3. State of the City: Multi-Modal Transportation Needs

Transportation and land use cannot be neatly separated. They are either mutually supportive or they are in conflict. How they are both designed significantly influences the modes that people use for various trip purposes, how long trips are, and where those trips occur. The challenge of *Access Minneapolis* has been to find ways to improve the transportation systems that serve the city of Minneapolis while, at the same time, improving the quality of life for people who live in the city and enhancing the character and reputation of the city as an extraordinary place to live, work, play, visit and conduct business. Thus, throughout this document there will be many references to the relationship between "place types" and "street types". The design and function of streets, as well as the modes they serve, must strongly support the adjoining land uses. These land uses are packaged together in many different ways and, therefore, the streets that serve these various place types must also be packaged in many different ways. The interrelated approach that the city uses for both land development and for transportation facilities and services is critical to shaping a city that can serve its population well into the future.

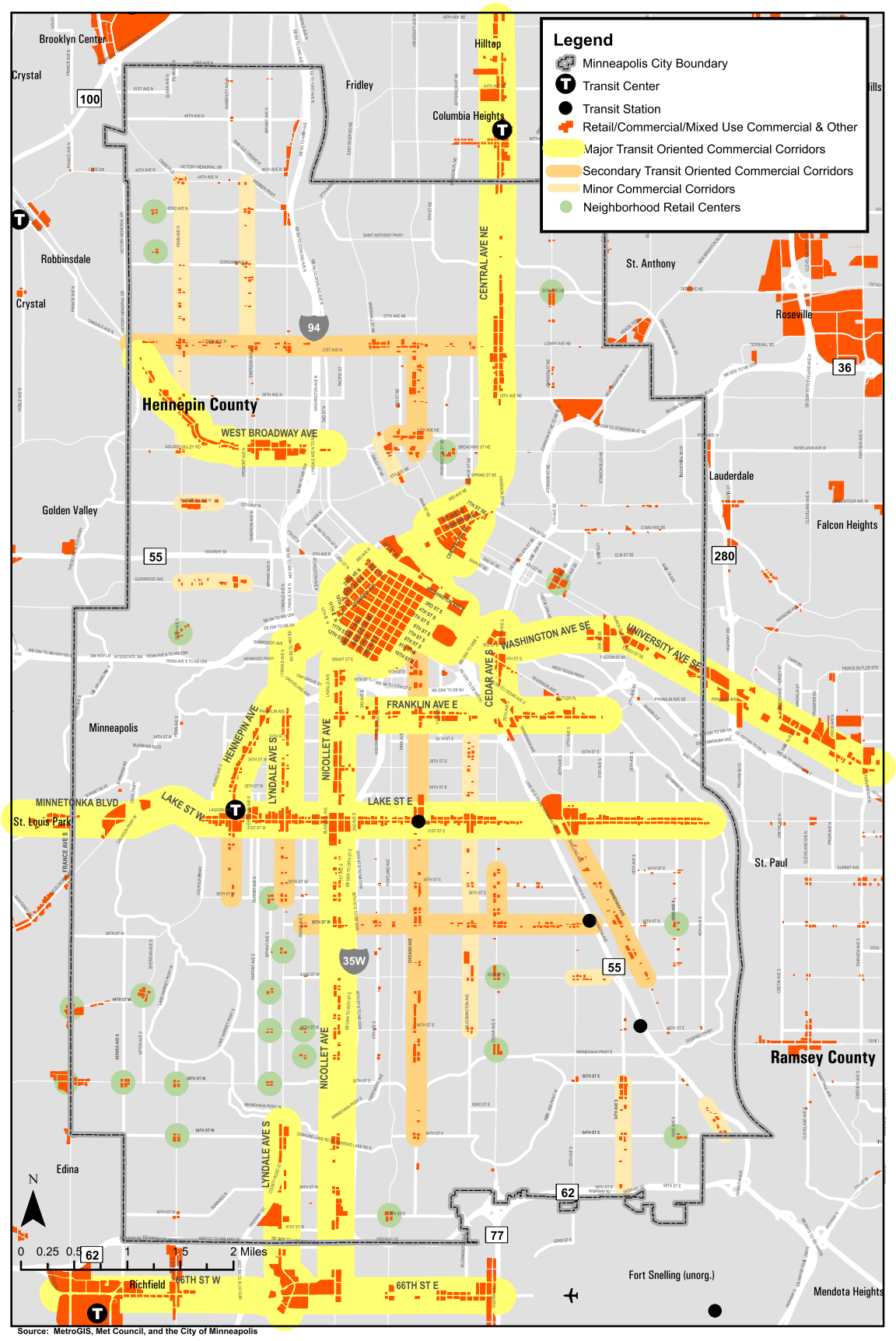
Access Minneapolis is a city initiative that recognizes that transportation must function within an existing built environment and the scale and design of transportation systems must be compatible with that built environment. The plan recognizes that future transportation needs must be met through a wide choice of transportation modes, reducing the reliance on the automobile, so that all transportation systems can continue to function adequately in the future given a constrained urban environment. The plan reflects an urban vision that gives high priority to meeting pedestrian, bicycle and transit needs within a multi-modal transportation system.

Historic Growth Patterns

Historically, Minneapolis developed as a classic "streetcar city" prior to World War II along a network of streetcar lines. Consequently, commercial development outside the historic core is in a linear pattern with pockets of more intense activity where major streetcar lines intersected. Higher density residential development was built near these commercial nodes and along the streetcar lines as illustrated in Figure 4. The close proximity of housing and commercial was very practical and convenient for people, many of whom relied on streetcars and walking to move around the city.

When buses replaced streetcars in 1954, many of the bus routes simply followed old streetcar lines. At the same time, automobile use began to climb rapidly and these same streets became the primary corridors for automobile travel. The introduction of freeways into the city significantly changed some travel patterns but these "arterial" streets continue to provide the backbone of the city's transportation system and many continue to provide important activity centers and commercial nodes that serve nearby neighborhoods.

Unfortunately, as vehicle volumes grew, so did many streets – often at the detriment of other modes of transportation, the economic vitality of those streets, and the character of adjoining residential properties and neighborhoods. Conflicts easily arise along these transportation corridors that must both serve as "main streets" and "front yards" for the city's many neighborhoods as well as provide access to jobs both within and outside the city.



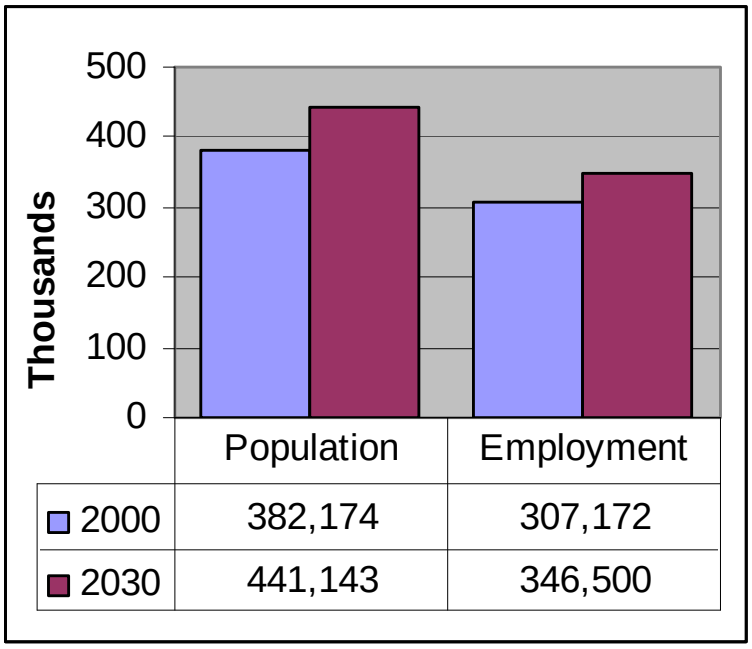
Source: MetroGIS, Met Council, and the City of Minneapolis

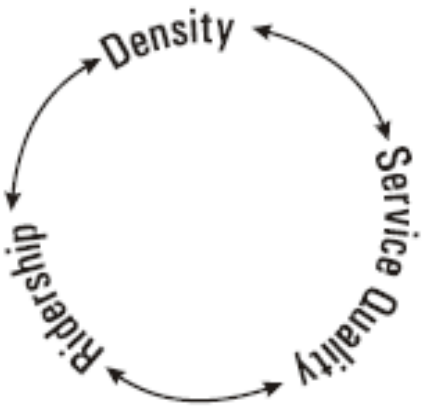
FIGURE 4 - HISTORIC DEVELOPMENT & TRANSPORTATION PATTERNS

Accommodating Future Growth

Minneapolis is a city of approximately 380,000 people and approximately 300,000 jobs and the city is expected to add almost 60,000 residents and 40,000 jobs by 2030 (see Figure 5). Growth, both within the city and throughout the region, is important to the city's continued economic prosperity. As a core city to a growing metropolitan area, Minneapolis is challenged with both maintaining the city's character and livability while providing a strong employment and commercial center for the entire region and the transportation systems necessary to serve that center.

Figure 5 – Projected Population and Employment Growth





Source: *The Minneapolis Plan for Sustainable Growth,* City of Minneapolis, 2008.

Minneapolis is now a fully developed central city with a mature urban environment and a traditional urban form. Widening roadways or building new roadways to meet future transportation needs, in most cases, is not an acceptable option due to the negative impacts on the urban character of the city, the exceedingly high costs for construction and relocation, and the reduced viability of walking, bicycling and transit. This argues for managing and maintaining the existing system to optimize traffic flow and encourage greater use of alternative modes (walking, bicycling and transit) as well as increased carpooling, carsharing and hour-car use.

The key to accommodating expected future growth while providing reasonable transportation choices is very closely tied to the density and growth patterns that were set by those early streetcar lines. The *Minneapolis Plan for Sustainable Growth* guides a pattern of growth into corridors and nodes to provide density along transit lines because of the ability of transit, walking and biking to serve movement needs of people living and working along these corridors. This pattern of growth builds on and strengthens the underlying historical form of the city and its original streetcar corridors. It also reinforces the existing transit system and sets the stage for increased transit ridership and improved transit service. Increased density is achieved through city land use policies, design guidelines and economic development incentives. Increased density in urban areas will lead to higher ridership which, in turn, makes it economically feasible to improve transit services on these routes. As transit service increases, so does ridership and the desirability of these corridors as a place to live and work. This increased desirability, in turn, leads to increased development density. These changes in density will require greater modal priorities for walking, biking and transit and street designs that provide greater accommodation for these modes. As these corridors and their activity centers are designed to be more transit, pedestrian and bicycle friendly, the synergy between transportation and land use will be even more greatly enhanced.

Land Use Features (Place Types)

The *Minneapolis Plan for Sustainable Growth* calls for future growth to be directed to and along its designated land use features (see Figure 6) including community corridors, neighborhood commercial nodes, commercial corridors, activity centers, growth centers and transit station areas.

Land use features or place types are important to the design of streets and sidewalks because the buildings and spaces along the street tell us a great deal about the city's character; the volume of pedestrian, bicycle, transit and automobile activity; and the need for parking, street furniture, trees, landscaping and other facilities. Just as place types (land use features) inform the street design process, street design informs the land use planning and development approval process. *The Minneapolis Plan for Sustainable Growth* identifies the following place types (land use features), which are shown in Figure 6 and described in Table 1. Additional detail is provided in Appendix B.

- Activity Centers
- Commercial Corridors
- Community Corridors
- Neighborhood Commercial Nodes
- Transit Station Areas
- Growth Centers
- Major Retail Centers
- Industrial Employment Districts
- Residential Neighborhoods

These land use features (place types) also form the basis for the street design process and guidelines as documented in the city's *Design Guidelines for Streets and Sidewalks*, another component of *Access Minneapolis.*

Multi-Modal Trends

Today, while a large percentage of people use automobiles as their primary mode of transportation, transit, bicycling and walking serve a significant share of trips in Minneapolis. The potential for these modes to accommodate a much greater share of travel in the city is demonstrated by the following facts.

- According to the 2000 U.S. Census (see Table 2):
  - 25% of the nearly 140,000 people who worked downtown in 2000 commuted by transit, 3% by foot, and 1% on bike.[4]
  - Citywide, 15% of the nearly 300,000 people who worked in Minneapolis in 2000 commuted by transit, 4% on foot, and 1% by bike.
  - Among Minneapolis residents who worked in 2000, the share of people who walked and biked to work was even higher: 7% walk, 2% bike.[5]

- Between 36 and 50 percent of trips that originate in the five sectors of the city stay within the same sector. This travel behavior pattern indicates that people tend to work, shop, and recreate in places close to where they live. It also indicates that many trips are short and could be accommodated by a robust set of transportation choices that offer alternatives to the automobile.

[4] Modal use in downtown is reported in many different ways. Transit ridership is a much higher mode share for the office core of downtown (see *Downtown Action Plan,* City of Minneapolis, 2007 for more details). A figure of 40% transit mode share has been documented through a number of sources for the downtown core.

[5] A 2007 U.S. Census survey (The American Community Survey) reported a significantly higher bicycle work trip mode share for Minneapolis residents of 3.8%, placing Minneapolis as the second highest bicycle work trip mode share among the 50 largest U.S. cities based upon the 2007 survey.

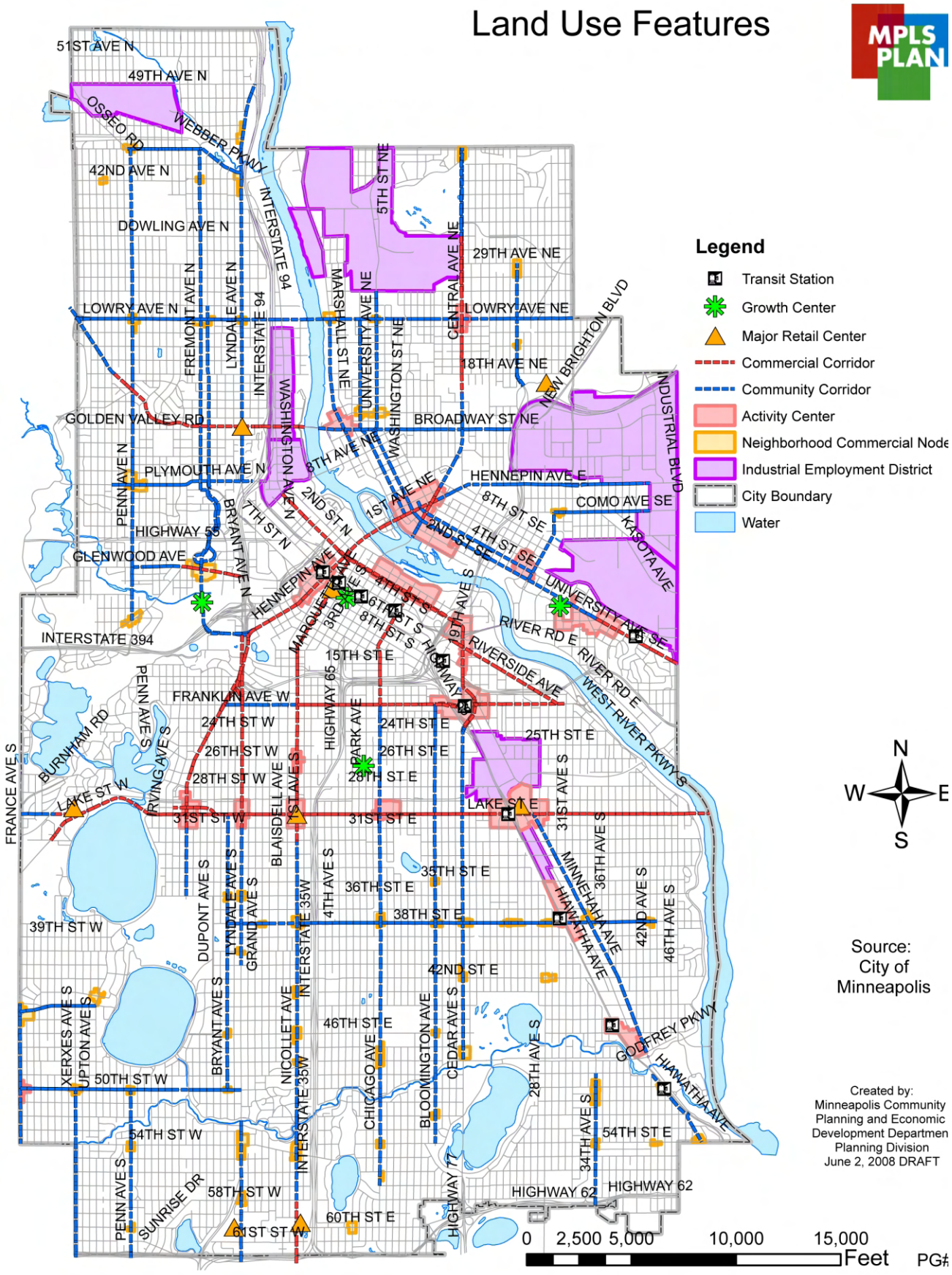


FIGURE 6 - LAND USE FEATURES

Table 1 - Place Type Characteristics (definitions and names are derived from *The Minneapolis Plan for Sustainable Growth)*

Place Type	Identifying Characteristics	Form	Building Placement	Frontage Types	Typical Density	Edge Treatments and Open Space
Activity Centers, Growth Centers and Transit Station Areas	• Diversity of uses with citywide and regional draw • Medium and high density residential uses, though varies by location • Accommodates retail and commercial services, entertainment uses, educational campuses, or other large-scale cultural or public facilities • Significant pedestrian and transit orientation • May have concentration of employment • Mix of uses occurs within and among structures	• Traditional urban form regarding building siting and massing • Unique urban character that distinguishes them from other commercial uses	• Small or no setbacks • Buildings oriented to street	• Storefronts • Landscaped buffer areas	• Medium to very high	• Plazas and squares • Pocket parks • Trees planted in pits/trenches • Streetscaping but minimal planted boulevards
Commercial Corridors	• Historically have been prominent destinations in city • High traffic volumes • Mix of uses, with commercial uses dominating • Residential uses tend to be medium to high density • Primary Transit Network corridors	• Buildings generally retain a traditional urban form in their siting, massing and relationship to the street	• Shallow to medium setback • Buildings oriented to street	• Storefronts • Landscaped buffer • Fences	• Medium to high	• Limited • Trees planted in pits/trenches • Streetscaping • Few p\anted boulevards
Community Corridors	• Connect more than two neighborhoods • Moderate traffic volumes and may be principal travel routes • Primary Transit Network corridors with some exceptions • Primarily residential with intermittent commercial uses clustered at intersections in nodes • Small scale retail sales and services serving immediate neighborhood	• Traditional commercial and residential form and massing	• Residential front yard setbacks • Small or no setbacks in Comm Nodes • Buildings oriented to street	• Storefronts • Landscaped buffer areas • Porches • Fences • Residential front yards	• Low to medium	• Parks • Planted boulevards except in commercial nodes • Residential front yards
Neighborhood Commercial Nodes	• Generally retail or services on at least three corners of intersection • Oriented to pedestrian traffic, with few automobile-oriented uses • Generally serve needs of surrounding neighborhood with limited number of businesses serving larger area • Commercial uses are typically focused close to a single intersection of community corridors though may be more dispersed • Mix of uses occur within and among structures	• Generally have a historic commercial function and form	• Small or no setbacks • Buildings oriented to street	• Storefronts • Landscaped buffer areas	• Medium to high	• Streetscaping • Trees planted in pits/trenches
Major Retail Centers	• Large concentration of retail floor space, and have at least one major chain of grocery or household goods retail • Significant parking • Convenient and direct access to a the regional road network	• Varies; generally large single story retail buildings with large surface parking lots • Policy direction for reinforcing elements of traditional urban form	• Large setbacks • Commercial frontage • Surface parking in front	• Parking lots • Storefronts • Landscaped buffer areas • Fences	• Varies	• Trees planted in pits/trenches • Landscaped sidewalks • Parking lots
Residential Neighborhood	• Primarily residential but ay contain scattered non-residential uses including small scale commercial and public/institutional	• Varies	• Varies	• Varies	• Low to very high	• Parks • Planted boulevards
Industrial/ Employment District	• Protected areas intended for industrial growth and expansion without residential uses in their boundaries • Designated in the Industrial Land Use and Employment Policy Plan	• Varies	• Varies	• Varies	• Varies	• Varies

Table 2 - Means of Transportation to Work: All Jobs in Minneapolis

Mode	People Who Work in Downtown (regardless of city of residence)		People Who Work in Minneapolis (regardless of city of residence)		Minneapolis Residents Who Work (regardless of city of work)	
Drive alone	80,200	57%	193,210	65%	125,583	62%
Carpool/Vanpool	18,013	13%	35,220	12%	23,132	11%
Bus	35,320	25%	45,640	15%	29,267	14%
Bicycle	1,194	1%	3,620	1%	3,856	2%
Walk	4,065	3%	12,860	4%	13,488	7%
Other means	1,184	1%	2,485	1%	1,689	1%
Work at home			6,935	2%	6,936	3%
Total	**139,976**	**100%**	**299,970**	**100%**	**203,951**	**100%**

Source: US Census Bureau, Census Transportation Planning Package (CTPP), 2000

- Areas in Minneapolis that have the highest household and employment density also tend to have the lowest number of autos per household. A significant portion of the city has average auto ownership of less than one per household (see Figure 7). Although the reasons behind households having fewer autos may vary from size of household to income limits to personal preference, the reality is that, as density increases, auto ownership declines. It is anticipated that auto ownership will decline in the city as density increases, particularly if good access to transit and good provisions for walking and biking are provided. This indicates an increasing demand for greater accommodation of alternative transportation choices.

- Minneapolis is a winter city where low temperatures and periodic harsh weather conditions make it difficult for many people to walk and bicycle during some parts of the year. While one-quarter of bicyclists bicycle year-around, many bikers and walkers use transit as their primary mode of transportation during inclement weather. Weather conditions impact how transportation facilities need to be designed, operated and maintained, and how people may need multiple modes to meet their transportation needs.

Pedestrian Needs

In the city of Minneapolis, the pedestrian network is mainly comprised of sidewalks along the streets (see Figure 8). There are some trails connecting parks; most of these trails are under Park Board jurisdiction. In the downtown area, the sidewalks are complemented by the skyway network, made up of 63 bridges serving 72 blocks in the downtown core.

The Department of Public Works is currently preparing a Pedestrian Master Plan with the assistance of a Pedestrian Advisory Committee appointed by the City Council. The Plan is expected to be completed in mid-2009 and the information provided in the Citywide Action Plan about pedestrian facilities, services, needs and proposed actions are summarized from the Master Plan and are intended to be consistent with the Pedestrian Master Plan.

Typically, measures used to evaluate pedestrian conditions are related to the absence or presence of sidewalks, the width of the sidewalks, how circuitous the pedestrian trip is in relation to the straight line distance, and the character of the environment through which the pedestrian walks. Continuity and directness are measures that can be used to assess need at the systems level. Measures related to the character of the environment are typically applied during corridor planning or the street design process. It is also important to evaluate the age and physical capabilities of users (i.e., crossing speed of the elderly, presence of school children), intersection sightlines, signal operations and lighting.

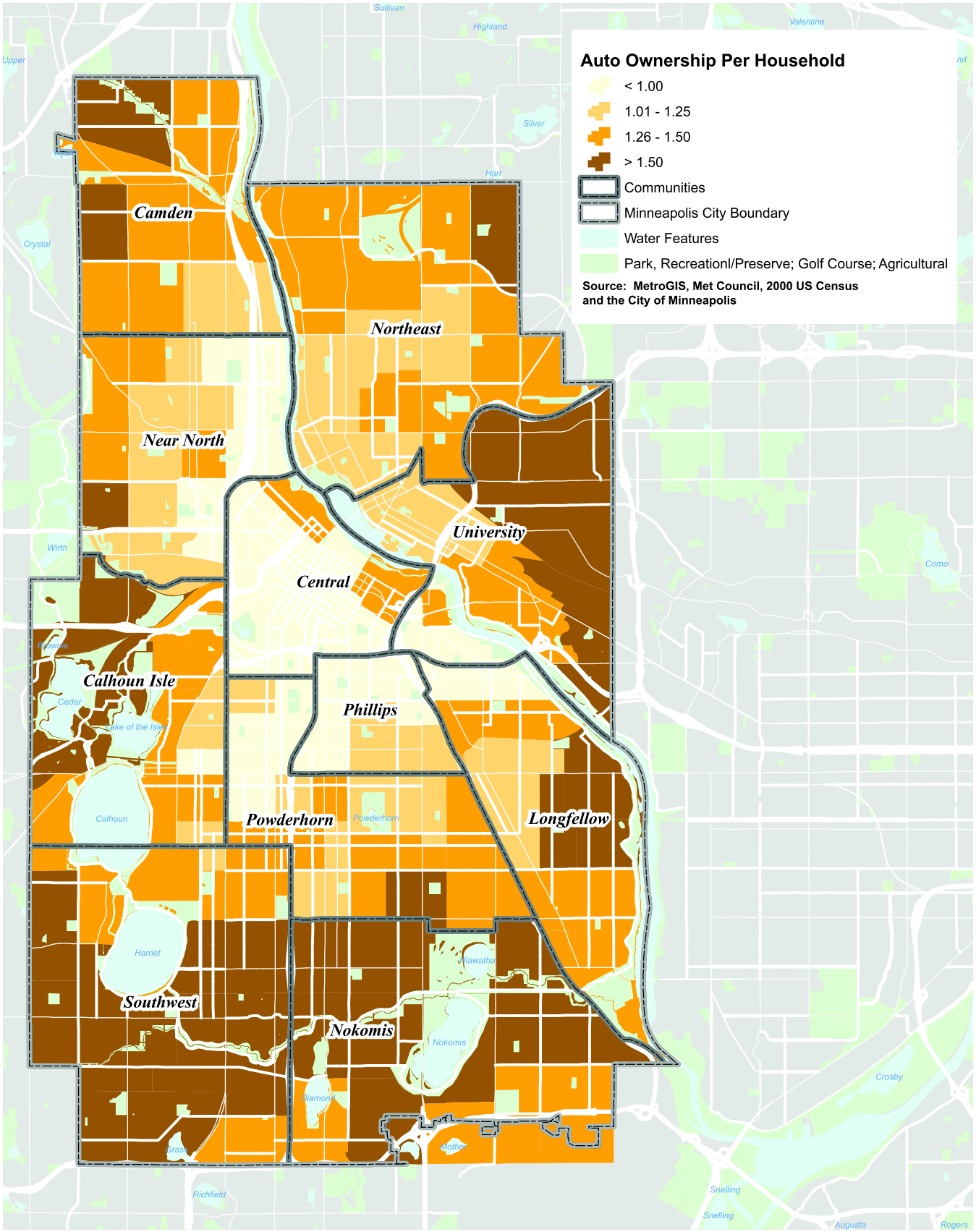


FIGURE 7 - AUTO OWNERSHIP AND LAND USE DENSITY

Directness - In general, the more direct the pedestrian trip, the better the network performs. Curvilinear streets, cul-de-sacs, and other non-grid street systems are examples of a network that does not have directness. The street system in Minneapolis is almost entirely a grid with a very limited number of areas where curvilinear streets are present. Thus, there is very limited variation in directness for pedestrians over the entire city. However, this can become a challenge when new developments are proposed that include requests for street vacations, midblock crossings, or other features that have negative implications for pedestrian access and/or safety.

Continuity – Continuity is the result of gaps in the sidewalk system or natural or man-made features that create barriers to walking. The best examples in Minneapolis are natural bodies of water (rivers, creeks and lakes) and freeways. There are many examples throughout the city where pedestrian access is hindered by the lack of crossings over freeways (or the poor quality of those crossings). There are also many locations where there are gaps in the sidewalk network. Gaps in sidewalks can be present due to various reasons:

- Discontinuities in the sidewalks occur at railroad crossings where it is the responsibility of the railroad to provide pedestrian crossings.
- Some streets in industrial areas may not have sidewalks due to the nature of the land use in the area.
- Gaps in sidewalks can be present due to the physical characteristics of the street (for example, presence of wetlands, steep topography, mature trees, etc.).
- There may be gaps in the sidewalks adjacent to Park Board properties (streets along the perimeter of parks) where sidewalks are the responsibility of the Park Board and there are off-street trails in the adjacent park.
- Sidewalks may be absent on streets which have been vacated or taken off the city street system. These facilities may become private or, as is the case of Beacon Street in the University of Minnesota campus, they become part of the University's pedestrian system.
- Gaps in the sidewalk system may also be present in areas which are designated for future redevelopment and sidewalk construction is included as part of a redevelopment project that has not yet been constructed.
- Sidewalks may be absent in areas where old ordinances did not require a sidewalk to be built.

Pedestrian Zone Width – It was not possible within the scope of the Action Plan to determine pedestrian zone widths for the entire city. This issue is addressed more thoroughly in the city's Pedestrian Master Plan. Design guidelines for pedestrian zone width are included in the document, *Sidewalk and Street Design Guidelines.*

Safety - Pedestrians need to have safe and convenient opportunities to cross streets and a safe and secure environment in which to walk. Safety is a shared responsibility among engineers, law enforcement officials and system users.

Sidewalk Condition - By ordinance, Minneapolis requires that property owners build and maintain public sidewalks along city streets. Sidewalks are inspected approximately once every 10 years although many sidewalks do not require repairs that frequently. Sidewalks are inspected for damage that could cause pedestrians to fall, damage that could impede wheelchair users and other disabled pedestrians, and common defects like breaks, unevenness and projecting or settled sections. Property owners are obligated to maintain the public sidewalks in a safe, usable condition. If sidewalks are damaged as the result of private property construction or maintenance, property owners are required to restore them to full working order.

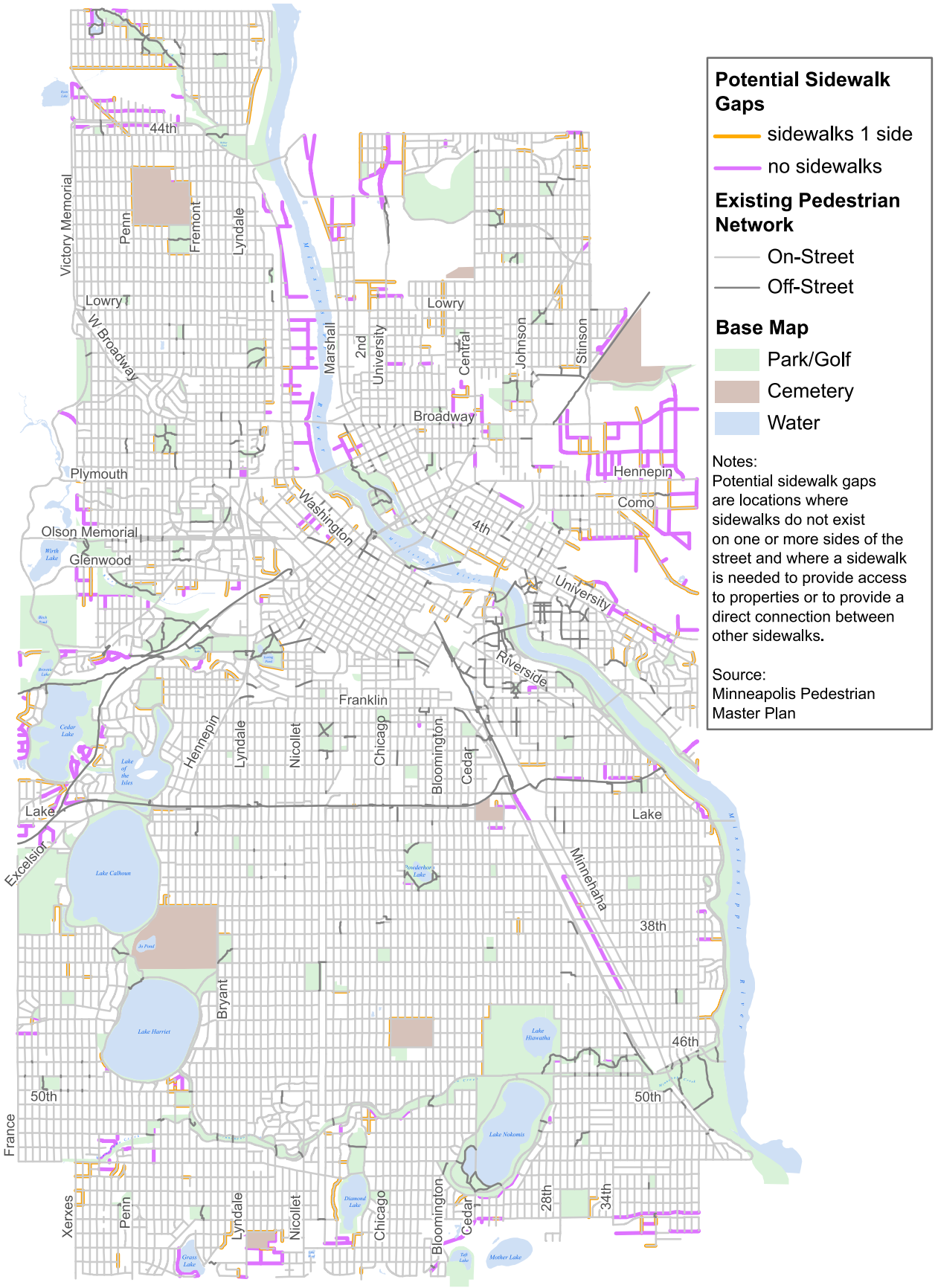


FIGURE 8 - EXISTING SIDEWALK SYSTEM

Walking Environment – It also was not possible within the scope of the Action Plan to specifically address issues related to the walking environment on sidewalks throughout the city. These issues are explored more thoroughly in the city's Pedestrian Master Plan. Desired characteristics for different street design types are included in the document, *Street and Sidewalk Design Guidelines.*

Snow Removal - Snow removal is very important to maintaining pedestrian access and safety during the winter. While snow removal from sidewalks is the responsibility of the property owner in most circumstances, a major challenge is the timely removal of snow at bus stops and crosswalks throughout the city.

Americans with Disabilities Act (ADA) - Sidewalks, transit passenger waiting areas, building access, pedestrian crosswalks and other pedestrian facilities need to be designed so that they provide equal access for all users, including persons with disabilities. Guidelines for this purpose are provided by the Americans with Disabilities Act (ADA). ADA requirements are addressed in both the Pedestrian Master Plan and in the Street and Sidewalk Design Guidelines. It should be noted that, while specific to persons with disabilities, these guidelines provide reasonable guidance for a safe environment for all pedestrians.

Bicycle Needs

Bicyclists are as varied as the general population with skills ranging from children and inexperienced recreational riders to highly skilled commuter cyclists and even bicycle racers. The recreational bicyclist is typically looking for an attractive, easy-to-use and easy-to-access, off-road trail with nearby amenities. Directness of route may be less important than safety and environment. The commuter bicyclist is typically looking for a route between origin and destination that is direct, safe and fast.

Bicyclists of all ages and riding abilities have a legal right to use all streets and roadways except freeways. The differing needs of recreational and commuter bicycling must be reflected in the facilities and programs that are implemented by the city. Winter conditions also affect bicycle use and, for people who rely on the bicycle as their primary mode of transportation, safe winter bicycle access to transit facilities is an important consideration.

The Department of Public Works is currently preparing a Bicycle Master Plan with the assistance of the Bicycle Advisory Committee, which is expected to be completed in late 2009. The information provided in the Citywide Action Plan about bicycle facilities, needs and proposed actions are summarized from the Master Plan and are intended to be consistent with the Bicycle Master Plan.

The city of Minneapolis currently has 34 miles of streets that have dedicated bicycle lanes and 56 miles of off-street bicycle trails (see Figure 9). The city also has a Master Bicycle Plan Map[6] which identifies current and future bicycle projects. The Minneapolis Bicycle Plan Map integrates with Hennepin County's Bicycle Plan for regional connectivity and coordinates with the recommendations of the Bicycle Advisory Committee (BAC).

[6] City of Minneapolis 5-Year Bikeways Plan, June 2001 (being updated in 2009).

Figure 9 shows 2005 existing facilities and 2010 proposed facilities including off-street trails, on-street bike lanes and signed bike routes. Most of the proposed facilities are identified in the Capital Improvement Plan (CIP) and are planned to be completed by the end of 2010. Most of the projects identified in the 2010 CIP are either fully funded or most of the funding has been identified.

Directness and Route Continuity - In general, the more direct the bicycle trip, the better the street network performs for bicyclists. Curvilinear streets, cul-de-sacs, diverters and other non-grid street systems are examples of a network that does not provide direct routes for bicyclists. The Bicycle Advisory Committee's (BAC) goal has been to develop an internal bikeway system within the city of Minneapolis that has a spacing of two miles for off-street trails and one mile for on-street bike lanes or signed/marked bike routes. Once these internal network connections are completed, the next priority would be to provide better external connectivity to adjoining cities. It should be noted that a network based entirely on spacing does not necessarily reflect specific needs related to safety, access, and place type.

Barriers – Natural features such as lakes, rivers and streams, are characteristics that may promote bicycling as a recreational activity but they sometimes also create barriers or circuitous routing that is not advantageous for bicycle commuters looking for a short and fast route to work or other destinations. Man-made features such as freeways create significant barriers to bicycle travel and reduce the bicycle's viability as a primary mode of transportation. Where they exist, many bridges have narrow shoulders, gaps in striped bike lanes, and an environment that is bleak and intimidating.

Safety – Bicyclists of all types need to be able to safely use the roadway system. Intersections and other areas that have high bicycle crash rates or potential safety hazards for bicyclists need to be addressed. Safety is a shared responsibility among engineers, law enforcement officers and system users.

Parking – Bicyclists need secure and convenient bicycle parking at key destinations, employment locations and activity centers throughout the city.

Other Facilities and Programs - Bicyclists also have other facility needs including shower facilities at employment locations, bicycle safety education programs and incentive programs to encourage greater bicycling.

Transit Needs

Regional Transitways

Transit services in the city are provided by Metro Transit, the regional transit operator. Peak period express services to/from downtown Minneapolis are also provided by several suburban transit operators. The region's existing and proposed transit system is documented in the Metropolitan Council's *2030 Transportation Policy Plan* and *2030 Transit Master Study*[7]. The expansion of the regional transit system (see Figure 10) is very important for the city of Minneapolis. New regional transit facilities that are included in the 2030 plan are:

- Northstar Commuter Rail and extension of Hiawatha LRT – planned to open in 2009
- Central Light Rail Transit – planned to open in 2014
- Southwest Light Rail Transit – Draft Environmental Impact Statement underway
- Bottineau Boulevard – Alternatives Analysis underway
- I-35W and Cedar Avenue Transitways – implementation underway

[7] *2030 Transportation Policy Plan,* Metropolitan Council, 2008, and *2030 Transit Master Plan, Twin Cities Metropolitan Area,* Metropolitan Council, August 2008.

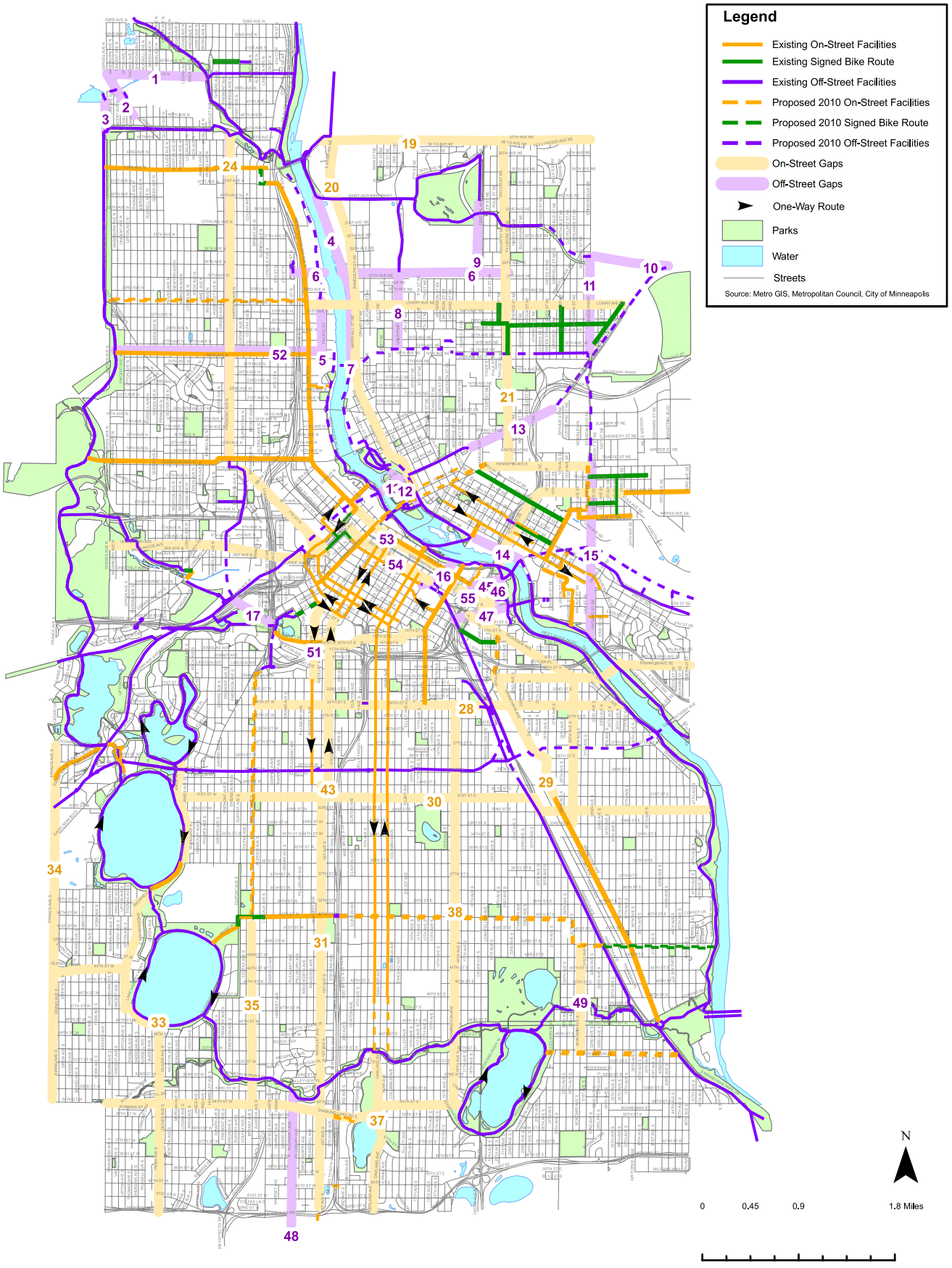
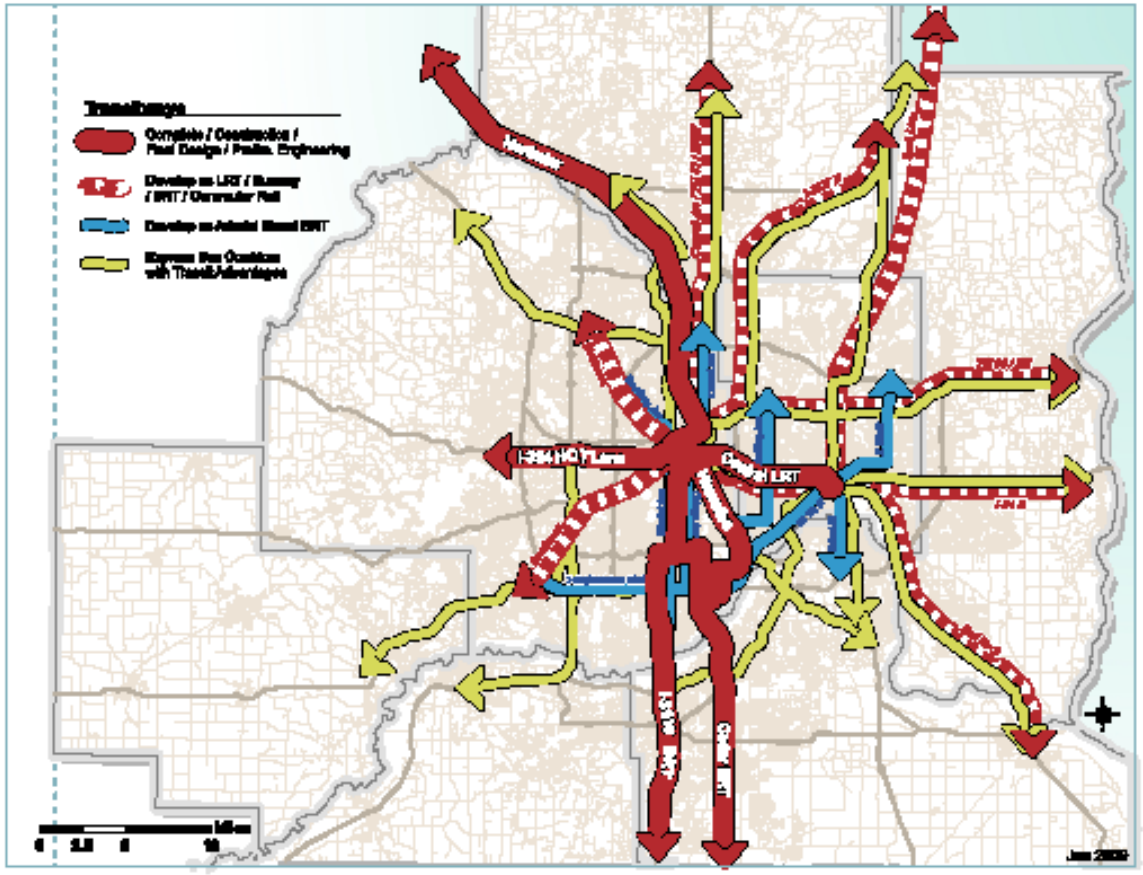


FIGURE 9 - EXISTING BICYCLE FACILITIES

The *2030 Regional Transportation Policy Plan* also identifies a new category of arterial street Bus Rapid Transit (BRT) service and recommends a comprehensive study of nine corridors, four in Minneapolis, for this service. The four routes identified as potential arterial BRT corridors in Minneapolis are Central Avenue, West Broadway, Nicollet Avenue and Chicago Avenue. These corridors are also shown in Figure 10.

Figure 10 - Regional Transitways



Source: Metropolitan Council, 2030 Transportation Policy Plan (amended September 2006).

Regional Route Local Service

While the above regional facilities are needed to carry people to and from the city, Minneapolis also needs a much finer-grained transit system that will serve individuals living within the city who need or desire to rely on transit, walking and bicycling as their primary modes of transportation. Local services are provided primarily by the region's regular-route bus service. Local bus service accounts for the majority of public transportation trips throughout the region, and includes non-express bus service from both urban and suburban market areas. Over half of the local routes operate in the core cities of Minneapolis and St. Paul.[8] Existing transit service in the city is shown in Figure 11. Urban local routes accounted for 74 percent of the average weekday ridership in October 2008 on all services operated by Metro Transit, and the 11 corridors on the Hi-Frequency Transit Network accounted for 36 percent of ridership (see Table 3).

[8] *2030 Transit Master Plan, Twin Cities Metropolitan Area,* Metropolitan Council, August 2008, page 6.

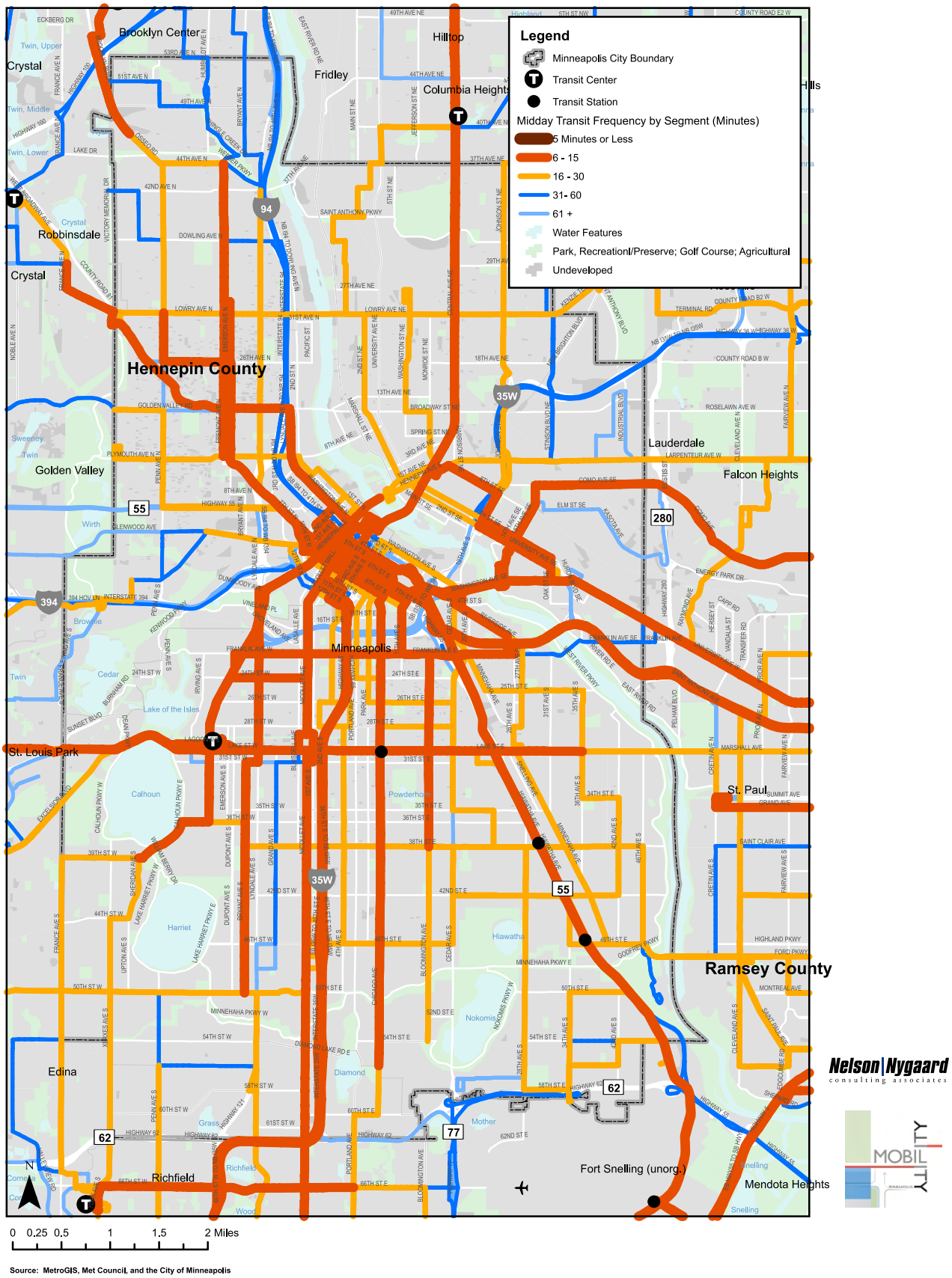


FIGURE 11 - EXISTING BUS SERVICE

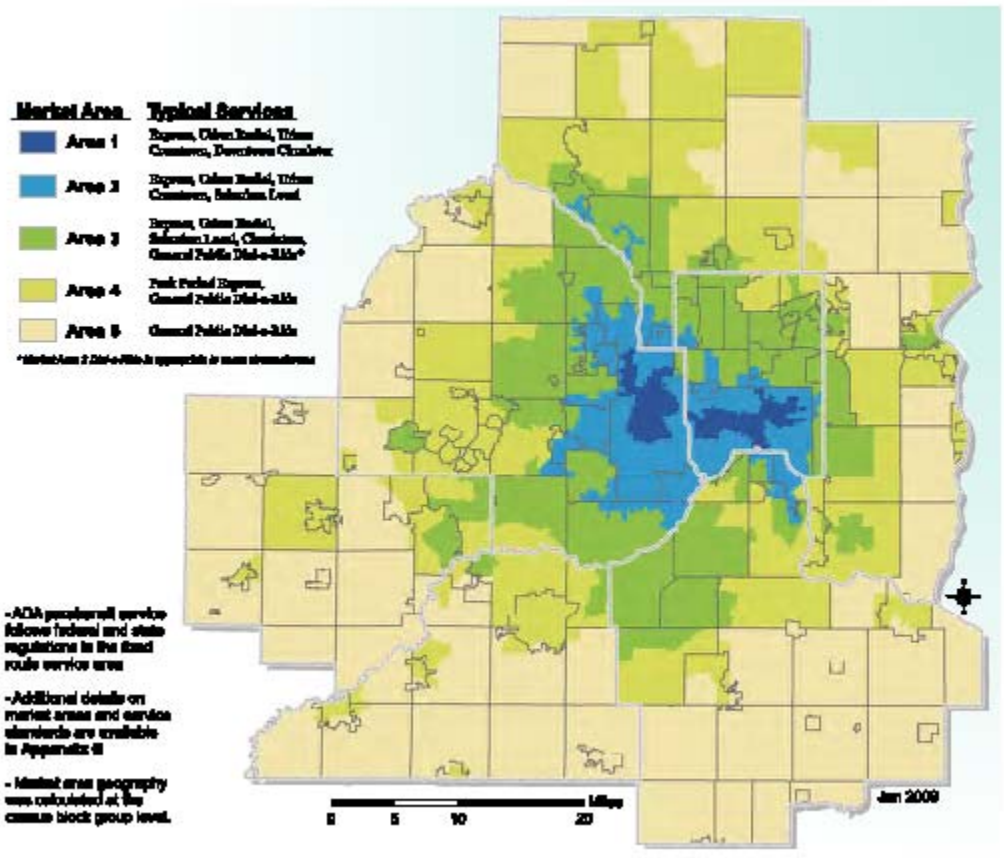
Table 3 – Average Weekday Transit Ridership on Metro Transit Routes – October 2008

Type of Route	Number of Routes	Ridership	Percent Share of Ridership
Urban Local Routes	66	210,400	76%
High Frequency Routes (5,6,10,16,18,19,21,,54,64,84,515)	11	*100,000*	36%
Other Urban Local Routes	48	*106,400*	38%
Other Suburban Local Routes	7	3,900	2%
Commuter Express Routes	56	35,300	13%
Hiawatha Light Rail	1	31,200	11%
Metro Transit System	123	**276,900**	100%

Includes all services provided by Metro Transit including service contracted by suburban transit providers. It does not include service provided directly by suburban transit providers. In 2008, suburban transit providers provided 5.2 million rides, which is equivalent to approximately 6% of the total rides provided by routes operated by Metro Transit.

Four transit market areas are identified in the *2030 Transportation Policy Plan* for the metropolitan area (see Figure 12). The city of Minneapolis is within Market Areas I and II (see Table 4). Market Area I is described as having the "highest density of population and employment, and is able to effectively support frequent route transit service. Because this is the most productive transit service in the region, it should also be the area that receives a prioritized investment of transit resources." Market Area II is described as having "high to moderate population and employment densities yielding a market area that is conducive to regular route operations and also other forms of transit service delivery."

Figure 12 - Transit Market Areas



Source: Metropolitan Council, 2030 Transportation Policy Plan (amended September 2006)

Table 4 - Transit Market Areas

Service Characteristics	Market Area 1	Market Area II
Market Area Characteristics	Transit Market Index over 20.0	Transit Market Index between 10.0 and 20.0
Suggested Service Types	Primary emphasis on regular route service. Downtown circulators possible	Primary emphasis on regular route service. Crosstown routes and limited stop services are appropriate to link major destinations.
Suggested Service Span[1]	Express – PMENW Urban Radial: PMENOW Urban Crosstown: PMENW	Express: PMENW Urban Radial: PMENOW Urban Crosstown: PMENW
Minimum Frequency	Express – 30 minute peak Urban Radial – 15 minute peak 30 minute off-peak Urban Crosstown – 30 minute peak 60 minute off-peak	Express – 30 minute peak Urban Radial – 30 minute peak 60 minute off-peak Urban Crosstown – 30 minute peak 60 minute off-peak
Maximum Route Spacing	Urban Radial – 0.5 miles Urban Crosstown – 1 mile	Urban Radial – 1 mile Urban Crosstown – 2 miles

[1]**P**eak: 6:00 a.m. – 9:00 a.m. and 3:00 p.m. – 6:30 p.m.
Midday: 9:00 a.m. – 3:00 p.m.
Evening: 6:30 p.m. – 9:00 p.m.
Night/Early AM: 9:00 p.m. – 1:30 p.m.
Owl: 1:30 a.m. – 5:00 a.m.
Weekend: Saturday, Sunday/Holiday

Source: Metropolitan Council, 2030 Transportation Policy Plan (amended September 2006), Appendix G.

Hi-Frequency Transit Network

Metro Transit has recently implemented a Hi-Frequency Transit Network (see Figure 13). On these High Frequency routes, service is guaranteed to operate at least every 15 minutes from 6 a.m. to 7 p.m. on weekdays and from 9 a.m. to 6 p.m. on Saturdays. Many of these routes have frequencies better than every 15 minutes, at least during the peak periods. Many of these routes have longer service coverage and service on Sundays but at lower frequencies than these guaranteed minimums. Metro Transit evaluates potential service improvements considering factors such as passengers/service hour, number of people carried, cost/passenger, and equitable distribution of service.

Other Transit Needs

Transit riders have a number of other facility needs, which have also been shown to be effective in increasing the number of people who choose transit as their primary mode of transportation.

- **Passenger Facilities and Amenities** – Transit stops 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 walking environment, which provides the primary mode of access to local bus routes, will influence people's decision whether or not to use transit. The walking environment serving transit stops should have safe street crossings, minimal conflicts with vehicle traffic, sidewalks that are accessible and protected from moving traffic, direct walking paths, and trees or other streetscape elements that contribute to a comfortable and attractive walking environment.
- **Bicycle Access** – Major bus routes should have direct bicycle access that includes safe street crossings and minimal conflicts with traffic.
- **High Quality Vehicles** – Transit vehicles 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.

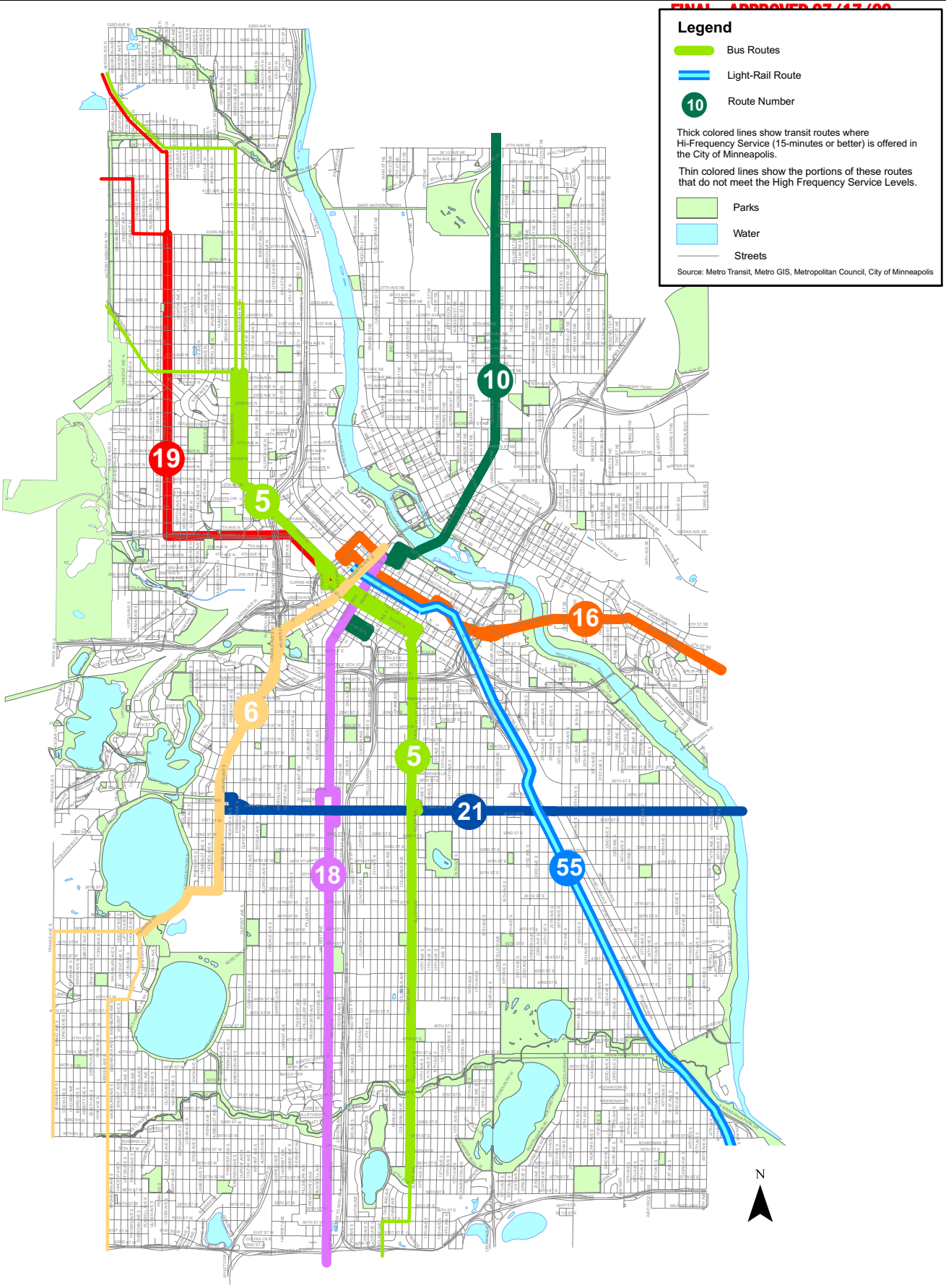


FIGURE 13 - HI-FREQUENCY TRANSIT NETWORK

- **Safety and Security** – Passengers on vehicles, at transit stops and along walking/biking routes accessing transit should be safe and all transit facilities should be perceived to be safe by existing and potential future transit riders.
- **Transit Information and System Legibility** - Transit service should be easy to understand. Service frequency, hours of operation, and service routing should be clearly communicated at transit stops, on-board vehicles and through pre-trip planning media such as websites, system maps and pocket schedules. Real-time information that tells when the next bus or train will arrive should be available at high-frequency transit stops and on-board vehicles.

Needs on the Existing Street System

All modes of transportation (pedestrians, bicyclists, transit, automobiles and trucks) utilize the existing street system. Thus, all modes of transportation are impacted by the physical condition and operation of the street system. There are 1,093 miles of public roads (not including freeways), 455 miles of alleys and 330 vehicle bridges in the city of Minneapolis (see Figure 14). Approximately 82 miles (7 percent) of these roads are owned, operated and maintained by Hennepin County and another 39 miles (4 percent) are owned, operated and maintained by Mn/DOT (this mileage does not include the freeway system). While the city shares some responsibility for operation and maintenance on many of these roadways, any reconstruction or major maintenance is paid for by these agencies and all decisions regarding the design, construction, operation and maintenance of these roadways are made by the owner agency. However, city staff will continue to work closely with these agencies on proposed county and state projects and information in this document and the city's *Street and Sidewalk Design Guidelines* will provide guidance to staff on appropriate city input to these projects.

Pavement Condition – The Pavement Condition Index (PCI) for city and county roads in the city of Minneapolis was used to assess pavement condition (see Figure 15). Usually, pavements with a PCI between 65 and 70 are recommended for overlay and pavements with a PCI less than 65 are recommended for total reconstruction. The average PCI in the last number of years has declined at a rate of approximately 1 point per year. At current levels of funding for maintenance and construction, it will likely begin to decrease at a faster rate unless steps can be taken to significantly increase the amount of annual improvements being made to the system.

Bridge Condition - Bridge Sufficiency Ratings were used to establish priorities related to bridge condition (see Figure 15). Bridge sufficiency ratings are based upon a percentage scale of 0%-100% (with 100% being an entirely sufficient bridge). The bridge sufficiency rating is used to establish state and federal funding eligibility and priority for bridge replacement and rehabilitation. As a general rule, a sufficiency rating of 80% or less is required to be eligible for bridge rehabilitation, and a sufficiency rating of 50% or less is required to be eligible for bridge replacement. The bridge sufficiency rating takes into consideration the structural adequacy, functional capacity, and essentiality for public use of the bridge. Other factors used to calculate the bridge sufficiency rating include the load carrying capacity, the National Bridge Index (NBI) appraisal ratings, the average daily traffic, and the detour length. A sufficiency rating of less than 60% was given a high priority for action and a sufficiency rating of 60-70% was given a moderate priority for action in the street needs assessment (see Appendix C).

Safety - Roadway safety affects all modes of transportation and is a high priority for the city. In order to assess the relative safety of roadway segments, crash data for three years (2003, 2004, and 2005) was obtained and the total number of crashes for three years was calculated. Locations where the total number of crashes for the three years was greater than 40 (more than 13 crashes per year) were identified as high priority and locations that experienced 30-40 crashes over the same time period were identified as moderate priority for action (see Figure 16). A frequency chart of all crashes showed that 95 percent of the intersections in the city had fewer than 30 crashes over the three-year period (less than ten crashes per year).

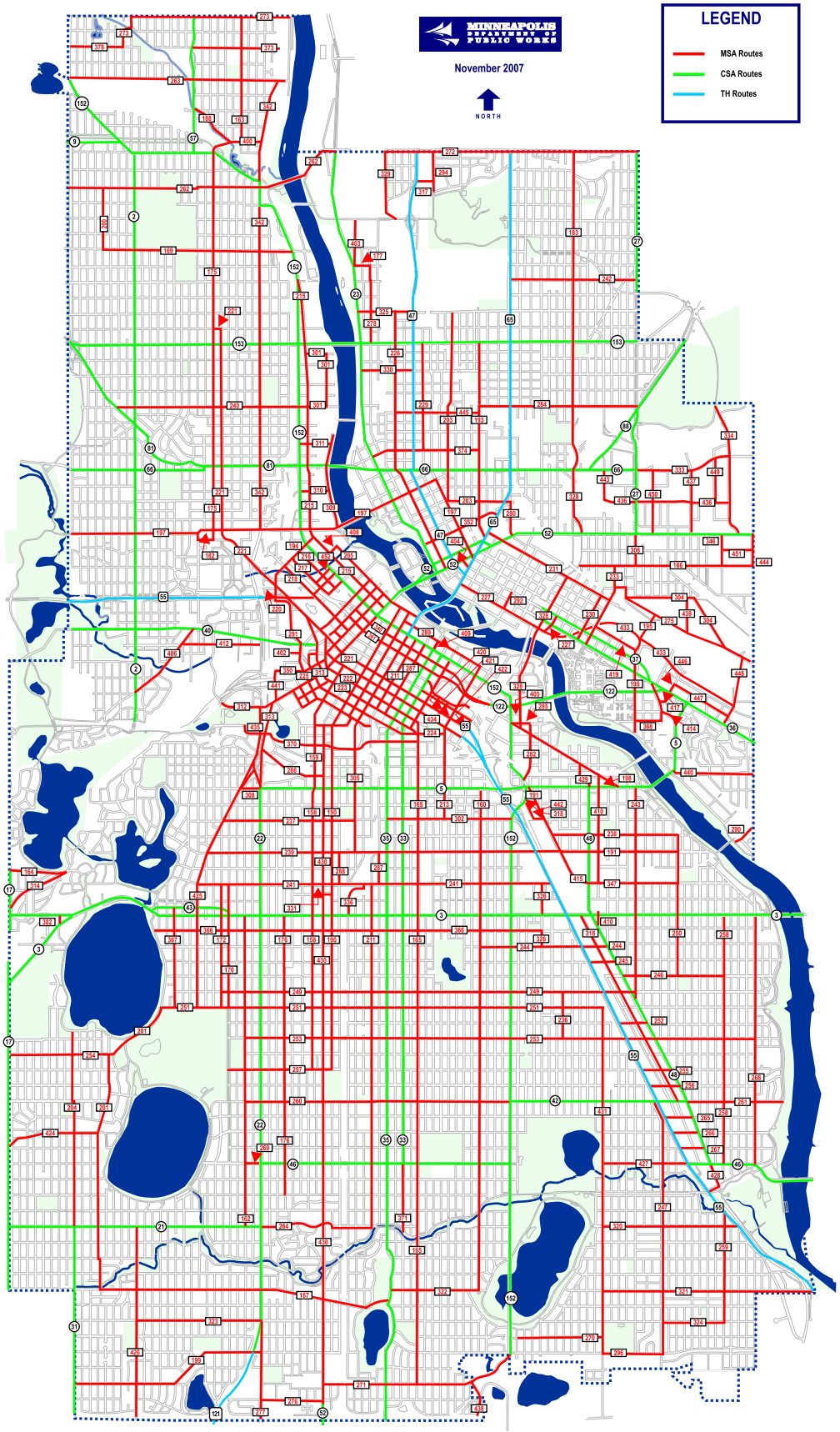


FIGURE 14 - JURISDICTION OF ROADWAYS IN MINNEAPOLIS

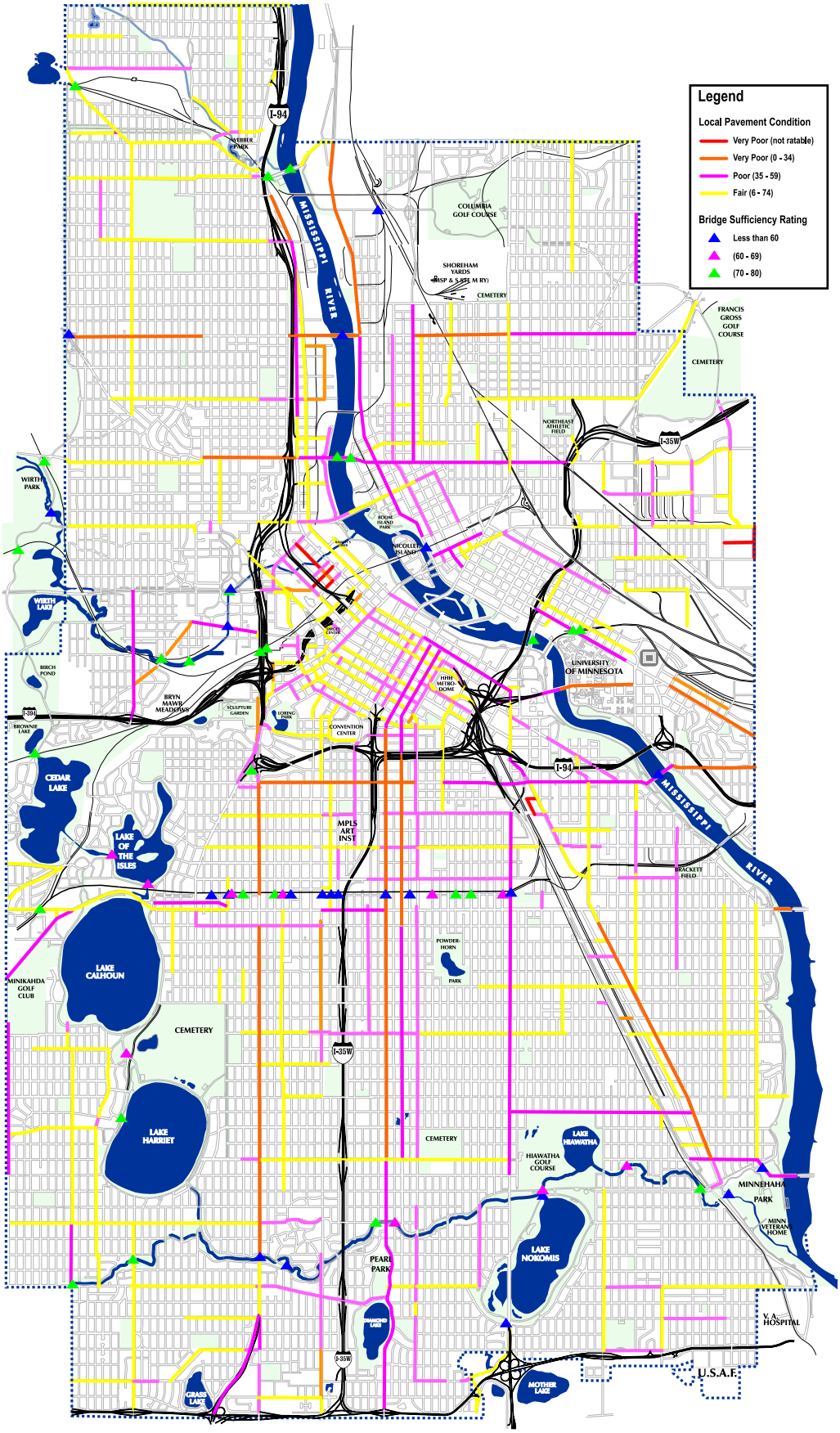


FIGURE 15 - PAVEMENT & BRIDGE CONDITION

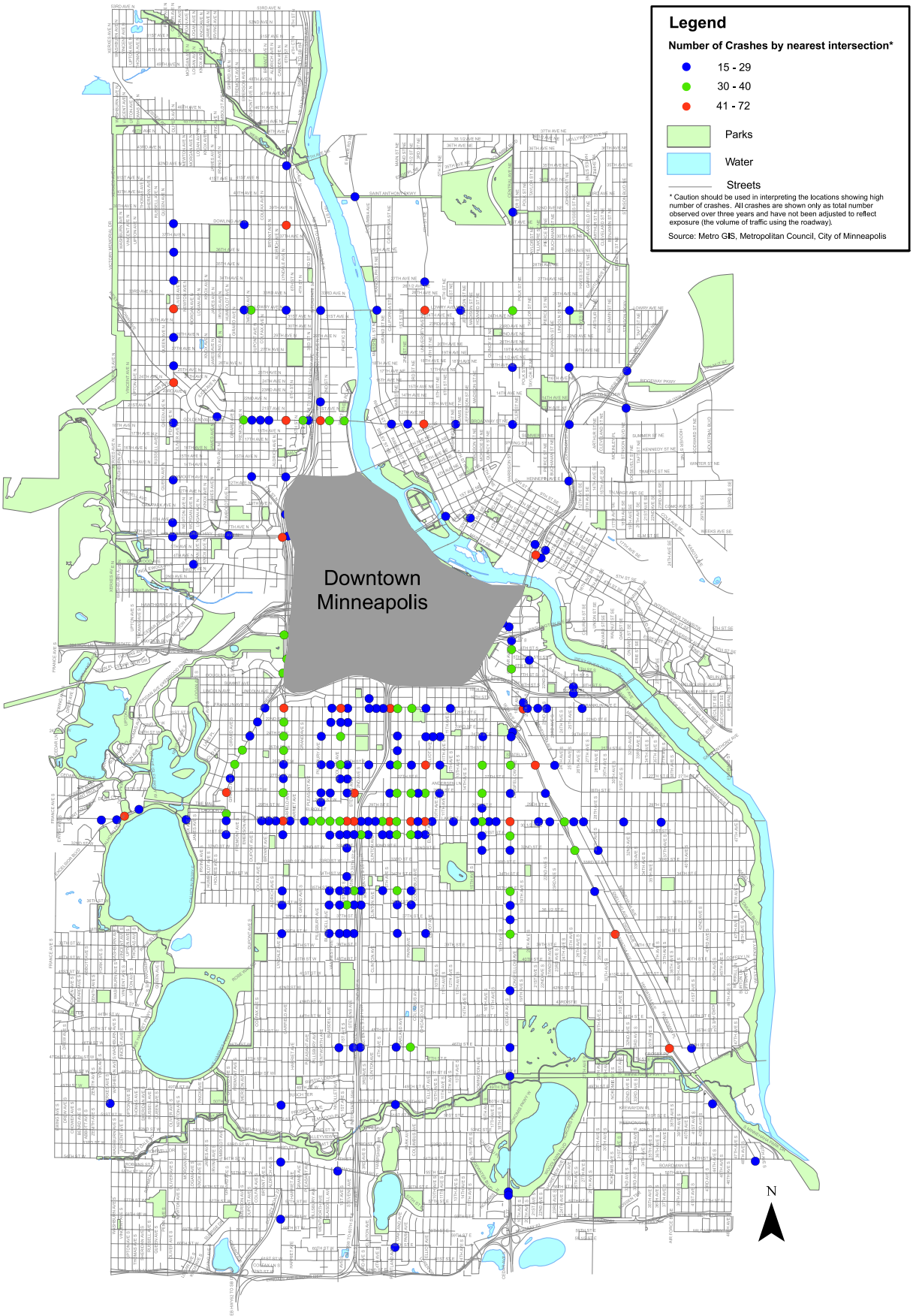


FIGURE 16 - CRASHES AND CONGESTION

of the neighborhood will be enhanced. Need is determined by comparing parking demand to the number of on-street and off-street parking spaces. Participation is optional and a petition signed by 75% of area residents is required. In other areas of the city, on-street parking is very lightly used. Retention of on-street parking, particularly in those parts of the city where it is heavily used, is considered an important part of maintaining the livability of the city.

Crash data for roadways are more typically evaluated on the basis of crash rate (number of crashes per vehicle miles traveled). Crash rates were not available when the work reported here was completed. Crash rates take into account traffic volume on the segments or intersections being evaluated and are a better tool for assessing relative safety problems when comparing corridors. Crash rates of a particular intersection or segment can be compared to a baseline average of intersections or segments having common characteristics. This information is helpful in determining if there are design or operations issues that may be contributing to a higher crash rate. Having the means to query crashes relative to specific vehicle movements also provides important information for addressing any potentially contributing factors. The city will transition over time to a methodology that uses crash rates rather than crash volumes and provides greater opportunities for detailed queries.

Congestion - A street operations analysis, using volume to capacity (V/C) ratios (average daily traffic) was completed to identify the portions of the transportation network that currently experience operational difficulties (see Appendix C). A V/C ratio greater than 1.0 was established as a threshold and street segments having a V/C ratio exceeding 1.0 were identified as a higher priority for action with those having a V/C of 1.3 having the highest priority. A frequency chart of V/C ratios for all street segments showed that 95 percent of the street segments had a V/C ratio less than 1.0.

Parking Facilities

Most streets in Minneapolis have on-street parking on both sides of the street. This parking provides additional parking for residential neighborhoods, many which were built prior to the common use of the automobile, and provides customer parking for many business enterprises. On-street parking also provides a safety buffer between moving traffic on the street and pedestrians using the sidewalks. Parking lanes provide a space for transit stops outside the travel lanes and provide space for right-turning vehicles at intersections. There are some streets, primarily commerce streets and community connector streets with high peak hour vehicle volumes, where parking is restricted during one or both peak periods and the parking lane is used as a travel lane. It should be noted that on-street parking does have a cost as well as a benefit and both benefit and cost should be considered when evaluating alternatives uses of the street space.

The city of Minneapolis currently operates 6800 parking meters located in downtown and in several activity centers and growth centers outside downtown. The city recently completed GIS mapping of all existing parking meter locations. These meters all have different time restrictions and rates, which are posted on each individual meter. Meters can be used by inserting coins or by using the city's Parking Card. Metered parking is used primarily in commercial areas to ensure that on-street parking is available for short-term customer parking. The city also operates several off-street public parking garages in downtown, near the University of Minnesota, and in a small number of high density activity centers.

On-street parking is so heavily used in some neighborhoods that the neighborhood has been designated as a critical parking area and residential on-street parking is managed through a permit process and requires residents to pay an annual fee for on-street parking. "Critical parking areas" are residential on-street permit parking areas that are intended to provide relief to neighborhood residents from traffic and parked vehicles by persons who have no association with the given neighborhood's residents or businesses. Critical parking areas may be established, following an engineering study, if the area is detrimentally impacted during the proposed hours of restriction, does not have sufficient off-street vehicular parking for residents, unacceptable hardships on the residents are created, and the health, safety and welfare of residents and attractiveness and livability