvement Committee (CLIC) process for funding and implementation.

Objective 1: Make transportation design decisions based on place type in addition to street function

It is the intent of *Access Minneapolis* to foster the practice of providing complete streets that support and encourage walking, bicycling and transit use while promoting safe operations for all users. Components of a complete street include street and sidewalk lighting, pedestrian and bicycle safety improvements, public transit facilities, street trees and landscaping, street furniture, stormwater management, traffic management, on-street parking, traffic lanes, and streets and sidewalks that have a scale and character compatible with the physical context of the surrounding community. The terminology "complete streets" does not imply a particular design or modal priority, but rather a decision-making and design process that considers the needs of all of the above users and needs for the street right-of-way.

Historically, the design of city streets (as well as county and state roads) has been based primarily on traffic volumes, the functional classification of the roadway, and state-aid design standards. Over the past two decades, a gradual change has been occurring both nationally and locally in how roadways should be designed. In 1991, the Intermodal Surface Transportation Efficiency Act emphasized the importance of being sensitive to community resources in transportation projects. In 1995, the National Highway System Designation Act stated that roadway design should consider the impacts of transportation projects on both the built and the natural environment. In 1998, five pilot states (including Minnesota) were asked by the Federal Highway Administration to implement training on "context sensitive design". In the late 1990s and early 2000s, the Federal Highway Administration (FHWA), the Transportation Research Board (TRB), the Institute of Transportation Engineers (ITE), and the American Association of State Highway and Transportation Officials (AASHTO) all published documents advocating best practices in "context sensitive solutions" and "flexibility in design".[9] All of these documents recommend practices that use design flexibility to achieve transportation facilities that fit better with their land use contexts and support the use of multiple modes of transportation. More recently, there has been a national and local discussion about "complete streets" and how to design streets that better meet the needs of all transportation modes, particularly pedestrians and bicyclists.

As part of *Access Minneapolis,* the city of Minneapolis revised its process and guidance for planning and designing transportation facilities. New design guidelines were developed and are documented in *Street and Sidewalk Design Guidelines.* In particular, ITE's *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable*

[9] *Flexibility in Highway Design,* Federal Highway Administration, 1997.
Guide to Best Practices for Achieving Context Sensitive Solutions, NCHRP, 2002.
A Guide for Achieving Flexibility in Highway Design, AASHTO, 2004.
Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, ITE, 2006.

Communities (2006) was used to develop recommended best practices for the city of Minneapolis. The city made these changes in order to:

- Achieve a better balance among transportation modes
- Achieve a better alignment and interface between streets and adjacent land uses
- Incorporate trees and landscaping as an essential part of the public infrastructure to achieve the environmental benefits
- Better manage stormwater through the reduction of impervious surface
- Enhance the built urban form of Minneapolis and create a more walkable city by building streets that have a more human scale

A new system of street design types was developed to accomplish these objectives by more directly linking land use context, street design and urban form (see Figure 17). In short, design decisions are based not only on the "function" of the street but also on the "form" of the street and adjacent buildings. Just as place types inform the street design types and the street design process, the street design types and the street design guidelines should be used to inform the land use planning and development review process.

Nine street design types based on various land use contexts were defined as shown in Figure 17. The design characteristics of these street design types are based on the place types described earlier in this report (see Appendix B) and in *The Minneapolis Plan for Sustainable Growth.* The nine street design types are:

- Activity Area Street
- Commuter Street
- Commerce Street
- Community Connector Street
- Neighborhood Connector Street
- Industrial Connector Street
- Parkway Street
- Local Street
- Alley

The *Street and Sidewalk Design Guidelines* document provides design guidance for these street design types. It should be noted, however, that state-aid design standards still apply to all county roads and all municipal state-aid streets in the city. The city will need to continue to work with its partner agencies to resolve any existing inconsistencies with current state-aid standards.

The nine street design types are described more fully in the following paragraphs and in Table 5. Additional information, including notations where streets are not currently consistent with their designated design typology, is also provided in Appendix D. Freeways are not included in the design typology but street design types and the associated design guidance are applicable to cross-streets and bridges and to city streets that serve as the freeway's frontage roads. The freeway system provides for the majority of longer distance commuter trips to, from and through Minneapolis.

Jurisdiction reflects the level of government that is responsible for decisions on, as well as construction, operation and maintenance of, a particular roadway. The city can make final design decisions about any roadway under its jurisdiction but not on the design of a roadway under another agency's jurisdiction. While the city does not make final design decisions on roadways under Hennepin County or state jurisdiction, the design guidelines for the street design types will provide the basis for city input into the county or state design process on county and state roadways within the city of Minneapolis.

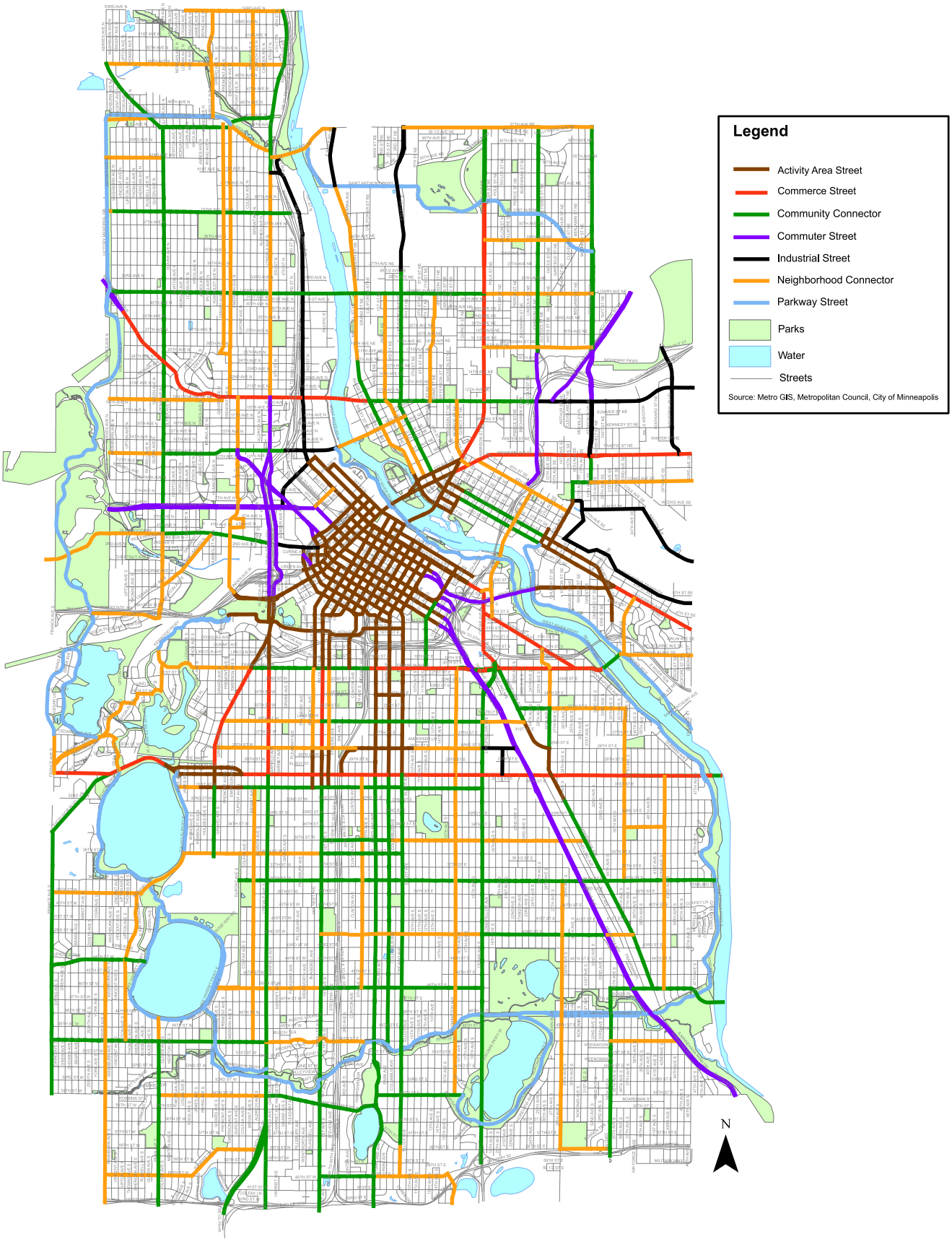


FIGURE 17 - STREET DESIGN TYPES

Table 5 - Street Design Type Characteristics

Proposed Street Types	Description	Equivalent Functional Class	Through Traffic Lanes	Target Operating Speed	Transit	Pedestrian Facilities	Bicycle Facilities[5]	Freight	Connection to Freeway System	Median	Turn Lanes	Curb Parking[6]	Curb Extensions	Driveway Access	Trees and landscaping
Commuter Street	High capacity; carries through traffic, serves longer trips and provides limited access to land uses	Principal or A Minor Arterial	4-6[1]	40 mph	PTN	Yes	Yes (on Parallel paths)[4]	Regional truck routes	Yes	Yes	Yes	No	No	Limited; access from alleys or access lanes	Yes
Commerce Street	Medium capacity; supports retail, service commercial and higher intensity residential land uses on a corridor basis	A and B Minor Arterials	2-4	30 mph	PTN and Local routes	Yes	Yes if in Master Plan	Local truck routes	Yes	Optional	Optional	Yes	Yes	Limited; access from alleys	Yes
Activity Area Street[7]	Medium capacity; provides access to abutting properties in activity centers, growth centers, transit station areas, and neighborhood commercial nodes	A and B Minor Arterials, Collectors, and Locals	2-4	30 mph	PTN and Local routes	Yes	Yes if in Master Plan	Local delivery	Provisional	Optional	Optional	Yes	Yes	Allowable where side or rear not feasible	Yes
Community Connector	Medium capacity; connects neighborhoods together and with commercial corridors and other districts, districts with each other; serves as the main street of a neighborhood commercial node. Some streets have a commuter function that require special frontage design	B Minor Arterials and Collectors	2-3[2]	30 mph	PTN and Local routes	Yes	Yes if in Master Plan	Local truck routes	Provisional	Optional	Optional	Yes	Yes	Allowable where side or rear not feasible	Yes
Neighborhood Connector	Low capacity; connects neighborhoods with each other. Some streets have a commuter function that require special frontage design	Collectors	2	30 mph	PTN and Local routes	Yes	Yes if in Master Plan	Local deliveries	Provisional	Optional	Optional	Yes	Yes	Yes	
Industrial Connector	Low capacity; connects districts with neighborhoods and serves abutting property in single use (industrial/ employment) districts	Collectors	2-3[2]	30 mph	PTN and Local routes	Yes	Yes if in Master Plan	Local truck routes	Provisional	Optional	Optional	Optional	Yes	Yes	Yes
Parkway Street	Low-capacity thoroughfare designed to provide circulation adjacent to and through parkland	Locals	1-2	25 mph	Provisional	Yes	Yes (on Parallel paths)	No	No	Optional	Optional	Recessed in bays	Yes	Optional	Yes
Local Street	Low capacity; serves abutting property in residential neighborhoods or single use (industrial/employment) districts	Locals	1-2[3]	30 mph	Local Routes	Yes	Yes if in Master Plan	Local deliveries	No	No	Optional	Yes	Yes	Yes	Yes
Alley	Property and parking access	Locals	1-2	5 mph	No	No	No	Local deliveries	No	No	No	No	No	Yes	No

Notes

[1] Six lanes is an exception for surface streets in Minneapolis

[2] Three lane streets are two-way streets with one travel lane in each direction and left turn lane (not necessarily continuous)

[3] One lane streets are two-way yield streets with parking on one or both sides and one wide travel lane

[4] Parallel paths - shared bicycle/pedestrian facilities adjacent to streets, but separated by wide planting areas

[5] If in Bicycle Master Plan, bicycle facility should be provided on target street or on a parallel street serving the same travel shed.

[6] Curb extensions should be provided except in conditions where the parking lane is used as a traffic lane during peak periods or space is required at the intersection for a turn lane.

[7] There are many street types and land uses in Activity Areas – actual design characteristics and space allocation must be determined taking into account each street's contextual and modal requirements.

Activity Area Street - Activity Area Streets support retail, service commercial and higher intensity residential land uses in a large node of several blocks (sometimes very large like downtown). Activity Area Streets are found primarily near the land use categories of activity centers, growth centers and transit station areas. They may also be found near some neighborhood commercial nodes or major retail centers. Activity Area Streets may have many different design characteristics and capacities depending on the unique needs within the specific area where they are located. These streets may be under the jurisdiction of Hennepin County or the city. Examples of Activity Area Streets include 3rd Avenue S. in downtown, 15th Street S.E. near the University of Minnesota campus, and 31st Street W. near Uptown.

There is no one design appropriate for an activity area street because each street may have unique needs depending on the adjacent land uses and how the street fits into and serves the activity center and surrounding areas. In addition, activity area streets may extend along the edge or outside the boundaries of a designated Activity Center, Growth Area or Transit Station Area. In some cases (31st Street W. is a good example), connection and transition needs between adjacent neighborhoods and higher intensity land use areas may be even more important than the linear needs of the street. Activity area streets typically need significant pedestrian capacity, need to accommodate high transit loadings/unloadings, often serve high bicycle volumes, and have significant on-street and/or off-street parking demand. Traffic volumes are often high in these areas with a large share of traffic accessing parking and properties within or near the adjoining activity center, growth area or other high density area.

Commuter Street - A commuter street is a high capacity roadway that carries primarily through traffic, serves longer trips and provides limited access to land uses. These streets are likely to be under the jurisdiction of Mn/DOT or Hennepin County and typically have a highway design and a functional classification of Principal Arterial. Examples are Hiawatha Avenue (Hwy 55) and Olson Memorial Highway (Hwy 55). There are a limited number of commuter streets in Minneapolis outside the freeway system (shown in purple in Figure 17).

Commerce Street - A commerce street is a medium capacity street that supports retail, service commercial and higher intensity residential land uses on a corridor basis. These streets are likely to be under the jurisdiction of Mn/DOT or Hennepin County. Examples include Hennepin Avenue (Hennepin County) and Central Avenue (Mn/DOT).

Community Connector Street - A Community Connector street is a medium capacity street (usually under Hennepin County or city jurisdiction) that connects neighborhoods with each other, neighborhoods with commercial corridors and other districts, districts with each other and serves as the main street of a neighborhood commercial node. Examples are Nicollet Avenue (city) and Lowry Avenue (Hennepin County).

Neighborhood Connector Street - A Neighborhood Connector street is a low capacity street (usually under city jurisdiction) that connects neighborhoods with each other. Examples are Emerson Avenue North and Bloomington Avenue South.

Industrial Connector - An Industrial Connector street is a low capacity street (usually under city jurisdiction) that provides access to or serves abutting property in industrial/employment districts. These streets may need to be designed to accommodate high truck volumes, depending on the uses in the industrial/employment district. An example is Washington Avenue North.

Parkway Street - A Parkway Street is a low-capacity street designed to provide circulation adjacent to and through parkland. These streets may be under the jurisdiction of the Park Board or the city. Examples are 45th Avenue North (city street) and Calhoun Parkway (Park Board Parkway). It should be noted that the term "parkway" is only used to name a Park Board street. The parkway street design type includes both Park Board parkways and local streets that are adjacent to or provide circulation through parkland. These streets will not be named as parkways but may have design characteristics that are similar to a Park Board parkway.

It should be noted that a number of parkways in the city have average daily traffic volumes in excess of 5,000 vehicles per day. Because they are often the only way to navigate around and between bodies of

water, these roadways carry higher traffic volumes and serve many different types of trips. Minnehaha Parkway, for example, provides the only continuous east-west connection between the Ford Bridge and Lyndale Avenue except 38th Street and Highway 62. As such, it carries approximately 10,000 vehicles per day and serves multiple trip purposes. While these streets may carry higher traffic volumes, they will continue to be *designed* as parkway streets.

Local Street - A Local Street is a low capacity street that serves abutting property in residential neighborhoods or single use (industrial/employment) districts. These streets are usually under city jurisdiction, but may be private.

Alley - An alley is a shared local street used exclusively for property and parking access. These streets are usually under city jurisdiction, but may be private.

Recommended Actions

The following are actions recommended related to Objective #1:

1.1. **Apply Design Guidelines to All Infrastructure Projects** - The new *Design Guidelines for Streets and Sidewalks* will be used for all infrastructure projects, including new construction, reconstruction and retrofit projects.

1.2. **Apply Design Guidelines to All Development Projects** - Public Works and CPED will continue to work together to use the new *Design Guidelines for Streets and Sidewalks* wherever possible when new developments are proposed.

1.3. **Resolve Inconsistencies Between Design Guidelines and State-Aid Standards**- Public Works will work with partner agencies to resolve any existing inconsistencies between the city's design guidelines and current state-aid standards.

1.4. **Modify Streets to Meet Design Typology Over Time** - When opportunities arise over time, changes will be made to address situations where street design or space allocation is not consistent with the street's designated street design typology. This may result in decreases in the number of lanes or changes in how intersections are operated and/or designed. In such cases, Public Works will evaluate the street to determine what changes can realistically be made to bring the street's function and design more in line with its land use context and multi-modal uses and needs.

Objective 2: Ensure that all streets in the city are safe, convenient and comfortable for walking

The city has recently prepared a Pedestrian Master Plan, with input from the Pedestrian Advisory Committee, which addresses many issues related to the walkability of the city. The Pedestrian Master Plan is currently in draft form and is expected to be adopted by City Council in summer 2009. Go to www.ci.minneapolis.mn.us/pedestrian for more details about the Pedestrian Master Plan.

Recommended Actions

Detailed information regarding proposed improvements for pedestrians is provided in the Pedestrian Master Plan. The goals and objectives of the Pedestrian Master Plan are shown in Figure 18. This information may be updated and the final pedestrian facility recommendations will be provided in the Pedestrian Master Plan.

2.1. **Implement the Pedestrian Master Plan** - Actions proposed in the Pedestrian Master Plan should be implemented as funding is available and integrated into other street and infrastructure projects as opportunities arise.

Figure 18 – Pedestrian Master Plan Goals and Objectives

Goal 1: A Well-Connected Walkway System
Objective 1.1: Complete the Sidewalk Network
Objective 1.2: Maintain and Improve Pedestrian Network Connectivity
Objective 1.3: Improve Skyway-Sidewalk Connectivity

Goal 2: Accessibility for All Pedestrians
Objective 2.1: Identify and Remove Accessibility Barriers on Pedestrian Facilities
Objective 2.2: Improve and Institutionalize Best Design Practices for Accessibility

Goal 3: Safe and Convenient Street Crossings
Objective 3.1: Reduce Pedestrian-Related Crashes
Objective 3.2: Improve Safe Behavior for Drivers and Pedestrians
Objective 3.3: Improve Pedestrian Safety for the Most Vulnerable Users
Objective 3.4: Improve Traffic Signals for Pedestrians
Objective 3.5: Improve Crosswalk Markings

Goal 4: A Pedestrian Environment That Fosters Walking
Objective 4.1: Design Streets with Sufficient Space for Pedestrian Needs
Objective 4.2: Design Bridges and Underpasses for Pedestrians
Objective 4.3: Provide Appropriate Street Lighting for Pedestrian Needs
Objective 4.4: Provide Street Furniture Appropriate for Pedestrian Needs
Objective 4.5: Foster Vibrant Public Spaces for Street Life

Goal 5: A Well-Maintained Pedestrian System
Objective 5.1: Ensure Effective Snow and Ice Clearance for Pedestrians
Objective 5.2: Maintain Sidewalks in Good Repair
Objective 5.3: Manage Encroachments on Sidewalks
Objective 5.4: Maintain Pedestrian Safety and Accessibility in Construction Zones

Goal 6: A Culture of Walking
Objective 6.1: Promote Walking for Youth
Objective 6.2: Promote Walking for Adults
Objective 6.3: Showcase and Celebrate Great Walking Experiences

Goal 7: Funding, Tools and Leadership for Implementing Pedestrian Improvements
Objective 7.1: Implement Best Practices for Pedestrian Facility Design
Objective 7.2: Integrate Pedestrian Improvements into Capital Improvement Programs
Objective 7.3: Improve Tools to Identify, Plan, Design and Evaluate Pedestrian Improvements.
Objective 7.4: Foster Effective Pedestrian Advocacy
Objective 7.5: Pursue New Funding Tools for Pedestrian Facilities

Source: Minneapolis Pedestrian Master Plan, DRAFT, April 2009

Objective 3: Provide a well-connected grid of bike lanes

The city is currently preparing a Bicycle Master Plan, with input from the Bicycle Advisory Committee, which provides advice to the city in planning and implementing facilities and programs for bicycling throughout the city. The city will continue to rely on the input of the BAC in identifying and addressing future bicycle needs. Go to www.ci.minneapolis.mn.us/bicycles for more details about the Bicycle Master Plan.

Recommended Actions

Detailed information regarding proposed improvements for bicycling is provided in the Bicycle Master Plan, which is currently in draft form and is expected to be adopted by City Council in late 2009. The current bicycle facility plan is shown in Figure 19. This plan is being updated and the final version will be included in the Bicycle Master Plan.

3.1. **Implement the Bicycle Master Plan** - Actions proposed in the Bicycle Master Plan should be implemented as funding is available and integrated into other street and infrastructure projects as opportunities arise.

Objective 4: Provide the best possible transit service on a Primary Transit Network

Metro Transit has implemented a Hi-Frequency network on segments of eight routes operating in Minneapolis and provides regular-route service throughout the city. Peak period express transit service between many locations and downtown Minneapolis is provided by both Metro Transit and several suburban transit providers, and the region is actively pursuing the implementation of additional rail transit that will build upon the light rail service currently provided in the Hiawatha Corridor. While these services are very well used, a much finer-grained transit system is needed to encourage more people to select transit, walking or biking as their primary modes of transportation. In order to accomplish this, Minneapolis will work with its partner agencies, particularly Metro Transit, to establish and maintain a Primary Transit Network (PTN) of service (see Figure 20). The PTN will be a permanent network of all-day transit service – regardless of mode or agency – that operates every 15 minutes or better all day for at least 18 hours a day, seven days a week. Some PTN service will be provided on LRT and/or BRT lines but most will be provided through improved local bus service. Some PTN service may be provided by streetcar at some point in the future. The long-term goal is for all PTN service to meet the following performance criteria:

- **Frequency –** PTN services should run all day at frequencies of 15 minutes or better.
- **Span** - PTN services should run a minimum 15-minute frequency for at least 18 hours a day, seven days a week.
- **Speed** - PTN services should have an average operating speed of no less than 30% of the speed limit. (This operating speed accounts for stops.)
- **Reliability** - Permanence and reliability are anchors of the PTN. Users should expect the PTN service to operate on schedule.

- **Loading -** Passengers may have to stand on occasion, but should not be crushed into buses that have loads exceeding seating and standing capacity.
- **Coverage** - Most people living in the city of Minneapolis should eventually be within ¼ mile (about 3-4 blocks) of PTN service. Since PTN service levels are tied to density, access to PTN service will expand as density increases along and near targeted routes.

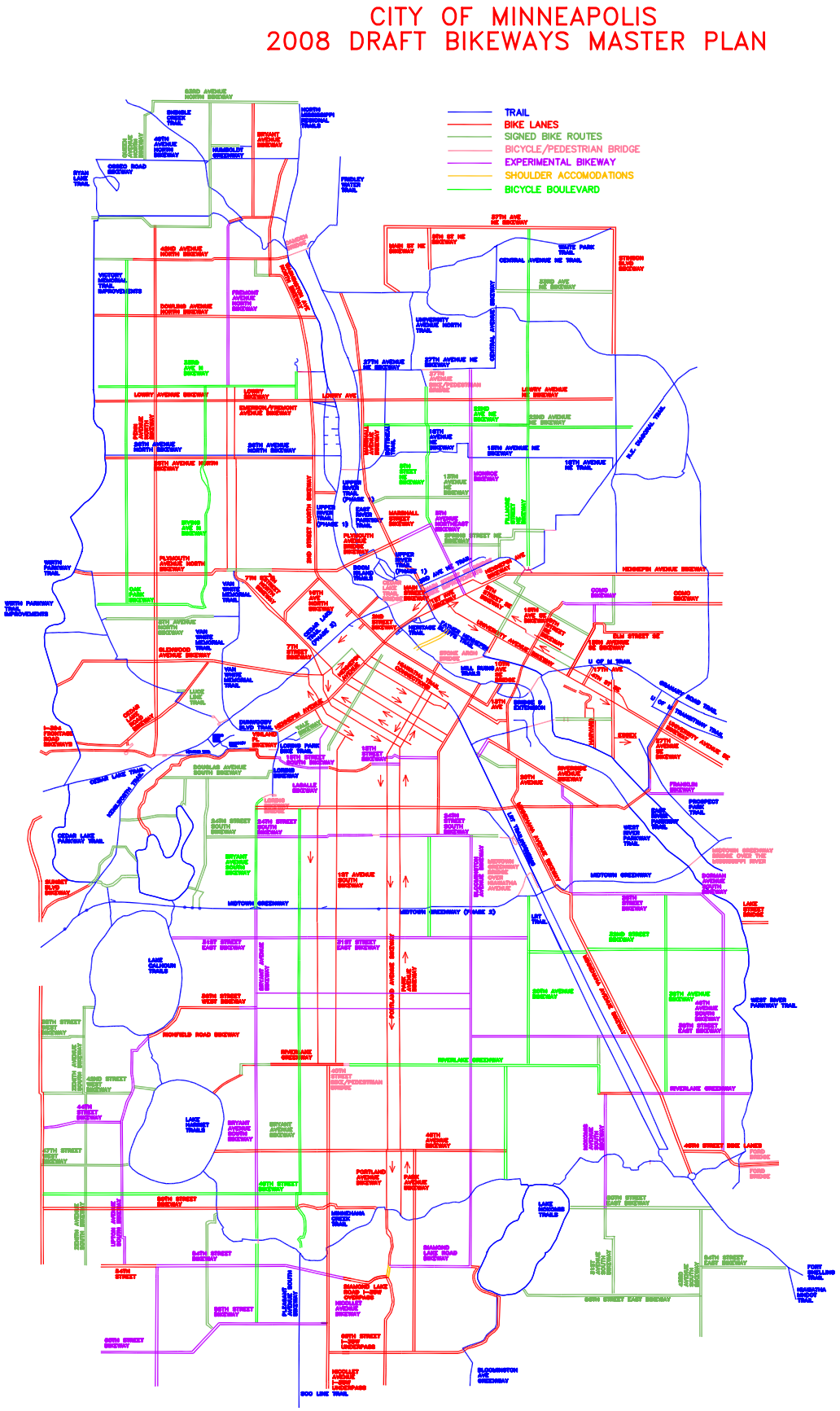
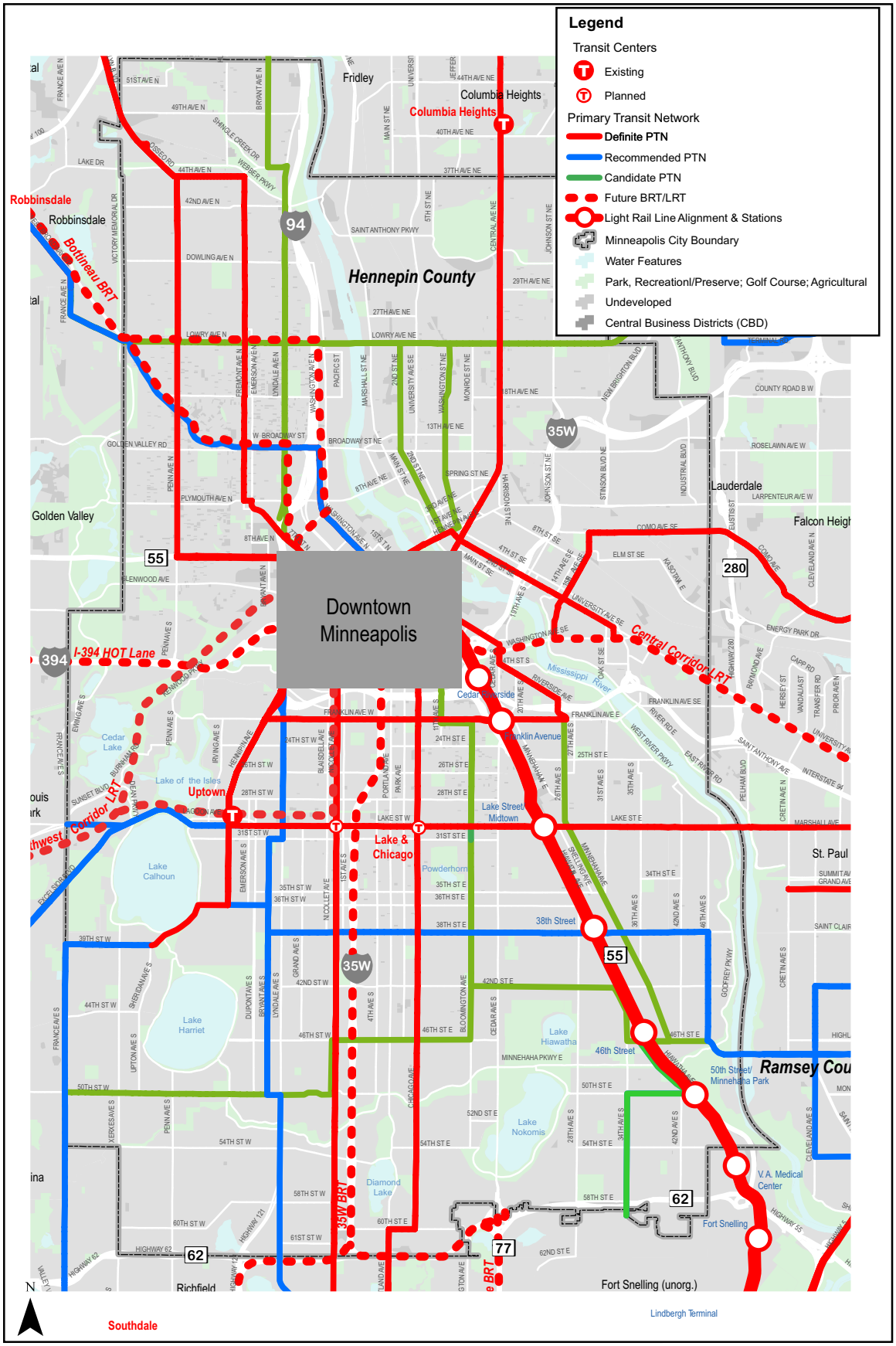


FIGURE 19 - EXISTING BIKEWAY PLAN



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

FIGURE 20 - PRIMARY TRANSIT NETWORK

In addition to these operating criteria, the PTN should meet other indicators of quality of service including:

- **Passenger Facilities and Amenities** – Transit stops on the PTN corridors should have the same amenities associated with rail stations if usage is at a comparable level. Passenger waiting facilities should be clean, comfortable, secure, well-maintained, protected from moving traffic, and should not impede pedestrian through movement.
- **Pedestrian Environment** – The pedestrian environment, which provides the primary mode of access to the local PTN, will influence people's decision whether or not to use transit. The walking environment serving the PTN should have safe street crossings, minimal conflicts with vehicle traffic, sidewalks that are accessible, direct walking paths, and trees or other streetscape elements that contribute to a comfortable and attractive walking environment.
- **Bicycle Access** - The PTN should have direct bicycle access that includes safe street crossings and minimal conflicts with traffic.
- **High Quality Vehicles** – Transit vehicles on the primary transit network corridors should be low floor, high capacity buses that are clean, comfortable and well-maintained. Transit vehicles on local street routes should also be hybrid electric vehicles, where feasible.
- **Safety and Security** – Passengers on vehicles, at transit stops and along walking/biking routes accessing the PTN should feel safe and all transit facilities should be perceived to be safe by existing and potential future transit riders.

The Primary Transit Network's value, as well as its success, relies on a three-way interdependence among (1) density, (2) service quality, and (3) ridership. Because PTN service attracts more riders, it also becomes more efficient and cost effective. With lower operating subsidies, the transit system spends less per passenger on the PTN than on other transit services. This, in turn, makes it economically feasible to further improve transit service on PTN routes. The PTN network identified in *Access Minneapolis* was selected based on residential density, employment density, and the presence of "anchor" activity centers. Three types of PTN lines were identified and are shown in Figure 20:

- **Definite PTN** – corridors that are already densely developed and already have service at least every 15 minutes all day, though most have less frequent service in evenings and on weekends.
- **Recommended PTN** – corridors that will reach adequate development to support a PTN in the short term.
- **Candidate PTN** – corridors that have many of the needed elements for a PTN, but also have significant short-fallings, such as freeways or minimal opportunities to achieve needed densities.

It should be noted that different PTN measurements are used in downtown areas where many types of transit service and markets overlap. Details on the analysis done for the PTN can be found in the *Minneapolis Primary Transit Network* Technical Report (www.ci.minneapolis.mn.us/public-works/trans-plan).

The corridors identified in the Primary Transit Network are corridors that already have transit service but many of these corridors do not have service that meets the minimum thresholds for frequency of service. Existing levels of service on the PTN corridors is shown in Table 6. All PTN corridors are areas where density increases should be targeted in the future. Service on the PTN corridors within Minneapolis should be consistent with Metro Transit service guidelines. Additional information on regional transit standards is provided in Appendix E.

The next step to achieving the desired service and facility quality on the PTN is for Metro Transit and the city of Minneapolis to strategically build the PTN by evaluating and improving service and facilities along all PTN corridors. This evaluation should begin with the existing Hi-Frequency network and expand to include all of the "definite" PTN corridors and, ultimately, all corridors on the proposed PTN that achieve the minimum population and job density thresholds for high frequency service. A variety of strategies are available to achieve the facility and service objectives on the PTN. These are summarized in Table 7.

Priorities should be given to corridors that are scheduled for reconstruction (for example, Chicago Avenue), corridors with scheduled service and/or operations changes, corridors where special opportunities exist (for example, hybrid buses on Nicollet and Central Avenue related to Nicollet Mall service improvements), or corridors where extensive redevelopment is occurring that will result in increased population and/or job densities. Ultimately, however, all PTN corridors need to be evaluated in detail, beginning with the corridors classified as "definite".

Recommended Actions

4.1 **Improve PTN Speed and Reliability Through Signal Improvements -** As part of signal retiming (2009-2011), the city will work with Metro Transit to address transit service delay issues related to traffic flow. Adjustments will also be made to provide adequate pedestrian crossing times as part of the signal retiming project. The anticipated timeframe for signal retiming is:

- 2009-2010 – North of Olson Memorial and River
- 2010-2011 – Downtown
- 2011-2012 – South of Olson Memorial and River

Table 6 Existing Service on the Primary Transit Network

Route	Corridors	Existing Hi Frequency Network*	Approximate Route Frequency (minutes)						Span of Maximum 15 minute frequency for main branch		
			Rush	Midday	Evening	Owl	Sat	Sun/Hol	Wkdy	Sat	Sun
Definite PTN											
2	Franklin/Riverside		15	15	20-30	--	30	30	10 hrs	--	--
3	Como		10-15	10	15-30	--	30	30-60	16 hrs	--	--
5	Chicago/Emerson/Fremont	✓	5-10	7-8	10-15	60	10	10-15	18 hrs	17 hrs	11 hrs
6	Hennepin	✓	5-7	10	15	--	10-15	15	17 hrs	15 hrs	14 hrs
6	4th/University		15-20	20	30	--	30	30	--	--	--
10	Central	✓	7-10	10	30	60	15	20-30	14 hrs	10 hrs	--
16	University	✓	10	10	15	60	10	15-30	16 hrs	15 hrs	10 hrs
18	Nicollet	✓	5-8	7-8	7-15	60-180	7-10	10-15	19 hrs	17 hrs	15 hrs
19	Penn Ave N	✓	10-15	15	15-20	60	15	20-30	15 hrs	10 hrs	--
21	Lake	✓	7-10	7-15	7-15	60	7-15	10-20	18 hrs	18 hrs	13 hrs
55	Hiawatha LRT	✓	7-8	10	15	--	10-60	10-60	18 hrs	16 hrs	16 hrs
Recommended PTN											
4	Lyndale Av S		7-15	15	15-30	--	15-30	30	14 hrs	11 hrs	--
14	W Broadway/Bloomington (Bloomington is Candidate PTN)		10-15	15	20-30	--	15-30	20-30	12 hrs	10 hrs	--
23	38th St		20	20	30	--	20	20-30	--	--	--
Candidate PTN											
11	2nd St NE (includes 4th Av S branch)		12-15	30	30	--	30-60	30-60	4 hrs	--	--
17	Washington St NE (excludes Nicollet/Hennepin branch)		15-25	30	30	--	30	30	--	--	--
22	Lyndale Av N (including Cedar Av branch)		11-15	20	20-30	--	20	20-30	6 hrs	--	--
27	Minnehaha		15	30	30	--	30	30	3 hrs	--	--
32	Lowry		30	30-60	--	--	--	--	--	--	--
46	46th Street		30	30	30-60	--	30	30-60	--	--	--

* The Hi-Frequency Network provides service at least every 15 minutes weekdays 6am-7pm and Saturdays 9am-6pm.

In addition, the city will work closely with Metro Transit to implement signal improvements for transit operations as part of the following specific projects:

- 2009 – Central Avenue (UPA funding) – rolling traffic signal priority (semi-actuation traffic signals)
- 2010-11 – Franklin Avenue (Transportation Enhancement Funds) – signal timing improvements and other transit operations improvements

Table 7 - Toolbox for PTN Service and Facility Improvements

Strategy	Notes	Lead Agency	Frequency	Span	Coverage	Speed	Reliability	Loading	Pass. Facilities	Ped Env't	Vehicles	Safety	Info
System Strategies													
Increase frequency of service		MT	X										
Increase span of service		MT		X									
Evaluate service coverage		MT			X								
Security operations		MPD							X	X	X	X	
Faster fare payment media (go-to card)	boarding delay	MT				X	*	**					
Low-floor vehicles	boarding delay	MT				X	*	**			X		
Corridor Strategies													
Signal Optimization or Retiming	signal delay	PW				X	*	**					
Transit Signal Priority (TSP)	signal delay	PW				X	*	**					
Exclusive lane at a choke point	queue delay/side friction	PW				X	*	**					
Queue bypass/queue jump	queue delay/side friction	PW				X	*	**					
Access management	bus stop/driveway conflicts	PW							X	X			
Parking restrictions	Queue/merge delay, side friction	PW				X	*	**					
Exemption from turning restrictions	queue delay/side friction	PW				X	*	**					
Bus stop consolidation		MT				X	*	**					
Strategies for bus stops													
Boarding islands	queue delay/side friction	PW				X	*	**	X				
Curb Height/Raised Platforms	boarding delay	PW				X	*	**	X				
Curb Extensions	merging delay	PW				X	*	**	X	X			
Moving bus stop to far side	with TSP/signal progression	MT				X	*	**					
Paving materials for bus stops	keep cars out of bus stop	PW				X	*	**					
Transit Stop signage design & content									X	X			X
Shelter design & maintenance									X	X		X	
Transit card vending kiosks	Boarding delays	MT				X	*	**	X				
Real-time traveler info (cell phones)		MT							X				X
Passenger areas		CPED								X	X		
Strategies for improving pedestrian/bicycle access to bus stops													
Pedestrian crossing improvements at intersections (for example, countdown signals, leading pedestrian intervals, advanced stop bars, refuge islands)	Long crossings	PW								X		X	
Bicycle racks		PW							X				
Strategies for improving pedestrian environment at bus stops													
Lighting		PW								X		X	
Trees/Landscaping		PW								X		X	
Sidewalk configuration and design		PW								X		X	
Street furniture installation & maintenance	garbage, wayfinding, newspaper vending box	PW							X	X			

X can help improve criteria * many strategies to improve speed may also improve reliability
** Many strategies which improve reliability may also improve loading

4.2 **mprove PTN Speed and Reliability Through Bus Stop Location and Design Improvements - Co**ncurrently with the above signal improvements, the city will work with Metro Transit to evaluate changes in stop locations (near side vs. far side stops) and transit operations (bus stop turnouts vs. in-lane stops, etc.) that would improve transit operating speeds on the PTN. An effort will also be made to identify and fund pedestrian crossing safety improvements along PTN corridors that should be made at the same time.

4.3 **Improve PTN Speed and Reliability Through Fare Payment Technology Improvements –** Slow boarding times are a significant issue on many of the PTN corridors with high passenger volumes. Metro Transit is actively marketing the use of an electronic payment system called the "GoTo" card. Transit boarding times have been shown to significantly decrease when a large percentage of passengers pay electronically. Once acquired, passengers can refill the cards at ticket vending machines and on-line. The city will support Metro Transit in the development and implementation of marketing programs targeted to increasing PTN ridership, increasing awareness of the Hi-Frequency network (PTN corridors), and marketing the "GoTo" card along the PTN corridors. The city will assist Metro Transit in identifying neighborhood vendors along the PTN corridors who are willing to be local outlets for the "GoTo" cards. The city will work with the Minneapolis TMO and Metro Transit to significantly increase the use of the "GoTo" card on PTN corridors through a variety of strategies such as increasing ease of access to the cards, decreasing or eliminating the initial cost of the card, and marketing the benefits of the card.

4.4 **Improve the Frequency and Span of Services on the PTN –** Metro Transit is currently preparing a Service Improvement Plan that will provide a long-term plan for transit service improvements throughout the region as additional funds become available. The Plan will address commuter express service, new suburban service, and service frequency improvements for urban service. The city will work with Metro Transit in developing and implementing this plan, paying close attention to achieving the service and facility objectives desired for the PTN corridors.

4.5 **Improve Transit Shelters and Street Furniture** - The city will work to implement a coordinated street furniture program in the future that will result in improved transit shelters, additional street furniture and improved maintenance of these facilities.

4.6 **Improve Snow Removal at Transit Stops** - Snow removal at transit stops and in/near crosswalks is one of the most common complaints heard from the public during the preparation of the Action Plan and the Pedestrian Master Plan. In particular, this is a challenge at far side stops where access to the door(s) of the bus is in locations not normally cleared by property owners. If funding can be identified, the city will work with Metro Transit to set clearer priorities, strategies, guidelines and responsibilities for the clearance and removal of snow at transit shelters and bus stops throughout the city. This activity will require the coordination and participation of the city, Metro Transit, the Coordinated Street Furniture vendor, and multiple service districts throughout the city to be successful.

4.7 **Improve Pedestrian and Bicycle Access to the PTN** - The city will work with Metro Transit to implement a program that systematically evaluates bus stop features and pedestrian/bicycle access on the PTN corridors. A sample inventory of bus stop conditions is provided in the Appendix F. These corridor evaluations should address such things as ADA requirements, shelters and benches at appropriate locations, passenger information including schedule and route information and opportunities for providing real time information, lighting, marked and (where appropriate) signalized pedestrian crossings, bicycle parking (where appropriate), and other conditions that affect pedestrian and/or bicycle safety.

4.8 **Improve Transit Information at Transit Stops** - Improved transit information is needed along all transit corridors but this is a particular concern along the PTN corridors where the city and Metro Transit are trying to encourage higher ridership. Metro Transit has recently implemented a system where transit service information can be

easily obtained through cell phones. This service will be expanded dramatically in the next few years. Automated "real time" or "next bus" information is being implemented as part of the Marquette and 2nd Avenue transit improvements in downtown and selected implementation of this technology in transit shelters in other parts of the city will occur over time. This information allows riders to make their travel decisions more effectively and reduces the inconvenience factor associated with having to arrive overly early at a stop to avoid missing a bus that may be ahead of schedule. The city will continue to work with Metro Transit to investigate and implement ITS applications that will improve transit services (vehicle operations, traffic operations, fare collection and/or automated passenger information) as funding is available.

4.9 **Support Implementation of Regional Transitways** - The city will continue to strongly support the implementation of regional LRT and BRT systems including, in particular, the Central and Southwest LRT corridors, the I-35W BRT corridor, and the Bottineau Boulevard transitway study.

4.10 **Support Investigation of Arterial Bus Rapid Transit Corridors** - The Metropolitan Council's Regional Transportation Policy Plan includes a recommendation for Metro Transit to complete studies of Arterial Bus Rapid Transit (BRT) service on several corridors. Four of these corridors are in the city of Minneapolis including Central Avenue, Nicollet Avenue, Chicago Avenue, and West Broadway. A significant amount of BRT work has already been done along West Broadway and some analysis has been done for Central Avenue. The city will participate in the preparation of these studies and will work with Metro Transit to ensure that PTN service and facility objectives for these corridors are also addressed.

4.11 **Continue Evaluation of Streetcar Service on the PTN** - The city will continue to explore the funding and implementation of streetcar service along the seven PTN corridors identified as streetcar candidates in the *Minneapolis Streetcar Feasibility Study*[10] and the *Streetcar Funding Study*[11](see Figure 21).

Objective 5: Encourage people to walk, bike, take transit rather than drive

There are many ways that individuals can decrease their automobile use, resulting in environmental benefits as well as decreased traffic congestion. The city will continue to work with the Minneapolis Transportation Management Organization (TMO), regional agencies, employers and residents to encourage increased participation in these activities.

Recommended Actions

5.1 **Support Carsharing Programs** - Carsharing is a relatively new concept that is becoming popular in major cities throughout the United States and around the world. A fleet of automobiles is owned by the carshare company and the vehicles are parked at convenient locations around the city. Individuals or businesses pay a fee to become a carshare member. Members reserve a vehicle, pick up and drop off the car, and pay for the miles used. The car is unlocked with a personal card or key and fees are charged automatically based on usage. In Minneapolis, *Hourcar* currently has ten hubs with plans to expand. *Zipcar* currently has two hubs (see Figure 22). Carshare vehicles promote transit use, bicycling and walking by making it both possible and convenient for residents and commuters to travel by alternative mode knowing that a vehicle is available for an unexpected trip or an off-site meeting that requires driving. The utility of carshare is directly linked to the availability and proximity of vehicles. The city will encourage property owners to bundle carsharing subscriptions with tenants' rent/lease payments or association fees and encourage employers to subscribe to carsharing services for mid-day employee use.

[10] *Minneapolis Streetcar Feasibility Study,* Nelson Nygaard Consulting Associates, for City of Minneapolis, December 2007.
[11] *Minneapolis Streetcar Funding Study,* HDR, for City of Minneapolis, DRAFT, December 2008.

FIGURE 21 - LONG RANGE STREETCAR NETWORK

Figure 22 - Existing Carshare Hubs in Minneapolis

- The city will designate on-street parking spaces near major transit stops and in municipal parking ramps for carshare parking.

- The city will work with carshare companies, employers and neighborhoods to increase the number of hubs in the city and encourage city residents to reduce their auto ownership by using these services along with increasing walking, bicycling and transit use.

5.2 **Encourage Carpooling** - Carpooling is simply sharing an automobile ride with someone else. The city will continue to support carpooling, particularly through the use of reduced parking fees in municipal parking ramps. The city will also continue to work with the Minneapolis TMO and major employers to create incentive programs for carpooling and to encourage commuters to share the ride. Carpooling is supported regionally through the use of High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) lanes on freeways and ramp meter bypass lanes.

5.3 **Continue the Bicycle and Pedestrian Ambassador Program.** The city's Bicycle and Pedestrian Ambassador Program, initiated in 2007, is an educational and outreach program intended to increase bicycling, walking and roadway safety. This program is funded through 2010. The city will seek funding to continue this program permanently.

5.4 **Provide Incentives for Walking, Biking and Transit Use –** Another aspect of travel demand management is the provision of incentives to encourage residents and employees to use transit, walking and bicycling in place of driving. The city will continue to work with the Minneapolis TMO and Metro Transit to promote employer-based incentives like MetroPass, which offers discounted transit passes to employees and tax breaks to employers, to encourage greater transit use. The city will continue to offer MetroPass to city employees and will work with the Minneapolis TMO and Metro Transit to market the GoTo card to other government agencies, major employers, health care employees and non-profit workers.

Objective 6: Optimize the use, safety and life of the street system

The safe and efficient operation of the transportation system, and the long-term maintenance of the city's infrastructure, is important for all modes of transportation. The number of reconstruction projects will continue to be very limited, due to financial constraints, and even these projects will typically not add additional lane capacity. Therefore, the city's focus needs to be on: (1) providing safety improvements, particularly addressing pedestrian and bicycle crashes where a correctable condition can be identified, (2) extending the useful life of existing infrastructure through preventative and timely maintenance, (3) providing improved efficiencies through improved traffic management, (4) improving safety through enforcement and education activities, and (5) supporting strategies that encourage walking, biking and transit use.

Safety - Crashes involve pedestrians, bicyclists, buses and vehicles and a reduction in crashes and associated injuries and deaths, is always a high priority for the city. There is often a direct relationship between the number of vehicles traveling on a roadway and the number of crashes. Therefore, it is best to look at crash *rates* (usually crashes per vehicle miles traveled) as well as crash severity and crash types to identify areas where crash patterns indicate that there may be a unique problem that needs to be addressed. The city continually reviews crash statistics to address safety problems wherever possible.

Infrastructure Maintenance - The average age of a residential street in the city of Minneapolis is 26 years. The average age of a through street is 35 years. This has significant implications in terms of surface condition, complaints, safety, and city maintenance budgets. It is not realistic to expect that very many miles of streets can be reconstructed in a single year. Preventive and ongoing maintenance activities that can extend the life of the city's infrastructure are very significant in maximizing return on the city's infrastructure investments and insuring that the traveling public has the best quality facility for the least cost.

Alternative Modes of Travel – As described in other sections of the Citywide Action Plan, the city's goal is to encourage greater walking, bicycling and transit use in the city. Increased use of these modes increases the efficient use of existing infrastructure and decreases traffic congestion.

Traffic Operations, Control and Management – The efficient and safe flow of traffic on the street system is maintained through a system of signs, signals and markings. Current guidelines for the spacing, pattern and hierarchy of traffic control treatments will continue to be used, with functional classification and traffic volumes establishing hierarchy. On local/local intersections, a basket-weave pattern of two-way stop control will continue to be used in accordance with the adopted Minneapolis Stop Sign Plan. Traffic control systems will continue to be used to optimize traffic flow on system streets (commuter, commerce and connector design types). This practice will help to manage transit speeds on these streets and will help to prevent diversion of traffic from these streets to nearby local residential streets. Traffic management is focused primarily on intersection operations (traffic signals, stop signs, turn lanes, etc.), speed management (setting speed limits, special speed zones, etc.), and managing lane usage (parking vs. travel lanes, alternative modes, time restrictions, etc.). It should be noted that the city is significantly limited in its ability to change posted speeds because speed limits are currently set by the state following a speed study requested by the jurisdictional authority.

Recommended Actions

6.1. **Implement Projects as Funded in the Capital Improvement Program (CIP)** – The city will continue to develop and implement a five-year Capital Improvement Program (see Figure 23), which includes funding categories of bikes, bridges, paving, traffic, storm drain, sanitary sewer, water and miscellaneous projects. Short and long-term maintenance needs should be included and agreed to before new projects are included in the CIP.

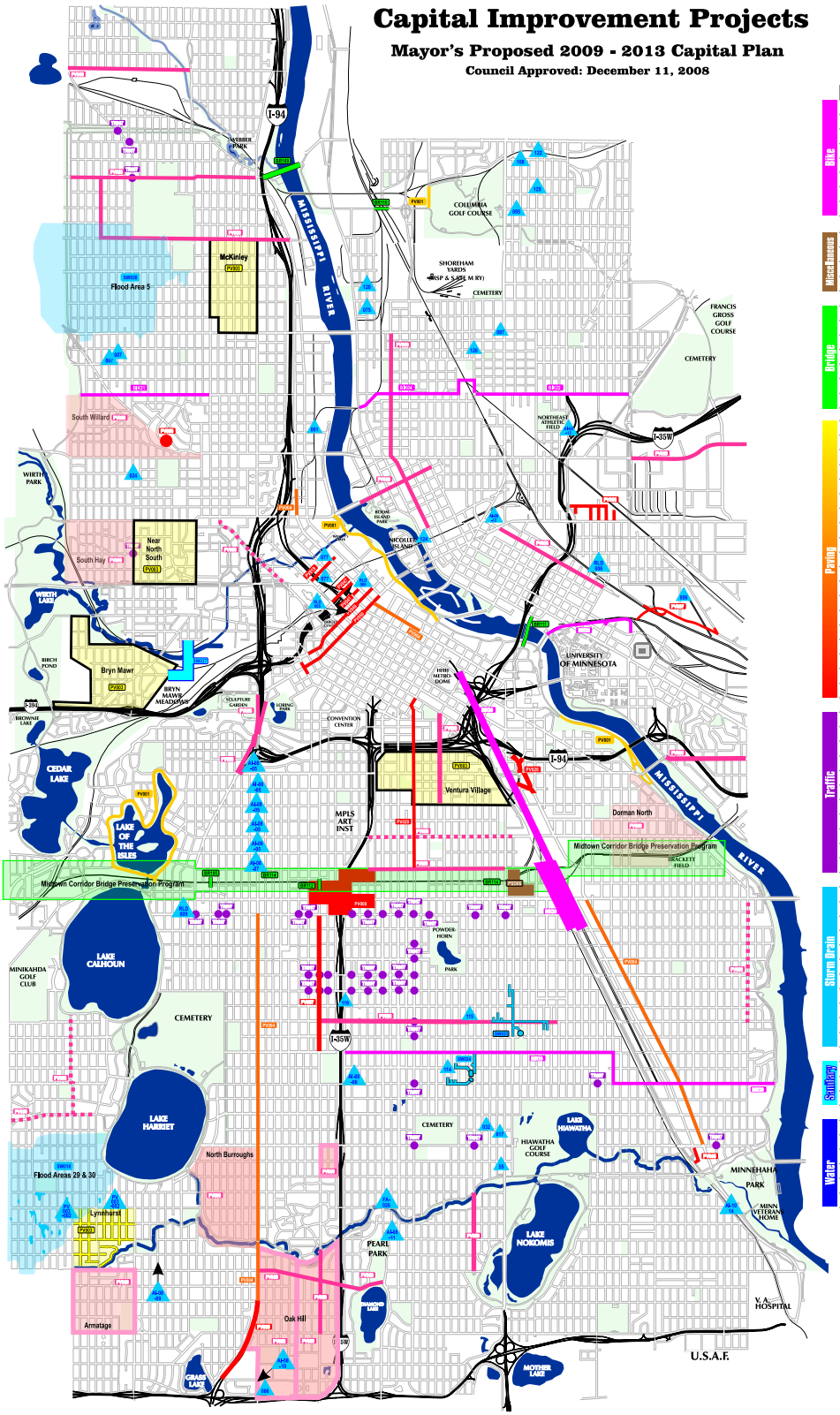
6.2. **Maintain Infrastructure in Good Condition to Maximize the Life of Existing Facilities** - Routine maintenance will be conducted in a timely manner to maximize facility life. Decisions for major maintenance or reconstruction of streets and bridges will be based on available funding and a systematic and consistent evaluation of pavement condition, street age, field observations, detour routes, utility projects by other city divisions, 311 complaints, average daily traffic, Hennepin County and Mn/DOT projects, geographic equity, winter damage, and prior assessments. In 2008, the city initiated a new Asphalt Pavement Resurfacing Program. The purpose of this program is to slow the deterioration of the overall city street system, extend the useful life of the city's streets, and provide the motoring public with improved driving surfaces. The miles resurfaced each year will depend on available funding. Priority is given to high volume system-level streets. The proposed 2009-2014 resurfacing program is shown in Figure 24.

6.3. **Retain the City's Street Grid System** - The city will seek to retain and enhance the city's grid system of streets. The grid system provides redundancy in the street system, which becomes especially important for traffic management when a section of roadway or a bridge is closed for construction or maintenance. In addition, a grid system provides the most direct travel paths to multiple destinations for all modes of transportation, including pedestrians and bicycles. An important part of the grid system is the provision of an adequate number of bridges over freeways, rivers and other barriers to travel.

6.4. **Upgrade the Crash Data Base** – The city's crash data base will be upgraded to provide comparative crash rates across the system, including bicycle and pedestrian accidents. Crash data is currently available through a city system in which crashes involving a police report are coded to the nearest intersection. Crash rates cannot be calculated directly within the existing data bases nor can queries be made. Both the city and Hennepin County have determined that they need to upgrade their crash databases to provide more accurate and more usable data. Mn/DOT has recently upgraded the state's crash data base with software called CMAT – Crash Management Application Tool. The city will work closely with Hennepin County and Mn/DOT to develop a compatible database. Appropriate actions for those areas identified as having high crash rates will need to be identified and implemented, particularly at those locations with high pedestrian and/or bicycle crash rates.

6.5. **Retime the Traffic Signal System** – Because traffic demands change over time, the effectiveness of traffic signal timing is constantly being eroded. Updating signal timing, both at individual intersections and in signal systems, is a critically important element in maintaining predictable, efficient and safe traffic operations in the city. It maximizes the vehicle capacity of limited transportation space, thus allowing increased space and/or improved operation for bicycles, pedestrians and transit in the public right-of-way. The city will work closely with Hennepin County, Metro Transit and Mn/DOT so that coordinated systems can be implemented as efficiently and effectively as possible. Retiming will take into account factors such as transit service speed on the PTN and the time required at signalized intersections for pedestrians to safely cross all streets. The city has CMAQ funding to retime all signals in the city and implementation is planned for the following years:

- 2009-2010: North of Olson Memorial Highway and the river
- 2010-2011: Downtown
- 2011-2012: South of Olson Memorial Highway and the river



ID	PROJECT NAME	2009	2010	2011	2012	2013
Bike						
BK004	18th Ave NE Bikeway	—				
BK045	University of Minnesota Trail - Phase II	—				
BK47	Riverlake Greenway (East of I-35W)	—				
BK48	Hiawatha LRT Trail Lighting /Trail Extension					—
BK21	26th Ave N Bikeway Study	—				
BK22	18th Ave NE Bike Striping - Monroe to Stinson	—				
BK23	Bike Boulevard Pilot Not on Map	—				
BK24	Major Bike Maintenance Program Not on Map	—	—	—	—	—
		2009	2010	2011	2012	2013
Misce-llaneous						
PA001	Facilities - Repair & Improvements Not on Map	—	—	—	—	—
PA009	Pioneer & Soldiers Memorial Cemetery Fencing Rehabilitation	—	—	—		
PA011	Energy Conservation & Emissions Reduction Not on Map	—	—	—	—	—
SW007	Defective Hazardous Sidewalks/Complete Gaps Not on Map	—	—	—	—	—
		2009	2010	2011	2012	2013
Bridge						
BR101	Major Bridge Repair & Rehabilitation Not on Map	—	—	—	—	—
BR105	Fremont Ave S Bridge				—	
BR106	Camden Bridge Rehabilitation	—				
BR107	St Anthony Bridge over BNSF			—	—	
BR111	10th Ave SE Bridge Arch Rehabilitation				—	
BR112	Nicollet Ave Reopening					—
BR114	Midtown Corridor Bridge Preservation Program				—	—
		2009	2010	2011	2012	2013
Paving						
PV001	Parkway Paving (See schedule at right)					
PV003	Street Renovation Program (See schedule at right)					
PA004	CSAH Paving Program (See schedule at right)	—	—	—	—	—
PV005	Snelling Ave Extension				—	
PV006	Alley Renovation Not on Map	—	—	—	—	—
PV007	University Research Park	—		—	—	—
PV008	I-35W & Lake St Interchange Reconstruction, Phase IV	—	—			
PV009	Franklin/Cedar/Minnehaha Improvement Project			—	—	
PV010	Chicago Ave S (8th St S to 28th St E)	—	—			
PV056	TH121/Lyndale Ave S					—
PV058	Winter St NE Residential/Commercial					—
PV061	2nd Ave N Reconstruction	—				
PV062	3rd Ave N Reconstruction	—	—			
PV063	1st Ave N One-way to Two-way (1st to 9th Sts S)	—				
PV064	Hennepin Ave One-Way to Two-way (1st to 12th Sts S)	—				
PV065	Asphalt Pavement Resurfacing Program (See schedule at right)	—	—	—	—	—
PV067	Nicollet Ave (31st St E to 40th St E)	—	—	—	—	—
PV068	Cottage Park Traffic Calming	—				
PV069	Central Corridor Light Rail Transit Study Not on Map	—				
		2009	2010	2011	2012	2013
Traffic						
TR003	LED Replacement Program Not on Map	—	—	—	—	—
TR006	Controller Conversion Not on Map	—	—	—	—	—
TR007	Traffic & Pedestrian Safety Improvements (See schedule at right)	—	—	—	—	—
TR008	Parkway Street Light Replacement Not on Map	—	—	—	—	—
TR010	Traffic Management Systems Not on Map	—	—	—	—	—
TR011	City Street Light Renovation Not on Map	—	—	—	—	—
TR013	Railroad Crossing Safety Improvements Not on Map	—	—	—	—	—
TR014	LRT TOD Improvements Not on Map	—	—	—	—	—
TR015	Safe Routes to Schools Not on Map	—	—	—	—	—
TR017	Pedestrian Signals with Count-down Timers Not on Map	—	—	—	—	—
TR018	Ballpark Area Pedestrian Improvements Not on Map	—	—	—	—	—
		2009	2010	2011	2012	2013
Storm Drain						
SW002	Miscellaneous Storm Drains	—	—	—	—	—
SW004	Implementation of US EPA Storm Water Regulations Not on Map	—	—	—	—	—
SW005	Combined Sewer Overflow Improvements (See schedule at right)	—	—	—	—	—
SW011	Storm Drains & Tunnels Rehabilitation Program Not on Map	—	—	—	—	—
SW-R1	Flood Areas 29 & 30 (4471)	—	—	—	—	—
SW032	Alternative Stormwater Management Strategies Not on Map	—	—	—	—	—
SW033	I-35W Storm Tunnel Reconstruction Not on Map	—	—	—	—	—
SW034	Flood Area 22 - Sibley Field Holding Pond	—	—			
SW035	Flood Area 21 - Bloomington Holding Pond - Zone 1	—	—			
SW036	Flood Area 5	—	—	—	—	—
PA-SW-C3	Flood Area 26-C3	—	—	—	—	—
		2009	2010	2011	2012	2013
Sanitary						
SW001	Sanitary Sewer and Tunnel Rehabilitation Not on Map	—	—	—	—	—
SW036	Infiltration & Inflow Removal Program Not on Map	—	—	—	—	—
SW037	Irving Sewer Rehabilitation (I-MN-32E-T)	—	—	—	—	—
		2009	2010	2011	2012	2013
Water						
WT005	Ultrafiltration Program Not on Map	—	—	—	—	—
WR012	Water Distribution Improvements Not on Map	—	—	—	—	—
WR014	The MWW Facilities Security Improvement Not on Map	—	—	—	—	—
WR016	Minneapolis/St Paul Interconnection Not on Map	—	—	—	—	—
WR017	Treatment Modification Based on New Regulations Not on Map					—
WT022	New Filter Presses Not on Map	—	—	—	—	—

FIGURE 23 - FIVE YEAR CAPITAL IMPROVEMENT PROGRAM

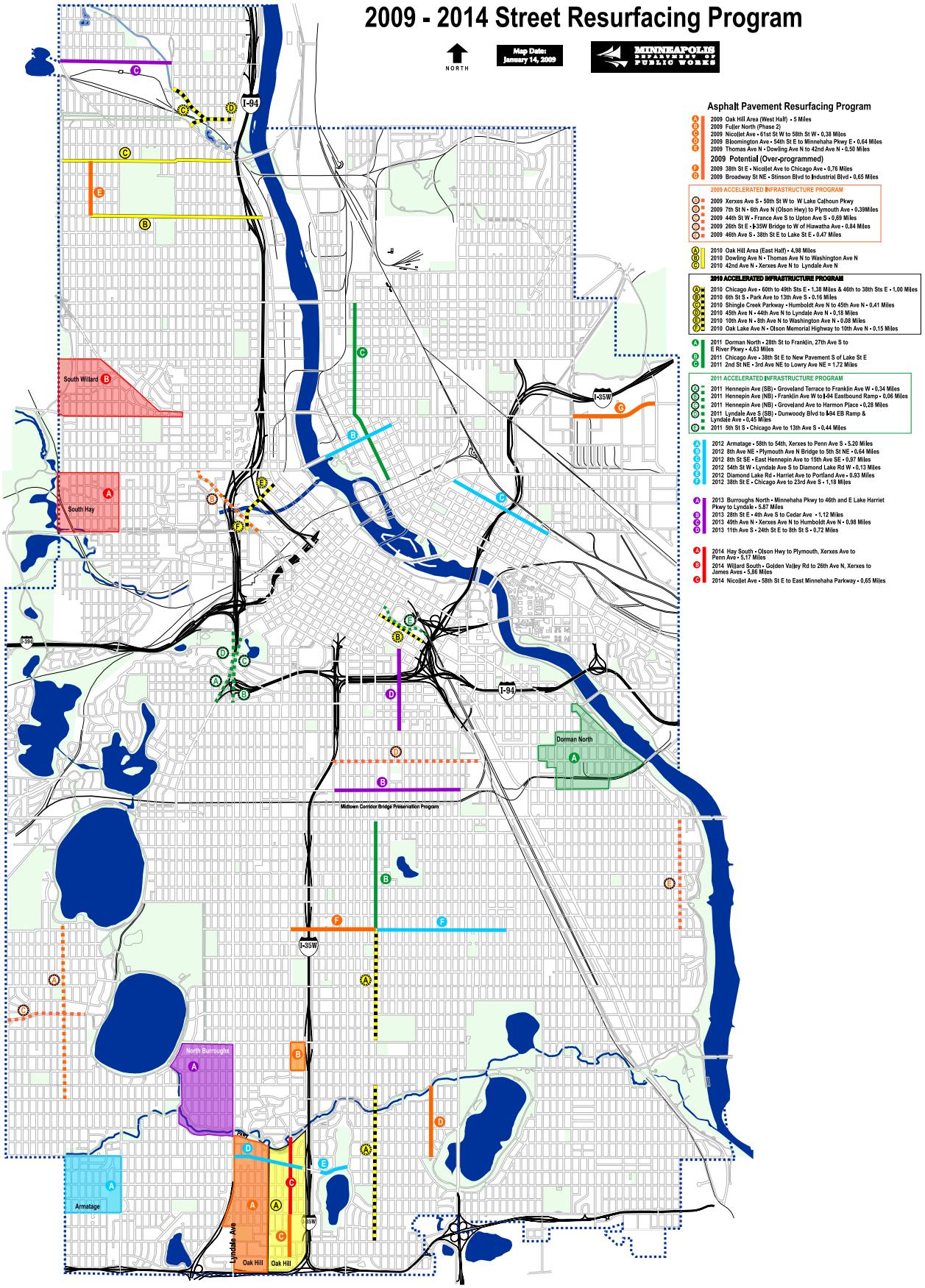


FIGURE 24 - RESURFACING PLAN

6.6. **Update Traffic Signals** – Much of the signal system in the city of Minneapolis is based on 1980s technology. Current signal system technology provides dramatically greater ability to manage traffic efficiently as well as to detect and respond to incidents more quickly, provide emergency vehicle preemption, allow queue or phase jumping for buses, and many other management tools. Updating signal equipment to allow for adaptive control from a central traffic management center (see ITS discussion below) is important to make the on-going process cost-effective. Improvements to the city's traffic management center will begin in 2010. Some of the city's traffic signal controller technology is from the 1940s and, while it has served the city well, it is obsolete and no longer cost-effective. A more robust ongoing program is needed for replacing old controllers with new technology and equipment. It is estimated that this will require a 20-year cycle, updating approximately 40 intersections per year. Estimated cost is approximately $1.2 million per year in current dollars. In addition, signal poles need to be systematically reviewed for corrosion problems and, where needed, repaired and/or replaced. Traffic signals that are currently funded include the following:

- 2009: 31st Street at 3rd Ave S, 4th Ave S, Park, Portland, Chicago, 10th Ave S, Bloomington and Cedar Ave
- 2010: 31st Street at Hennepin, Dupont, Emerson, Bryant, Pillsbury and Blaisdell
- 2011: Penn Avenue N at 42nd, 44th and Oak Park Ave; Osseo Rd at Victory Memorial Pkwy
- 2012: 46th Street at Bloomington Ave S and 42nd Ave S; 42nd St and 28th Ave S; Chicago Ave S at 33rd St, 34th St, 35th St, 36th St, 38th St, 39th St, 42nd St, 46th St

6.7. **Install Accessible/Audible Pedestrian Signals** – Traffic signals will be updated as funding is available to provide audible signals for visually impaired people. Current plans include the following:

- 2009: 11 intersections (estimated cost of $125,000)
- 2010: 12-13 intersections (estimated cost of $150,000)
- 2013 (requested): 13-15 intersections ($200,000 requested but not yet approved)

6.8. **Evaluate Intersections for "No Turn on Red"** - In 2005, Minneapolis Public Works conducted a study of No Turn on Red sign use in Minneapolis and several other cities. The study concluded that No Turn on Red has positive aspects when used at intersections with unusual characteristics like school crosswalks, intersections with limited sight lines, multi-leg intersections, freeway ramp intersections and intersections with a history of right turn on red crashes.

Negative impacts, including unnecessary delay, excess fuel consumption, and poor compliance, occur at intersections without unusual characteristics such as those noted above. The city will continue to evaluate individual intersections for the appropriate use of No Turn on Red signs with the intent of using No Turn on Red where there are clear positive impacts and avoiding its use where there are negative impacts.

6.9. **Implement Anti-Gridlock Techniques Such as "Don't Block the Box"** - The city will continue to actively explore alternatives for managing gridlock at congested intersections, particularly in downtown and other activity centers and, where necessary, will seek legislation authorizing the effective use of these management techniques. An example is the "don't block the box" program which uses a combination of intersection markings, signing and strong enforcement to discourage drivers from entering the intersection "box" unless there is room for the vehicle on the opposite side of the intersection. This prevents the situation where the

signal changes before vehicles have cleared the intersection and they remain stopped in the intersection, blocking traffic flow from the intersecting street. Currently, use of striping and signing for "don't block the box" requires special permission from the Federal Highway Administration because they are still considered experimental. Strategies such as these are much easier to implement when they are included in the federal and/or state Manual on Uniform Traffic Control Devices. Staff will continue to monitor the status of experimental traffic control strategies. In addition, current state statutes only provide for a $30 fine for blocking an intersection – an amount not significant enough to deter this action. The city will continue to lobby to increase this fine to make strategies such as "don't block the box" more effective.

6.10. **Seek Legislation Authorizing Red Light Cameras ("Stop on Red" Program)** - The Minnesota Supreme Court recently ruled that the city's red light camera program is preempted by state law and is, therefore, illegal. However, the red light cameras were successfully proven to be effective in managing traffic and improving safety at intersections while the program was operating. The city will continue to seek appropriate legislation that will authorize the future use of the red light cameras.

6.11. **Explore and Implement Applicable ITS Technologies** - Every year there are more sophisticated tools available to cities for managing traffic and parking, improving transit operations, providing real-time information to travelers, and generally squeezing more efficiency out of existing systems. These tools are particularly important to built urban environments such as Minneapolis where adding capacity by increasing lanes for auto traffic is neither possible nor desirable due to the impacts on neighborhood livability, the pedestrian zone and/or trees and landscaping; the cost of right-of-way acquisition; and the need to accommodate alternative modes of transportation within the existing right-of-way. The use of technology is consistent with the goals of the Ten-Year Action Plan and can facilitate transportation system management and transit operations by ensuring smooth traffic and transit flow in a corridor by improving intersection operations through improved signal systems, improving safety through techniques such as the red light cameras, providing efficient bus operations to encourage greater use of transit, improving communication systems for all modes of transportation, empowering transit patrons through better transit user information, better accessibility to transit and improved bus stops, and providing real-time information about traffic congestion, bus arrival times, parking availability. The city will explore, in coordination with Hennepin County, Metro Transit and other partner agencies, all applicable ITS technologies and deploy these technologies to achieve the above objectives. Any ITS technologies and applications will be in conformance with the National Architecture. The city's Traffic Management Center is in place, but needs upgrading and partner agency integration.

Objective 7: Manage and Operate Streets to Support All Modes of Transportation

A large percentage of the street system in Minneapolis is made up of local residential streets. The median width of Minneapolis local residential streets is 32 feet curb to curb but fewer than 40% of streets in the city's street system are 32 feet wide. A typical residential local street has two-way traffic operation, has two-sided parking (except during winter emergencies), and lies in a grid system of 660-foot long blocks and 330-foot short blocks. The typical daily volume on a residential local street is about 500 vehicles and the average speed is about 26-28 mph (based on speed data collection over the past five years). Approximately 12.5 percent of vehicles travel over the 30 mph speed limit. Obviously, some residential streets have higher traffic volumes and/or higher traffic speeds than others.

Traffic Calming - Residents frequently express concerns about traffic volumes and speeds on both local residential streets and arterial streets throughout the city. The city receives many requests for "traffic calming" on these streets. The term "traffic calming" refers to the use of a variety of physical design features and traffic operation measures used to reduce speed and/or reduce vehicle volumes on local residential streets. The city has established guidelines and a toolbox of traffic calming strategies for implementation on local residential streets.[12] However, some of these strategies are not appropriate for implementation on arterial roadways. Examples of strategies that can be used on arterial streets include speed wagons, law enforcement, road narrowing, curb extensions, medians, signing, signals and markings. Strategies such as speed humps, diversions and closures cannot be used on arterial streets. Typical traffic calming measures are shown in Table 8 and the city's criteria for their use are shown in Table 9. Implementation of most of these measures requires a petition by the neighborhood unless the street is planned for major reconstruction. Major changes involving significant cost typically are best done as part of a longer range reconstruction project. Additional detail on traffic calming can be found in *Traffic Calming for Neighborhoods.*[13]. This document accurately reflects current best practices and the city's current process for implementing traffic calming strategies on local residential streets.

Arterial Traffic Management - In order to effectively address concerns along arterial roadways (several are one-way streets), it is necessary to clearly understand and articulate the underlying problems that people are encountering. Most complaints are about speeding, cut-through traffic and crash problems but many of these perceived problems are not borne out by the facts. Thus, it is important to clearly understand the underlying problems that may be creating an environment that is viewed as unsafe or impractical by users and adjoining residents. These problems are often related to pedestrian safety (particularly at intersections, both signalized and uncontrolled) and bicycle safety (both along the street and at intersections). They may also be associated with problems related to access to/from the arterial roadway (driveways and cross-streets) or the secondary impacts of traffic including increased noise and negative impacts in general on quality of life.

Speed and traffic volumes are major contributors to these problems but reducing speed and/or traffic volume or simply changing a street from one-way to two-way traffic operation may not solve these problems. Instead, it is important to assess need along these streets in the broader context of creating a safer environment for walking and biking. Many arterial streets are under county or state jurisdiction and any proposed changes on county or state roads must be approved by the governing body. Therefore, it is critical that these partner agencies be involved in the analytical and decision-making process.

When an arterial corridor has been identified and prioritized for further study, the proposed approach for evaluating speed and traffic management changes to an arterial street is:

1. Meet with residents and partner agencies to determine what problems are perceived to be occurring along the corridor, what costs may be involved and what funding options are available

2. Collect the data needed to assess safety problems
   - Volumes (traffic, pedestrian, bicycle, origins-destinations, trucks)
   - Crash data (traffic, pedestrian, bicycle – number, rate, severity, causes)
   - Speed (average, peak vs. non-peak, percent speeders, travel times)
   - Existing geometric conditions
   - Current traffic operations (intersection controls, signal timing, striping, gaps)

[12] *Traffic Calming for Neighborhoods,* City of Minneapolis, DRAFT, February 17, 2000.
[13] *Traffic Calming for Neighborhoods,* City of Minneapolis, Draft, February 2000.

Table 8 – Traffic Calming Measures

	EFFECTIVENESS	NEIGHBORHOOD ACCEPTANCE	COST (APPROX.)	EMERGENCY VEHICLE IMPACT	CRITERIA REQUIREMENTS*
SPEED REDUCTION MEASURES					***See Table 8**
Enforcement	Good (short-term)	Good	None	None	None
Speed Wagon	Good (short-term)	Good	None	None	None
Road Striping	Good	Good	$.25/ft.	None	1,2,3,4,5,7
Speed Hump	Very Good	Fair-Good	$4,500/pair	Some	1,2,3,4,5,6,7
Throating	Good	Good	$10,000+	None	1,2,3,4,5,7
Raised Crosswalk	Very Good	Good	$,5000	Some	1,2,3,4,5,6,7
Choker	Good	Fair-Good	$5-10,000	None	1,2,3,4,5,6,7
Speed Table	Very Good	Fair-Good	$5,000/pair	Some	2,3,4,5,6,7
Raised Intersection	Good	Fair-Good	$10,000 min.	Some	1,2,3,4,5,7
Traffic Circle	Good (at intersection)	Poor	$7,000	Some	1,2,3,4,5,6,7
Alley Speed Bump	Very Good	Fair-Good	$520/three	Some	None
VOLUME REDUCTION MEASURES					***See Table 8**
One-Way Street	Very Good	Fair-Good	$400/block	Some	A,C,D,E,F
Bump Out	Good	Good	$6,000	Some	A,B,C,D,E,F
Diverter	Very Good	Fair	$60,000	Yes	A,B,C,D,E,F
Cul-de-Sac	Very Good	Good	$35,000	Yes	A,B,C,D,E,F

Source: Traffic Calming for Neighborhoods, City of Minneapolis, Draft 2/17/2000.

Table 9 – Criteria for Use of Traffic Calming Measures

Criteria Required for Speed Reduction Measures					
1	**Roadway Classifications:**				
	Eligible:	All Minneapolis local streets under the Public Works Department jurisdiction (not currently designated as a thru street by City Council action).			
	Not Eligible:	All roadways within Minneapolis designated as county, state, or Federal Highways, state or County "Aid" roadways, Park Board roadways, or shared jurisdiction roadways, such as city limit boundary streets.			
2	**Roadway Widths – Curb to Curb – Streets Eligible**				
	20-24 ft.	One-way	One side or less parking		
	24-26 ft.	One-way	Two side parking		
	26-32 ft.	Two-way	One side parking		
	32+ ft.	Two-way	Two side parking		
3	**Traffic Volume:** Average Daily Traffic (ADT): Exceeds 300 vehicles per day or 40% ADT occurs in two-hour period				
4	**Speeds:** Average speed exceeds 20 mph or more than 10% of traffic exceeds speed limit.				
5	**Petition Area Required:**				
	All blocks with property immediately adjacent to device.				
	75% for a permanent installation				
	100% if measure is to be assessed. (Note: Cost for speed humps are not assessed.)				
6	**Minimum Distance from Proposed Measure to:**				
	Signals – Intersections	300 ft	E. Driveways/Alleys	20 ft	
	Stop Signs	150 ft	F. Curves/Hills effecting sight lines	200 ft	
	Other Speed Control Measure	135 ft	G. Mid-Block Crosswalks	100 ft	
	Intersections	100 ft	H. Railroad Crossing	200 ft	
7	**Proximity to Parks and Schools**				
	Blocks adjacent to parks and schools not subject to #3 and #4, above.				
	School Board and Park Boards to provide matching funds on such blocks.				
Criteria Required for Traffic Volume Reduction Measures					
A	**Roadway Classifications:**				
	Eligible:	All Minneapolis local streets under the Public Works Department jurisdiction (not currently designated as thru street by City Council action).			
	Not Eligible:	All roadways within Minneapolis designated as county, state, or Federal Highways, state or County "Aid" roadways, Park Board roadways, or shared jurisdiction roadways, such as city limit boundary streets.			
B	**Roadway Widths – Curb to Curb – Streets Eligible**				
	20-24 ft	One-way	One side or less parking		
	24-26 ft	One-way	Two –side parking		
	26-32 ft	Two-way	One-side parking		
	32+ ft	Two-way	Two-side parking		
C	**Traffic Volume:** Average Daily Traffic (ADT) – Exceeds 600 vehicles per day, or 40% ADT occurs in two-hour period.				
D	**Speeds:** Average speed exceeds 25 mph or more than 15% of traffic exceeds speed limit.				
E	**Petition Area Required:** All blocks in subject areas bounded by thru streets, Park Board streets, Highways, Freeways, or natural barriers such as creeks or lakes				
	75% of residential units for a test.				
	90% for a permanent installation.				
	100% if measure is to be assessed.				
F	**Access:** No dead end created without adequate turn around on public right-of-way.				

Source: Traffic Calming for Neighborhoods, City of Minneapolis, Draft 2/17/2000.

3. Identify the specific safety problems in the corridor and contributing factors
   - Speed
   - Traffic congestion
   - Maintenance and pavement condition
   - Pedestrian environment
   - Bicycle environment
   - Avoidance of walking and bicycling due to perceived safety hazards
   - Location of curb cuts

4. Identify, in coordination with partner agencies, appropriate strategies for addressing the identified safety problems, costs of alternatives and available funding

5. Meet with residents to discuss identified problems, alternative strategies, costs and available funding for addressing problems

6. In coordination with residents and partner agencies, select and implement the best strategies for the corridor in question (see Table 10).

One-Way Streets - There are a number of one-way streets in the city (see Figure 25). Most of these streets were converted to one-way operation 50-60 years ago. Several of these "one-way pairs" are county state-aid highways. Residents who live on or near these roadways frequently complain about high speeds, high traffic volumes, unsafe conditions for pedestrians and bicyclists, and general quality of life issues. A methodology for evaluating one-way vs. two-way operation is provided in Appendix G. One-way pairs of "system" streets outside downtown (which do not include local streets or parkways) include the following:

- City streets – recently studied
  - Emerson Ave N and Fremont Ave N were converted to one-way operation in 1956. A study of one-way vs. two-way operation was completed in 2007. These streets will remain one-way streets based on neighborhood preferences.
  - 1st Ave S and Blaisdell Ave S were initially converted to one-way operation in 1953 to address traffic capacity needs prior to construction of the freeway system. 1st Avenue was changed to two-way between 28th Street and Franklin Avenue in 2003. Further study of this one-way pair south of 31st Street is warranted.
  - 26th St W/E and 28th St W/E were initially converted to one-way operation in 1953. A study of this one-way pair was completed in 2000. That study concluded that there was a need to continue one-way operation, at least in the vicinity of the hospital complex. Further study of this one-way pair to provide better speed management and pedestrian and bicycle safety improvements is warranted.
  - 35th St W/E and 36th St W/E were initially converted to one-way operation in 1967 to serve interchanges with I-35W. One-way operation on these streets will likely be necessary unless there is a future change in freeway access (e.g. 38th Street).
- County state-aid highways – operation is approved by Hennepin County and Mn/DOT
  - Park Ave S and Portland Ave SW south of downtown were initially converted to one-way operation in 1946-47 to address capacity issues prior to construction of the freeway system.[14] A study of one-way versus two-way operation was completed in the 1990s. Future study of this one-way pair, particularly after completion of the I-35W/Crosstown reconstruction, is warranted.

[14] One-way operation of Park and Portland Avenues in downtown occurred later: from 14th to 3rd Street South in 1952-53 and from 3rd to Washington Avenue S in 1974.

- 4th St NE and University Ave NE are county roads east of I-35W and state highways west of I-35W. These streets were initially converted to one-way operation in 1968 to provide freeway access to I-35W. This one-way pair is particularly important east of I-35W where it provides access to/from the University of Minnesota. One-way operation will continue to be needed east of I-35W to provide adequate access between the University of Minnesota and I-35W. Future study of two-way operation west of I-35W may be appropriate in the future if additional freeway access is provided to downtown south of the river.
- Lagoon Ave and Lake Street were converted to one-way operation in 1990 to address air quality and traffic congestion issues in the Uptown activity center. No changes in operation in this area are anticipated at this time. However, this area could benefit from improvements addressing bicycle and pedestrian safety and access.
- Hennepin Avenue NE and 1st Ave NE were converted to one-way operation in 1974 in the East Hennepin activity center. One-way operation is tied to the design of the two bridges connecting the East Hennepin area to Nicollet Island and the Hennepin Avenue Bridge between Nicollet Island and downtown Minneapolis. No changes in operation in this area are anticipated until these bridges need reconstruction. However, this area could benefit from improvements to increase bicycle and pedestrian safety and access.

Removal of Traffic Signals - The city uses the approach outlined in *Guidelines for Traffic Signal Removal*[15] when an existing traffic signal is proposed to be removed. When an engineering study has determined that an existing traffic signal is no longer justified or warranted, a pedestrian safety-focused transition analysis is conducted to determine appropriate strategies for making the transition from a signalized to a non-signalized intersection. Public Works seeks input and approval, as necessary, from Mn/DOT or Hennepin County when a state or county road is impacted.

Recommended Actions

7.1. **Continue to Install Traffic Calming Measures on Local Residential Streets** - The city will continue to install traffic calming measures on local residential streets using the petition process guidelines provided in *Traffic Calming for Neighborhoods.* The city will also consider traffic calming measures in the design process when a local residential street is being reconstructed.

Table 10 – Strategies for Addressing Traffic Calming Issues on Arterial Streets

Strategy	Speed Management	Traffic Volume Reduction	Pedestrian Safety	Bicycle Safety	Traffic Safety	Access to Street
Enforcement	X		X	X	X	
Speed Wagon	X		X	X	X	
Bike Lanes				X	X	
Narrow Travel and/or Parking Lanes	X	X (cut-through traffic)	X	X		
Reduced Travel Lanes	X	X	X	X	X	X
Throating or curb extensions	X		X		X	
Raised Intersections[16]	X		X			
Signal Timing	X		X	X	X	X
Crosswalk Striping			X			
Count-down Signals			X			
Wider sidewalks			X			
Improved lighting			X	X	X	
Modification from one-way to two-way operation	X	X				

[15] *Guidelines for Traffic Signal Removal,* City of Minneapolis, DRAFT, October 2008.
[16] According to NCHRP, this is one of only a few measures that uniformly resulted in an increase in crashes.

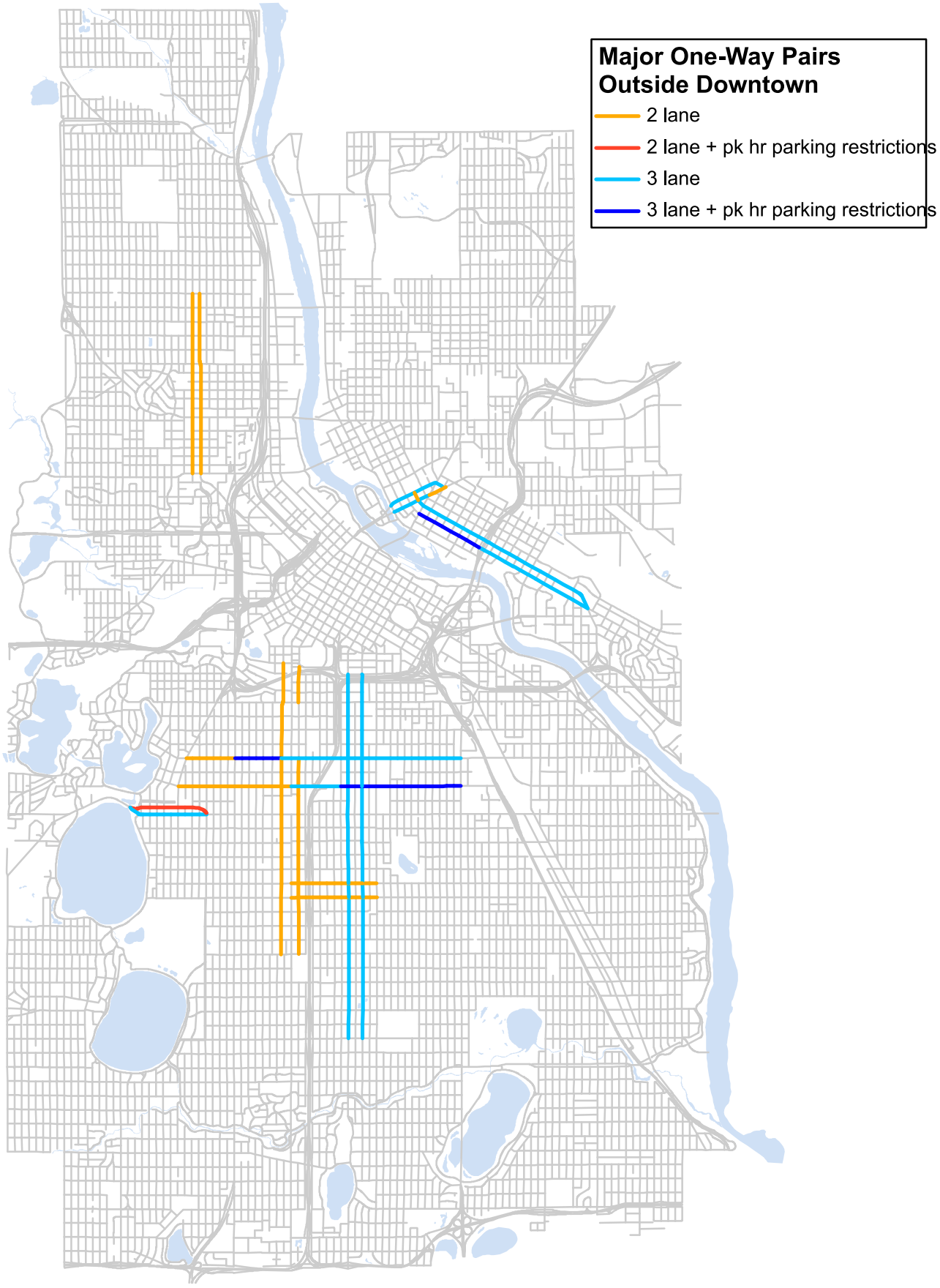


FIGURE 25 - MAJOR EXISTING ONE-WAY STREETS

7.2. **Incorporate Traffic Calming Measures into *Design Guidelines for Streets and Sidewalks* –** Existing traffic calming guidance[17] will be updated and incorporated into the city's *Design Guidelines for Streets and Sidewalks.* The updated traffic calming guidelines will be brought to the City Council to receive and file as has been done for other components of the *Design Guidelines for Streets and Sidewalks*. The city will continue to monitor best practices in traffic calming for both residential and arterial streets. Traffic calming guidance will be updated periodically to reflect changes in funding strategies and best practices.

7.3. **Improve Public Understanding of Traffic Calming and Traffic Control Devices –** The city will update its website to provide better information on the purpose, use and city practices for various types of traffic control and traffic calming tools, including traffic signals, stop signs and crosswalk markings.

7.4. **Identify Improvements for One-Way Pairs –** Four one-way pairs have been identified for action over the next ten years. This work will include developing best practices which can be applied to other one-way pairs in the future as resources become available.

- Emerson/Fremont Avenues N – The city will move forward with the Non-motorized Transportation Pilot Project.
- 26th/28th Streets S – The 2000 city study will be reviewed with actions developed to address both short and long-range improvements.
- 1st/Blaisdell Avenues S – As a follow-up to the 2003 study, the city will further study these corridors south of 31st Street.
- Park/Portland Avenues – After the I-35W Crosstown construction, the city, in coordination with Hennepin County, will evaluate Park and Portland Avenues for two-way operation and/or other changes that will improve bicycle and pedestrian safety and manage vehicle speeds.

7.5. **Adjust Signal Timing for Pedestrian Crossings -** As part of signal retiming initiatives, the city will adjust signal timing as needed at key intersections to improve safe and convenient crossings for pedestrians.

7.6. **Conduct Traffic Management Pilot Projects** - Pilot studies will be conducted on arterial streets to develop best practices for managing traffic speed and improving bicycle and pedestrian safety and access. These street types were selected because they are examples of different types of conditions found on arterial streets where traffic/speed management has been identified as an issue. Three to five pilot locations will be identified that meet the following criteria:

- One-way operation: see Action Item 7.3 above.
- Wide two-lane collector street with low/moderate traffic volumes
- Street with rarely used parking lanes that contribute to higher speeds
- Transitions from high to low speed at/near city boundaries

In addition, Public Works will re-evaluate all peak period parking restrictions to determine their current and future value for traffic management.

7.7. **Investigate the Removal of Traffic Signals When Requested** - The city will continue to use the approach outlined in *Guidelines for Traffic Signal Removal* to remove an existing traffic signal.

7.8. **Investigate Safe Routes to Parks and Safe Routes for Seniors Programs** – The city will investigate using the school pedestrian safety program model for other types of vulnerable users, such as a Safe Routes to Parks program and/or a Safe Routes for Seniors program.

7.9. **Support Traffic Safety Education and Enforcement Activities** – The city will continue to support traffic safety education and the enforcement of traffic laws and will continue to seek funding to enhance traffic safety education and enforcement activities. In particular, the city will seek long-term funding resources for the Pedestrian and Bicycle Ambassador program, which is intended to increase bicycle and pedestrian activity and improve safety.

[17] *Traffic Calming for Neighborhoods,* City of Minneapolis, DRAFT, February 17, 2000.

Objective 8: Make consistent decisions for curbside uses

Recommended Actions

8.1. **Update Specialty Zones** – The city will review and update current and potential future specialty zones (loading, valet, hotel, disability, etc.) regarding process, ordinances and locations. It is important to note that, while guidelines should be clear, flexibility is necessary to address many of these issues, particularly in major activity centers such as downtown. In general, freight delivery should be given priority over parking when allocating curbside uses.

8.2. **Update Technology for Metered On-Street Parking –** A request for proposals has been solicited by Public Works and, based on an initial evaluation, several new meter technologies have been selected to participate in a six-month field test and evaluation over a period of six months beginning in November 2008. A decision on which technology(ies) to ultimately select and implement is anticipated to be made after the six-month field test. Expansion of parking meters will be implemented where turnover and/or consistency is needed.

8.3. **Enforce Parking Restrictions at Intersections –** The city will work to improve enforcement and signing at intersections to maintain 20 foot clear zones from crosswalks. This maintains open sight distances at intersections and improves safety for all modes of transportation.

8.4. **Re-assess Existing Parking Restrictions During Peak Periods –** There are numerous streets throughout the city where on-street parking is restricted during peak periods to provide additional peak hour capacity. In most cases, restrictions are in place in both directions during both morning and afternoon peak periods but peak period traffic demand is often highly directional. In some cases, this restriction may be needed only for short distances at key intersections or near freeway ramps but may exist for longer roadway segments. Both on-street parking needs and peak period traffic needs may vary over time and there is little consistency in the application of this tactic. Criteria for the use of parking lanes for peak period traffic need to be reviewed and updated. Existing peak period parking restrictions need to be reevaluated for overall need and for directional restrictions.

8.5. **Develop Parking Replacement Strategies for Street Reconstruction Projects** – The city needs to establish a process and funding strategies for the provision of municipal or public/private off-street parking in activity centers outside downtown. Criteria are needed for the evaluation of parking needs when streets are being reconstructed or on-street parking is being eliminated to provide for other transportation needs. This will become an increasingly critical issue in future street reconstruction projects as there is a greater need for wider sidewalks, more adequate space for tree planting and stormwater management, additional bike lanes, space for transit stops, and space for turn lanes at intersections. In these circumstances, it is likely that some on-street parking will need to be eliminated or replaced. The provision of replacement parking, particularly in activity centers and along commerce corridors, may be essential to meet the needs of adjoining businesses and/or to gain the support of adjoining property owners.

8.6. **Continue the Designation of Critical Traffic and Parking Areas** - The city will continue to support the designation of critical parking areas when these criteria are met.