6 Transportation

Introduction

The purpose of the Transportation Plan is to provide the policy and program guidance needed to make appropriate transportation related decisions when development occurs, when elements of the transportation system need to be upgraded or when transportation problems occur. The Transportation Plan demonstrates how the City of Richfield will provide for an integrated transportation system that will serve the future needs of its residents, businesses and visitors, support the City's redevelopment plans and complement the portion of the metropolitan transportation system that lies within the City's boundaries.

The City of Richfield is responsible for operating and maintaining the public roadways within the City boundaries. Maintaining and improving this multi-modal transportation system is important to the ongoing economic health and quality of life of the City, as well as for people to travel easily and safely to work and other destinations, to develop property and to move goods.

Report Organization

The Transportation Plan is organized into the following sections:

- Roadway System Plan
- Transit System Plan
- Rail Service Plan
- Bicycle and Trail Plan
- Sidewalk Plan
- Aviation Plan
- Plan Implementation

Transportation Vision and Goals

Guidance for the development of the Transportation Plan is provided by the Metropolitan Council's 2030 Transportation Policy Plan (TPP). The Metropolitan Council's TPP includes five major themes that address regional transportation:

1. Land Use and Transportation Investments: Coordinate transportation investments with land

use objectives to encourage development at key nodes.

2. Priorities for Transportation Modal Investments: Encourage a multi-modal transportation system including bicycles, pedestrians, roadways and transit.

3. Highway Planning: Plan a cost-effective, safe, multi-modal regional highway system that reflects the needs of a growing population and economy.

4. Improve the Transit System: Tailor transit services to diverse market conditions, improve ridership on transit services, and develop a regional network of Transitways on dedicated rights-of-way.

5. Travel Demand Management: Encourage behavioral and land use changes that will result in fewer vehicle trips, particularly during the peak rush hours.

To respond to the above themes as well as to serve economic activities, and improve the quality of life within Richfield, the City developed the following vision for transportation and infrastructure as part of the Richfield 2020 Visioning exercise:

To strive for improvements to the transportation and infrastructure system in the City that will provide for a high quality of life in Richfield for residents, businesses and visitors and to encourage public involvement in transportation planning.

To achieve this vision, the City of Richfield established seven goals and strategies for their implementation. Looking forward to year 2030, the City continues to support the following goals and related implementation strategies:

1. **Improve non-motorized and pedestrian travel in the City** (Goal 1).

- Construct additional, wider sidewalks that are set back farther from the street for increased safety.
- Require Mn/DOT to include pedestrian access to transit in future I-494 and TH 62 reconstruction projects.
- Construct additional bus shelters attractive to users and safely located around intersections.
- Reduce roadway widths to allow for sidewalk and/or bike lanes. This may also reduce vehicular speeds.
- Create safe road crossings in high traffic areas. Such crossings may include the use of skyways, if appropriate.
- Use traffic-calming measures to discourage through traffic on local streets.
- Identify pedestrian/bike trails to connect with adjacent/surrounding communities.

2. **Explore opportunities to enhance mass transit systems** (Goal 2).

- Work with transit providers in order to establish local or circulator bus routes within Richfield and from Richfield to other places in the metropolitan area.
- Encourage private companies within Richfield to provide local transportation for employees, guests and clients.
- Work with existing groups and organizations to adequately meet the specialized transportation needs of seniors, youth, handicapped, and underprivileged citizens in the City.
- Design road improvements to bear the surface stress produced by heavy vehicles.
- Promote mass transit options, such as bus rapid transit, to reduce dependence on automobiles and provide a diverse, balanced set of public transportation alternatives.
- Promote telecommuting and flex scheduling to reduce traffic.
- Identify or develop additional park-and-ride lots throughout the City to encourage transit ridership.
- Provide transit service for internal trips in Richfield via dial-a-ride or circulator bus.

3. **Place utilities underground wherever possible** (Goal 3).

- Bury utility lines. Funding for the project should come from a combination of City revenues and user fees.
- Whenever possible, bury local utility lines, with assistance from the utility provider, when the adjacent street is reconstructed.

4. **Improve the flow of traffic in the City** (Goal 4).

- Re-stripe under capacity streets (i.e., Nicollet Avenue, 76th Street east of I-35W, etc. with reduced through capacity and dedicated turn lanes).
- When possible and needed, construct left and right-turn lanes or roundabouts at intersections.
- Continue to work with Mn/DOT and the State Legislature to improve the capacity of I-494.
- Encourage shared access to streets by adjacent land uses.

5. **Encourage development of areas where vehicle use is minimized** (Goal 5).

- Encourage shared parking between different developments when appropriate.
- Strongly encourage pedestrian-friendly and transit-friendly building and site design through measures such as higher density development and growth, which is located along major transportation routes.
- Require pedestrian connections between complementary land uses.
- Advocate the location of commercial activity at focused points in the City ("downtown" areas). Preserve crucial public places like parks, recreation areas, open spaces, wetlands, and Wood Lake Nature Center.

- Require new developments of a certain size to prepare Travel Demand Management Plans.

6. **Encourage use of alternative power sources in public buildings and in public vehicles** (Goal 6).

- Make fuel efficiency and alternative fuels a high priority when purchasing vehicles for use by the City.
- The City will become an innovator in the use of alternative fuels, wind power, and other sustainable energy sources.
- Install solar panels or similar energy sources on public buildings and encourage owners of businesses and private property to do the same.

7. **Encourage protection of the environment in the day-to-day conduct of City business** (Goal 7).

- Reduce pollutants through public transit, car-pooling, traffic control, use of berms and trees, and stronger enforcement of pollution policies.
- Create more ways to monitor pollution and put plans in place to resolve problems.
- Use state-of-the-art methods to protect the environment in public projects and encourage the same in private development.
- Encourage innovative solutions to land use and transportation problems.
- Incorporate landscaping and aesthetics in all transportation improvements.

Key Issues

Several social, economic, and environmental trends will have an effect on the entire Twin Cities Metro Area, including the City of Richfield, over the next 20 years. These include population growth, changes in household size, and/or fuel transportation costs and environmental efforts/concerns. With increased population growth and limited new and/or expanded transportation facilities, congestion on the regional highway system is expected to increase.

Specific transportation issues the City of Richfield faces include:

- Growing congestion on regional routes such as I-494, I-35W, TH 62 and TH 77 causing diversion of traffic to county roads and local streets.
- Changing transportation needs due to an aging population.
- Increasing competition for space between modes (i.e., vehicles and bicycle/pedestrian interests).
- Declining physical conditions of streets, rising reconstruction costs, and limited financial resources contribute to the lack of progress on improving infrastructure.
- Accommodating new transportation vehicles, e.g. segways, motorized wheelchairs, and in-line skaters.

Roadway System Plan

In order to accurately forecast future transportation needs and prepare a year 2030 Transportation Plan for the City of Richfield, it is necessary to analyze the existing transportation system. This system analysis includes examining functional and jurisdictional classifications of roadways, current and historic traffic volumes, programmed roadway improvements, existing system capacity and existing collective system deficiencies.

Richfield has four major metro freeways crossing through or bordering along its city limits. These four major freeways include: Interstate 494 (I-494), I-35W, Trunk Highway (TH) 62 and TH 77. The location of these four freeways, as well as the County's and City's existing roadway network, is shown in Figure 6.1. Average daily traffic volumes (ADTs) on major streets in the City of Richfield for year 2005/2006 are shown in Figure 6.2. These values represent average annualized daily traffic volumes collected by Mn/DOT and Hennepin County.

Functional Classification

Roadway functional classification categories are defined by the role they play in serving the flow of trips through the overall roadway system. Within the Twin Cities metropolitan area, the Metropolitan Council has established detailed criteria for roadway functional classifications, which are summarized in Figure 6.3.

Figure 6.1 Existing Road Network

Figure 6.2 Existing ADTs

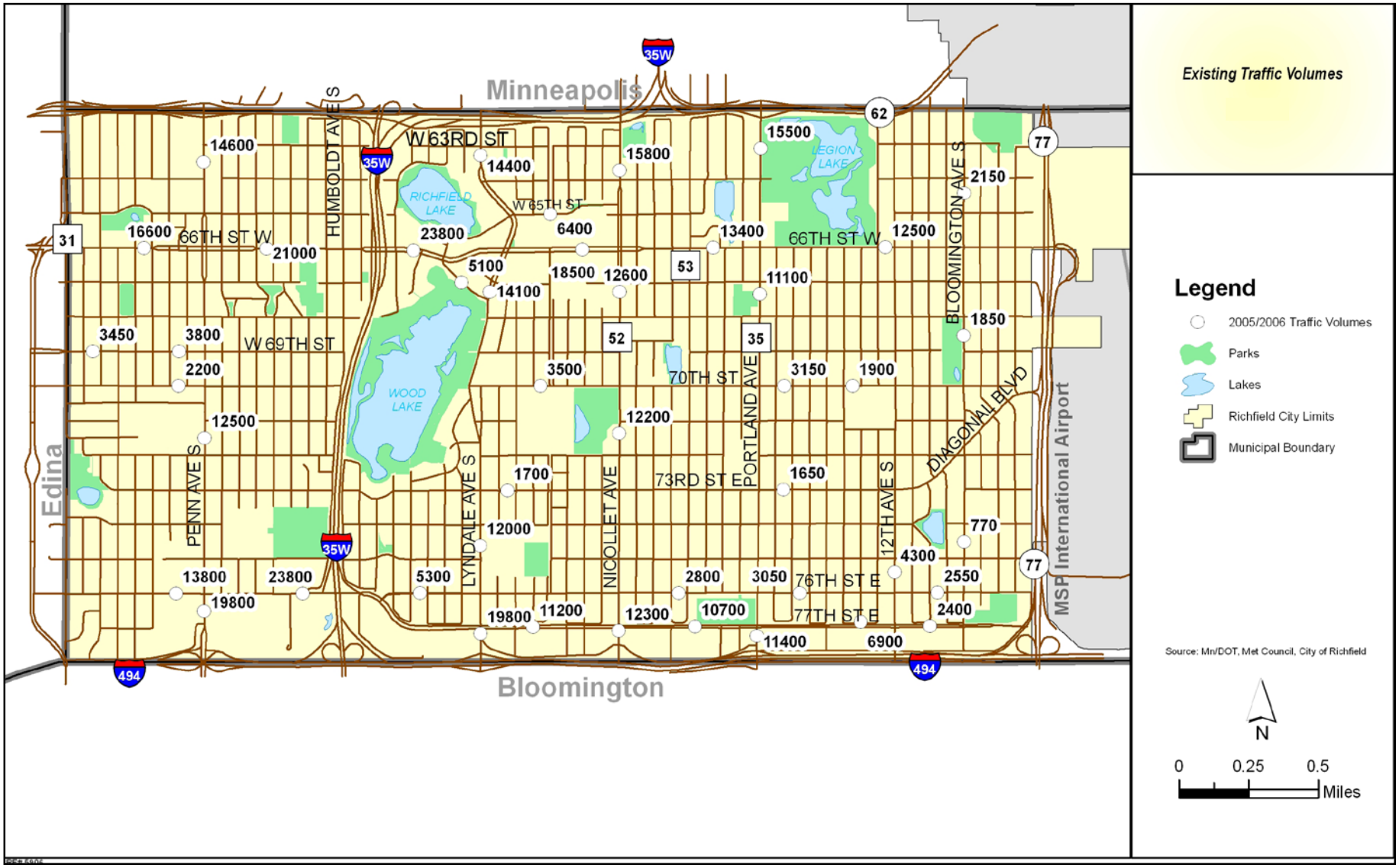


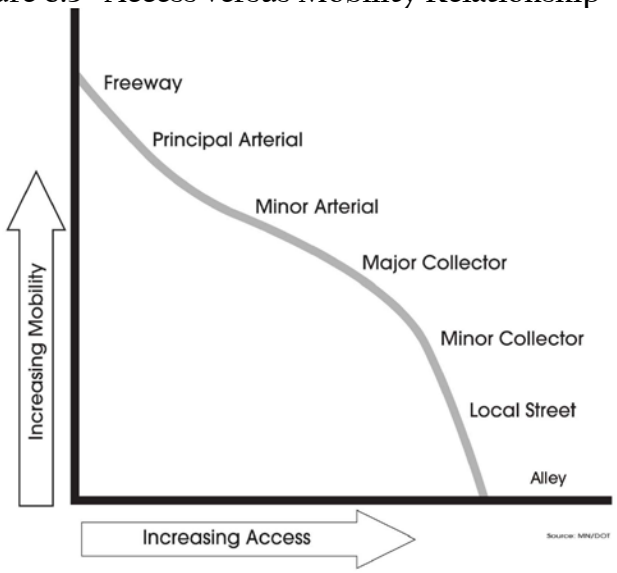
Table 6.1 Roadway Functional Classifications

Criteria	Principal Arterial	Minor Arterial	Collector	Local Street
Place Connections	Interconnects metro centers and regional business concentrations	Interconnects major trip generators	Interconnects neighborhoods and minor business concentrations	Interconnects blocks within neighborhoods and land parcels within commercial areas
Spacing	Developed areas: 2-3 miles Developing areas: 3-6 miles	Developed areas: 1/2-1 mile Developing areas: 1-2 miles	Developed areas: 1/4-3/4 mile Developing areas: 1/2-1 mile	As needed to access land uses
Roadway Connections	To interstates, principal arterials and selected minor arterials	To interstates, principal arterials, other minor arterials, collectors and some local streets	To minor arterials, other collectors and local streets	To collectors, other local streets and a few minor arterials
Mobility	Highest	High	Moderate	Low
Access	No direct property access	Limited access to property	Access to properties is common	Unrestricted property access
Percent of Mileage	5-10%	15-25%	5-10%	65-80%
Percent of Vehicle Miles Traveled	40-65%	15-40%	5-10%	10-30%
Intersections	Grade separated or high-capacity intersection controls	Traffic signals and cross-street stops	All-way stops and some traffic signals	As required for safe operation
Parking	None	Restricted as necessary	Restricted as necessary	Permitted as necessary
Large Trucks	No restrictions	No restrictions	Restricted as necessary	Permitted as necessary
Typical Average Daily Traffic	15,000-200,000	5,000-30,000	1,000-15,000	Less than 1,000
Posted Speed Limits	45-65 mph	35-45 mph	30-40 mph	Maximum 30 mph
Right-of-way Width	100-300 feet	60-150 feet	60-100 feet	50-80 feet
Transit Accommodations	Priority access for transit in peak periods	Preferential treatment where needed	Designed for use by regular route buses	Normally used as bus routes only in non-residential areas

Source: Metropolitan Council, Transportation Policy Plan, adopted December 14, 2004

The intent of the functional classification system is to create a hierarchy of roads that collect and distribute traffic from neighborhoods to the metropolitan highway system. Roadways with a higher functional classification (arterials) generally provide for longer trips, have more mobility, have limited access and connect larger centers. Roadways with a lower functional classification (collectors and local streets) generally provide for shorter trips, have lower mobility, have more access and provide connection to higher functioning roadways. A balance of all functions of roadways is important to any transportation network. Figure 3 depicts the relationship of the various functional classifications to access and mobility.

Figure 6.3 Access versus Mobility Relationship



The existing functional classification (2008) of roadways in Richfield is shown in Figure 6.4. The existing functional classification system represents the system that has been approved by the Metropolitan Council and is in place at the time this document was written.

Further information on Metropolitan Council functional classification criteria can be found in Appendix 6F of the Council's 2030 Transportation Policy Plan.

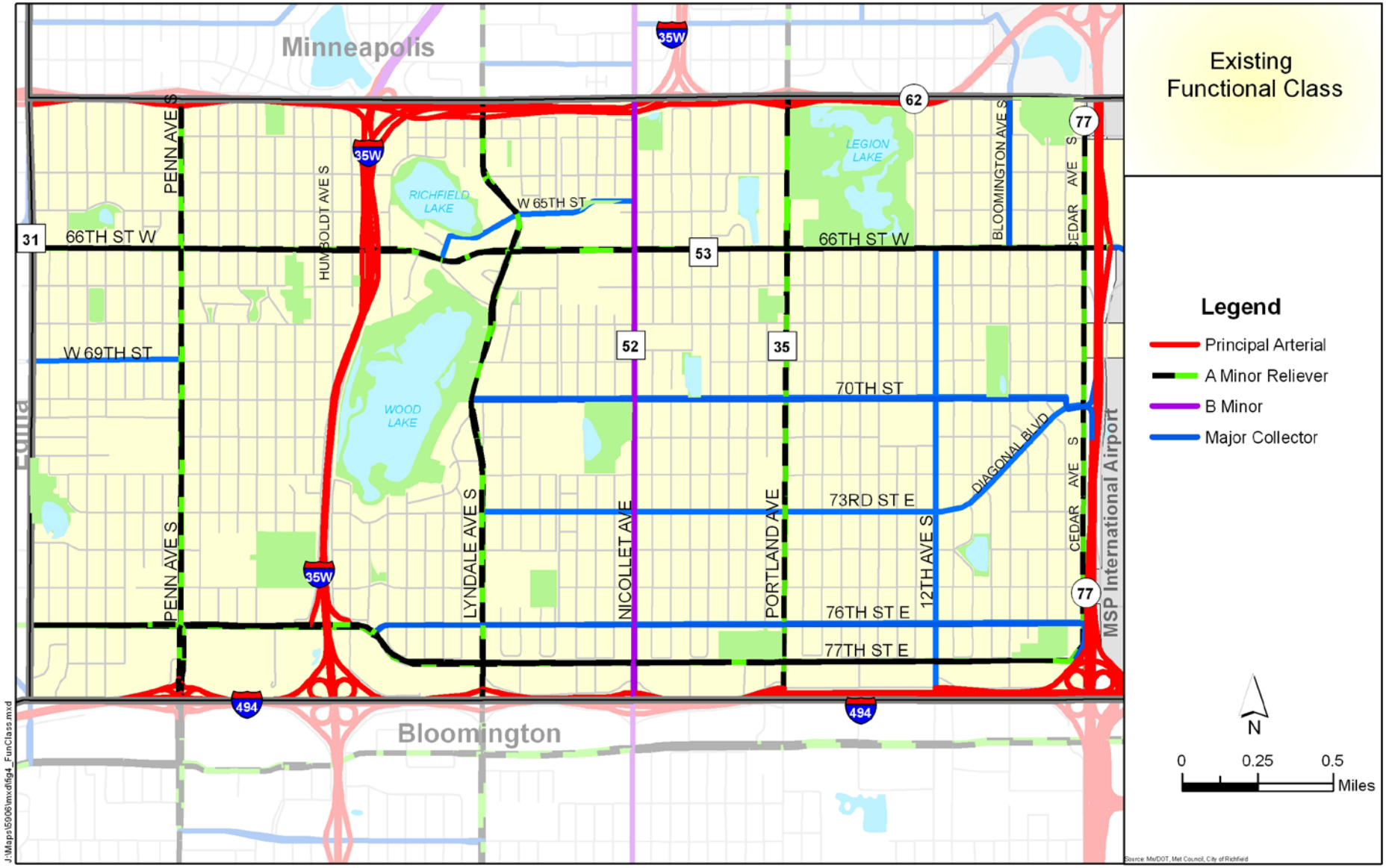
Principal Arterials

Principal arterials are part of the metropolitan highway system and provide high-speed mobility between the Twin Cities and important locations outside the metropolitan area. They are also intended to connect the central business districts of the two central cities with each other and with other regional business concentrations in the metropolitan area. Principal arterials are generally constructed as limited access freeways in the urban area, but may also be constructed as multiple-lane divided highways.

Richfield is served by four principal arterials:

- **Interstate 494 (I-494),** part of the circumferential beltway that encircles the Metropolitan Area, runs east-west following the southern boundary of the City. Interchanges are located at Interstate 35W, Lyndale Avenue, Nicollet Avenue, Portland Avenue and Cedar Avenue,

Figure 6.4 Existing Functional Classification



- **Interstate 35W (I-35W)** runs north-south through the city with a small east-west portion that runs along the northern city limits. Interchanges are located at I-494, W. 76th Street, W. 66th Street, TH 62 and Lyndale Avenue.
- **Trunk Highway 62 (TH 62)** runs east-west along the northern city limits. Interchanges are located at Xerxes Avenue, Penn Avenue, I-35W, Lyndale Avenue, Portland Avenue, Bloomington Avenue and TH 77 (Cedar Avenue).
- **Trunk Highway 77 (TH 77)** (Cedar Avenue) runs north-south along the eastern city limits. Interchanges are located TH 62, East 66th Street/Diagonal Road and I-494.

Minor Arterials

Minor arterials also emphasize mobility over land access, serving to connect cities with adjacent communities and the metropolitan highway system. Major business concentrations and other important traffic generators are located on minor arterial roadways. In urbanized areas, one to two mile spacing is considered appropriate.

'A' Minor Arterials

'A' minor arterials are roadways that are of regional importance because they relieve, expand or complement the principal arterial system. 'A' minor arterials are categorized into four types, consistent with Metropolitan Council guidelines. One of which applies to Richfield:

- Relievers – Minor arterials that provide direct relief for metropolitan highway traffic.

The City of Richfield is served by six 'A' minor arterials:

- CSAH 32 (Penn Avenue), a reliever that runs north-south through the western portion of the city between I-494 and TH 62, acts as a parallel reliever to I-35W.
- Lyndale Avenue, a reliever between I-494 and I-35W/TH 62, acts as a parallel north-south reliever to I-35W through the city.
- CSAH 35 (Portland Avenue), a north-south reliever that runs between I-494 and TH 62, offering an alternate north-south route through the city for either I-35W or TH 77.
- CSAH 53 (66th Street), a reliever route that runs east-west through the northern portion of the city, acts as a reliever to TH 62.
- 76th Street/77th Street, a reliever route that includes the portion of 76th Street up to the intersection with 77th Street creating a continuous east-west route parallel to I-494 in the southern portion of the city (acts as a parallel reliever to I-494). The City of Richfield views this roadway as a "Reliever Arterial" within the 'A' Minor Arterial functional class. The focus being mobility, with limited access and no on-street parking.
- Richfield Parkway is intended to become a Minor Arterial to replace Cedar Avenue, a north-south collector that runs between 66th Street and 77th Street on the east side of the city.
- 68th Street between Nicollet Avenue and Lyndale Avenue should also be considered as a possible collector.

A well-planned and adequately designed system of principal and 'A' minor arterials will allow the City's overall street system to function the way it is intended and will discourage through traffic from using residential streets. Volumes on principal and minor arterial roadways are expected to be higher than on collector or local roadways. Providing the capacity for these higher volumes will keep volumes on other city streets lower.

'B' Minor Arterials

'B' minor arterials provide a citywide function, serving medium to long distance trips. The lone roadway designated as a 'B' minor arterial in Richfield is:

CSAH 52 (Nicollet Avenue), a north-south roadway through the center of the city, between I-494 and I-35W/TH 62.

Collectors

Collectors are designed to serve shorter trips that occur within the city and to provide access from neighborhoods to other collector roadways and the arterial system. They are expected to carry less traffic than arterial roads and to provide access to some properties. Collectors are designated as either major or minor collectors. Major collectors supplement the arterial system by emphasizing mobility over land access. However, because of their location, they are lower-volume roads than arterial routes. Minor collectors emphasize land access over mobility and provide connections to major collector and minor arterial routes. Richfield does not have any minor collectors. However, there are a few candidates for minor collectors that include 64th Street between Xerxes Avenue and I-35W, and 64th Street between Nicollet Avenue and Portland Avenue.

Roadways designated as major collectors in Richfield include:

- Rae Drive/W 65th Street, a short east-west segment of 65th Street between 66th Street and Nicollet Avenue, serves as a go-between for nearby minor arterial routes and is located close to the Lyndale/Nicollet Avenue hubs.
- W 69th Street, a short segment of W 69th Street from the west city limits to Penn Avenue.
- 76th Street, the remaining portion of 76th Street east of the intersection with 77th Street to Cedar Avenue.
- 73rd Street/Diagonal Boulevard, these two roadway segments combine to offer an east-west route between Lyndale Avenue and TH 77.
- 70th Street, between Lyndale Avenue and TH 77.
- 12th Avenue from the south city limits to 66th Street.
- Bloomington Avenue from 66th Street to the north city limits.

Local Streets

Local streets provide access to adjacent properties and neighborhoods. Local streets are generally low speed and designed to discourage through traffic. All of the remaining roadways in the city that were not listed under the previous functional classifications above fall under the local road designation.

Alleys

There are two types of alleys within the City of Richfield: unimproved and improved (improved to city standards). Unimproved alleys (those not improved to City standards) are not considered part of the City's street system and are not maintained by the City. Alleys improved to City standards are considered part of the City's street system and are maintained by the City. There is not a consistent pattern to which alleys are considered improved or unimproved throughout the city.

Areas in Richfield with improved alleys resulted from the requirements of development codes effective at the time of subdivision construction (when the buildings were first built). The codes required installation of alley and/or sidewalk improvements and the cost is part of the original construction cost of the buildings. Property owners payed for the improvements when they bought the property. Unimproved alleys are located in areas that either pre-date these development codes or were exempt for various reasons. Although improved alleys are maintained by the city, alley maintenance funds are scarce. Currently, if the alley is damaged to the extent that there is a safety or mobility problem, the City will make a spot repair. More extensive repairs are likely to be conducted by the abutting property owners. The City can also improve the alleys by petition from property owners using special assessments.

Recommended Changes to Functional Classification System

The functional classification system for roadways in the City of Richfield was reviewed to ensure appropriate network connectivity is maintained and for consistency with the functional classification criteria established by the Metropolitan Council. Based on this review, there are no recommended functional classification changes to the principal or minor arterial systems within the City of Richfield. Therefore, the functional classification system illustrated in Figure 4 is representative of future conditions for principal and minor arterial classifications in the City of Richfield.

Although there are no changes to the principal or minor arterial classifications, there are three changes proposed to the collector/local functional classifications. These include:

- 64th Street from Nicollet Avenue to Portland Avenue
- 64th Street from Xerxes Avenue to I-35W
- 70th Street from Xerxes Avenue to Penn Avenue

Each of these roadways is currently classified as a local street. However, they each function as "Minor Collectors", emphasizing land access over mobility and providing connections to major collector and arterial routes.

Roadway Jurisdiction

As with all municipalities, jurisdiction over the roadway system is shared among three levels of government: state, county and city. The Minnesota Department of Transportation (Mn/DOT) maintains the trunk highway system on behalf of the state; Hennepin County maintains the County State Aid-Highway (CSAH) and County Road (CR) systems and the remaining streets in the city are the responsibility of Richfield.

The jurisdiction of roadways is an important element in the Transportation Plan because it affects a number of critical organizational functions and obligations (regulatory, maintenance, construction and financial). The primary goal of reviewing jurisdiction is to match the roadway function with the organizational level best suited to handle the route function. The existing jurisdiction of roadways in Richfield is illustrated in Figure 1 (Existing Roadway Network).

There is one potential jurisdictional transfer within the City of Richfield. The City of Richfield and Hennepin County are considering a potential jurisdiction change of 77th Street from a City Street to a Hennepin County Road. If this happens, Hennepin County could potentially turn back CR 52 (Nicollet Avenue) to the City of Richfield as a City Street.

System Designation

System designation was reviewed to identify designation changes, based on functional classification changes, jurisdiction changes, proposed new roadway alignments and major construction projects.

The City of Richfield will have one designation change in the future. As part of the Cedar Avenue Redevelopment Plan, Cedar Avenue will be realigned to 17th Avenue and named Richfield Parkway. Therefore, the existing Cedar Avenue will no longer exist in this area and Richfield Parkway will take its place as a minor arterial, consistent with the existing Cedar Avenue classification. Richfield Parkway will serve as the "spine" of the redevelopment project and will connect to 66th Street and, eventually, 77th Street.

As mentioned in the roadway jurisdiction section above, the potential jurisdictional change of CR 52 (Nicollet Avenue) and 77th Street is also a system designation change. If this transfer is approved, CR 52

(Nicollet Avenue) will be designated a city street and 77th Street will be designated as a county road.

Programmed and Planned Improvement

The City of Richfield Capital Improvement Program (CIP) and the Hennepin County CIP have programmed improvements that have advanced through the project funding programming process and have funds committed to the improvement in a designated year. While planned projects have been formally studied and/or included in a transportation plan, typically no commitments to fund the improvement have been made.

Regional roadway system improvements are consistent with the adopted Mn/DOT Metro District 2008-2030 *Transportation System Plan* (TSP) and Metropolitan Council *Transportation Policy Plan* (2005). Only those improvements identified as funded in the Mn/DOT TSP are included as programmed projects.

Mn/DOT

- Trunk Highway (TH) 62, from Penn Avenue to Portland Avenue, and I-35W from 66th Street to 42nd Street, will be reconstructed between 2007 and 2010 and includes the addition of capacity on TH 62. Access to TH 62 westbound from Portland Avenue will be permanently closed, while new access onto TH 62 westbound from Lyndale Avenue will be added. A High Occupancy Vehicle (HOV) lane will also be added to I-35W between I-494 and 46th Street. Major project goals include increasing safety, supporting transit opportunities, and adding capacity to both Hwy 62 and I-35W.
- I-494, from East Bush Lake Road to 34th Avenue, is included in Mn/DOT's Fiscally Constrained Improvement Plan for the 2024-2030 time period. This investment in I-494 satisfies two of the major policy goals (expanding interregional corridors/regional corridors and increasing mobility within trade centers) of Mn/DOT's *Transportation System Plan* (TSP). The estimated $628 million project will include the addition of lanes of traffic in both directions and significant improvements to the approaches and intersections of I-494 and Penn Avenue, I-35W, Nicollet Avenue, Portland Avenue, 12th Avenue, and TH 77.
- The intersection of I-494 and Lyndale Avenue is scheduled for reconstruction in 2008-2009 as described in the 2008-2011 State Transportation Improvement Program (TIP) and detailed in Mn/DOT's *Transportation System Plan.*

Hennepin County

According to Hennepin County's 2007-2011 Capital Improvement Program (CIP), there are no improvements scheduled for county facilities within the City of Richfield during this time period. However, the City of Richfield supports major improvement projects on all County roads within the city recognizing that these roads are aging. The projects described below involve coordination between the City of Richfield and Hennepin County.

City of Richfield

- The intersection of 66th Street and Portland Avenue (CSAH 35) will be improved in 2008 as a two-lane roundabout. Future maintenance of the roundabout will be the responsibility of Hennepin County.
- Lyndale Bridge over I-494 will be replaced in 2010. A single-point diamond interchange will be constructed in this location due to the need for additional capacity on the existing bridge. Once constructed, maintenance of the bridge will be the responsibility of Mn/DOT.
- 76th Street, from TH 77 to 77th Street, will be reconstructed in 2010 with a Parkway design, with streetscape elements and bike lanes. When completed, 76th Street will become part of the Nine Mile Creek Regional Trail.
- An underpass of 77th Street under TH 77 is planned for construction sometime after year 2009-11.
- A 2008 study of arterials in Richfield will produce a design guide that will be shared with the County and serve as the basis for discussing the reconstruction of county roads.

Coordination with Other Jurisdictions

The City of Richfield should coordinate with adjacent jurisdictions (i.e., Bloomington, Edina and Minneapolis) as well as Hennepin County, the MAC and Mn/DOT when planning future improvements. Coordination among jurisdictions may provide opportunities for collaboration that could benefit all agencies and the public. This may result in financial and time savings through economies of scale as well as potentially reducing construction impacts to residents through the coordination of projects.

2030 Traffic Forecasts

The pattern and intensity of travel within a city is directly related to the distribution and magnitude of households, population and employment within the city, neighboring communities and the region as a whole. This section provides an overview of the existing land use pattern in the City of Richfield.

In addition to addressing existing transportation needs, the Transportation Plan anticipates future transportation needs. Land use, travel patterns, population and employment change over time affect the efficiency and adequacy of the transportation network. This section also outlines expected changes in the city's land use pattern, households, population and employment, which will then be the basis for estimating future travel demand within the city. Finally, this section is designed to assist the City in developing a transportation system that supports land use and provides safe and efficient movement of people and goods.

Land Use

Richfield is a mature, first-ring suburb that is now largely developed. While this does not mean that there will be no change or growth within the community, it does mean

that redevelopment is now the primary focus. Various locations within the City lend themselves to being redeveloped in the future, much of which is dependant on the market conditions at the time. Existing land use within the City of Richfield is discussed extensively in the Land Use chapter of the Comprehensive Plan. The majority of the land use cover in the city is single-family residential. The majority of the business/commercial land use is concentrated along the I-494 corridor, the second largest employment center in the metro area; TH 77; 66th Street; the Penn Avenue corridor; and around the Lyndale/ Nicollet Avenue hubs.

As the metropolitan area moves forward with a greater focus on multi-modal transportation, new development and redevelopment will be constrained by the existing and future transportation system. The City supports the idea of constructing an additional lane in each direction along TH 62 east and west of the I-35W Commons area. It is the City's position that this improvement will provide additional capacity for this regional facility and thus further reduce congestion on their local roadway network.

Socio-Economic Data

Using the land use plan and development objectives as guidance, and with the assistance of the Metropolitan Council, the city has estimated existing and future population, employment and households within the City. Based on the Metropolitan Council projections, the City of Richfield is expected to experience slightly more than a one percent annual increase in population. This may be explained due to the projected employment growth (approximately one and one-half percent growth annually over 30 years), the potential for homeowner turnover to younger families with children, and new immigrants.

Forecast 2030 Traffic Volumes

Forecasts for year 2030 were developed to evaluate the adequacy of the proposed future roadway system. Due to limited overall development in the community, the City of Richfield is able to opt-out of the regional forecasting process. Therefore, year 2030 forecasts are being developed based on redevelopment information provided by City staff and previously completed studies in the area. Three studies were provided by the City to consider when developing the year 2030 forecasts. Forecast data presented in each of these documents was reviewed for validity and its relationship to this project.

- **I-35W/TH 62 Crosstown Commons, Technical Memorandum of Travel Demand Forecasts**, July 22, 2004, prepared by SRF Consulting Group for Mn/DOT.
- **66th Street Traffic Forecast,** November 16, 2006, prepared by SEH, Inc., for the City of Richfield.
- **77th Street Environmental Assessment**, April 3, 1992, prepared by the City of Richfield.

Figure 6.5 2030 Traffic Forecasts

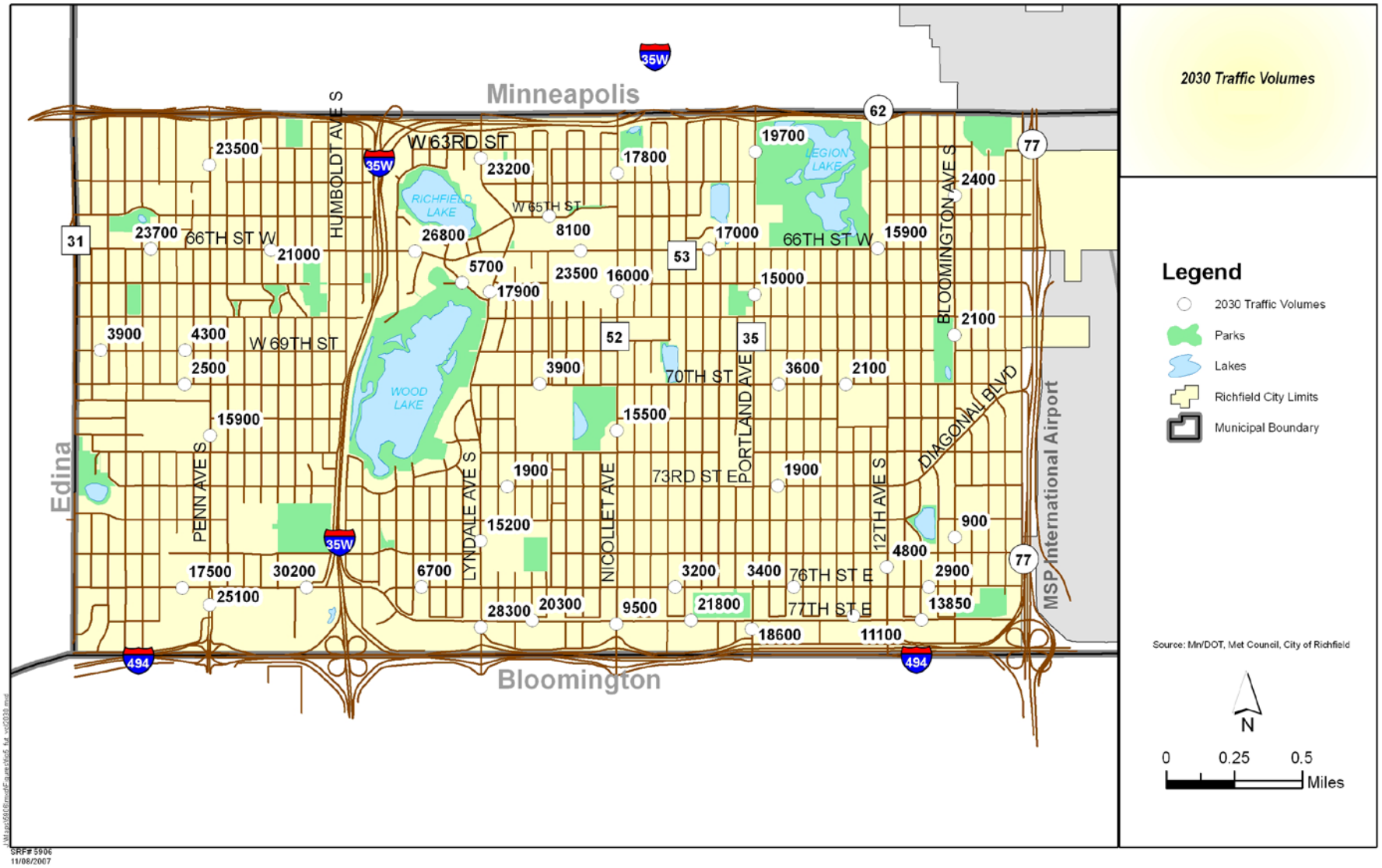


Figure 6.6 TAZ Forecasts

REGIONAL TAZ FORECAST

Official_TAZ_Forecast_File

		POPULATION				HOUSEHOLDS				TOTAL EMPLOYMENT			
Community	TAZ	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030
Richfield	310	0	0	0	0	0	0	0	0	50	100	100	100
Richfield	453	1,615	2,050	2,440	2,550	639	800	950	1,000	609	610	620	620
Richfield	454	4,346	4,295	4,600	5,640	1,774	1,775	1,900	2,300	297	620	620	620
Richfield	455	4,965	6,050	6,340	6,710	1,999	2,550	2,672	2,700	1,993	2,000	2,190	2,200
Richfield	456	1,409	1,400	1,400	1,420	556	560	560	560	461	900	910	920
Richfield	457	2,512	2,645	2,950	3,040	1,004	1,050	1,170	1,200	603	605	610	610
Richfield	458	1,016	1,140	1,310	1,350	422	480	550	560	766	770	775	780
Richfield	459	1,153	1,080	1,360	1,595	579	580	730	800	629	960	965	970
Richfield	460	1,378	2,302	2,525	2,430	579	910	998	1,020	1,525	1,525	1,550	1,550
Richfield	461	1,726	1,754	1,845	1,845	853	855	900	910	459	460	470	470
Richfield	462	1,467	1,708	2,135	1,970	633	680	850	850	795	3,500	3,600	3,750
Richfield	463	1,513	1,481	2,285	2,360	967	970	1,300	1,400	477	700	720	730
Richfield	464	1,724	1,593	1,670	2,060	704	705	740	840	271	270	280	280
Richfield	465	2,327	2,448	2,545	2,670	934	1,020	1,060	1,070	273	275	275	275
Richfield	466	1,728	1,625	1,635	2,875	842	845	850	1,400	539	1,700	1,750	1,990
Richfield	467	1,345	1,696	1,775	1,630	581	660	690	700	81	100	100	100
Richfield	468	1,514	1,666	1,665	1,560	700	710	710	720	294	295	300	315
Richfield	469	1,135	1,426	1,460	1,615	515	520	530	620	1,533	1,600	1,650	1,700
Richfield	470	1,566	1,341	1,360	1,680	792	830	840	850	107	110	115	120
TOTALS		**34,310**	**37,700**	**41,300**	**45,000**	**15,073**	**16,500**	**18,000**	**19,500**	**11,762**	**17,100**	**17,600**	**18,100**

Based on this information, the year 2030 daily traffic volumes were generated using an annual growth rate, which varied throughout the City, based on redevelopment areas, and historical and current traffic trends.

In general, roadways classified as minor arterials were assumed to have a one percent yearly growth rate. This growth rate was adjusted for identified redevelopment areas or if additional supplemental data indicated otherwise. Roadways classified as collectors in the City of Richfield were generally identified with a one-half percent yearly growth rate.

The following roadway improvements were assumed by year 2030:

- Reconstruction of I-35W/TH 62 Crosstown Commons.
- I-494 mainline reconstruction between I-35W and Highway 5.
- I-494 access modifications at Lyndale Avenue, Nicollet Avenue, Portland Avenue and 12th Avenue.
- Completion of the 77th Street underpass to 24th Avenue.
- Replacement of Cedar Avenue by the new Richfield Parkway.
- 66th Street and Portland Avenue intersection improvement.

Figure 6.5 displays the resultant year 2030 forecast traffic volumes for the key identified roadways within the City of Richfield.

Existing and Anticipated Capacity Deficiencies

Congestion is a growing issue for commuters throughout the Twin Cities metropolitan area. Users consider facilities congested when speeds are reduced significantly below posted speeds and/or long queues are evident at intersections. Congestion can lead to increases in crashes, diversion from desired roadways or use of local routes for regional movements, increases in travel times and vehicle emissions. In order to determine if the existing roadway system will be able to accommodate future traffic, first the existing traffic volumes are reviewed in relation to the existing roadway network to determine what, if any, deficiencies exist today.

Congestion on the roadway system is judged to exist when the ratio of traffic volume to roadway capacity (v/c ratio) approaches or exceeds 1.0. The ratio of volume to capacity provides a measure of congestion along a stretch of roadway and can help determine where roadway improvements, access management, transit services, or demand management strategies need to be implemented. It does not, however, provide a basis for determining the need for specific intersection improvements.

Table 6.2 provides a method to evaluate roadway capacity. For each facility type, the typical planning level average daily traffic (ADT) capacity ranges and maximum ADT volume ranges are listed. These volume ranges are based upon guidance from the Highway Capacity Manual, discussions with the Metropolitan Council,

and professional engineering judgment. A range is used since the maximum capacity of any roadway design (v/c = 1) is a theoretical measure that can be affected by its functional classification, traffic peaking characteristics, access spacing, speed, and other roadway characteristics. Further, to define a facility's "daily capacity", it is recommended that the top of each facility type's volume range be used. This allows for capacity improvements that can be achieved by roadway performance enhancements.

Table 6.2 Planning-Level Roadway Capacities by Facility Type

Facility Type	Planning Level Daily Capacity Ranges (ADT)	Richfield Daily Capacity (ADT)
Two-lane undivided urban	8,000-10,000	10,000
Two-lane undivided rural	14,000-15,000	15,000
Three-lane urban (two-lane divided with turn lanes)	14,000-17,000	17,000
Four-lane undivided urban	18,000-22,000	22,000
Five-lane urban *(four-lane divided with turn lanes)*	28,000-32,000	32,000
Four-lane divided rural	35,000-38,000	38,000
Four-lane freeway	60,000-80,000	80,000
Six-lane freeway	90,000-120,000	120,000

Existing Capacity Deficiencies

For non-freeway facilities in the city, existing traffic volumes were compared to the generally accepted capacity thresholds based on roadway design, illustrated in Table 6.2. Roadways with traffic volumes that exceed this capacity threshold are typically identified as congested. Figure 6.7 displays the existing roadway lane configurations. Based on the data presented in Table 6.2, the existing ADT volumes (Figure 6.2) and the existing roadway capacities (Figure 6.7), all existing non-freeway roadways within the City of Richfield are currently under their respective capacity thresholds. There are no existing transportation infrastructure deficiencies.

It should be noted that the methodology described above is a planning-level analysis that uses average daily traffic volumes and is not appropriate for all traffic conditions. For example, traffic conditions that do not fit the average daily traffic criteria (i.e., weekend travel, holiday travel, special events, etc.) are likely to produce different levels of congestion. Additionally, factors such as the amount of access and roadway geometrics may influence capacity.

Congestion on the Regional Highway System

Mn/DOT defines congestion on freeway or highway facilities as traffic flowing at speeds less than or equal to 45 miles per hour (mph). According to Mn/DOT's annual (2006) *Metropolitan Freeway System Congestion Report*, there are a number of segments along I-494, I-35W and

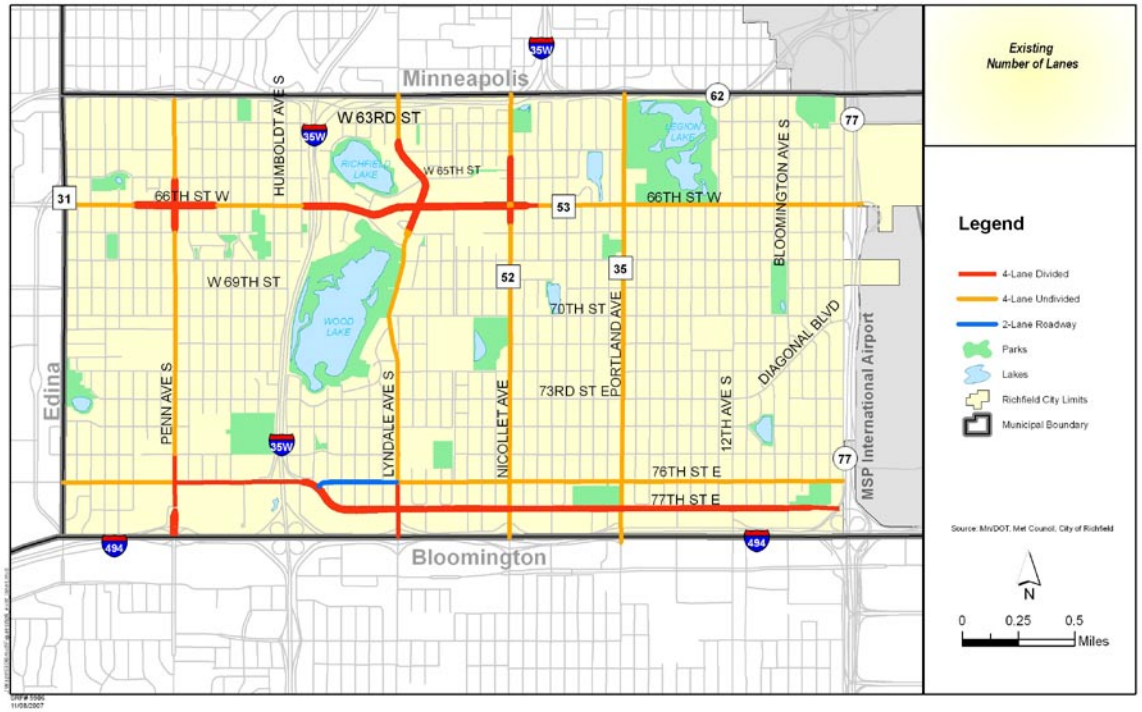
TH 62 that are congested during both the a.m. and p.m. peak periods. The highest level of peak hour congestion in Richfield occurs along TH 62 and I-494. Appendix 6A contains the Mn/DOT Congestion Report figures that illustrate the congested locations along these roadways in Richfield during the peak periods.

In addition to the Metropolitan Freeway System Congestion Report, according to the Mn/DOT *2008 – 2030 Metro District Transportation System Plan* (TSP), the segments of I-494, I-35W and TH 62 in Richfield are all identified as having a high mobility deficiency ranking. TH 77 along the eastern city limits has a medium mobility deficiency ranking. Corridors with a high deficiency ranking are targeted for improvements in order to enhance mobility between 2008 and 2014. Corridors with a medium deficiency ranking are planned to be improved between 2015 and 2023. Mn/DOT's overall objective in identifying freeway and arterial roadway improvement areas, associated investments/costs and construction timelines is to meet a 33 percent congestion target on the metro freeway and arterial trunk highway system by year 2030. The TSP also identifies roadway expansion investments to meet congestion/mobility targets. I-494, TH 62, TH 77 and sections of I-35W in Richfield are identified for expansion by year 2030.

Future Capacity Deficiencies

In order to determine whether or not the existing roadway network will be able to accommodate the future traffic forecasts within the City of Richfield, a planning level analysis was conducted for each of the key roadways. Similar to methodology described above to determine existing capacity deficiencies, the future volumes were reviewed to determine if future capacity deficiencies will develop.

Figure 6.7 Existing Roadway Lane Configurations



Based on the data presented in Table 3, the year 2030 forecast ADT volumes (Figure 6.5) and the existing roadway capacities (Figure 6.7), all existing roadways within the City of Richfield will continue to be under their respective capacity thresholds, except for two small segments of Penn Avenue and Lyndale Avenue north of 66th Street. These two segments each exceed the volume threshold for a four-lane undivided roadway. These segments and a few isolated improvements may be needed at intersections lacking turn lanes or traffic signals.

The existing roadway network should be reviewed as a whole to determine how the City could redevelop these corridors to better suit the traffic volumes they currently service and will service in the future. This will be discussed in a separate arterials design study the City is undertaking in 2008.

Road Pavement (Surface) Conditions

The City of Richfield has adopted a long-range plan of providing for the periodic reconstruction, including resurfacing, of all paved City streets. The City typically resurfaces two miles of residential streets and sealcoats 20 percent of the remainder of the City each year. Work usually occurs in July and August. The optimum time for major pavement maintenance investment is at the time that pavement condition moves from good to fair condition. If a street falls into the poor category, substantial additional costs are incurred in returning the street to good condition. Since it costs more to reconstruct a street than to resurface it, fewer miles can be reconstructed than resurfaced each year within the same budget.

Pavement management consists not only of reconstructing those streets in poor condition, but also maintaining those streets that are in relatively good condition. Maintenance includes sealcoating, crack sealing, pothole filling, skin patching (minor overlaying) and thin pavement overlays. Maintenance activities are typically planned and implemented on an annual or semi-annual basis. Crack sealing is typically performed on new and reconstructed streets during the first two years. Sealcoating is typically used on streets that are five to eight years old and are exhibiting minor surface deterioration. These activities are repeated periodically throughout the life of the street. Pothole filling and skin patching are performed as needed to respond to deteriorated or unsafe roadway conditions. Skin patching or overlaying is also typically done in areas prior to an anticipated sealcoat project.

Recommended Roadway Improvements

Access to Principal Arterials

The City of Richfield will strive to meet Mn/DOT guidelines for access to principal arterials (see web link above). These guidelines recommend limiting cross-

street access to one-half mile spacing within urbanized areas, with a one- to two-mile spacing being optimal. No new driveway access is permitted to principal arterials. In the case of existing principal arterials, the City supports consolidation or elimination of direct access to principal arterials in order to improve the safety and function of these roadways. The City will use redevelopment proposals as the avenue to identify and implement alternate access for any parcel that currently has direct access.

Access to Minor Arterials

The City will follow Hennepin County guidelines for access to the minor arterial system. These guidelines generally call for one-quarter mile spacing of all access points (cross streets and driveways). Richfield will work with Hennepin County to minimize the number of driveways directly accessing minor arterials in the City.

Driveway Access on City Streets (Collectors and Local Roads)

Driveways contribute to accidents and reduced traffic flow on major streets in municipalities because they add to the number of locations where vehicle conflicts can occur. Hence, it is desirable to have policies and ordinances in place that:

- Limit the number of driveways to those that are actually needed to safely accommodate the traffic generated by each development.
- Provide adequate spacing between driveways so conflicts (and resulting accidents) between vehicles maneuvering at adjacent driveways do not arise.
- Ensure proper design to accommodate driveway traffic and minimize vehicle conflicts without significantly reducing roadway capacity.
- Deny private access within the zone of influence of existing and proposed traffic signals.

Sometimes topographic features of a particular site or the needs of a particular land use may require special access features in a proposed development. The City may wish to withhold approval of these developments or site changes until a study has been made of the potential impacts on the affected roadways and the adequacy of the proposed access design.

Traffic Calming

Traffic calming techniques are increasingly being considered by communities who are asked by their citizens to reduce both speed and traffic volume on a street or streets in a residential area. Traffic calming measures usually involve some modification to the road to make it less attractive to motorists. This may include roadway geometric changes such as roundabouts, speed humps or chokers. However, traffic calming tools, such as roadway geometric changes, must be carefully considered to ensure the "solutions" implemented do not make the

road more unsafe or unintentionally divert traffic to a similar parallel route.

One of the most important factors to consider in implementing a traffic calming measure is to ensure that the tool used does not merely push the problem to another location, thereby creating the same problem for someone else. Traffic calming is effective only if it redistributes traffic onto the appropriate systems. Appendix 6B contains an expanded discussion of Traffic Calming.

Right-of-Way

Right-of-way (ROW) is a valuable public asset. Therefore, it needs to be protected and managed in a way that respects its intended function, while serving the greatest public good.

Richfield, although almost fully developed, will with its current and anticipated growth need to reconstruct, widen and construct some new roadway segments to meet future capacity and connectivity demands. Such improvements will require that adequate ROW be maintained or secured. The city will coordinate with Mn/DOT and Hennepin County for ROW acquisition along county or state routes. For ROW acquisition along local roads, the city may use any of the following tools:

Right-of-Way Preservation

When future expansion or realignment of a roadway is proposed, but not immediately programmed, the City will consider ROW preservation strategies to reduce costs and maintain the feasibility of the proposed improvement. Several different strategies may be used to preserve ROW for future construction, including advanced purchase, zoning and subdivision dedication techniques, official mapping, and corridor signing. Before implementing any ROW preservation programs, local agencies should weigh the risks of proceeding with ROW preservation without environmental documentation. (Note: Mn/DOT policy requires environmental documentation prior to purchase.) If environmental documentation has not been completed, agencies risk preserving a corridor or parcel that has associated environmental issues.

Direct Purchase

One of the best ways to preserve ROW is to purchase it. Unfortunately, agencies rarely have the necessary funds to purchase ROW in advance, and the public benefit of purchasing ROW is not realized until a roadway or transportation facility is built. Most typically, local jurisdictions utilize various corridor preservation methods prior to roadway construction and then purchase the ROW if it is not dedicated, at the time of design and construction.

Planning and Zoning Authority

The City of Richfield may use the following to regulate existing and future land use. Under this authority,

agencies have a number of tools for preserving right-of-way for transportation projects. These tools include:

- Zoning

  If the property has a very low-density zoning classification, the city may try to maintain its existing zoning classification (i.e. do not rezone it). A low zoning classification limits the risk for significant development, and can help preserve land for potential ROW, until funding becomes available for roadway construction.

- Platting and Subdivision Regulations

  Platting and subdivision regulations give the city authority to consider future roadway alignments during the platting process because most land must be platted before it is developed. The city may use their authority to regulate land development to influence plat configuration and the location of proposed roadways. In most instances, planning and engineering staff work with developers to formulate a plat that meets development objectives and that conforms to a long-term community vision and/or plans. The City of Richfield does require ROW dedication as part of the platting and subdivision process.

- Official Mapping

  A final strategy to preserve ROW is to adopt an Official Map. An Official Map is developed by the city and identifies the centerline and ROW needed for a future roadway. The city then holds a public hearing showing the location of the future roadway and incorporates the official map into its thoroughfare or community facilities plan. The official mapping process allows the City to control proposed development within an identified area, and to influence development on adjacent parcels. However, if a directly affected property owner requests to develop his/her property, the city has six months to initiate acquisition and purchase of the property to prevent its development. If the property is not purchased, the owner is allowed to develop it in conformance with current zoning and subdivision regulations. As a result, the official mapping process should only be used for preserving key corridors in areas with significant growth pressures.

Transit and Travel Demand Management

Roadways alone will not be able to address all of the transportation needs within Richfield. Other systems, such as transit and trails, are required to serve the varied needs of a metro community. Transit is an important element in the overall transportation network because it:

- Offers an option to senior citizens and people who cannot drive or cannot afford an automobile with access to various services within the area (i.e., medical care, shopping and governmental services).
- Provides opportunities to people who prefer an alternative to automobile travel.
- Potentially removes a portion of existing or future automobile traffic from the roadway, possibly reducing travel time and congestion for other vehicles on the roadway.

Existing Transit Services and Facilities

The 2004 Metropolitan Council *2030 Transportation Policy Plan* identified four existing transit market service areas for all communities within the Twin Cities metropolitan area. The market service areas were defined by:

- Population density
- Employment concentration and job density
- Trip volumes and patterns
- Transit dependent segments of the population

Richfield is located in the Metropolitan Transit Taxing District within Transit Market Area II. This means that the area has a comparatively high level of transit service, with frequent local and express service offered 12-20 hours a day, seven days a week. Please refer to Table 6.3 for detailed information on Transit Market Areas and their corresponding levels of service.

Richfield is currently served by two transit service providers:

- Metro Transit
- Metro Mobility

The existing transit service and facilities in the City of Richfield are shown in Figure 6.8 and 6.9.

Figure 6.8 Richfield Local Transit Service

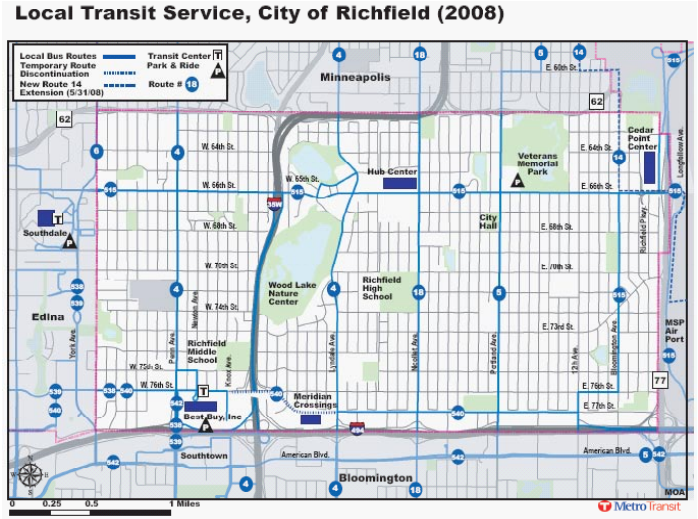


Figure 6.9 Express Transit Service

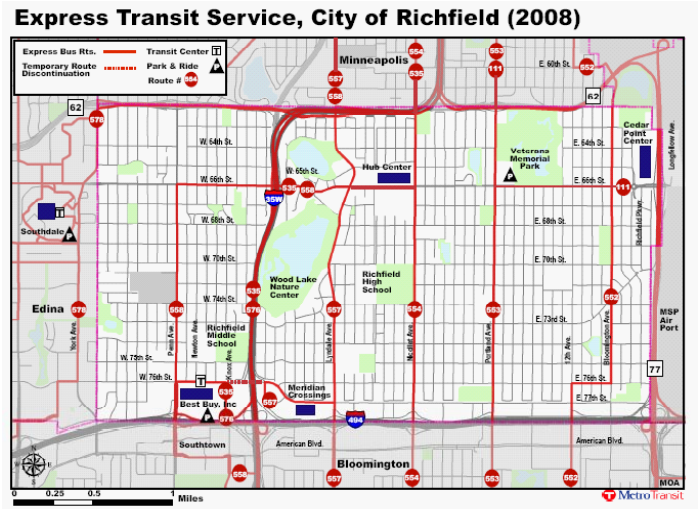


Table 6.3 Transit Market Area Services

Market Area	Land Use Pattern	Service Options	Service Characteristics
I	Highest concentrations of activity, housing and jobs	Regular-route locals, all-day expresses, special needs paratransit (ADA, seniors, etc.) ridesharing	**Frequencies:** 5-15 minute local and circulator **Span of Service:** 18-24 hours, 7 days per week **Access:** Locals spaced 0.25-0.5 miles apart with 8-10 bus stops per mile
II	Moderate concentrations of jobs, housing and activities	Regular-route locals, all-day expresses, small-vehicle circulators, special needs paratransit (ADA, seniors, etc.) ridesharing	**Frequencies:** 15-30 minute or 30-60 minute depending on land use pattern **Span of Service:** 12-20 hours per day, 7 days per week **Access:** Locals spaced 0.5-1.0 miles apart with 6-8 bus stops per mile
III	Generally lower concentrations with intermittent pockets of moderate concentrations (pockets would receive highest service levels)	Peak-only express, small vehicle dial-a-ride, midday circulators, special needs paratransit (ADA, seniors, etc.) ridesharing	**Frequencies:** Peak-period-only expresses, 1-2 hour midday frequencies, dial-a-ride advance registration **Span of Service:** 10-14 hours per day, weekdays and limited weekends **Access:** Services tied to park-and-ride lots and hubs
IV	Lowest concentrations of housing and jobs	Dial-a-ride, volunteer driver programs, ridesharing	**Frequencies:** As needed **Span of Service:** 8-10 hours per day, weekdays **Access:** Services tied to park-and-ride lots and hubs

Source: Metropolitan Council 2030 Transportation Policy Plan, 2004

Metro Transit

Metro Transit is the transit operating division of the Metropolitan Council. There are a number of Metro Transit routes through Richfield, including limited service, non-stop service (including to/from downtown Minneapolis or St. Paul) and high frequency service routes. The high-frequency routes offer service every 15 minutes during weekdays from 6:00 a.m. to 7:00 p.m., and also on Saturdays from 9:00 a.m. to 6:00 p.m. Key transit corridors in Richfield include 66th Street, 76th/77th Streets, Portland, Penn, Lyndale and Nicollet Avenues, as well as TH 62 and I-35W and I-494.

There are two park-and-ride locations within the city. The largest park-and-ride lot is located near the Best Buy Headquarters along Knox Avenue, just south of 76th Street. This park-and-ride location has a capacity of 500 vehicles and offers a connection to five bus routes (535, 539, 540, 542 and 576). The second park-and-ride location within Richfield is located at the Richfield Municipal Pool near the intersection of 66th Street and Park Avenue. This location has a parking capacity of 25 vehicles and also offers a connection to five bus routes (5, 111, 515 and 553). In addition, the Southdale Transit Center, which has a capacity of 102 vehicles, is located just outside of the city limits at the corner of 69th Street and York Avenue. This park-and-ride location offers a connection to seven routes (6, 152, 515, 538, 539, 578 and 631). Another park and ride facility is proposed at the southeast corner of Highway 62 and Penn Avenue.

According to the 2005 Metropolitan Council's Park-and-Ride Plan, the number of people in Richfield currently utilizing transit to commute to work in downtown Minneapolis is expected to increase through 2030. Although the percentage of the Richfield resident workforce utilizing transit services within the city is relatively small compared to future population projections, there are other park-and-ride facilities outside of city limits that may also draw a small portion of the Richfield commuter workforce because of the higher bus frequencies and routes along with a greater number of downtown express buses they offer.

The information presented in Tables 6.4 and 6.5 show the number and percentage of Richfield residents projected to utilize regional transit facilities and services to commute to work in the Minneapolis and St. Paul downtown areas in 2010, 2020 and 2030. As evident by the tables below, the majority of the workforce utilizing the transit services is commuting into Minneapolis.

Richfield Transit Utilization to/from Minneapolis

Table 6.4

Richfield Transit Utilization to/from Minneapolis

	2010	2020	2030
Percentage and volume of residents utilizing transit facilities and services	2.4 %	2.4 %	2.7 %
Number of residents utilizing transit facilities and services	924	1,021	1,264

Table 6.5

Richfield Transit Utilization to/from St. Paul

	2010	2020	2030
Percentage and volume of residents utilizing transit facilities and services	0.3 %	0.3 %	0.3 %
Number of residents utilizing transit facilities and services	99	109	135

Estimates based on Metro Transit's 2006 Longitudinal Employment Household Dynamic Counts

Metro Mobility

Metro Mobility is a paratransit service for persons with mobility impairments. The Metro Mobility system divides the metro area into zones with service providers within each zone actually operating the vehicles under contract to the Metropolitan Council. Routes and schedules are planned to transport multiple passengers to assorted locations. Rider eligibility is based on a person's functional inability to use regular-route services due to disability or health condition. The federal Americans with Disabilities Act (ADA) forms the structure that the Metropolitan Council must follow in providing this service. Metro Mobility service is funded through appropriations from the Minnesota State Legislature, passenger fares and federal funding. The Metro Mobility service in Richfield is 24-hour.

Transit Strategies

The regional transit goal for the Twin Cities metropolitan area is to double ridership by 2030. Transit needs and strategies for the metropolitan area as a whole were identified in the Metropolitan Council's *2030 Regional Development Framework* (2004) and *Transportation Policy Plan* (2004). Both of these documents essentially emphasize similar transit development goals. The findings and recommendations from these plans relevant to Richfield are summarized below:

2030 Regional Development Framework

- Make local transportation, transit, pedestrian and bicycle investments to improve connections between workplaces, residences, retail, services and entertainment activities.

- Identify opportunities to improve connections and address transportation issues such as travel demand management, access management, safety and mobility when planning infill and redevelopment projects.
- Adopt ordinances to support integrated land use (i.e. ordinances encouraging or allowing shared parking; transit oriented developments, park-and-ride lots).
- Coordinate with businesses and other public agencies congestion-reduction measures such as collaboration with employers, provision of information or incentives to minimize or decrease peak-period impacts.

Transportation Policy Plan

- Planning and investing in multi-modal transportation choices based on the full range of costs and benefits.
- Encouraging mixed-use development in centers along transportation corridors that better links housing, jobs and amenities, and reduces the need for single destination trips.
- Making more efficient use of the regional transportation system by encouraging flexible work hours, telecommuting, ridesharing and transit ridership.
- Focusing highway investments first on maintaining and managing the existing system, and second on reducing congestion.
- Building transit ridership by expanding the current bus system and developing a network of dedicated rail and/or bus "transitways". The segments of I-35W, I-494 and TH 77 in Richfield are proposed to be transitways with dedicated right-of-way by 2030.
- Encourage implementation of a system of fully interconnected arterial and local streets, pathways and bikeways.

Travel Demand Management

Travel Demand Management (TDM) includes strategies and actions for reducing single-occupant vehicle travel, increasing vehicle-occupancy rates, and reducing vehicle miles of travel. Changes in travel behavior for the metropolitan area are constantly being sought to more effectively manage existing transportation facilities. By modifying demand for travel, congestion and the need for facility (roadway) expansion can be lessened.

Richfield is a member and active participant in the I-494 Corridor Coalition and their I-494 Commuter Services. This coalition is a Transportation Management Organization (TMO) funded by ongoing Congestion Mitigation and Air Quality (CMAQ) grants for 80 percent of cost through the Metropolitan Council with their support and coordination.

Travel demand management may include both incentives and disincentives meant to reduce trip-making activity, decrease single-occupant vehicle travel, shift travel away from congested locations, increase high occupancy vehicle travel and decrease peak hour travel. Most TDM

actions are targeted toward the peak hour work trip in highly congested areas. TDM programs are more effective where there are multiple strategies for changing behavior. The particular actions selected depend upon the stated objectives and priorities of the TDM sponsor, funding availability, administrative resources, and participant support. TDM strategies are discussed below.

Richfield has a TDM program that requires developers to provide a sidewalk/trail alignment plan and describe efforts to promote walking, biking, transit and carpools with each development proposal. As part of the City's TDM program, they will also consider reduced zoning ordinance requirements such as a reduction in requirements for auto parking in transit-oriented developments or bike/walk districts.

Ridesharing

Minnesota Rideshare provides carpool and vanpool matching services, promotes ridesharing, and sponsors demonstration projects in the Twin Cities area. Ridesharing can be especially attractive for longer trips on congested corridors such as work trips from Richfield to other metropolitan centers.

Transit/Ridesharing Incentives

Employers can encourage employees to rideshare or use public transit if available. The benefits to the employer may include a reduction in the need for parking facilities and less traffic congestion around the employment site. Incentives from employers can include subsidized bus passes, on-site sale of bus passes, distribution of transit schedules and ridesharing information, subsidy of vanpools, and preferential parking for those ridesharing.

Parking Management

Experience elsewhere indicates that parking management is the most effective TDM program element. If parking is free or nearly so, there is a strong incentive to continue solo driving. If parking prices reflect the cost of constructing and maintaining the parking facilities, there is an incentive to try less costly modes of travel. Parking fees would be set at a lower rate for those ridesharing. Similarly, if the supply of parking is constrained, auto driving will be discouraged. In low density suburban areas, restrictions on parking or adoption of fees may be difficult to implement. Parking management is more feasible in the metropolitan centers.

Alternative Work Schedules

Variable work hours, flex time and other alternative work schedules can shift from the peak hour or period. However, changes in start-time tend to dilute the ability to share rides.

High Occupancy Vehicle Lanes

High Occupancy Vehicle (HOV) facilities provide incentives for carpooling, vanpooling and transit. As

highways become congested, highway lanes reserved for HOVs can provide time savings over the more congested mixed traffic lanes. The occupancy restriction typically applies during peak periods and in the peak direction.

Future Transit Development

Richfield recommends and supports an aggressive approach to transit expansion projects and funding mechanisms that will materially reduce congestion, improve urban mobility, and bolster our Minnesota economy and lifestyle.

Transitways and transit facility enhancement

Metro Transit and the Metropolitan Council are considering a list of new transitway projects that will effect Richfield transportation and access. The current Transportation Policy Plan calls for continued development of two Bus Rapid Transit (BRT) corridors in the area, high frequency express bus services running on dedicated lanes that will connect the suburbs with downtown Minneapolis and other transit modes in the region. These are the Cedar Avenue BRT and the I-35W BRT services. Transit stations at key points on these routes will offer park-and-ride facilities and bus transfers from local routes to expedite travel in the Metro area.

Other transitways that may provide benefits to Richfield commuters and travelers include the Central Corridor (University Avenue) LRT, the South West Corridor LRT, and enhanced bus service or BRT along I-494. Besides the existing park-and-ride facilities in Richfield, including the Best Buy lot, other facilities in the area may be subject to further expansion, including the Bloomington LRT stations, Fort Snelling park-and-ride, and the Southdale transit hub.

The Urban Partnership Agreements for accelerated federal funding of key transportation projects will have direct positive impacts on these Richfield-area transitways, as well as instituting value pricing projects on I-35W and improving bus speed and circulation in Downtown Minneapolis. The City remains concerned, however, that mobility in and around the inner suburbs and the urban core will be negatively impacted by lack of any further progress on transportation funding and capacity improvement projects.

Potential future transitways in proximity to Richfield are illustrated in Figure 6.10.

Community Transit Services

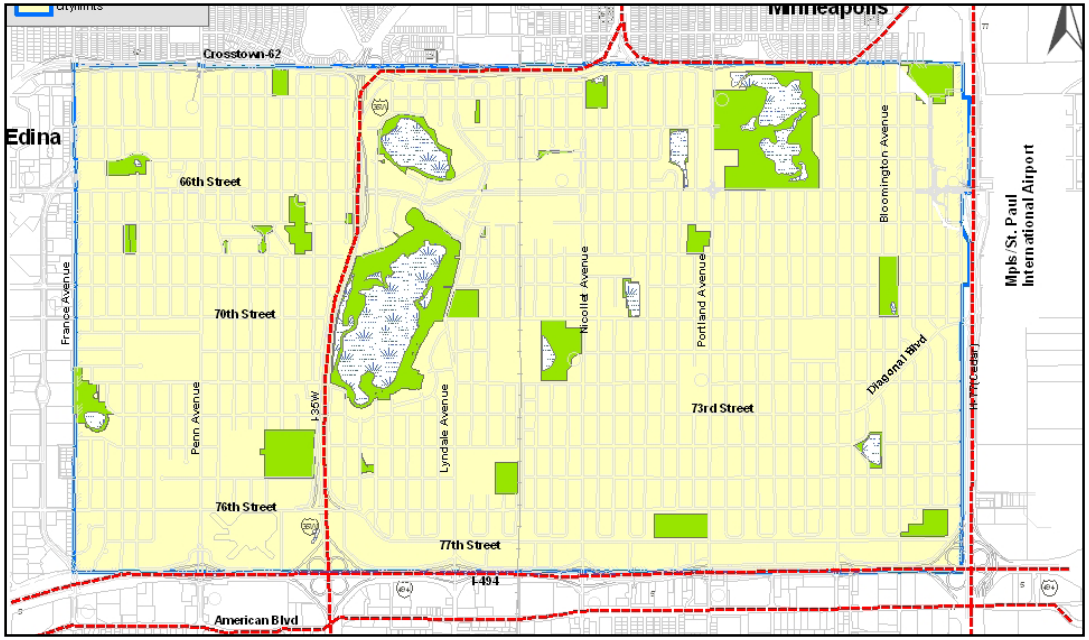
Local bus service redesign would also benefit residents, depending on resource availability and transit usage. Richfield is interested in exploring opportunities for community transit service. Community transit service refers to service that is confined to the City of Richfield for internal trips only. Local transit service is non-express

service that operates within the City but extends beyond Richfield's boundaries. An expanded discussion of this topic is contained in Appendix 6C.

Advantages of Community Transit

Passenger service on a community system is generally marked by a high level of convenience, with either door-to-door pick-up or drop-off in the case of a dial-a-ride, or better walking distance to the local community route in the case of a circulator. Unlike taxis, the dial-a-ride bus can share rides, doing multiple pick-ups and drop-offs on a single trip. Circulators often can be easily changed in routing, either temporarily or permanently, by nature of local management and responsiveness or by designed-in route variations and flexibility. The costs per hour of providing a small bus with volunteers, lower wage contract workers, or private contract operators, is usually significantly less than the cost of a full size bus and professional long-term drivers. Small buses used as circulators usually are compatible with residential areas where large buses are opposed due to their size, noise and exhaust fumes.

Figure 6.10 – Potential Future Transitways



Representative per Hour Costs

Based on a range of current contract rates offered by contracted private providers, dial-a-ride operating costs generally range from $45-$55 per hour, with bus capital costs averaging $4-$5 per hour. Mid-size buses and a circulator operation will generally run from $55-$65 per hour, with bus capital costs at around $10-$12 per hour. The operating costs include driver wages, benefits, fuel, maintenance and parts, dispatch, supervision, and overhead.

Cost per Ride

Using the guidelines cited previously from similar types of operations, the average cost per ride can be summarized as follows:

Dial-a-ride; 4 riders/hour, @ $55/hour (operating & capital) = $13.75/hour

Circulator: 12 riders/hour, @ $70/hour (operating & capital) = $5.83/hour

	Weekday/8 Hr.	Weekday/12 Hr.	Extended Hrs.
Dial-a-ride	$110,000	$165,000	$265,760
Circulator	$140,000	$210,000	$338,240

Cost per Bus Annually

As a rule of thumb, the following average costs will give an idea of the gross cost of operating one of these services for varying periods of time. Many dial-a-rides, to conserve costs, operate only on weekdays from 9:00 AM to 5:00 PM, an 8 hour day for 250 days or 2000 hours annually. A higher level of service, catering to workers among the client base, may work weekdays from 6:30 AM to 6:30 PM, 12 hours per day over 250 days or 3000 hours annually. A full service level may include extended weekdays, 16 hours per day, with some weekend service, usually 8 hours per day, or 4832 hours annually. Following are the annual gross costs for one bus under the various scenarios:

Farebox Recovery

Dial-a-rides generally charge twice the normal regular route fare, based on the higher level of service. Circulators generally charge the same as a regular route fare. On a public transit service that may involve federal funding for some part of the capital or operating expense, elderly and disabled may only be charged a half fare. Allowing for transfers, discounts, and administrative charges on reimbursements from common passes and fare media, a farebox recovery for dial-a-ride can only be expected to cover 12%, and a circulator to cover 16% of total costs in an average situation. The balance will be operating subsidy paid by the provider, and the capital cost.

Funding Sources

The two most common sources of operating funds involves the full subsidy paid by the Metropolitan Council from regional transit funds, or a combination of a Metropolitan Council operating grant (commonly referred to as a PBF or Performance Based Funding grant) for approximately 60 percent of the operating cost, and a local match involving both fares and local agency subsidies. The full subsidy payment for any community or local operation normally only occurs when the Metropolitan Council decides to institute local service in place of reduced or eliminated regular route service, and usually only if a demonstrated need still exists in that area. PBF funding currently is provided to 18 community-based, locally initiated and managed systems consistent with state law. The local agency must demonstrate good operating practice, continuing need or use, be compliant with all federal drug and alcohol, training, and reporting requirements, be open

to the general public, accessible to disabled, and provide the local share of the funding. The Metropolitan Council may be petitioned to support a new community based system, but is not obligated to provide funding. Also, if a shortage of funds is demonstrated by the Metropolitan Council, it is not obligated to provide its full share of the operating cost.

Capital costs for most of these buses are provided by the Metropolitan Council from Regional Transit Capital bonding, supported by regional levy. The request for a vehicle must be made to the Council and be programmed into the TIP (Transportation Investment Program) before money will be assigned for the purchase. The vehicle itself and the purchase process must be federally compliant, usually drawing from Mn/DOT or Metropolitan Council procedures and/or procurement programs. As an alternative, a private contracted provider may provide the vehicle as part of their operating contract if so requested.

Conceptual Dial-a-Ride Service Plan and Budget

A representative operation for a city of Richfield's size and make-up would be for two vehicles operating from 6:30 a.m. to 6:30 p.m., weekdays, with Saturday service from 9:00 a.m. to 5:00 p.m. and Sunday from 8:00 a.m. to noon. Dispatch would be from a central reservations center, with reservations taken from 48 hours in advance, up to 2 hours in advance, and an allowance for 'standing orders'; essentially scheduled, repeat trips such as travel to work. An average load of 3.5 passengers per hour would yield an annual ridership of 25,500 persons or trips. The density and street layout of Richfield would suggest this level of efficiency or higher, possibly above 4.5 riders per hour if demand exists. A community dial-a-ride can be adjusted as needed for number of vehicles and hours of service provided, providing some protection against escalating costs and subsidies per ride if demand does not materialize. A scheduled circulator route would not have this flexibility to adjust service, but on the other hand tends to promote more use because of its predictability and access. This is a key reason that the dial-a-ride needs good same-day response to calls for rides, service characteristics that have been utilized to some extent on several Metropolitan Council contracted dial-a-rides on the east side of the Metro, and is relatively common in Wisconsin systems. Acceptance by the community will be enhanced by this immediate responsiveness.

A conceptual budget based on this scenario is as follows:

Annual Expenses	
Contract service, weekdays, 2 buses; 6,000 service hours	$330,000
Contract service, weekends; 2 buses; 1,248 service hours	$68,640
Management & Overhead *(estimated 15 percent)*	$60,000
Total Annual Expenses in 2007 Dollars	**$458,640**
Annual Revenues	
Fares *(Set by City, suggested $2.75/trip, less senior And other discounts)*	$38,000
Regional assistance if available *(58.5 percent of gross)*	$268,304
Local share, City budget and other	$152,336
Total Annual Revenues in 2007 Dollars	**$458,640**

As discussed in the funding section above, assistance for a community-based operation in an urban area already well-served by regular-route transit is problematic at best. If such assistance does not materialize, the City would have to be prepared to absorb over $420,000 of operating subsidies per year on an ongoing basis to implement this type of service.

Travel Demand Management

Travel Demand Management (TDM) strategies and travel options, as promoted by I-494 Commuter Services, the local Transportation Management Organization (TMO) and Metro Commuter Services, the regional TMO, have had some success for commuter travel, especially ridesharing, car-pooling, and van-pooling, but has not had a significant impact on congestion or travel flexibility. Strategies such as flex work hours have not been adopted widely in the Twin Cities, nor has telecommuting. These both offer good potential as future measures, especially telecommuting as computer networks continue to grow in capacity and sophistication. TDM programs for employees as established by Best Buy, MSP Airport, and others should remain as requirements for new major developments that will impact traffic loads.

New TDM options will be supported and explored by Richfield as they develop. These include systems such as Nu-Ride, a commercial internet-based and highly flexible rideshare system, and car-share programs such as HourCar and ZipCar that provide easy local access to short term car rentals or car subscription services. Transit promotions, new fare tools and transit incentives including expanded specialty pass programs, and changes to taxi regulation and other commercial services are other TDM activities that may provide benefits to Richfield residents and employers.

Rail Service Plan

There is one branch line of rail service running north and south through the middle of Richfield in the Pleasant Avenue corridor. The line terminates in south Minneapolis just north of Highway 62. There are no businesses in Richfield that use the rail service. However, the line does provide freight service to two rail shippers in south Minneapolis, Cemstone, a concrete manufacturer and LaJeune Steel, a steel fabricator.

Service on the rail line, once known as the "Dan Patch" line after a famous race horse, is based on calls for service by the two Minneapolis shippers. This usually results in one train running north in the morning and one running south in the afternoon on weekdays.

The operating speed on the line is 10 miles per hour based on the poor condition of the track. However, Progressive Rail has leased the line from Canadian Pacific and has been repairing the track.

From 2001 through 2006 there was only one crash in the city involving a train. The crash occurred at 76th Street and Pleasant Avenue. The City of Richfield has since received a grant to install a railroad signal at Pleasant Avenue and 76th Street. This should be done at the same time 76th Street is rebuilt when a new metro sanitary interceptor sewer line crosses the railroad tracks. Current plans estimate that the sewer work will be done in the period from 2009 to 2011.

The City has also looked at the possibility of using the rail corridor as a bicycle and pedestrian trail to connect Richfield to the Grand Rounds park system in Minneapolis. However, Progressive Rail is actively promoting its rail service. Plans for a pedestrian/bike trail will be delayed until such time that rail service is terminated and the rail line abandoned. In the interim, the City should explore working with Progressive Rail in a cooperative manner to establish a limited pedestrian/bike trail on portions of the railroad right of way.

Bicycle/Pedestrian Trail Plan

Pedestrian and bicycle trails play a role in the city's overall transportation network by offering an alternative source of transportation to places of employment, primary points of interest and recreational areas and they provide a means for all ages to get physical exercise.

A number of factors need to be considered when identifying and developing a comprehensive trail system. These factors include, but are not limited to, the following:

- Purpose of the trail system – will it primarily serve a recreational function, a commuter/transportation function, or both?
- What is the demand for such a system?
- What types of connections are most important?
- Who will be using the system?
- Should the trail system be on-road or off-road?

The following analysis helps to answer these questions relative to Richfield's trail options.

Proposed Trail System

The proposed trail system in Richfield is illustrated in the *Richfield Proposed Primary Bike Trails Map* in Appendix 6E. The majority of the existing trails in the city are on-road, making them more favorable for bicycles. An independent trail corridor (off-road) is proposed along the Canadian Pacific Railroad corridor along Pleasant Avenue. If the rail line is abandoned, this could become a regional trail. All of the existing trails within Richfield are local, there are no regional trails.

The existing trail system in Richfield is somewhat constrained in terms of expansion opportunities because the City is a fully-developed community surrounded by

four major freeways. Freeway crossings without bike lanes or adequate width to accommodate sidewalks and narrow rights of way for pedestrian and bike facilities on arterial streets, are the biggest perceived barriers to bicycling and walking in Richfield. An expanded discussion of this topic is contained Appendix 6D.

Trail Classifications

In determining the need for additional trails or bikeways, the needs of users should be considered for the appropriate trail classification. The needs and skill levels of trail users throughout the community are wide ranging. Because of this, a variety of trail and bikeway types are needed to accommodate the broad range of user needs. To accommodate the different user needs and skill levels, classifications were developed for the trail system. These trail classifications also take into account the guidelines recommended in the *National Parks, Recreation, Open Space and Greenways Guidelines* published by the National Recreation and Parks Association. The three main trail classifications in Richfield are:

Destination Trails

These are trails located within a greenway, natural area, or designated trail corridor. Destination trails emphasize harmony with the natural environment, enhance the recreational experience (rather than transportation/commuting), allow for continuous pedestrian movement through a natural area, the city and larger park system, and also protect users from vehicular traffic. Destination trails are suitable for all skill levels. They should be hard-surfaced, off of road right-of-way and a minimum of 8-feet wide.

Linking Trails

Unlike destination trails, linking trails emphasize safe travel between parks, trails and other points of interest above recreational experience. Linking trails are generally located within road right-of-ways, utility easements or trail corridors between houses. Like destination trails, linking trails are appropriate for all skill levels. They should be hard-surfaced, within road right-of-way but separate from the roadway and a minimum of 8-feet wide.

On-Street Bikeways

There are three general types of on-road trail designs that are appropriate for Richfield. As their name implies, on-road facilities accommodate bicyclists/pedestrians on the roadway itself through a shared lane, a wide lane or a bike lane. These three types of on-road facilities are described below:

- *Shared Lane/Bike Route:* Shared motor vehicle/bicycle use of a 12-foot "standard"-width travel lane designated by striping, signing,

and/or other pavement markings (usually on a low volume city street).

- *Wide Outside Lane:* A 14-foot outside travel lane, wider than a "standard" width travel lane, which accommodates both bicyclists and vehicles (usually on a higher volume city street).
- *Bike Lane:* A portion of the roadway designated by striping, signing, and/or marking pavement for preferential or exclusive use of bicycles (usually along urban streets). A 5-foot width is desirable, but a 4-foot width is acceptable where space is limited.

Before deciding on shoulder width, the experience level of the majority of users should be considered. Beginner-level users will benefit from a wider shoulder. According to the *Minnesota Bicycle Transportation Planning and Design Guidelines*, shoulders four feet wide are considered the minimum width to accommodate bicycle traffic. As traffic speeds increase, heavier vehicles compose a greater share of the traffic mix and traffic volumes rise, a shoulder width greater than four feet is desirable. Surface irregularities (i.e. rumble strips, textured paving and raised lane markers/reflectors) should be avoided along intended bicycle shoulders. If rumble strips are necessary, shoulder width should be wide enough to leave at least five feet of smooth shoulder surface for bicyclists.

Trail/Transit Relationship

Better trail connectivity to park-and-ride facilities as well as commercial areas in the city would offer users the opportunity to utilize the trail system to travel to and from transit nodes throughout the city. By increasing the number of trail routes, the number of transportation and commuter users would increase.

Future Trail System

Because Richfield is a developed city, there are few opportunities to construct additional off-road trails. Therefore, future trail system expansion/improvement efforts should primarily be focused on on-road facilities. The exception to this is the planned Nine Mile Creek Regional Trail which will provide connections to the Minneapolis Park and Recreation Board's regional trail system near Lake Nokomis to the north, the Minnesota River Valley Wildlife Refuge Visitor Center to the south, and the Minnesota River Bluffs LRT Regional Trail to the west. The trail is planned to enter the City from Edina through a tunnel under York Avenue. The trail will continue east along 75th Street and over Interstate 35W on the 76th Street bridge. The trail will follow 76th Street to 12th Avenue where it will split and provide both a northern and southern connection. The northern connection is proposed to head north along 12th Avenue and then follow Diagonal Boulevard to Richfield Parkway. The trail will follow Richfield Parkway north into the City

of Minneapolis at Bloomington Avenue and then connect with the Lake Nokomis trails. From there it will connect with the Minnesota River Valley Wildlife Regue Visitor Center. The City will continue to work with the Three Rivers Park District to determine the final alignment of the regional trail's eastern layout.

The provision of additional on-road facilities will be based on the recommendations of the 2004 Hennepin County Bicycle System Gap Study which identified segments of Portland Avenue and Bloomington Avenue in Richfield as gaps in the county's bicycle trails system (see Hennepin County Bicycle System Gap Map in Appendix 6D).

In addition to implementing the recommendations from *Hennepin County's Bicycle System Gap Study*, the City should also focus on opportunities arising from the goals and strategies developed at a City Bikeway Planning Workshop in November 2006. The City of Richfield conducted the Bikeway Planning Workshop with members of the Transportation Commission, City staff and the public. Based on the public comments received at the workshop and goals and objectives taken from the 1997 Comprehensive Plan and the Vision 2020 Plan, a set of overall goals and draft policies were developed for consideration in the City's Bikeway Plan. These include:

Overall Goal: The City will provide a safe, barrier-free bicycle and pedestrian system along arterials and collectors and on connections to trails.

- Goal 1. Expand the existing transportation system so as to improve accessibility and the quality of life for all Richfield residents
- Goal 2. Emphasize and encourage alternate forms of transportation
  - Objective – Develop pedestrian and bike facilities that are functional, attractive, safe and barrier-free.
- Goal 3. Continue to provide high-quality parks and open spaces that are available on a neighborhood and community-wide basis

Primary Bike Trails

Policy/Strategy 1 - Identify the Nicollet Avenue/Pleasant Avenue north-south corridor, the Richfield Parkway/Cedar Avenue north-south corridor, the 66th Street east-west corridor and the 76th Street/75th Street east-west corridor, as the four primary bikeway corridors through Richfield.

Policy/Strategy 2 – In the short-term a bike corridor along Nicollet Avenue should be promoted. In the long-term the corridor should shift to the Canadian Pacific railroad right of way or parallel to it. An expanded discussion of this topic is contained Appendix 6E.

On-street Bike Lanes

Policy/Strategy 1 – Encourage on-street bike lanes on collectors and arterials by narrowing traffic lanes

and reducing the number of lanes, if necessary, without disrupting traffic operations.

Policy/Strategy 2 – Where collectors and arterials are too narrow for on-street bike lanes, encourage bikes to use parallel residential streets rather than sidewalks on busy streets.

Policy/Strategy 3 – Construct a "pedestrian and bicycle green way" by closing some seldom-used streets to vehicular traffic.

Recreational Routes

Policy/Strategy 1 – Identify loop tours for recreational bike trips within the city that take advantage of freeway barriers and natural features to create enjoyable and safe bike routes.

Policy/Strategy 2 – Promote uniform bikeway signage within the metro area to assist bikers in wayfinding.

Policy/Strategy 3 – Provide bicycle safety education programs for bicyclists and motorists. An expanded discussion of this topic is contained Appendix 6F,

Freeway Crossings

Policy/Strategy 1 – In the long term, all freeway crossings should provide for pedestrians and bicyclists.

Policy/Strategy 2 – Focus on eliminating spot problems that pose obstacles to biking.

Policy/Strategy 3 – Anticipate opportunities for improved biking and walking.

Policy/Strategy 4 – Provide pedestrian/bicycle connections across freeways where pedestrian/bicycle routes have been identified in the plan.

Land Use Planning

Policy/Strategy 1 – Encourage development of areas where vehicle use is minimized.

Policy/Strategy 2 – Encourage new large developments to provide bike racks and new employment centers to provide shower facilities for bicycle commuters.

Policy/Strategy 2A (Optional) – Strongly encourage pedestrian-friendly and transit-friendly building and site design through measures such as higher density development and growth which is located along major transportation routes.

Policy/Strategy 3 – Locate high-density developments along arterial corridors with designs that provide easy access for transit riders, bicyclists and pedestrians. Also, provide bike lanes in or near these corridors.

Policy/Strategy 4 – Require pedestrian and bicycle connections between complementary land uses.

Implementation

Implementation of the City's Bikeway Plan will occur over a number of years. However, having the goals, policies and strategies outlined will help the community recognize opportunities for additional pedestrian/bicycle facilities as they arise. The Richfield Bikeway Plan will also be implemented by taking certain action steps, including capital improvements, as described below:

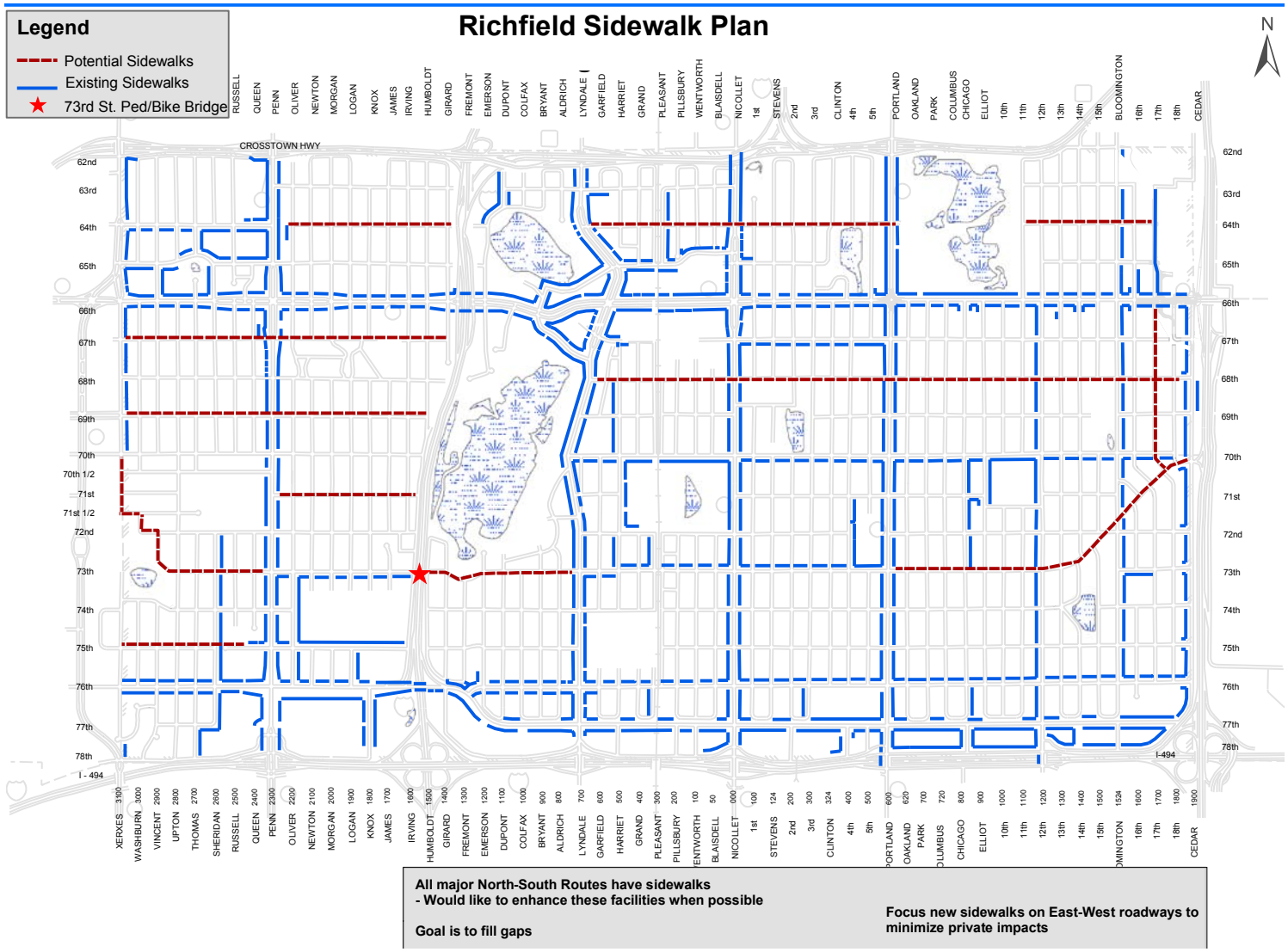
- Add a pedestrian/bike path to the new 76th Street Bridge over I-35W
- Add bike lanes as part of the new Metro Sanitary Sewer Interceptor on 75th Street west of I-35W and on 76th Street east of I-35W. (Note: this project will produce a three-mile bike route as part of the new regional bike trail known as the Nine Mile Creek Trail.)
- Construct bike lanes as part of the Richfield Parkway from Bloomington Avenue at TH 62 to the south. (Note: When completed this will become part of the Cedar Avenue Trail connecting with Minneapolis and Bloomington trails.)
- Construct bike lanes/walking paths along I-35W/TH 62 Crosstown between Portland Avenue and Penn Avenue.
- Include bicyclists and pedestrians in the City's Safety Education Program focusing on roundabouts.
- Ensure that handicap accessibility is considered in the redesign of the 73rd Street pedestrian bridge over 35W.

Sidewalk Plan

In addition to providing facilities for bicyclists the City is committed to providing facilities to the pedestrians as well. In order to improve the pedestrian experience the City is committed to improving the pedestrian facilities. Currently the majority of north-south roadways (i.e., Penn Avenue, Lyndale Avenue, Nicollet Avenue, Portland Avenue, and Bloomington Avenue) have adjacent pedestrian facilities in the way of concrete sidewalks. The City has identified the following key points as guiding factors in their future sidewalk improvement and implementation plan:

- Goal is to fill gaps in the existing sidewalk network.
- Install new sidewalks as roadways are reconstructed.
- Locate the majority of new sidewalks on east-west routes to minimize impacts to private property.
- The current methodology is to locate sidewalks to connect major recreation, shopping and institutional uses.
- Strive to limit gaps in the sidewalk infrastructure to no more than a ¼ mile apart.
- Ensure sidewalks can connect to potential trail network.
- Ultimate goal is a complete sidewalk network (This is costly because the City maintains all sidewalks - as shown in Figure X).

Figure 6.11 Sidewalk Plan Concept



Aviation

Introduction

Richfield is located adjacent to the Minneapolis-St. Paul (MSP) International Airport within its Airport Influence Area. As a neighbor to the Airport, the City of Richfield is affected both positively and negatively by the airport. The city benefits from the convenient access to airport services while at the same time the city is negatively affected by the aircraft noise and operations. In 2005, The Minneapolis Airport Commission (MAC) opened a new runway, Runway 17/35, at the MSP International Airport. This runway runs north/south along Cedar Avenue. The northernmost portion of the runway is approximately 1,200 feet from the City border. Operations on this facility substantially increased noise levels for Richfield residents west of TH 77.

Part of the city's challenge is to maximize the benefits of its convenient location while minimizing the aircraft noise effects. Aircraft noise is a nuisance to many people and the amount of noise in certain areas affects how the land can be used and how buildings need to be constructed to minimize negative impacts.

Goals and Policies

Goals

1. Minimize the establishment of noise sensitive uses in areas where noise impacts are the greatest.
2. Mitigate noise impacts in areas where noise sensitive uses currently exist, or can be anticipated.
3. Advocate airport-operating procedures that will minimize adverse impacts in Richfield. An example is working with Air Cargo operations on the west-side of MSP to decrease their operation impacts on Richfield residents and businesses.
4. Implement an orderly transition from noise sensitive land uses to noise compatible land uses where appropriate, in consideration of all development factors in the areas.
5. Minimize the establishment of physical structures that will interfere with aircraft operations.
6. Implement the Airport Zoning Ordinance established by the Joint (airport/community) Zoning Board working towards the 2010 development plan.
7. Create an overlay zone detailing building and acoustical standards for new homes within the 2007 60-65 DNL contour lines in accordance with

Appendix H of the Metropolitan Council's 2030 Transportation Policy Plan.

8. Encourage sound insulation standards for the remodeling and rehabilitation of homes in the 2005 DNL 60-64 contour lines.

Policies

1. The City of Richfield will continue efforts to develop building standards to attenuate noise to all noise-sensitive areas within the 2007 DNL 60+ contour lines.
2. The City will continue to redevelop within the Cedar Avenue Corridor Redevelopment Area by replacing the severely impacted homes and businesses with more airport-compatible uses.
3. The City will continue its cooperative efforts with the Metropolitan Airports Commission (MAC) to share resources and infrastructure.
4. The City will continue cooperative efforts with MAC, the Pollution Control Agency and other governmental agencies to reduce adverse noise impacts generated by air traffic.
5. The City will continue its cooperative effort with MAC and the Federal Aviation Administration (FAA) to address the issues of low frequency impacts to the city.
6. The City will notify appropriate agencies of proposed construction or alterations that will exceed height limitations in airport areas as specified in Federal and State law.

Airspace Protection

There are no existing or planned aviation facilities within city limits. However, according to both Federal Aviation Administration (FAA) and Mn/DOT Aeronautics safety standards, any applicant who proposes to construct a structure 200 feet above the ground level must get appropriate approval. The Federal Aviation Administration (FAA) requires that Form 7460-1 "Notice of Proposed Construction or Alteration", under code of federal regulations CFR-Part 77, be filed for any proposed structure or alteration that exceeds 200 feet. FAA Form 7460-1 can be obtained from FAA headquarters and regional offices.

These forms must be submitted 30 days before alteration/construction begins or the construction permit is filed, whichever is earlier. Mn/DOT must also be notified (see Mn/DOT Rules Chapter 8800). The MSP airport/community zoning board's land use safety zoning ordinance should also be considered when reviewing construction in the city that raises potential aviation conflicts.

Economic Benefits

According to a 1996 Report to the Public, published by the Metropolitan Airports Commission, the MSP Airport is both directly and indirectly responsible for 113,000 jobs in the region and injects $5.5 billion a year into the regional economy.

For the City of Richfield, the benefit of being located in close proximity to the airport has helped the city support a healthy and diverse business community, from corporate headquarters to hotels and restaurants. The airport is a tremendous marketing tool for bringing in new businesses and retaining those that have made Richfield their home.

Airport/Aircraft Impacts

Land Use

Different types of land uses have varying degrees of sensitivity to aircraft noise. For example, commercial and industrial uses are more compatible with aircraft noise than uses such as residential, schools and churches. Noise sensitivity also varies among residential uses. Single-family homes have more exposed exterior walls and roof areas and rely more on the outdoor yard areas than most multi-family residential housing. As such, single-family homes are generally more affected by aircraft noise than multi-family housing.

The eastern portions of Richfield are particularly affected by aircraft noise (see Figure 9 for location of the 2007 noise exposure areas). To avoid additional conflicts the City will look to redevelop the eastern border of the City as guided for in the Cedar Avenue Corridor Redevelopment Plan. The plan does not recommend new single-family homes within the Cedar Avenue Corridor. Construction of multi-family developments is allowed but they must be constructed to provide adequate sound insulation to provide a quiet indoor environment. Redevelopment in the Cedar Avenue Corridor should address low frequency noise mitigation in any new or rehabbed development.

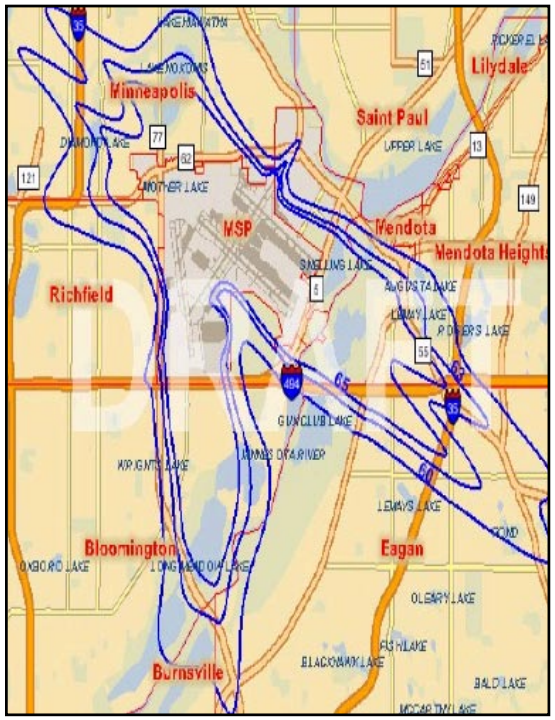
Noise Exposure and Noise Mitigation

Because of Richfield's proximity to the MSP International Airport, noise levels for residents are a concern. The Metropolitan Council's *Land Use Compatibility Guidelines for Aircraft Noise* indicates a Day-Night Sound Level (DNL) of 65 dBA represents the threshold of significant impact for noise-sensitive land uses. The Metropolitan Council also considers noise-sensitive land uses in the DNL 60-65 dBA contour as potentially incompatible with aircraft noise. 2007 Noise Policy Area map for the City of Richfield is shown in Figure 6.12.

In 1996, the City of Richfield, as a member of the Noise Mitigation Committee, negotiated with MAC for noise mitigation measures for homes affected by the airport expansion. It was MAC's commitment to its noise insulation and mitigation program which led the City of Richfield and leaders of other affected communities to

support the expansion of MSP instead of construction of a new airport at a different site. However, in April of 2005, the Cities of Richfield, Minneapolis and Eagan sued the MAC for failure to fulfill its noise mitigation commitments. The mitigation measures potentially affect 845 homes in Richfield that would need sound mitigation due to their location within the 2005 60-64 DNL noise contours. Appendix 6H contains the 2007 Draft Noise Contours for the City of Richfield. An expanded discussion of this topic is contained Appendix 6G.

Figure 6.12 – 2007 Noise Policy Area: MSP Airport



Beyond ensuring the MAC's noise mitigation measures are fulfilled, the City of Richfield undertook a master planning and redevelopment process for the Cedar Avenue Corridor in 2005. The basic intent was to provide large scale retail and office land uses directly adjacent to TH 77 to serve as noise and visual buffers for residential areas. West of these buffering land uses, multi-family residential development is planned to serve as a transition to the existing single-family homes in this portion of the City. The redevelopment of this area, called Cedar Avenue Corridor Redevelopment Plan is reviewed in more detail in the land use chapter of the comprehensive plan.

It is expected the City of Richfield will be involved in monitoring/participation of noise implementation and mitigation efforts for newly impacted areas with revisions to the comprehensive plan as appropriate.

Safety Zones

Safety zones are established around the airport to ensure an unobstructed flight path for departing and arriving aircraft. The safety zones extend off the ends of each runway. Due to the distance between the runways and the municipal border of Richfield, the safety zones have a significant impact for the eastern half of the city. The main concern is that structures within the safety zones must comply with MSP's Safety and Airspace Construction height maps must comply with MSP's Safety and Airspace

Construction Height maps as indicated in the 2004 Minneapolis - St. Paul International Zoning Ordinance.

Airport Expansion

The MAC is currently evaluating on-site parcels for potential new (non-aeronautical) revenue opportunities at its reliever airports. In addition, a MAC task force is reviewing their reliever airports, examining such issues as a revenue funding plan, use of outside management, and ability to close and/or sell airports. The City of Richfield should be involved in these discussions.

It is expected that after the current MSP 2010 development is in place, the MAC will updated the long-term comprehensive plan to a new 10-year planning horizon. The city should be involved in these processes to ensure local input to the aviation planning process.

Intergovernmental Relations

Metropolitan Aircraft Sound Abatement Council

The Metropolitan Aircraft Sound Abatement Council (MASAC) was established in 1969 as a cooperative effort between the airport authority, airport users and the impacted communities to mitigate the effect of airport noise. MASAC is tasked with studyied airport noise issues and made recommendations for the betterment of noise conditions to the MAC and communities surrounding MSP. The MASAC group ceased meeting in October 2001.

Metropolitan Council

The Metropolitan Council is the regional planning agency that has the legislative authority of approving certain capital projects in MAC's Capital Improvements Program under qualifying provisions found in Minnesota Statues 473.621 (6) (7). The Metropolitan Council's role in the evaluation of noise is to publish guidelines for the compatible use and development of land in communities surrounding the airport.

Noise Oversight Committee

The Metropolitan Airports Commission (MAC) established the MSP Noise Oversight Committee (NOC) in August of 2002. Its purpose is to bring industry and community representatives together to dialogue about noise issues at the Minneapolis-St. Paul International Airport (MSP) and to bring policy recommendations to the MAC. The group meets every other month.

The cities of Minneapolis, Richfield, Bloomington, Eagan and Mendota Heights each have a representative on the committee. The cities of Burnsville, Inver Grove Heights, St. Paul, St. Louis Park and Apple Valley are represented through an at-large membership. The at-large members rotate representation duties on an annual basis. Each city is responsible for appointing its representative.

Other Agencies

In addition to the specific committee's and agencies listed above, several other agencies are involved with the MAC in either a cooperative and/or regulatory capacity. These include: Mn/DOT, the Minnesota Pollution Control Agency (MPCA), and the Minnesota Environmental Quality Board (EQB).

Plan Implementation

This section of the Plan provides valuable strategies, tools and practices that can assist county officials to implement the Transportation Plan's recommendations and make wise long term decisions.

Transportation Plan Adoption

The first step towards implementation of the plan is for the City of Richfield to adopt it. By adopting the plan, the City will establish priorities and guidelines on which to base future transportation decisions. Citizens and members of the business community should understand the opportunities or limitations that the Plan provides. Providing all affected groups information on the City's transportation goals will help them understand how these goals are linked to land use elements shown in the City's comprehensive land use plan. Copies of the transportation plan should be provided to neighboring jurisdictions and public libraries in the area so that it can be accessed by the greatest number of people.

The City should periodically review and update the Transportation Plan and its traffic forecasting model, based on estimates of future development, population trends, changing financial resources, and citizen and local government input. Depending on the speed and degree of change, it is recommended that the plan be reviewed at least every five to ten years.

Functional Classification Changes

Recommended changes to the functional classification system will be adopted by the City with adoption of the overall Plan. Changes that involve 'B' Minor Arterial, Major Collector or Minor Collector may be made without the approval of another agency, provided that these changes are consistent with State and County Plans. However, the changes and the resulting functional classification should be officially reported to the Council under separate communication to ensure that the Council has the opportunity to update their records.

In addition, any proposed change to a Principal Arterial or 'A' Minor Arterial designation will need to be approved by the Transportation Advisory Board (TAB) of the Metropolitan Council. Since these changes are likely to involve either State or County roadways, the City should work closely with these agencies to ensure that the process of approval is carried forward.

Access Management

The City of Richfield will work to support the access management guidelines of other jurisdictions. The City is aware that both Hennepin County and Mn/DOT have access guidelines managing their roadways located within the City of Richfield. The City acknowledges these guidelines and will work with these agencies to support access management for the roadway network in Richfield.

Transit System Maintenance

The transit system is a vital asset of the Richfield transportation system. The City is dedicated to maintaining the existing transit service that exists today will strive to extend transit service throughout the City to new redevelopment areas and those under serviced pockets. Look for opportunities of investment to improve connections between workplaces, residences, retail, services and entertainment activities. Work toward developing connections to future regional "transitways."

Project Development

The Transportation Plan is designed to review transportation needs at a policy level and does not make recommendations for design. Each recommended improvement should be studied in more detail through an engineering study to verify the need and identify the exact nature of the improvement. Such studies will also serve to identify specific projects that will be designed to achieve the improvements recommended in the Plan. The cost and schedule of individual projects developed through the design process should be addressed in preliminary and final design.

Establish Improvement Program

An overall strategy of improvement should be developed and adopted that considers the recommendations contained in the Plan. To meet the objective of completing recommended improvements to the roadway system within the planning horizon of the Plan, the City should develop, in cooperation with the State and the County, a list of projects that will collectively result in the achievement of the desired system. These projects should be prioritized in such a way that overall system benefits are maximized.

This improvement program should also identify the cost of the system improvements and identify sources of funding for each individual project.

Sources of Funding

A multi-faceted investment strategy will be required to narrow the potential future funding gap if these necessary transportation system improvements are to be implemented. Investment strategies for major future infrastructure improvements fall within these three categories: agency or inter-jurisdictional sources; external

private sources; or internal local sources. Generally, the probability of funding and level of local control over allocation of such funds is highest with the internal local sources and lowest with other agency or private sources. Discussion of these three types of investment strategy categories is summarized below:

1. Agency or Inter-jurisdictional Sources: Examples of agency or inter-jurisdictional sources of transportation funding include Cooperative Agreements, Federal Surface Transportation (STP), state or federal bonding, and various grant programs. By their nature, these sources of funding usually require the city to seek assistance from another level of government in a competitive process. In addition, many of the programs have extensive or restrictive qualifying criteria. When appropriate, the City will continue to seek these special sources of funding.

2. Private Sources: Specific examples of private participation include site specific or general city-wide negotiated developer contributions and third party agreements between private parties and multiple jurisdictions.

3. Internal Local Sources: Specific examples of internal funding opportunities available to the City Council include various types of city bonding with property tax payback, special assessments, ad valorem taxes, special service districts, tax increment financing (TIF), and special fees.

Several specific funding sources for transportation improvements are most commonly used by the City. Each of these sources is anticipated to play a large role in financing future transportation improvements.

Municipal State Aid (MSA): MSA funding is a constitutionally-protected allocation of a portion of the Highway User Tax Distribution Fund comprised of gasoline taxes and vehicle registration fees based on a formula that takes into account the population of a city and the financial construction needs of its MSA Street system.

Tax Increment Financing (TIF): The City possesses several TIF districts. Portions of tax increments from the TIF districts are allocated for transportation projects.

Special Assessments: The City has traditionally financed transportation projects utilizing special assessments pursuant to Minnesota State Laws Section 429.011-429.111. Assessments to properties may not exceed the value of benefit that accrues to the property as a result of the project. Benefit is usually measured as an increase in market value. Special assessments will continue to be used, when appropriate, to provide for a complete financial plan.

Project Development and the Environmental Process

Depending on the size and type of project, implementing improvements identified in the Transportation Plan may require additional public participation and environmental review. Environmental documents must be prepared if state or federal funding is involved in the project, with the type of document depending on the size of the project. For example, projects that construct more than two-lane roadways and have alignments of more than two miles require more in depth analysis than projects that convert an existing at-grade intersection into an interchange or overpass according to state rules.

Even if no federal or state funding is involved, state environmental review requirements and local ordinances or guidelines may apply. Specific rules on the level of environmental documentation can be found in the Highway Project Development Process Handbook at *www.dot.state.mn.us.*

In addition to state and federal rules regarding environmental documentation, there are a number of local, state and federal permits that regulate wetlands, water quality, air quality, noise and other environmental and cultural resources. Early coordination with appropriate environmental agencies and the State Historic Preservation Office (SHPO) can reduce delays in the project development process and in acquiring applicable permits.

Appendices

6A. Mn/DOT Congestion Report Figures

6B. Traffic Calming

6C. Coummunity Transit Services

6D. Hennpin County Bicycle System Gap Map

6E. Richfield Proposed Primary Bike Trails

6F. Potential for Loop Routes

6G. 2007 Noise Contour Map

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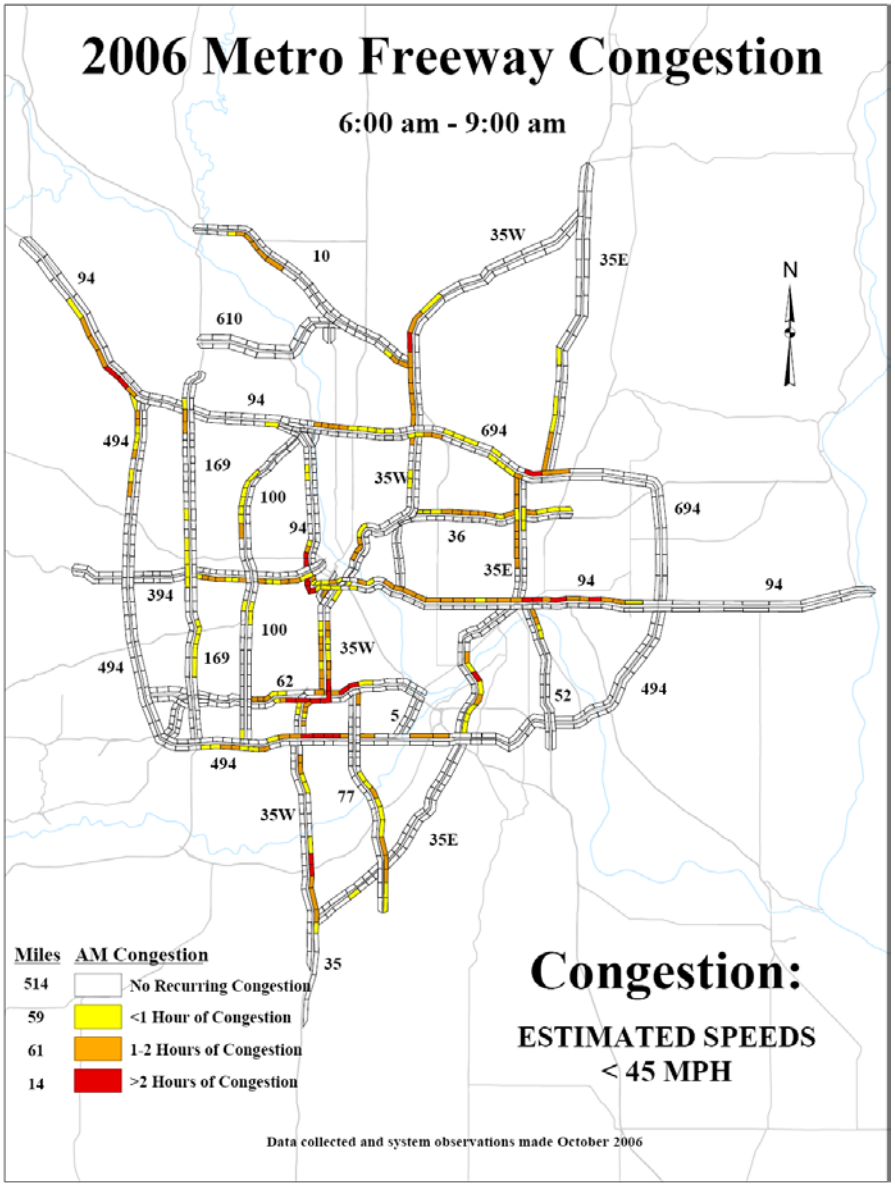
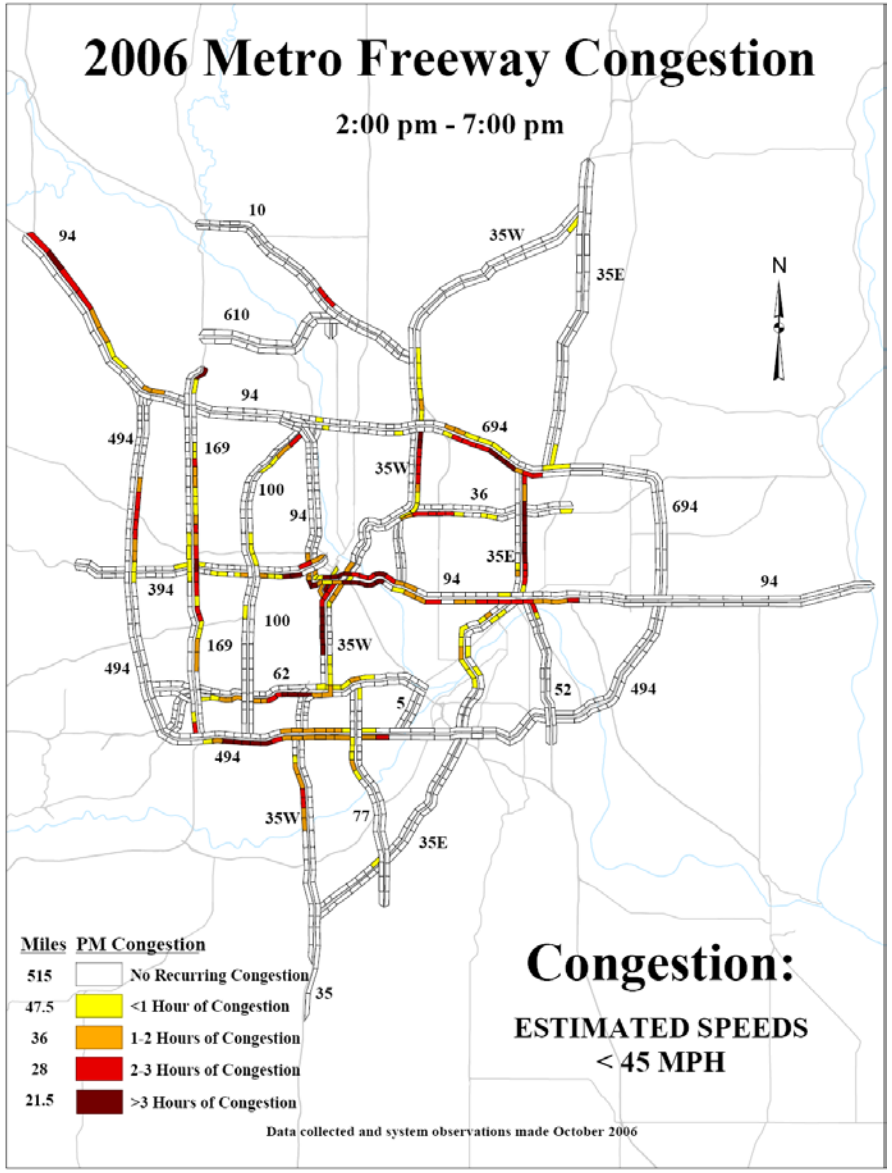
Appendix 6A

Mn/DOT Congestion Report Figures

Metropolitan Freeway System 2006 Congestion Report

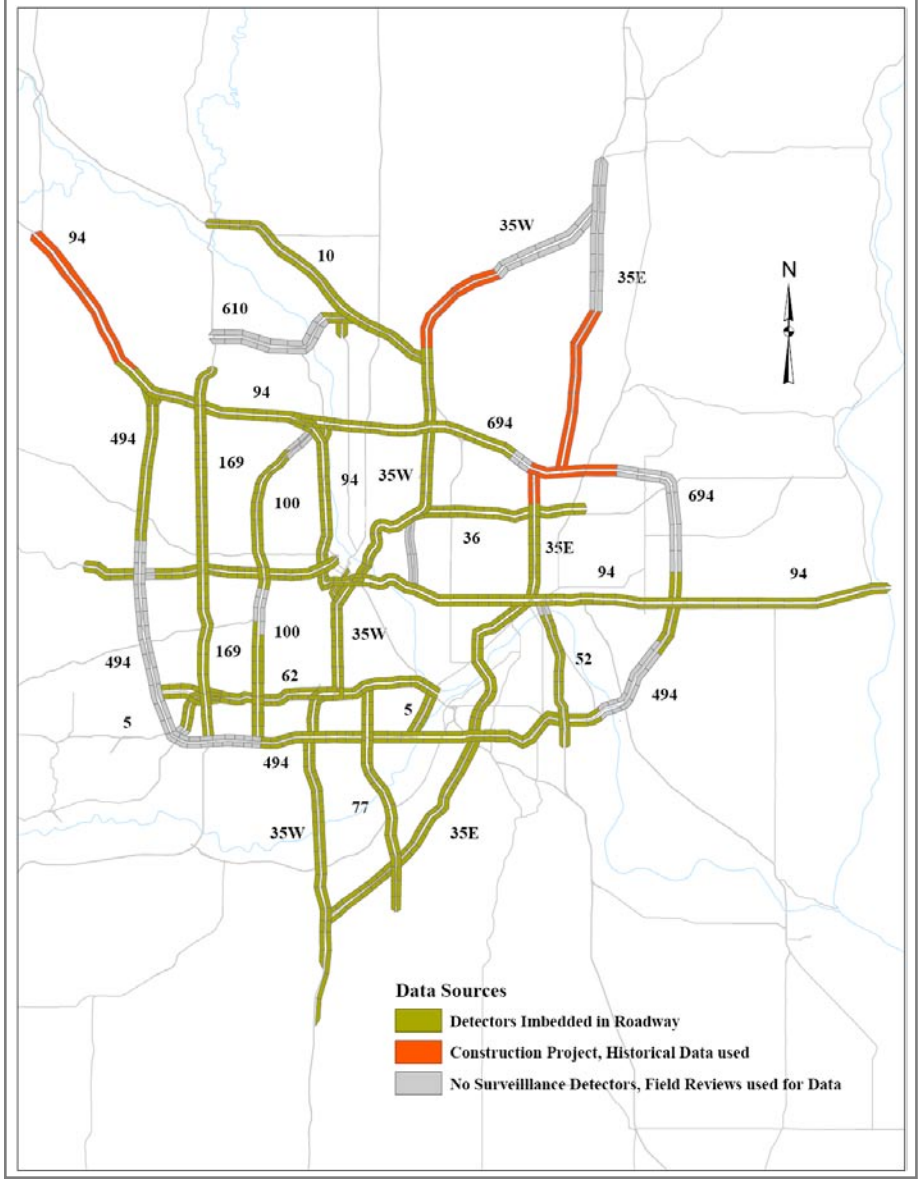


Metropolitan Freeway System 2006 Congestion Report



Metropolitan Freeway System 2006 Congestion Report

Appendix B: 2006 Metro Freeway Data Sources



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Appendix 6B

Traffic Calming

Traffic Calming

Traffic calming techniques are increasingly being considered by communities who are asked by their citizens to reduce both speed and traffic volume on a street or streets in a residential area. Traffic calming measures usually involve some modification to the road to make it less attractive to motorists. This may include roadway geometric changes such as roundabouts, speed humps or chokers. However, traffic calming tools, such as roadway geometric changes, must be carefully considered to ensure the "solutions" implemented do not make the road more unsafe or unintentionally divert traffic to a similar parallel route.

The primary goal of any transportation system is to achieve the safe and efficient flow of traffic. Interruptions to traffic cause turbulent flow. Turbulent flow of traffic is considered congestion. As congestion increases motorists seek out alternative routes with additional capacity. Often times these alternatives are parallel residential local streets that otherwise should not serve this type of motorists or trip.

Arterial street congestion is one of the major causes of complaints about speeding and cut-through traffic on local streets. This congestion causes motorists to find alternate routes, usually on adjacent local streets. Many times local street traffic issues can be addressed by improving traffic flow on arterial streets (correcting arterial street congestion). Therefore, it is important to address cut-through traffic concerns by assessing the overall system. However, traffic congestion on arterial roadways in some locations is unavoidable. If congestion on the arterials is causing overflow or cut-through type traffic on adjacent local streets, traffic calming measures may be appropriate to discourage drivers from using the local street system as an alternate to the arterial system.

The Federal Highway Administration (FHWA) outlines several objectives of traffic calming. These include:

- Reducing speeds
- Encouraging citizen involvement
- Promoting safe conditions for motorists, bicyclists, pedestrians and residents
- Improving real and perceived safety for non-motorized users
- Discouraging use of residential streets by non-citizens cut through vehicle traffic

Traffic calming programs usually focus on the 3 "E's" – education, enforcement and engineering. Although most people tend to focus only on the engineering solutions; education and enforcement techniques, if properly employed, can also be effective especially in reducing speeds. Educating neighborhood drivers about traffic calming is an important step in any traffic calming program, since often it is those living within, or in close proximity, to the neighborhood that are violating the speed laws. Police enforcement is another effective tool in traffic calming. Regular and consistent enforcement of speed laws within a corridor will help reduce overall speeds along the corridor. In addition, the mere presence of law enforcement along the corridor can also help to reduce speeds.

Beyond enforcement and education, there are several traffic calming tools that are often used to reduce speeds and traffic volumes on residential neighborhood streets. The effectiveness of each tool depends on the particular circumstances of the area and the problem or issue at hand. The following lists several considerations to take into account before deciding if traffic calming is necessary and/or determining what type of traffic calming tool is appropriate:

- Do emergency and service vehicles use the area? Do school buses?
- Is there a problem with through traffic?
- What are the surrounding land uses? Residential, commercial, retail, entertainment, civic, etc.?
- Who are the users? Elderly, children, disabled?
- What kinds of activities are going on or are planned?
- Are there plans for improving the area?

- What kinds of street are involved? What is the ideal speed desired on these streets?
- Is transit service available? If so, where and what kind?
- Where is drainage needed or accommodated?
- How will it be paid for?

Addressing the considerations above will help in determining the appropriate traffic calming technique or the lack of need for traffic calming. There are several types of traffic calming tools including:

- Diagonal parking
- Changing one-way streets to two-way
- Widening sidewalks/narrowing streets and traffic lanes
- Bulbs, chokers or neckdowns
- Chicanes
- Roundabouts
- Traffic circles
- Raised medians
- Tight corner curbs
- Diverters
- Road humps, speed tables and cushions
- Other surface treatments

One of the most important factors to consider in implementing a traffic calming measure is to ensure that the tool used does not merely push the problem to another location, thereby creating the same problem for someone else. Traffic calming is effective only if it redistributes traffic onto the appropriate systems.

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Appendix 6C

Community Transit Services

Community Transit Service

Local bus service redesign would also benefit residents, depending on resource availability and transit usage. While some good east/west connections exist that connect in particular to Hiawatha LRT, many of Richfield's routes operate on a north/south orientation. While these latter routes enjoy half-mile spacing, very good by current standards, most only operate during the weekday peak with two major exceptions. This leaves mid-day, evening, and weekend travelers with restricted transit access to Minneapolis, Southdale, Mall of America, Normandale Community College and the Hiawatha line. Off-peak and east/west service improvements would allow more routine transit use by residents for routine trips, rather than automotive use. Richfield's grid network of surface streets makes regular route transit a viable option based on routing options and pedestrian access, and could effectively benefit from better service levels.

Except for Metro Mobility clients, other public transit options do not currently exist. Pending a regular route service upgrade, conventional response to these needs include a community dial-a-ride system, providing reserved demand-response, door-to-door services, and local circulators, small bus alternatives to regular routes that may be deployed to fill in system gaps or offer flex-route and call-up service.

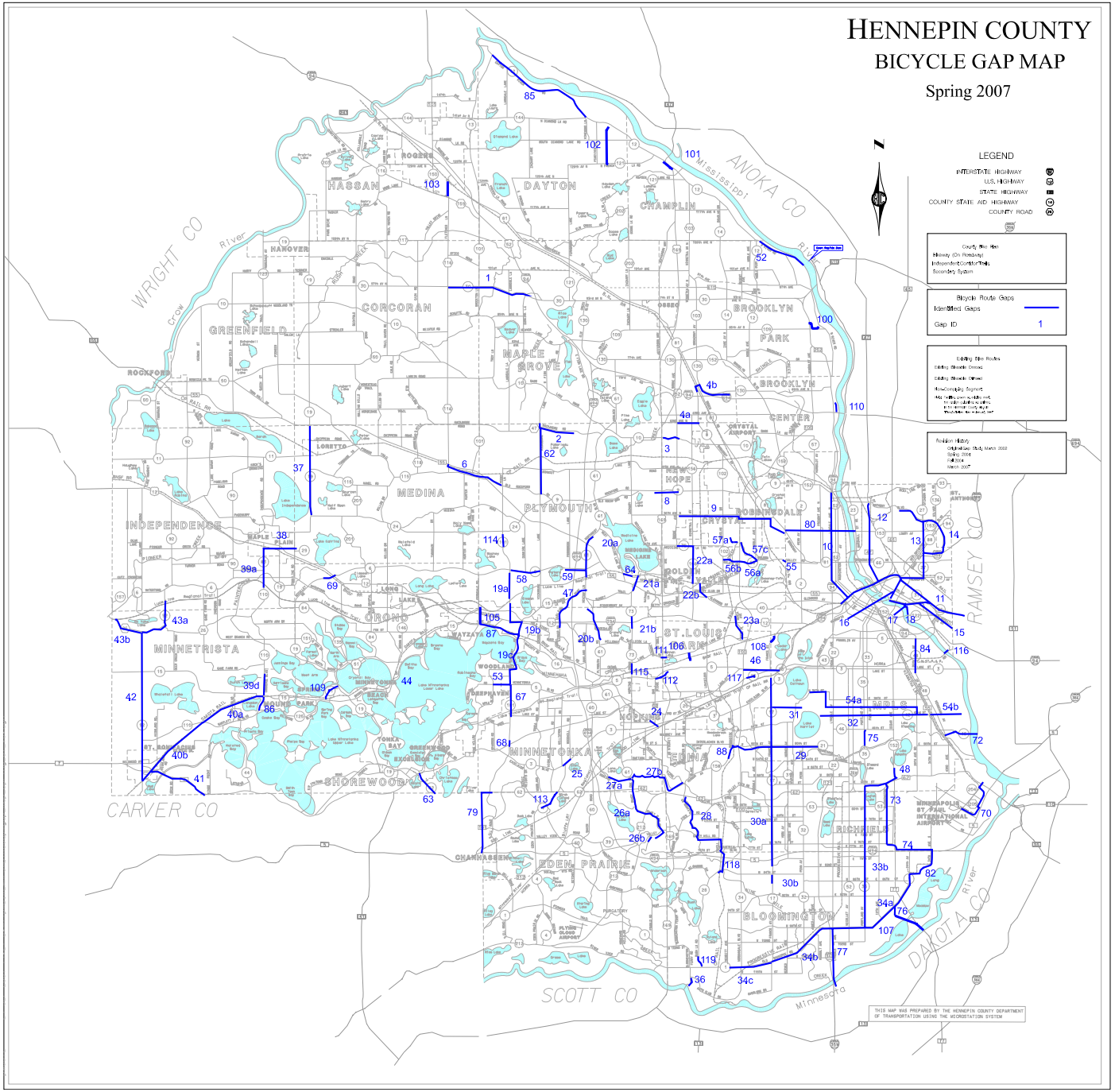
There has been increased interest in Richfield and some other inner-ring suburbs recently to consider ways to increase transit options in their cities. There are several reasons for this interest. Over the last seven years, a series of small but cumulative service reductions by Metro Transit and other regional providers, due to financial pressures, has reduced the span and frequency of many bus routes. This has occurred primarily on more marginal routes, most of which have not effected Richfield but has impacted neighbors like Edina, Bloomington, and St. Louis Park. Another reason is the aging of the population, reducing the mobility of many senior citizens, especially those with increasing physical impairments.

A third reason is the overall economic environment, with cost inflation, reduction in benevolent giving, and reduction in volunteer staff sizes due to employment needs and competing demands, all of which have reduced and sometimes eliminated non-profit providers from the transportation field. In response to this, several cities and counties have started up or bolstered already established community transit systems.

Most of these community transportation systems revolve around dial-a-ride buses that are also handicapped-accessible. They offer on-call door-to-door service for all riders, but generally focus on the client base with the greatest need, usually the elderly and disabled. A variation on these dial-a-rides is the community circulator, usually a small-bus regular route operation with a limited service area and sometimes with service options such as flex routing and subscription services.

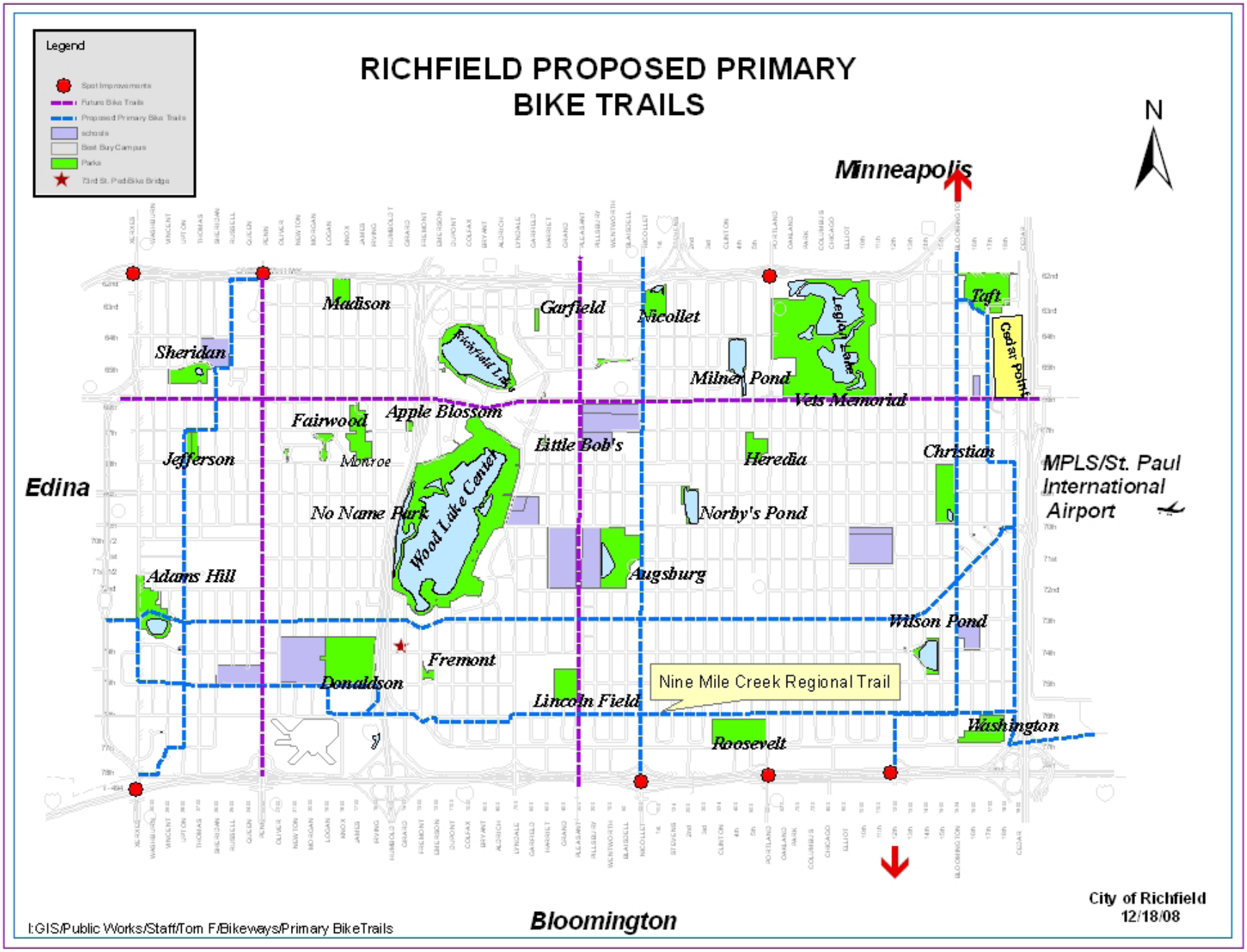
Appendix 6D

Hennepin County Bicycle Station Gap Map


HENNEPIN COUNTY
BICYCLE GAP MAP
Spring 2007
LEGEND
INTERSTATE HIGHWAY
U.S. HIGHWAY
STATE HIGHWAY
COUNTY STATE AID HIGHWAY
COUNTY ROAD
County Bike Plan
Bikeway (On Roadway)
Independent Corridor Trails
Secondary System
Bicycle Route Gaps
Identified Gaps
Gap ID
Existing Bike Routes
Existing Bikeway Opened
Existing Bikeway Planned
Non-Conforming Segment
Revision History
Original Map Study March 2002
Spring 2004
Fall 2004
March 2007
WRIGHT CO
ANOKA CO
RAMSEY CO
DAKOTA CO
SCOTT CO
CARVER CO
HASSAN
DAYTON
CHAMPLIN
BROOKLYN PARK
BROOKLYN CENTER
CORCORAN
GREENFIELD
MAPLE GROVE
MEDINA
PLYMOUTH
NEW HOPE
ROBBINSDALE
CRYSTAL
INDEPENDENCE
MINNETRISTA
ORONO
ST. LOUIS PARK
GOLDEN VALLEY
WOODLAND
DEEPHAVEN
MINNETONKA
EDINA
RICHFIELD
BLOOMINGTON
EDEN PRAIRIE
CHANHASSEN
SHOREWOOD
TONKA BAY
GREENWOOD
EXCELSIOR
BRUNO PARK
MINNETONKA BEACH
MINNEAPOLIS ST. PAUL INTERNATIONAL AIRPORT
THIS MAP WAS PREPARED BY THE HENNEPIN COUNTY DEPARTMENT OF TRANSPORTATION USING THE MICROSTATION SYSTEM

Appendix 6E

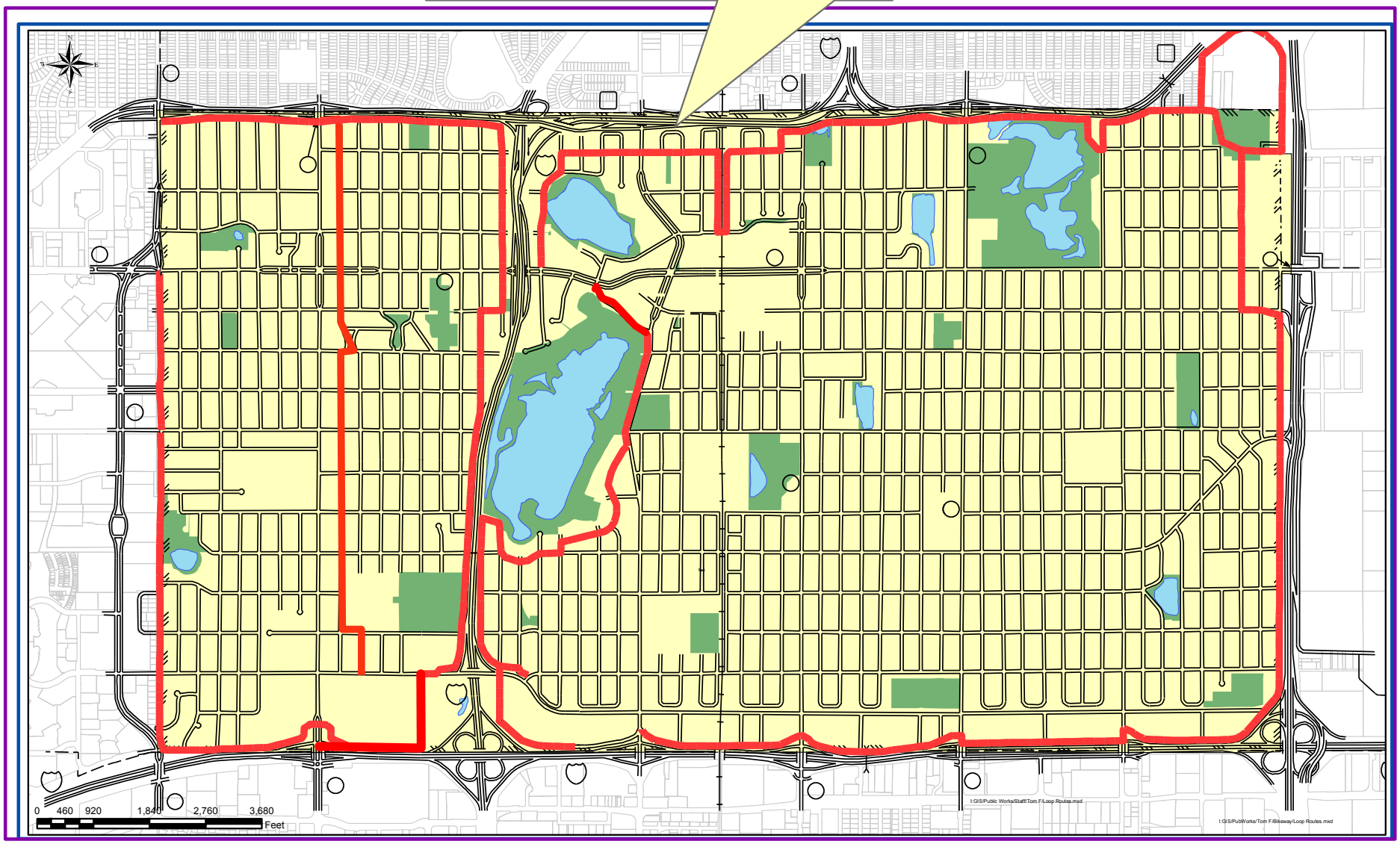
Richfield Proposed Primary Bike Trails


RICHFIELD PROPOSED PRIMARY
BIKE TRAILS
Legend
Spot Improvements
Future Bike Trails
Proposed Primary Bike Trails
schools
Best Buy Campus
Parks
73rd St. Ped/Bike Bridge
N
Minneapolis
Edina
Bloomington
MPLS/St. Paul
International
Airport
Madison
Garfield
Nicollet
Taft
Sheridan
Richfield Lake
Legion Lake
Cedar Point
Milner Pond
Vets Memorial
Fairwood
Apple Blossom
Little Bob's
Heredia
Christian
Jefferson
Monroe
Wood Lake Center
No Name Park
Norby's Pond
Augsburg
Adams Hill
Wilson Pond
Fremont
Donaldson
Lincoln Field
Nine Mile Creek Regional Trail
Washington
Roosevelt
I:GIS/Public Works/Staff/Tom F/Bikeways/Primary BikeTrails
City of Richfield
12/18/08

Appendix 6F

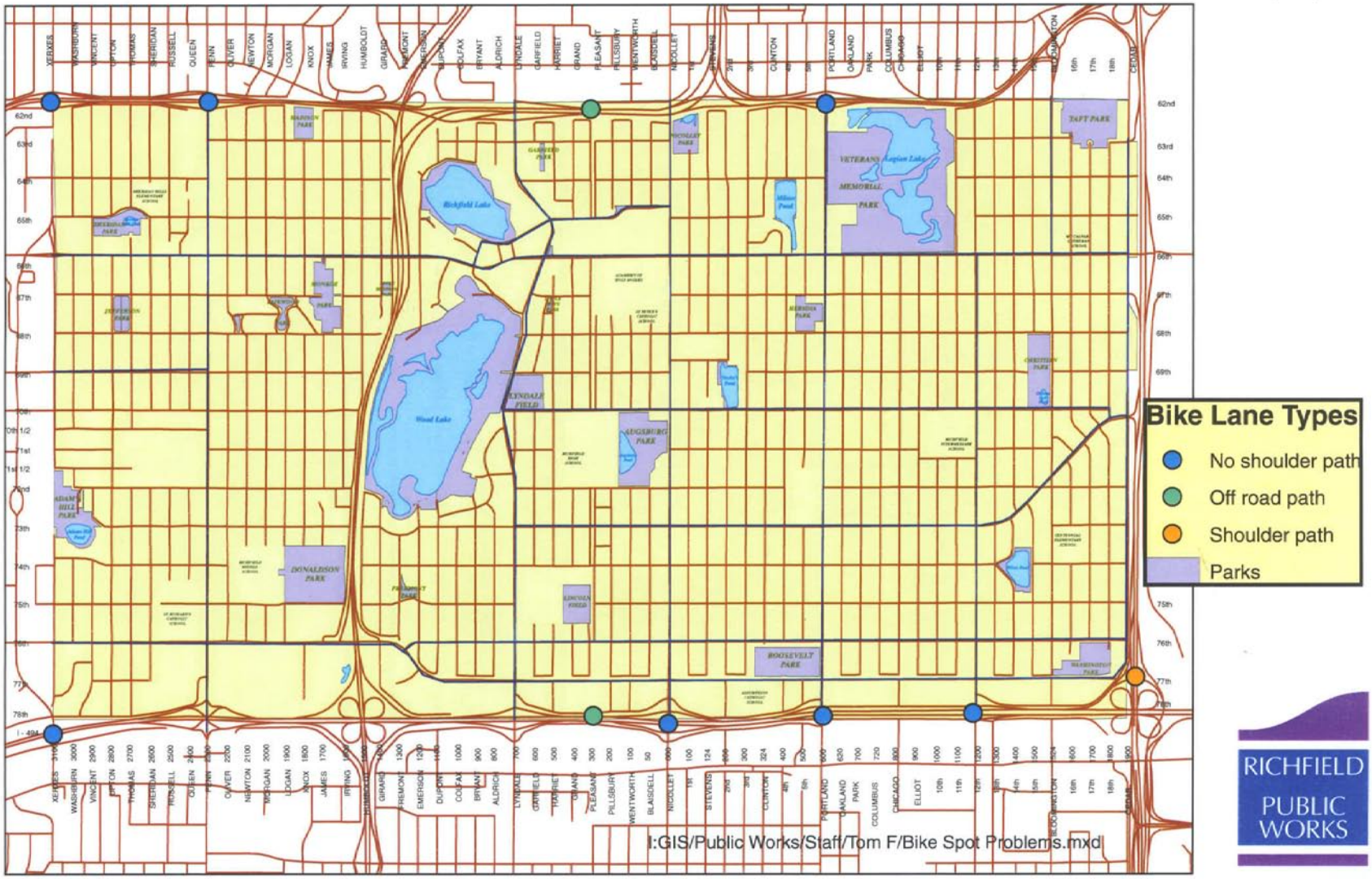
Potential for Loop Routes

Map 2
Potential for Loop Routes



Map 3
Existing Spot Location Problems at Possible Freeway Crossings

November 30, 2006



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Appendix 6G

2007 Noise Contour Map

2007 Draft Noise Contours