4.5.15 Historic and Cultural Resources

The Southwest Corridor area does not contain any recorded historic properties, or prehistoric sites.

4.6 NORTHWEST CORRIDOR

4.6.1 Demographics

Table 4.26 presents demographic trend data for the Northwest Corridor study area. Observed data are shown for 1980. Estimated and forecasted data are shown for 1988 and 2010, respectively.

The data and analysis indicate the Northwest Corridor study area will experience increases in all the categories identified above except persons per household. Despite an actual decline in the average number of persons per household between 1980 and 2010, the degree of change (-8.2 percent) and the rate of change (-.29 percent) are low. Combined, the findings in Table 4.A indicate the Northwest Corridor is forecast to be one of the areas in the region where growth is anticipated.

Table 4.27 reflects the Northwest Corridor's contribution to Hennepin County's demography for 1980, 1988 and 2010.

Transit Dependent Statistics:

Based on 1980 census tract data, approximately 22,000 individuals who could be considered to be transit dependent, reside in the Northwest Corridor Study area.

The Transit Dependent Analysis, conducted by the Metropolitan Council of the Twin Cities, February 1988, indicates the following about the Northwest study area demographics:

- Elderly (ages 65 to 74), less than one per acre
- Elderly (ages 75+), less than one per acre
- Youth (ages 11 to 18), approximately two per acre
- Low-income households, one to three per acre
- Zero car households, one to three per acre
- Persons in group quarters, less than one per acre

The Cities of Robbinsdale and Golden Valley both contain pockets of areas with high elderly populations.

4.6.2 Community and Neighborhood Boundaries

As the Northwest Corridor alignment proceeds southeast from the City of Brooklyn Park it passes through five cities and a wide variety of neighborhood and land use settings. Study

TABLE 4.26
NORTHWEST CORRIDOR DEMOGRAPHIC TRENDS

YEAR	POPULATION	HOUSEHOLDS	PERSONS PER HOUSEHOLD	HOUSEHOLD INCOME*	EMPLOYMENT
1980	114,681	42,150	2.67	$ 43,100	29,800
1988	117,600	44,350	2.60	45,000	32,000
2010	125,700	50,350	2.45	57,600	37,850
Northwest Corridor					
Percent Change (1980-2010)	9.6%	19%	-8.2%	34%	27%
Annual Rate of Change (1980-2010)	.31%	.59%	-.29%	.97%	.80%
Hennepin County					
Percent Change (1980-2010)	19%	31%	-9.2%	33%	34%
Annual Rate of Change (1980-2010)	.57%	.90%	-.32%	.96%	.99%

* 1987 Dollars

Source: Metropolitan Council of the Twin Cities

TABLE 4.27
NORTHWEST CORRIDOR AS A PERCENTAGE OF HENNEPIN COUNTY

YEAR	POPULATION	HOUSEHOLDS	TOTAL INCOME	EMPLOYMENT
1980	12%	12%	11%	4.8%
1988	12%	11%	10%	4.5%
2010	11%	11%	10%	4.6%

Source: Metropolitan Council of the Twin Cities

area boundaries, which extend one-half mile beyond the actual alignment, affect nine cities. This section provides a description of the community and neighborhood boundaries that are crossed by the corridor study area boundaries (Figure 4.27A-B).

City of Osseo:

The City of Osseo is the northernmost community that is included in the study area. The study area boundary extends one-half mile into Osseo from 85th Avenue North, where the proposed Northwest alignment terminates. Osseo is not divided into planning districts.

County Road 81 continues northwesterly from Brooklyn Park into Osseo, forming one of the major roadway facilities. Highway 169 and Central Avenue are the major north/south roadways.

City of Maple Grove:

Only the extreme eastern edge of Maple Grove is included in the study area. Within this section, there is one planning district, identified as Maple Grove Planning District Number 1.

County Road 81, which enters Maple Grove from the east (Osseo), and Highway 169 which borders the eastern city limit, are the major roadways in Planning District Number 1.

City of Brooklyn Park:

Six Brooklyn Park planning districts are crossed by the Northwest Corridor. The existing railroad right-of-way serves as a common dividing line between the four southern districts.

County Road 81 and Highway 169 are the two major north/south roadway facilities within the study area which serve as district boundaries. I-94/694, 77th Avenue North, and 85th Avenue North are the three major east/west roadway facilities within the study area which also serve as district boundaries.

City of New Hope:

The Northwest Corridor study area extends into the extreme northeast corner of New Hope. This area includes two planning districts, identified as Numbers 3 and 4. West Broadway Avenue, which divides the planning districts, is the major roadway through the New Hope portion of the study area.

City of Crystal:

The planning districts that are included in the corridor study area are: Numbers 1, 2, 3, 4, 5, 6, 7, 8, and 16. The boundary lines for the distinct planning districts are formed by several streets, a railroad right-of-way, and the City limits.

The planning districts are not further divided into neighborhoods.

City of Brooklyn Center:

A portion of Twin Lake, in the Southwest neighborhood, is included in the study area.

City of Robbinsdale:

The City of Robbinsdale has not been divided into planning analysis districts. The study area within Robbinsdale is predominantly residential and commercial in character.

Rockford Road (42nd Avenue North), and 36th Avenue North are the major east/west roadway facilities in the study area, and Highway 100 and County Road 81 (Lakeland Avenue) are the major north/south facilities.

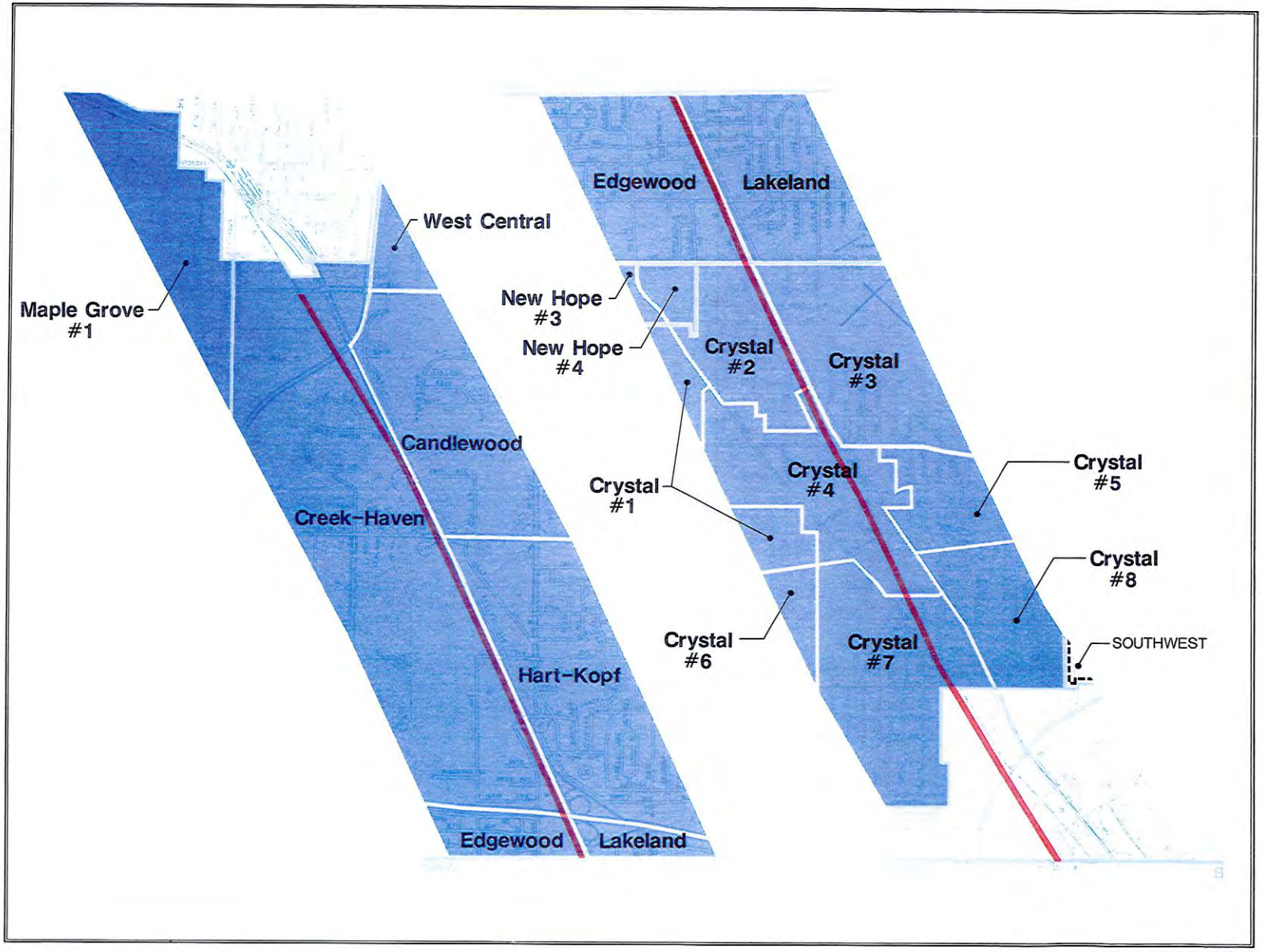
City of Golden Valley:

The City of Golden Valley is not divided into distinct planning districts or neighborhoods. The Northwest Corridor study area, however, passes through the extreme eastern part of Golden Valley, an area that is comprised chiefly of parkland and some residential neighborhoods.

City of Minneapolis:

The Minneapolis portion of the corridor study area includes the Central, Near North, and Calhoun-Isles Neighborhood Planning Districts. The neighborhoods included in these planning districts are identified on Figure 4.27A-B.

TH 55, Glenwood Avenue, and I-94 are the principal roadways providing access to and from the Minneapolis portion of the study area. TH 55, from Girard Terrace to Xerxes Avenue North, forms a boundary that separates the northern and southern neighborhoods.



Planning Districts and Neighborhood Boundaries

Figure 4.27A

Northwest Corridor

Legend

- LRT Alignment
- Planning Districts
- Neighborhoods

Note: Unlabeled map areas do not have defined Planning Districts and/or Neighborhoods

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LRT System

Environmental Impact Statement

Planning Districts and Neighborhood Boundaries

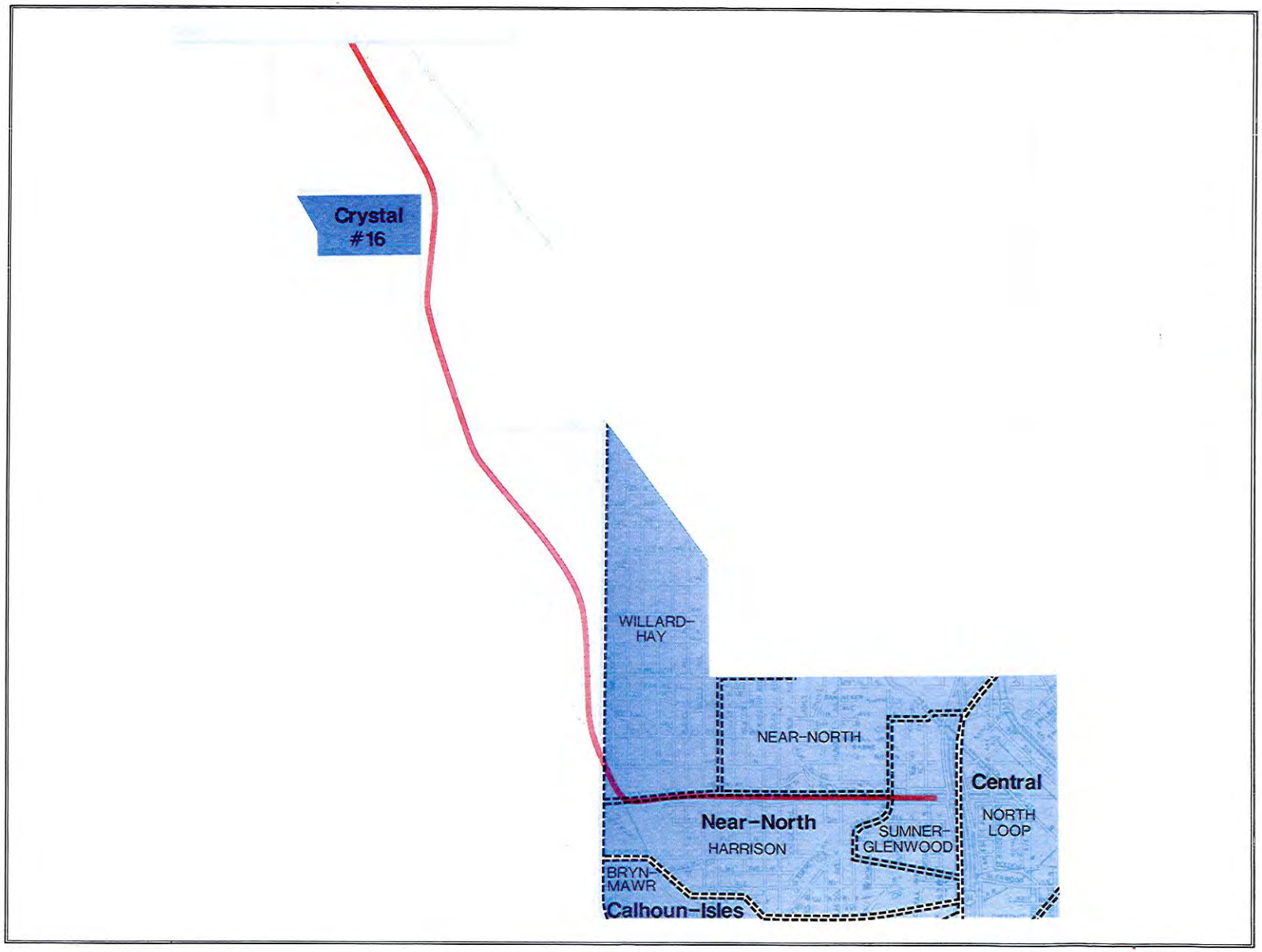
Figure 4.27B

Northwest Corridor

Legend

- LRT Alignment
- Planning Districts
- Neighborhoods

Note: Unlabeled map areas do not have defined Planning Districts and/or Neighborhoods



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Environmental Impact Statement

4.6.3 Community Facilities and Services

The locations of community facilities and services within the Northwest Corridor study area are illustrated on Figure 4.28A-B, and described for each affected city below:

City of Osseo:

Police and Fire Protection: The Osseo City Hall and police and fire stations are outside the study area. They are located at Central Avenue and 4th Street North. Central Avenue, the main north/south street through Osseo, crosses the proposed alignment at-grade, providing access for police and fire vehicles to the southern part of the city.

Educational Institutions: Two public educational institutions are located in Osseo.

City of Maple Grove:

The area of Maple Grove that falls within the study area contains one religious institution.

City of Brooklyn Park:

Fire Protection: A fire station is located east of County Road 81, north of Brooklyn Boulevard.

Religious Institutions: Two religious institutions have been identified within the Brooklyn Park portion of the study area.

Educational Institutions: Two educational institutions are located within the Brooklyn Park portion of the study area.

City of New Hope:

The portion of New Hope that is included in the Northwest Corridor study area contains no community facilities. The New Hope fire station is located on County Road 9 and Lakeland Avenue.

City of Crystal:

Fire Protection: The Crystal fire station is located on Sherburne Avenue North, south of Bass Lake Road. West Broadway Avenue and Bass Lake Road are the two major streets providing access to and from the fire station.

Post Office: The post office is located east of West Broadway Avenue, at the Hampshire Avenue North/Bass Lake Road intersection.

Airport: The Crystal Airport is located east of the proposed alignment at the intersection of Lakeland Avenue (County Road 81) and 58th Avenue North. The proposed project will not impact airport operations or access to and from the facility.

Community Centers: The Early Childhood Center is located near Lakeland Avenue near Corvallis Avenue.

Educational Institutions: All educational institutions in Crystal are located outside the corridor study area.

City of Robbinsdale:

Police and Fire Protection: The police and fire stations are located immediately east of the proposed alignment at 41½ Avenue North/Hubbard Avenue. Rockford Road (42nd Avenue North) and Noble Avenue cross the proposed alignment at-grade. Both of these streets can be used for police and fire operations to gain access to the western side of the alignment.

Post Office: The Robbinsdale post office is located within the study area, at 40th Avenue North/Lakeland Avenue.

Community Centers: Three community centers are within the study area in Robbinsdale.

Religious Institutions: Six religious institutions are located within the Robbinsdale portion of the study area.

Educational Institutions: One private school and one public school are within the study area.

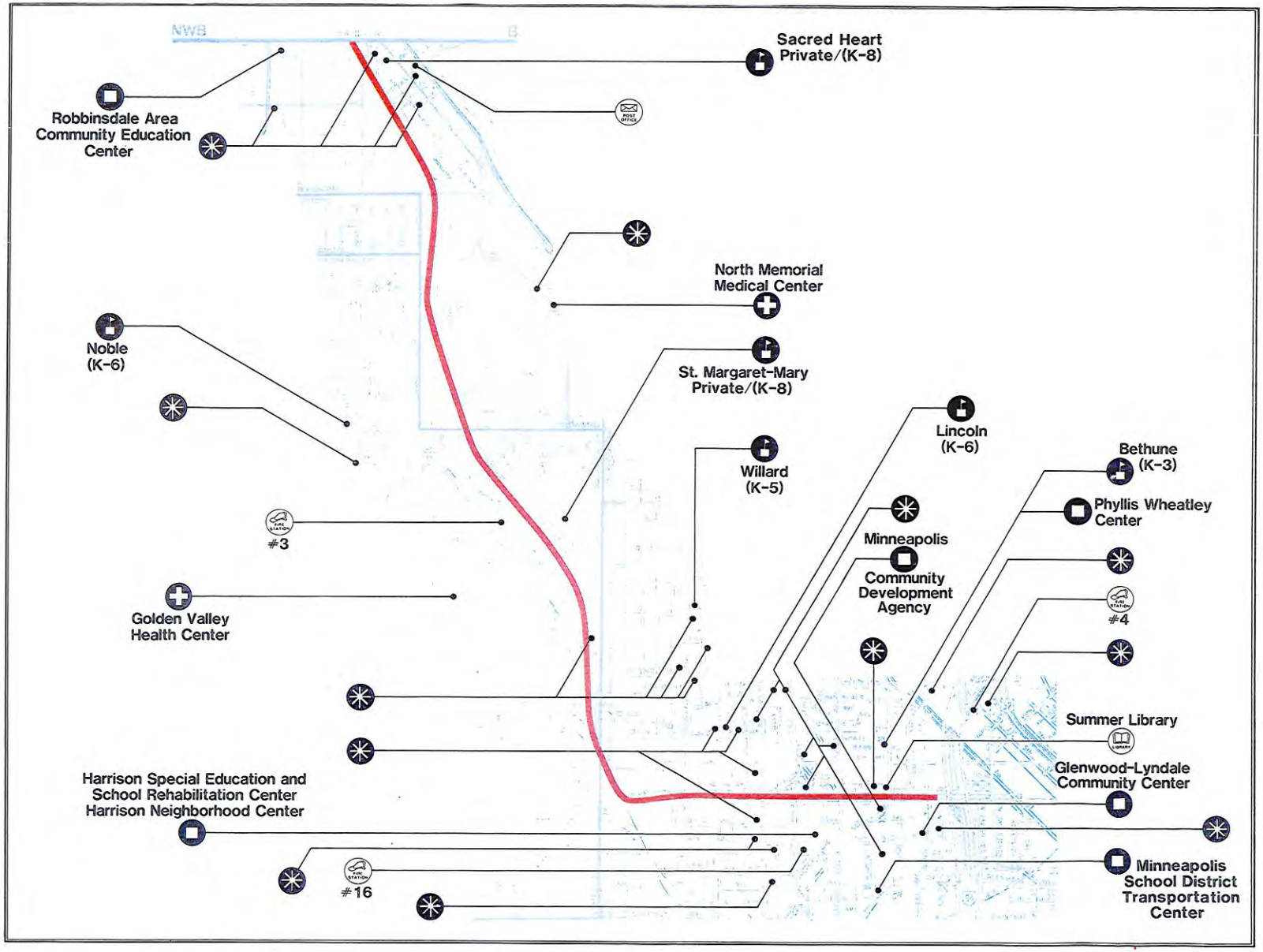
City of Golden Valley:

Fire Protection: Fire Station Number 3 serves the portion of Golden Valley that falls within the study area. It is located at Bonnie Lane/Golden Valley Road. Golden Valley Road, which is bridged over the proposed alignment, provides major access to and from the fire station.

Hospitals: The Golden Valley Health Center is located on Mary Hills Drive, south of Golden Valley Road.

Religious Institutions: Two religious institutions are located in Golden Valley.

Educational Institutions: One private and one public school are located in the Golden Valley portion of the study area.



Community and Educational Facilities

Figure 4.28B

Northwest Corridor

Legend

- LRT Alignment
- Hospital
- School
- Church
- Public :
  - Library
  - Post Office
  - Police Station
  - Fire Station

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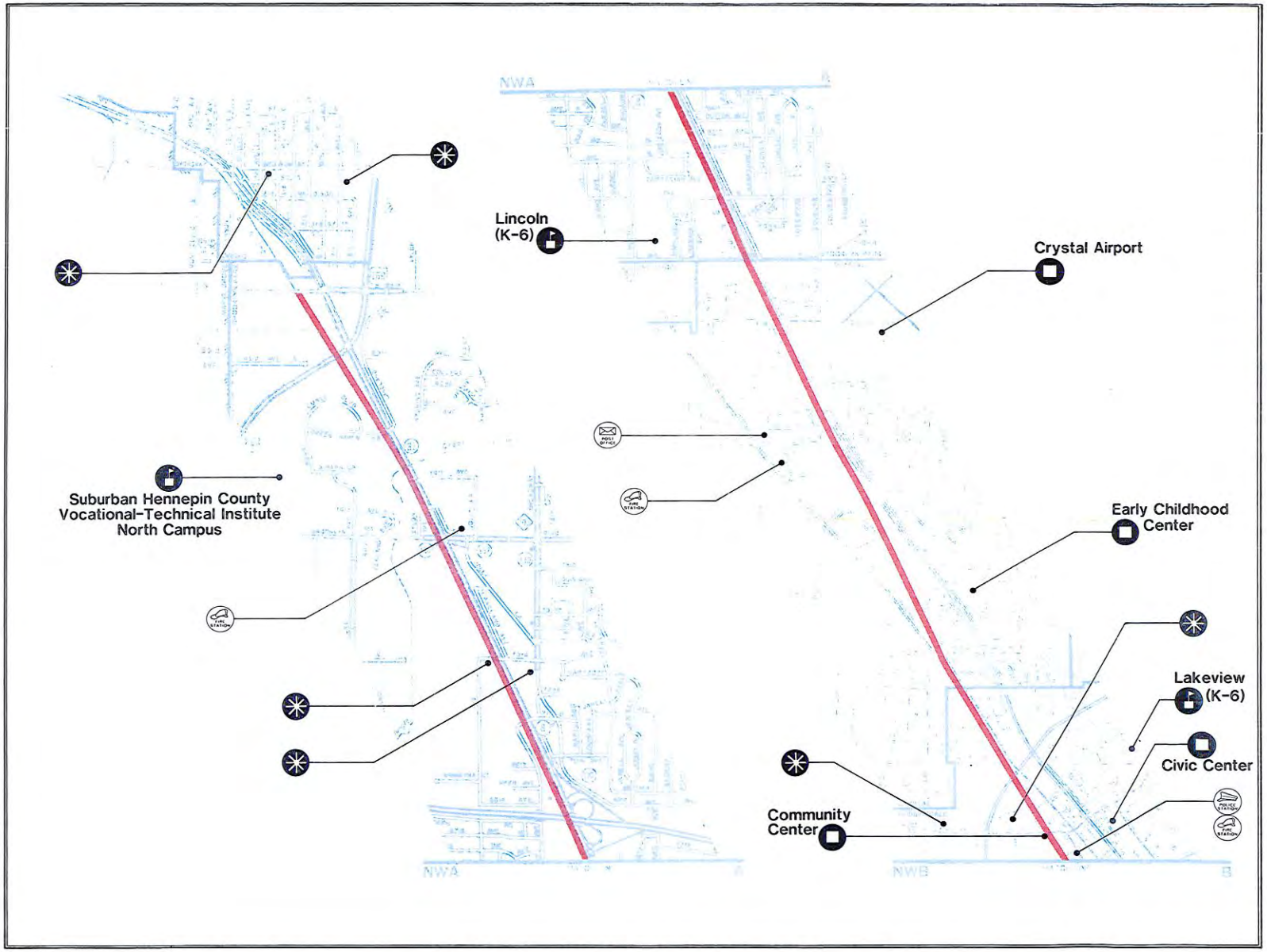
LRT System

Environmental Impact Statement



Community and Educational Facilities

Figure 4.28A

Northwest Corridor

Legend

- LRT Alignment
- Hospital
- School
- Church
- Public :
  - Library
  - Post Office
  - Police Station
  - Fire Station

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City of Minneapolis:

Fire Protection: There are two fire stations within the Minneapolis portion of the Northwest Corridor study area. Fire Station Number 4 is located near 7th Street North/ Napco Avenue. Its service area includes the area both south and north of TH 55 and east of I-94. Fifth Street North, 7th Street North, and 10th Avenue North are the major streets used for access. In the event Fire Station Number 4 is needed west of I-94, access across the interstate facility can be gained via 7th Street North or the Olson Memorial Highway.

Fire Station Number 16 is located south of TH 55 and west of I-94 at Knox Avenue North/Glenwood Avenue. Glenwood Avenue is a high capacity, east/west street that provides major access to locations within Fire Station Number 16's service area. It is expected that none of the fire station's operations will be negatively impacted by the proposed project.

Libraries: The Sumner Library is located within the Minneapolis portion of the study area.

Religious Institutions: There are 22 religious institutions within the Minneapolis portion of the study area.

Community Centers: There are six community centers located within the Minneapolis portion of the study area.

Educational Facilities: Three public educational institutions are located within the Minneapolis portion of the Northwest Corridor study area.

4.6.4 Land Use and Zoning

Land Use

The study area portions of Brooklyn Park, Crystal, Robbinsdale, Golden Valley and Minneapolis in the Northwest Corridor include a variety of urban and suburban land uses (Figures 4.29A-B).

Starting at 85th Avenue, commercial and industrial uses are prominent along the corridor with the Northland Industrial Park to the west and commercial areas to the east. Residential uses are concentrated beyond the commercial developments, in the eastern portion of the study area. South of I-94 to the Crystal City limits, residential uses become concentrated on both sides of the corridor.

From the northern city limits of Crystal to Bass Lake Road, single-family uses are common west of the corridor; to the east, Crystal Airport serves to constrict commercial and single family development along County Road 81.

From Bass Lake Road to the southern segment of Crystal, industrial uses are most prominent. Intermixed in these industrial areas are pockets of commercial and multiple family residential developments, which are surrounded by single-family residential neighborhoods.

In the northern portion of Robbinsdale, commercial uses are prominent to the east, while residential uses concentrate west of the line. Near 36th Avenue, commercial uses become less common as residential uses mix with parks and wetlands.

Through Golden Valley, parks and single-family neighborhoods continue to be the dominant land use.

Along Olson Memorial Highway in Minneapolis, single-family residential neighborhoods intermixed with multiple-family residences are the dominant land use. To the east, parks on both sides of Olson Memorial Highway separate the single-family neighborhoods from an area of dense multiple-family development which continues up to the central area connection at TH 55 and Bryant Avenue.

Zoning

The existing zoning within the corridor (Figures 4.30A-B) is generally consistent with the prevailing land use patterns. However, a detailed inspection of the land use and zoning figures reveals land use conflicts south of Highway 55, where industrial districts contain or are in close proximity to residential and commercial districts. In Robbinsdale, along County Road 81, some commercial districts contain scattered housing developments. Additional conflict occurs on West Broadway north of the Soo Line Railroad tracks and south of 60th Avenue where residences are located in commercial districts. Other conflict occurs west of County Road 81 and north of I-94/694 where industrial districts contain residential pockets.

4.6.5 Traffic

Major north/south roadway in the Northwest Corridor, West Broadway Avenue, CR 81/TH 169, and TH 100. Table 4.28 identifies 1986 average daily traffic volumes on these roadways, as well as ADT volumes on the segment of TH 55 included in the study area.

Land Use

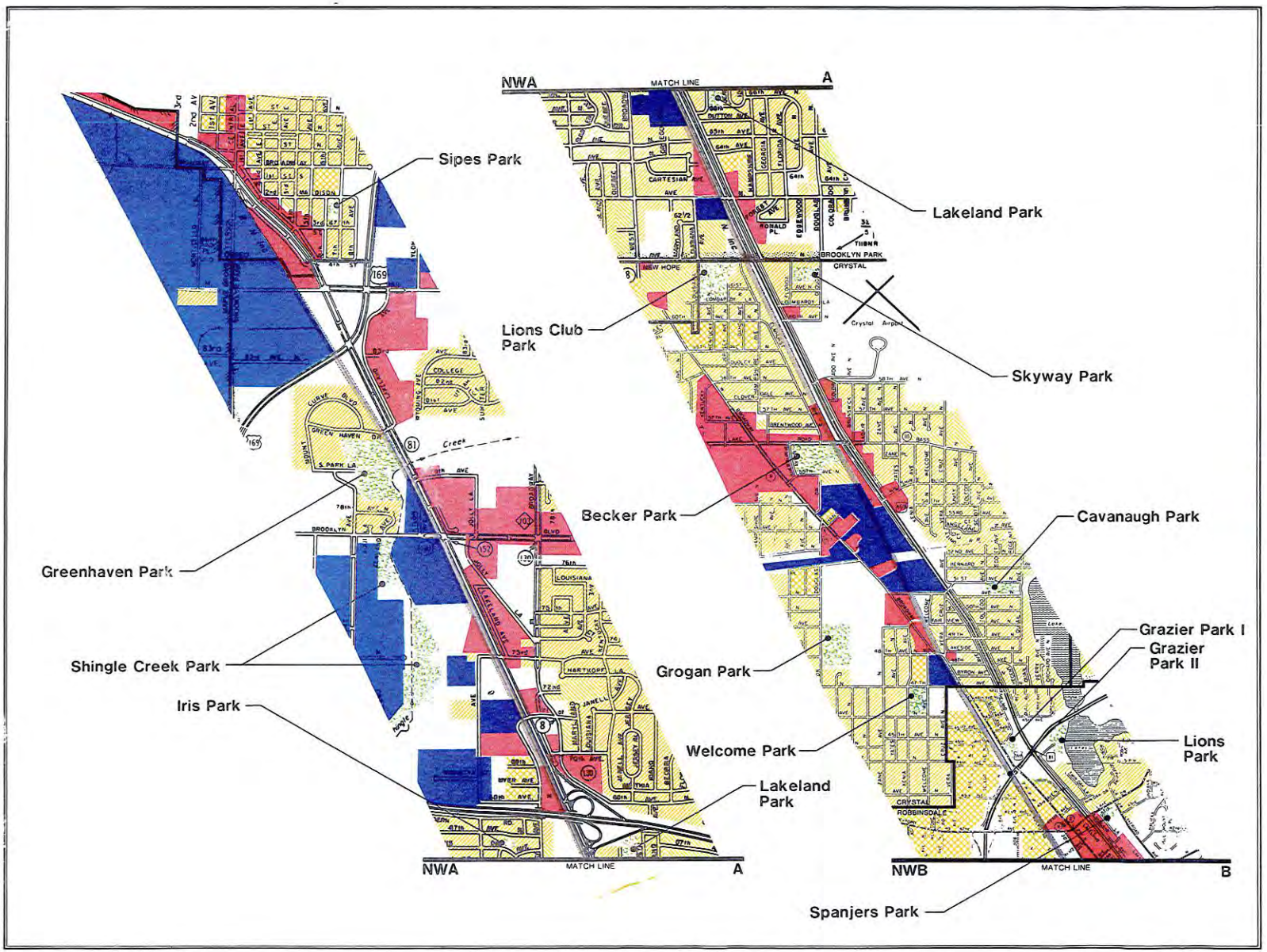

Figure 4.29A

Northwest Corridor

BRW

0' 1,000' 2,000' North

Legend

- LRT Alignment
- Multiple Residential
- Single Residential
- Multiple-Single Mix
- Industrial
- Commercial
- Parks
- Other: open, institutional, public/semi-public

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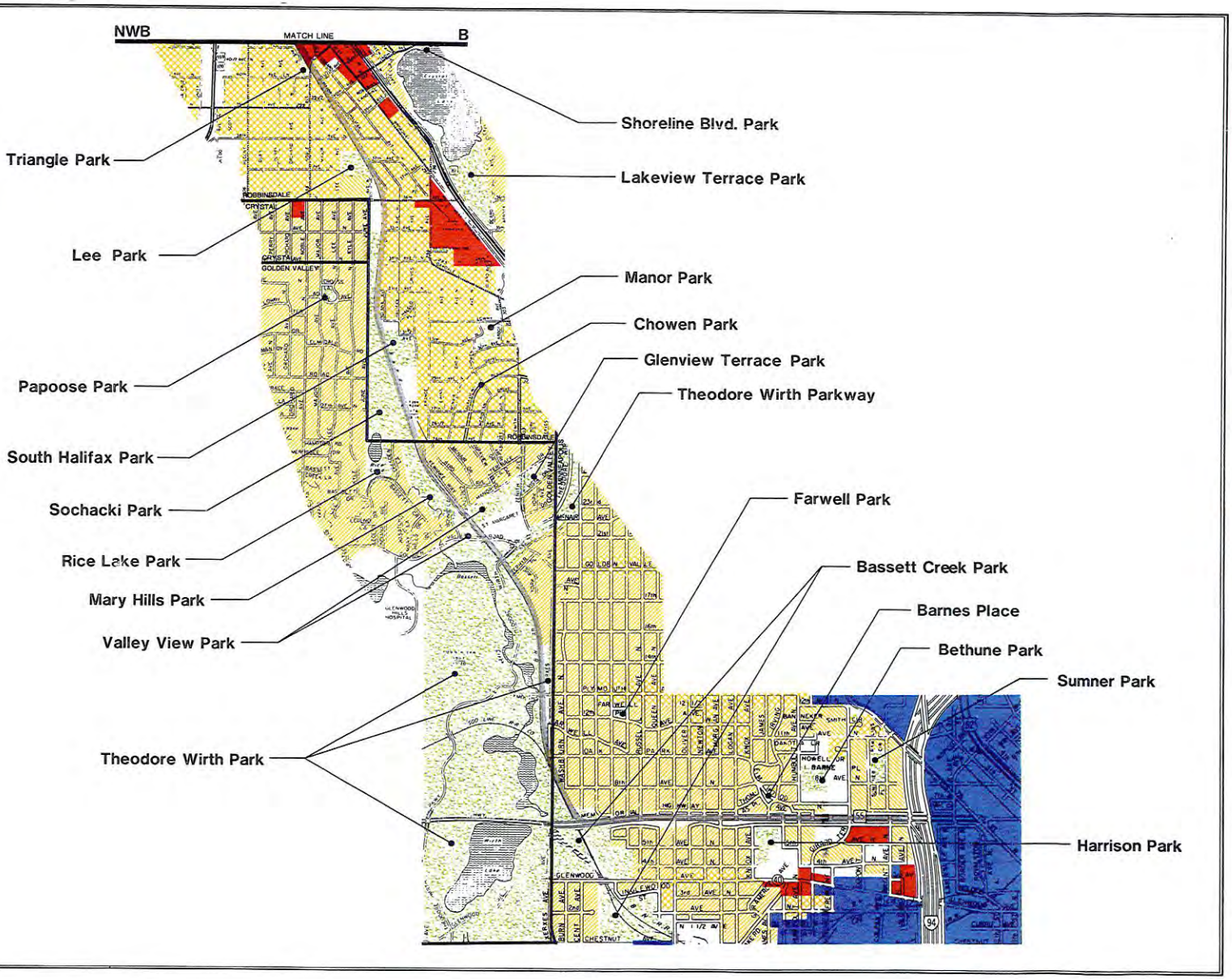

Land Use

Figure 4.29B

Northwest Corridor

0' 1,000' 2,000' North

Legend

- LRT Alignment
- Multiple Residential
- Single Residential
- Multiple-Single Mix
- Industrial
- Commercial
- Parks
- Other: open, institutional, public/semi-public

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LRT System

Environmental Impact Statement

Corridor Zoning

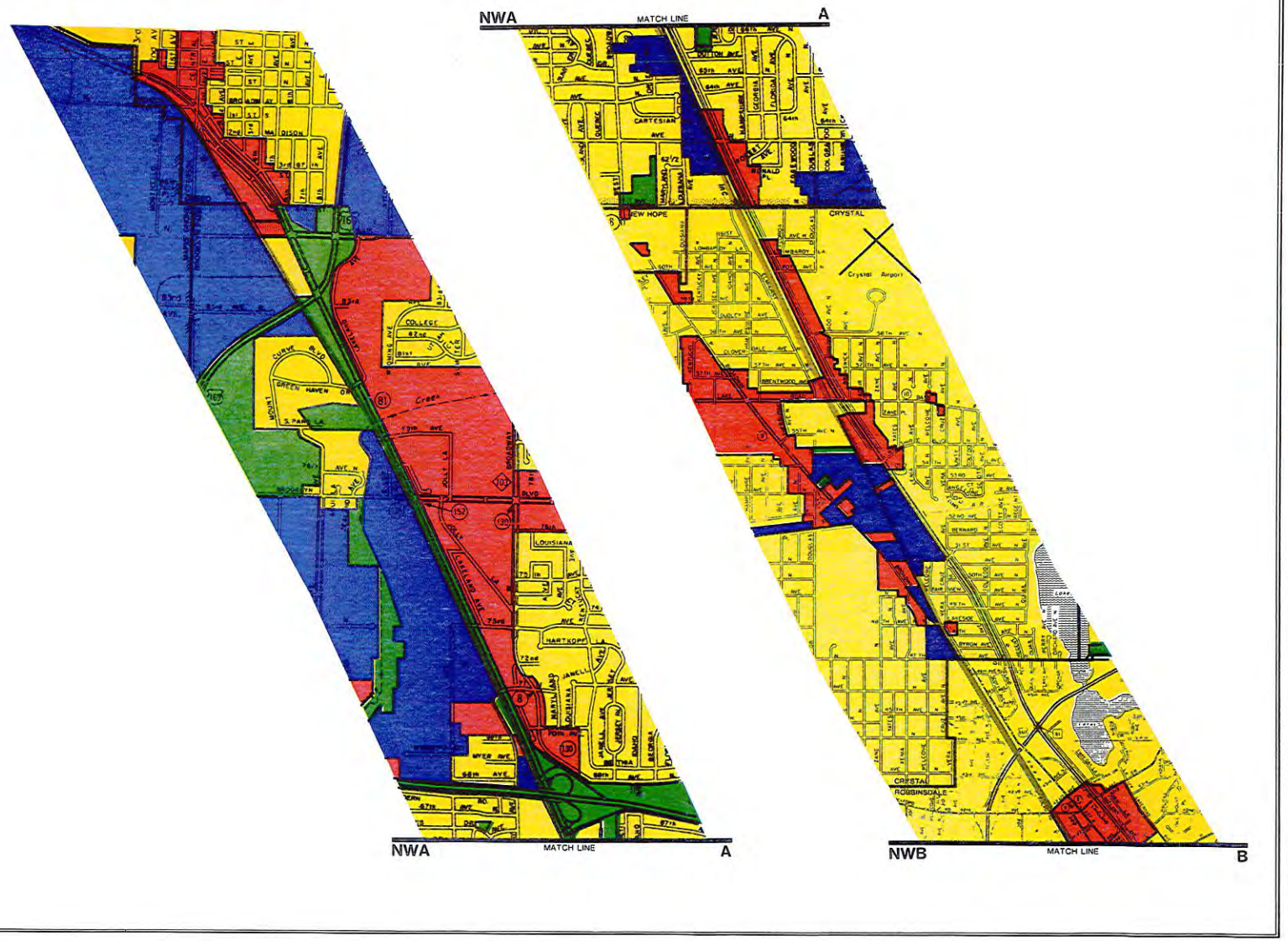

Figure 4.30A

Northwest Corridor

0' 1,000' 2,000' North

Legend

- LRT Alignment
- Residential
- Commercial
- Industrial
- Other :
  (open, institutional, public/semi-public, planned development)

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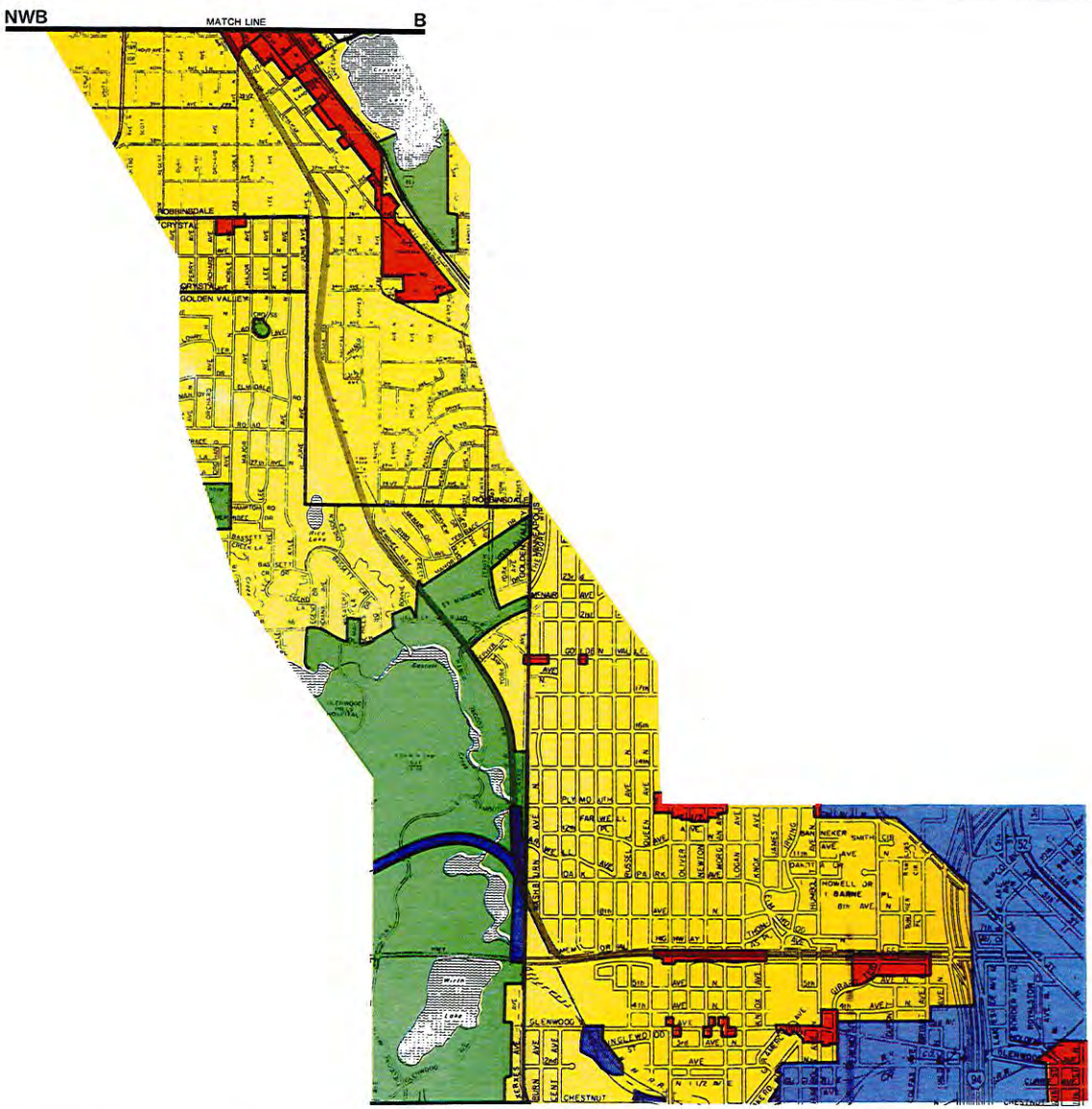
LRT System

Environmental Impact Statement



Corridor Zoning

Figure 4.30B

Northwest Corridor

BRW

0' 1,000' 2,000' North

Legend

- LRT Alignment
- Residential
- Commercial
- Industrial
- Other :
  (open, institutional, public/semi-public, planned development)

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Environmental Impact Statement

TABLE 4.28
AVERAGE DAILY TRAFFIC VOLUMES

Roadway	From	To	ADT Volume
CR 81/TH 169	26th Avenue North	42nd Avenue	17,000
	42nd Avenue North	58th Avenue North	23,800
	58th Avenue North	CR 52	21,000
	CR 52	77th Avenue North	24,000
	77th Avenue North	85th Avenue North	22,000
TH 100	TH 55	Golden Valley Road	55,500
	Golden Valley Road	36th Avenue North	44,500
	36th Avenue North	42nd Avenue North	41,600
	42nd Avenue North	TH 152	39,800
West Broadway	Emerson Avenue North	26th Avenue North	12,800
	42nd Avenue North	CR 10	21,000
	CR 10	60th Avenue North	11,000
	60th Avenue North	TH 52	6,600
TH 55	Emerson Avenue North	Penn Avenue North	29,000

4.6.6 Transit Service

Transit service in the Northwest Corridor is almost exclusively oriented to downtown Minneapolis (Figure 4.4). Only a small portion of North Minneapolis has crosstown service which extends into Northeast Minneapolis. In addition to serving downtown, the radial routes are structured to provide access to major corridor destinations such as the Hennepin Technical Institute, Brookdale, and North Memorial Medical Center. The park-and-ride lot at Brookdale currently operates over capacity. Three park-and-ride lots which service regular route lines are located along County Road 9 in Crystal and New Hope.

As shown in Table 4.29, MTC operates four local and one express route to downtown Minneapolis, while Medicine Lake Lines (MLL) operate one of each. In a survey conducted for the RTB's Transit Service Needs Assessment, 1987, 62 percent of the peak hour transit users on the MLL were choice riders. The high transit patronage numbers on express Route 45 (MTC) indicate the strong demand for transit service in the Northwest area.

TABLE 4.29
CURRENT NORTHWEST CORRIDOR TRANSIT SERVICE

ROUTE	TYPE	OPERATOR	DAILY MILES[1/]	DAILY PASSENGERS
5	Local	MTC	528	1,000
14	Local	MTC	2,039	5,750
19	Local	MTC	1,079	2,810
45	Express	MTC	976	1,600
81	Local	MTC	308	380
ML	Express	MLL	83	57
ML	Local	MLL	79	80
TOTAL			5,092	11,677

1/ Daily bus miles includes non-revenue miles.

4.6.7 Noise

The existing noise environment along the proposed Northwest Corridor changes significantly from Brooklyn Park to the Central Corridor connection at TH 55 and Bryant Avenue North. The dominant noise sources for the corridor segments in Brooklyn Park, Crystal and Robbinsdale are generated by

roadway activities. The main roadways which contribute to the noise levels at sensitive residential receivers are CSAH 81, I-94 and TH 100. Additionally, portions of the Crystal area are affected by noise from the Crystal Airport.

The noise monitoring sites selected within the Northwest Corridor are displayed in Figure 4.31. As the monitoring data in Table 4.30 documents, noise levels at each of the monitoring sites did not exceed the State Daytime Noise Standards. The existing noise levels adjacent to the corridor from just north of 45 1/2 Avenue to north of TH 55 are significantly lower than in other sections of the corridor. In this area, the dominant noise sources shift from higher volume roadways to lower volume local streets and noises from other urban activities.

The dominant noise source in the TH 55 segment is traffic-generated noise.

Throughout most of the corridor, the daily passbys of freight rail operations contribute to the existing noise environment.

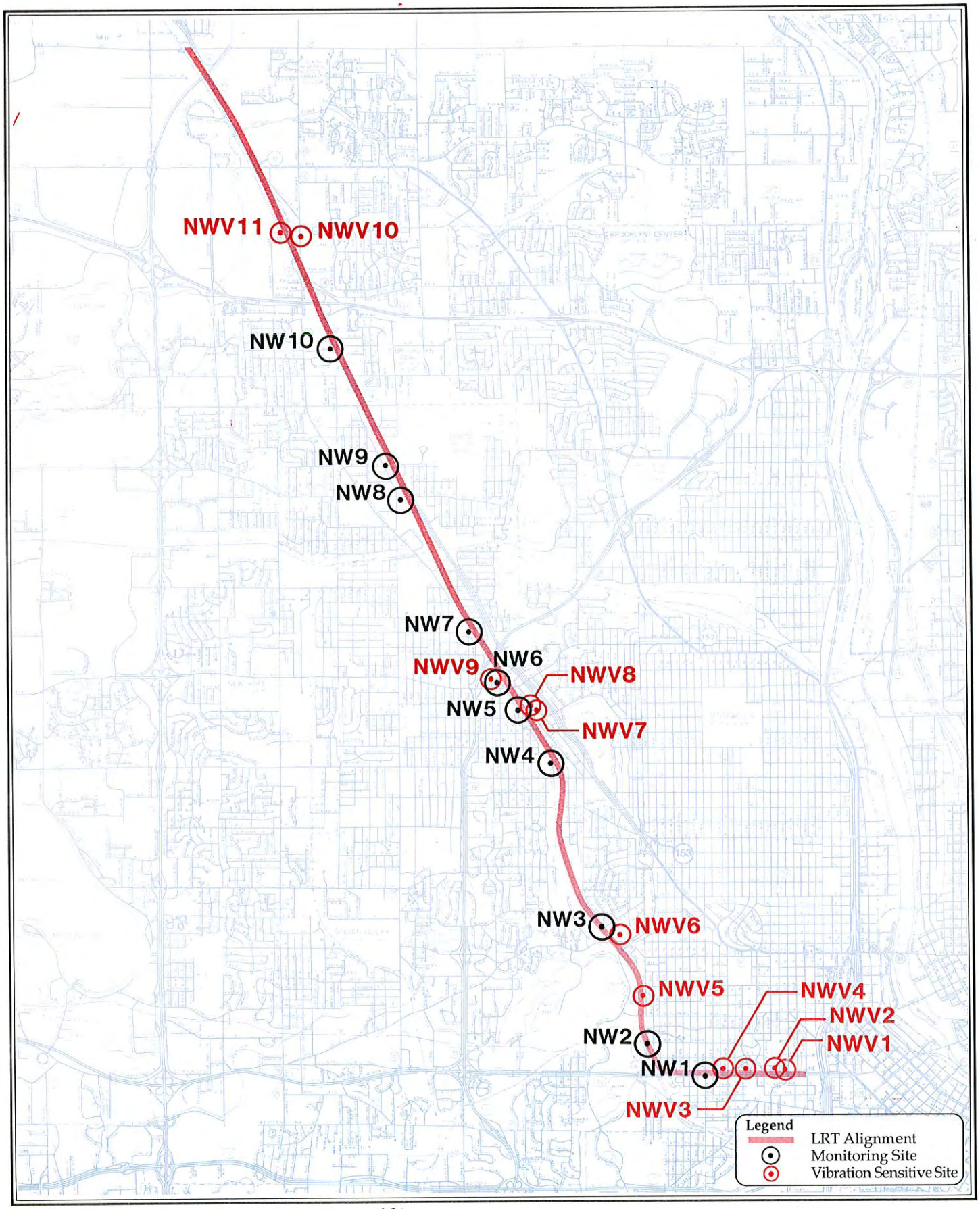
4.6.8 Vibration

Within the proposed Northwest Corridor there are existing sources of vibration. Specifically, freight trains which operate on the rail right-of-way cause ground-borne vibration at adjacent receivers during passby. In addition, along the TH 55 segment, vibration is being generated by heavy vehicles using the roadway.

As the guidelines in Table 4.9 document, a number of non-residential uses are particularly susceptible to significant vibration impacts at relatively low exposure levels. The locations of the vibration sensitive uses in the Northwest Corridor are displayed in Figure 4.31 and outlined in Table 4.31.

4.6.9 Wetlands, Vegetation and Wildlife

The field survey for this corridor covered an area of approximately 50 feet on both sides of the centerline of the existing railroad or highway. Areas in the Northwest Corridor which include wetland or prairie indicator species are outlined in Figure 4.32A-B and quantified in Table 4.32.



HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.31

Northwest Corridor

BRW

0' 3,000' North

Noise Monitoring and Vibration Sensitive Use Locations

TABLE 4.30
MONITORED NOISE LEVELS

Northwest Corridor

MONITORING SITE	LOCATION	DATE	MONITORING PERIOD	MONITORED LEVEL (dBA) L10	L50	COMMENTS
NW1	E. of Penn Ave & S. of TH 55	5/2/89	4:30PM-5:30PM	65	59	Major noise source is TH 55
NW2	E. of Xerxes Ave & S. of Oak Park Ave	5/9/89	4:30PM-5:30PM	54	46	Train passby occurred during test. Lasted five minutes
NW3	South End of Kewanee Way	4/20/89	3:00PM-4:00PM	45	42	2 flyovers. Maximum monitored during flyover was 54 dBA
NW4	North End of June Ave	5/19/89	3:15PM-4:15PM	55	49	Local roadway traffic is greatest source
NW5	E. of Orchard Ave & North of 40th Ave	4/20/89	4:45PM-5:45PM	58	50	Train passby. Maximum noise level was 99 dBA, when whistle blew. Typical passby level was 78 dBA
NW6	E. of Railroad Ave & N. of 42nd Ave	5/9/89	3:00PM-4:00PM	53	49	Civil emergency alarm sounded for 45 seconds during test
NW7	W. of West Brdway & N. of 45 1/2 Ave	3/31/89	4:00PM-5:00Pm	58	53	Major noise source is West Broadway traffic
NW8	W. of CSAH 81 & S. of Bass Lake Rd	5/1/89	4:00PM-5:00PM	64	60	Major noise sources are CSAH 81 and Bass Lake Road (CSAH 10)
NW9	E. of Elmhurst Ave & S. of 59th Ave	Not Completed	4:00PM-5:00PM	62	58	Major noise source is CSAH 81 traffic
NW10	W. of CSAH 81 at 65th Ave N.	5/19/89	4:45PM-5:45PM	64	60	Major noise source is CSAH 81 traffic

TABLE 4.31
VIBRATION SENSITIVE LAND USES

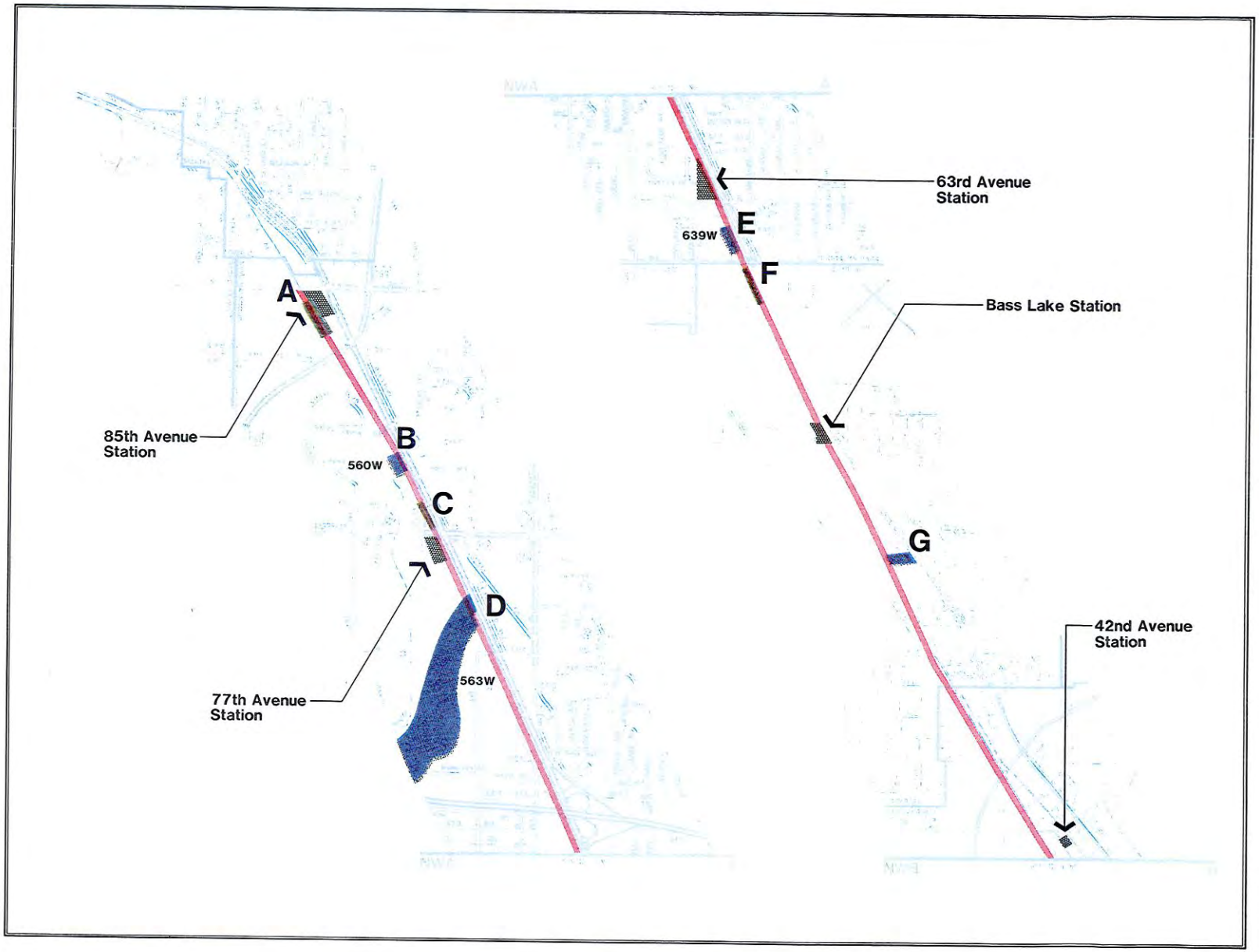
Northwest Corridor

SITE	LOCATION	LAND USE	APPLICABLE GUIDELINE (dB)
NWV1	South of 73rd Avenue N. East of Winnetka Avenue	Church	70
NWV2	South of 73rd Avenue N. West of Broadway Avenue	Church	70
NWV3	South of 71st Avenue N. East of CSAH 81	Church	70
NWV4	South of 42nd 1/2 Avenue N. West of Qual Avenue	Church	70
NWV5	South of 41st Avenue N. East of Hubbard Avenue	Church	70
NWV6	North of 40th 1/2 Avenue N. East of Hubbard Avenue	Sacred Heart School	75
NWV7	North of Golden Valley Road West of Zenith Avenue	St. Margaret-Mary School	75
NWV8	North of 14th Avenue N. West of Xerxes Avenue	Church	70
NWV9	North of TH 55 West of Newton Avenue	Church	70
NWV10	North of TH 55 West of Knox Avenue	Church	70
NWV11	North of TH 55 West of Girard Terrace	Church	70
NWV12	North of TH 55 West of Girard Terrace	Sumner Library	75

Wetland and Prairie Vegetation

Figure 4.32A

Northwest Corridor



Legend

- LRT Alignment
- Station Sites
- Wetlands
  Indicator Species: Cattails, Reed Canary Grass, Giant Reed Grass, and Pinkweed
- Prairie
  Indicator Species: Big Bluestem, Little Bluestem and Indian Grass
- 747W DNR Wetland ID Number

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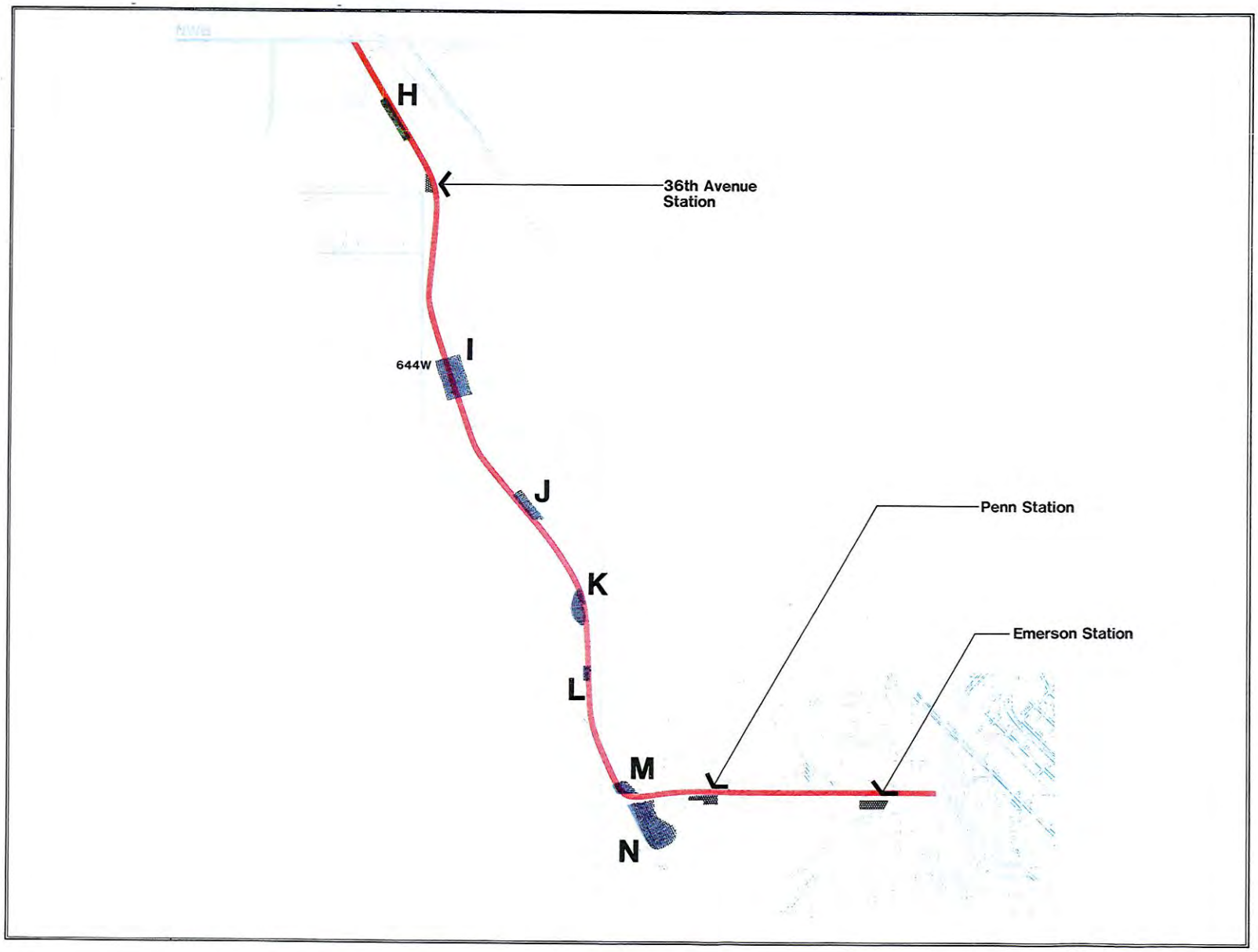
LRT System

Environmental Impact Statement



Wetland and Prairie Vegetation

Figure 4.32B

Northwest Corridor

BRW

Legend

- LRT Alignment
- Station Sites
- Wetlands
  Indicator Species:
  Cattails, Reed Canary Grass,Giant Reed Grass, and Pinkweed
- Prairie
  Indicator Species:
  Big Bluestem, Little Bluestem and Indian Grass
- 747W DNR Wetland ID Number

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TABLE 4.32
WETLAND AND PRAIRIE AREAS IN NORTHWEST CORRIDOR

Area	Wetland Total Area (acres) East	Wetland Total Area (acres) West	Prairie Total Area (feet) East	Prairie Total Area (feet) West
A	--	--	400 x 1	400 x 1
B	--	8.0 + (560 W)	--	--
C	--	--	800 x 1	800 x 1
D	--	80.0 + (563 W)	--	--
E	--	2.4 + (639 W)	--	--
F	--	--	500 x 1	500 x 1
G	1.1	--	--	--
H	--	--	1,000 x 1	1,000 x 1
I	7.6+	6.0 + (644 W)	--	--
J	1.4	2.4	--	--
K	.1	2.7+	--	--
L	--	.1	--	--
M	.4	.2	--	--
N	3.0+	--	--	--

There are several areas with wetland or prairie vegetation along the Burlington Northern right-of-way segment of the corridor. Most of the wetlands are small, seasonal and have been exposed to some degree of disturbance. The prairie grasses may be remnants of native prairie that had re-established after the tracks were in place. Big bluestem was the most common native prairie plant present, with only a few other native species including purple prairie clover, grey-headed cone flowers, lead plant and goldenrods. Several other common roadside forbs were also present, including leafy spurge, field bindweed, toadflax, brome grass and poison ivy. These remnants are often maintained

by the wildfires that are common along railroad tracks. The wildlife in this area are the typical backyard species and those species that are more tolerant to urban disturbances, as stated in Section 4.3.10.

There is only one wetland and no prairie vegetation along the Highway 55 section of the corridor. Generally the area has been developed, landscaped, and otherwise altered, leaving little habitat for wildlife. Typical "backyard" species may be present within the less disturbed areas.

Stations:

Because the proposed station sites could potentially cover an area outside existing right-of-ways, an inventory of each of the sites was conducted and is briefly described below.

85th Avenue Station: All four quadrants of the intersection have been previously disturbed by road or building construction and do not contain any significant vegetation or wildlife.

77th Avenue Station: All four quadrants of the intersection have been previously disturbed by road or building construction and do not contain any significant vegetation or wildlife.

63rd Avenue Station: This site is currently covered by buildings and parking lots. The remaining portion of this site has been landscaped and has no wetland or prairie vegetation.

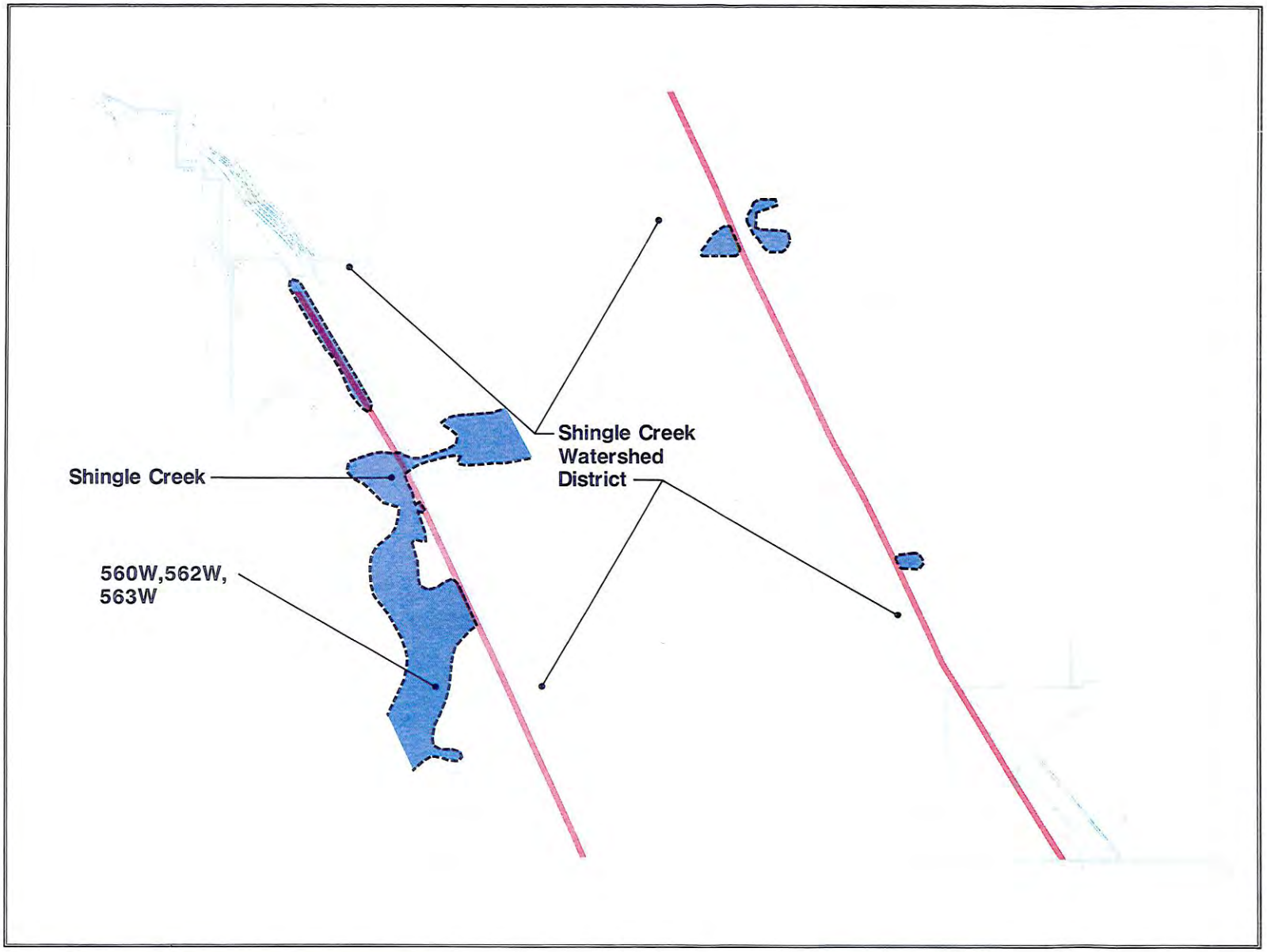
Bass Lake Road Station: This site presently contains residential and commercial uses. It has been landscaped and has no wetland or prairie vegetation present within the site.

42nd Avenue and 36th Avenue Stations: Several buildings are located on both sites; the remaining portion of land on both the sites has been landscaped and includes no wetland or prairie vegetation.

Penn Avenue and Emerson Avenue Stations: Both sites have been landscaped. There is no wetland or prairie vegetation present.

4.6.10 Water Resources

The Northwest Corridor occurs within the Bassett Creek and Shingle Creek Watershed Districts (Figure 4.33A-B).



Floodplains and Watershed Districts

Figure 4.33A

Northwest Corridor

Legend

Floodplain

560W DNR Protected Wetlands

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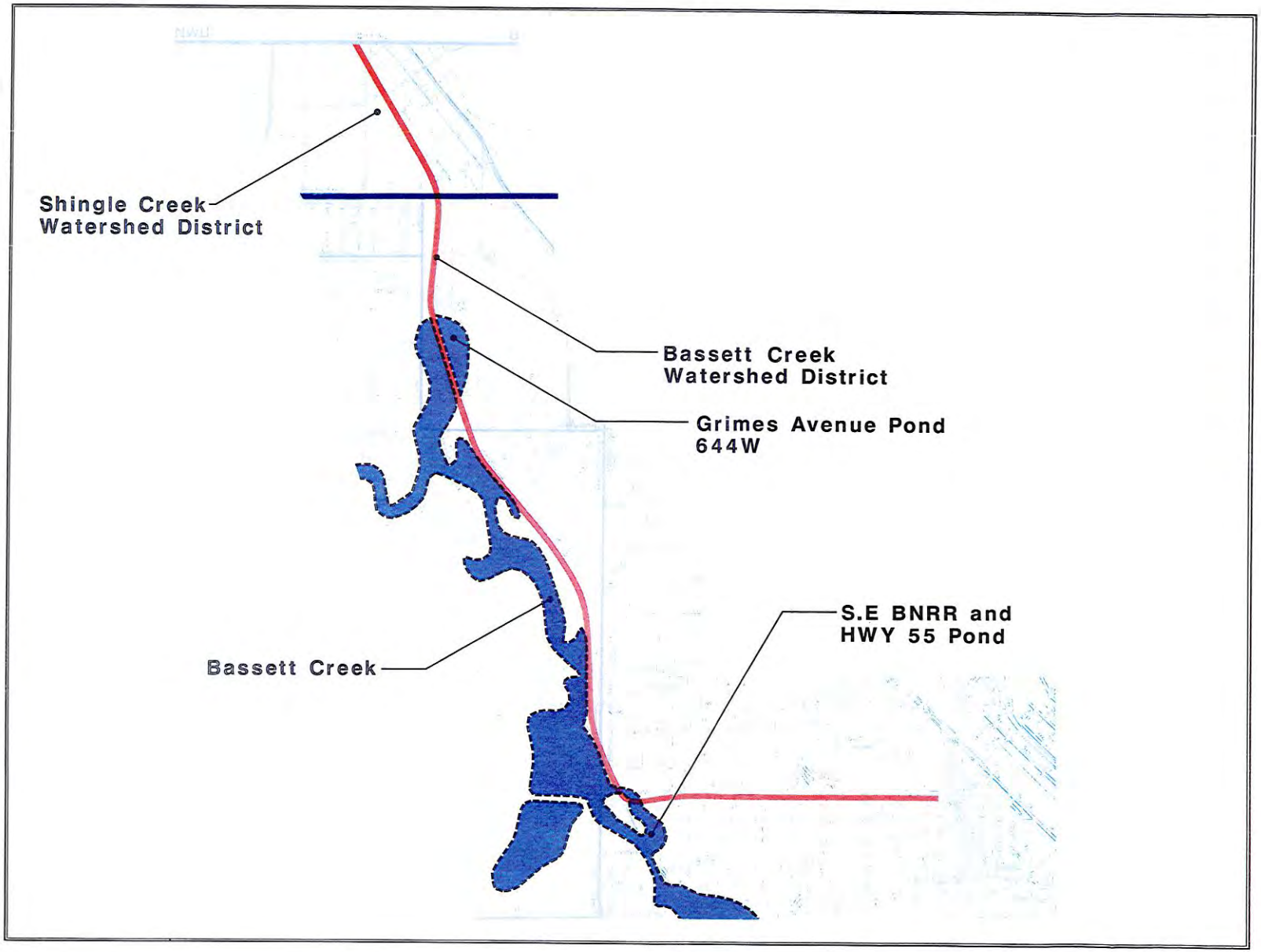
LRT System

Environmental Impact Statement



Floodplains and Watershed Districts

Figure 4.33B

Legend

- Floodplain
- 644W — DNR Protected Wetlands
- Watershed District Boundary

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Environmental Impact Statement

The storm water ponding area in the Shingle Creek Watershed includes Shingle Creek. Shingle Creek flows a total of 11.3 miles prior to discharging into the Mississippi River. Shingle Creek has been classified as a 2B, 3B, 4A, 4B, 5 and 6 class water. Specific water quality data was not available for Shingle Creek.[1/]

Storm water ponding areas in the Bassett Creek Watershed include the pond in the southeast quadrant of the Burlington Northern Railroad and Highway 55, at the Highway 55 underpass, and Grimes Avenue Pond.

The Minnesota Pollution Control Agency has categorized Bassett Creek in the Fisheries and Recreation Category 2 and Class B. A 2B classification requires water of adequate quality to propogate and maintain both sport and commercial fishes as well as acquatic recreation. Results of water quality monitoring programs indicate that there are seasonal fluctuations in sampling parameters, with the summer months demonstrating increased fecal coliform counts not meeting 2B standards.

Figures 4.33A-B also identifies the affected floodplain boundaries in the Northwest Corridor Study area.

Shoreland Zoning

A Shoreland Zoning District boundary lies 300 feet from the edge of Bassett Creek along the proposed Northwest LRT track.

4.6.11 Soil Conditions

Figures 4.34A-B identify the sites in the Northwest Corridor which are included in the Minnesota Pollution Control Agency (MPCA) files that indicate there has been a release of threatened release, of a hazardous substance, pollutant, or contaminant. The sites are labeled according to the appropriate list on which they are included (List 1-8 defined in Table 4.12). The MPCA letter in Chapter 8.3 lists the corresponding address to each of the sites. Also included in the figure are ten sites where leaking underground storage tanks have been reported to the MPCA (addresses are listed in the Appendix). Included in the Underground Storage Tank Information Data Base, but not illustrated in the figure because of incomplete location

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1/ Draft Water Management Plan, Bassett Creek Watershed, Bassett Creek Water Management Commission, December 1986.

information, is the list of hazardous substance and/or petroleum product spills. A complete listing of sites can be found in the Appendix. The total number of spill sites identified can be broken down as follows:

- Brooklyn Park: 32
- Crystal: 18
- Robbinsdale: 5
- Golden Valley: 35
- Minneapolis: 363

A review of available soil borings logs pertaining to the Northwest Corridor area revealed one additional soil contaminated site. The site, located adjacent to the Burlington Northern Railroad tracks near Hanson Court and 54th Avenue North, is labeled A in Figure 4.34A. The records revealed that petroleum is contained in the top foot of soil.

4.6.12 Steep Slopes

Steep slopes are encountered at two locations along the east side of the proposed Northwest track: north of Plymouth Station and north of Grimes Pond.

4.6.13 Parklands

The municipal parks which would be adjacent or close to the Northwest LRT line are illustrated on Figures 4.29A-B (Land Use), and are briefly described below.

- Greenhaven Park (Brooklyn Park):

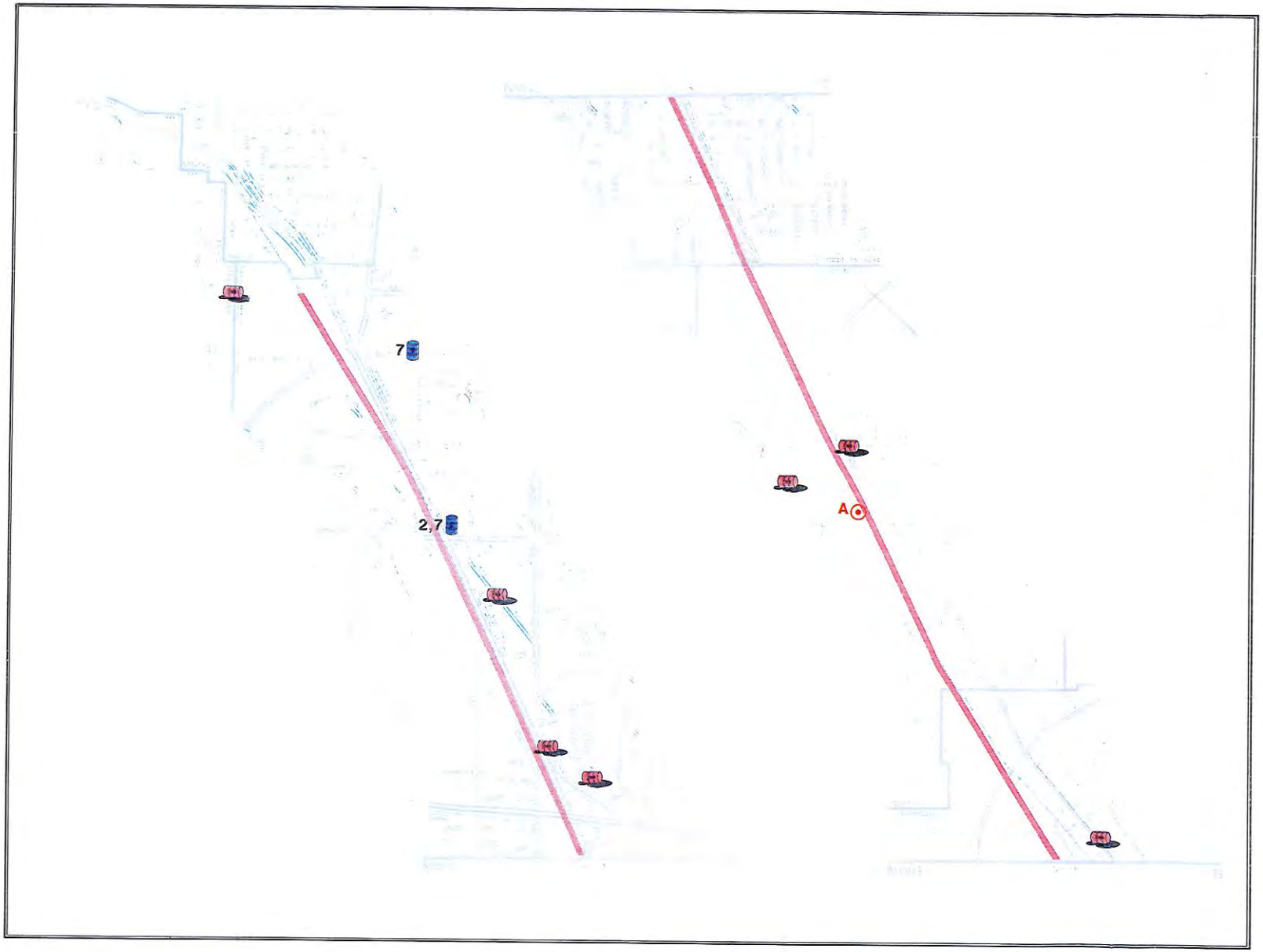
  Greenhaven Park, which is a heavily wooded open space, approximately 30 acres in size, contains play equipment, a warming house and outdoor skating area. Approximately 800 feet of park edge is adjacent to the railroad right-of-way.

- Shingle Creek Park (Brooklyn Park):

  The park is located approximately 1,000 feet from the railroad right-of-way and consists of wetland and wooded areas along Shingle Creek.

- Lakeland Park (Brooklyn Park):

  Lakeland Park includes two ballfields, two tennis courts, a shelter building, children's play equipment, a hockey rink, and restrooms. The proposed LRT track would be approximately 450 feet away from the park and separated by County Road 81 and residential development.



Locations of Possible Soil Contamination

Figure 4.34A

Northwest Corridor

Legend

- LRT Alignment
- **Contaminated Sites Identified in Soil Boring Logs**
- **Minnesota Pollution Control Agency:**
- Reported Leak Sites
- Listed Sites

1. National Priorities List (NPL)
2. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
3. Permanent List of Priorities (PLP)
4. Regulatory Compliance, Hazardous Waste Enforcement Log
5. List of Permitted Solid Waste Facilities
6. Hazardous Waste Permit Unit Project Identification List
7. 1980 Metropolitan Area Waste Disposal Site Inventory
8. 1980 Statewide Open Dump Inventory

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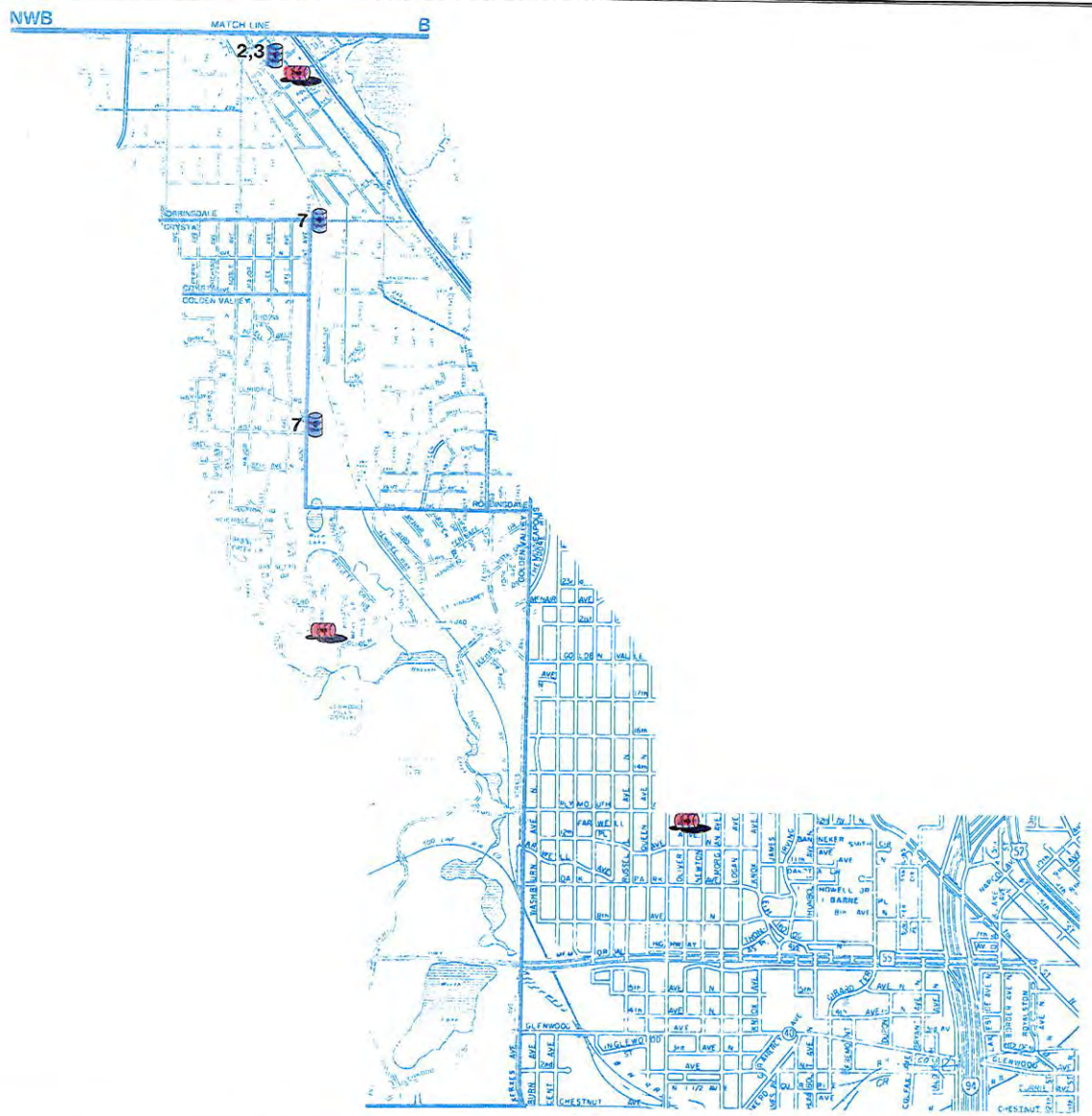

Locations of Possible Soil Contamination

Figure 4.34B

Northwest Corridor

0 1,000' 2,000' North

LRT Alignment

Minnesota Pollution Control Agency:

Reported Leak Sites

Listed Sites

1. National Priorities List (NPL)
2. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
3. Permanent List of Priorities (PLP)
4. Regulatory Compliance, Hazardous Waste Enforcement Log
5. List of Permitted Solid Waste Facilities
6. Hazardous Waste Permit Unit Project Identification List
7. 1980 Metropolitan Area Waste Disposal Site Inventory
8. 1980 Statewide Open Dump Inventory

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- North Lions Club Park (Crystal):

  Recreational facilities at North Lions Club Park include a shelter building, three tennis courts, a softball and baseball field, a basketball court, play equipment, outdoor skating area, volleyball court, exercise course, and picnic shelter. The park is twelve acres in size and is approximately 400 feet from the railroad right-of-way.

- Skyline Park (Crystal):

  The park, which is approximately 3.5 acres, includes a sun shelter, play equipment, outdoor skating rink, and softball field. It is located approximately 700 feet from the railroad right-of-way.

- Becker Park (Crystal):

  Facilities at Becker Park include lighted baseball and softball fields with bleachers and scoreboard, tennis courts, play equipment, community recreation and meeting building, outdoor skating area, and parking.

  The portion of the park containing the community building and the children's play equipment is located to the west of the railroad right-of-way and separated from the railroad line by a a small amount of landscaping and a chain link fence. The park edge is approximately 400 feet in length.

- Welcome Park (Crystal):

  Welcome Park is an active play area, ten acres in size, including three softball fields, two tennis courts, hockey rink, outdoor skating area, basketball court, and shelter building. The park is approximately 300 feet from the railroad right-of-way.

- Grazier Park (Robbinsdale):

  Grazier Park is a wooded picnic area with historic stone tables and stone fire structures. The main body of Grazier Park is located east of West Broadway Avenue. There is approximately 400 feet of park edge along the east side of West Broadway Avenue.

- Triangle Park (Robbinsdale):

  Triangle Park includes a ballfield and toddler wading pool. There is a chain link fence along the 300-foot park edge which is adjacent to and west of the railroad right-of-way.

- Lee Park (Robbinsdale):

  Recreational facilities at Lee Park include ball-fields, outdoor hockey rink, playground equipment, and picnic equipment. There is a chain link fence along the 500-foot park edge, which is adjacent to and on the west side of the railroad right-of-way.

- Sochacki Park (Robbinsdale):

  Sochacki Park is a wooded open space and wetland which includes Grimes Pond. Facilities at the park include two wildlife observation platforms (approximately 150 and 300 feet from the proposed LRT line), picnic equipment, and pedestrian trails. There is approximately 5,000 feet of park edge (no fencing) along the west side of the railroad right-of-way.

- South Halifax Park (Robbinsdale):

  South Halifax Park is a passive open space which includes Grimes Pond, pedestrian trails, picnic tables and benches, and a pedestrian bridge over a stream.

  There is approximately 700 feet of park edge along the railroad right-of-way, with no fencing.

- Mary Hills Park (Golden Valley):

  Mary Hills Park is a wooded open space, with pedestrian trails, wheelchair exercise course, and a small stream which is a tributary to Bassett Creek. There is approximately 2,000 feet of park edge along the railroad right-of-way. No fencing exists along the railroad, which is elevated approximately six to ten feet above the level of the park.

- Glenview Terrace (Golden Valley):

  Large linear recreation open space with children's play equipment.

- Valley View Park (located in Golden Valley but owned and operated by the Minneapolis Park Board):

  Valley View Park is a wooded slope and wetland associated with Bassett Creek. The railroad right-of-way bisects Valley View Park. The tracks are elevated approximately ten to twenty feet above the level of the pond.

- Theodore Wirth Regional Park (located in Golden Valley but owned and operated by the Minneapolis Park Board):

  Recreational facilities at Theodore Wirth Park include two golf courses (9 and 18 holes), two golf clubhouses, trails, parkway, pedestrian and bicycle trails, archery range, winter sledding, extensive cross-country ski trails, two downhill ski areas, and ski jumping. The park is a mix of open space along Bassett Creek, ponds, woods, grassy areas, hills, and wetlands. Theodore Wirth Park is primarily located south of Golden Valley Road, with a nine-acre segment to the north.

  Theodore Wirth Park serves a regional as well as a local function. Its wide range of activities and varied natural conditions draw many users from across the Twin Cities. The parkway and trails running through it are a major component of the Minneapolis Parkway system.

- Bassett Creek Park (Minneapolis Park Board):

  Bassett Creek Park is characterized as a grassy and wooded open space. There is approximately 600 feet of park edge adjacent to the railroad right-of-way.

- Barnes Place (Minneapolis Park Board):

  Barnes Place is a one-half acre grassy island surrounded by local streets.

- Harrison Park (Minneapolis Park Board):

  Harrison Park, which is located adjacent to Harrison School, includes three softball fields, two tennis courts, community building, basketball court, wading pool, play equipment, recreation of open space, and parking.

- Bethune Park (Minneapolis Park Board):

  Bethune Park, which can be characterized as a grassy open space, includes two softball fields (one lighted), one lighted soccer field, two tennis courts, wading pool, play equipment, basketball court, and pedestrian trails. It is located approximately 500 feet from the proposed LRT line and separated by Highway 55 and residential buildings.

- Sumner Park (Minneapolis Park Board):

  Sumner Park includes play equipment, community building, baseball field, and recreation open space. It is located approximately 900 feet from the proposed LRT line and separated by Highway 55 and residential buildings.

4.6.14 Visual and Aesthetics

The photos in Figure 4.35A-B illustrate the visual and aesthetic character of the Northwest Corridor.

- 85th to 63rd:

  This segment is adjacent to County Road 81. The land use is primarily one-story commercial/industrial with open parking and storage yards. There is a small number of homes which are next to the proposed LRT track.

  The visual character is one of a developing landscape-farmland to urban expansion. Major elements include the highway to the east, overhead wires along the corridor, commercial signage and open parking lots. Several of the buildings have deep lot setbacks from the corridor which facilitate longer-range views.

- 63rd Avenue North to Bass Lake Road:

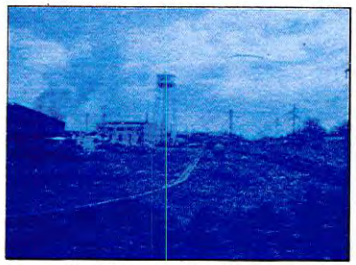
  Views are dominated by either the highway to the east or open storage yards and residential backyards to the west. Overhead wires exist along the right-of-way. Low-flying aircraft from Crystal Airport are also an element of this segment.

- Bass Lake Road to Corvallis Avenue North:

  This segment is characterized as an older but re-developing industrial section. This area is comprised of primarily one- and two-story commercial/manufacturing structures. Redevelopment south of the right-of-way includes a new park and four-story multi-family residential unit.

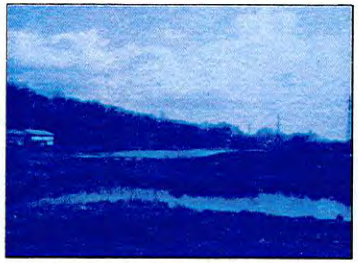
  The distracting visual qualities of this segment include existing overhead wires along the right-of-way, open parking and storage lots, rear views of commercial/manufacturing buildings, and some commercial signage.

Photo/Visual Aesthetics

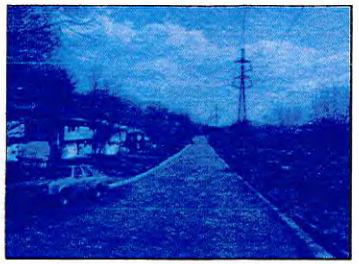


42nd Street Looking Southeast
Along West Edge of
Downtown Robbinsdale

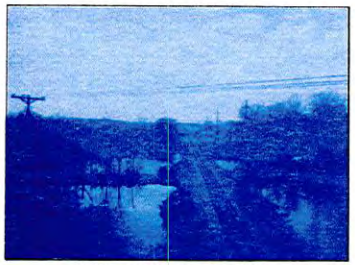
36th Avenue Looking Northwest
Through Residential Area



31st Avenue Looking South Across South
Halifax Park, Rail Corridor at Right

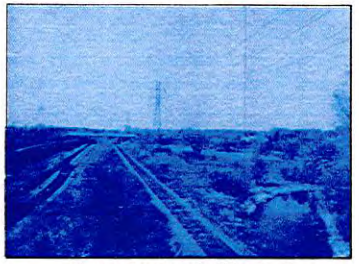


Kewanee Lane Looking Southeast
Along Residential Area

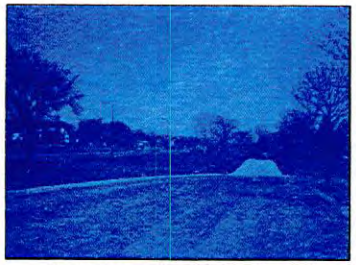


Golden Valley Road Looking
Northwest

14th Avenue Looking South Toward
Plymouth Avenue Bridge



Glenwood Avenue Looking North
Across Bassett's Creek Park at T H 55



Queen Avenue Looking East Toward
Penn Avenue

Girard Avenue Looking East at
Central Business District

Bryant Avenue Looking East Toward
I-94 and Central Business District

Figure 4.35B
Northwest Corridor

BRW

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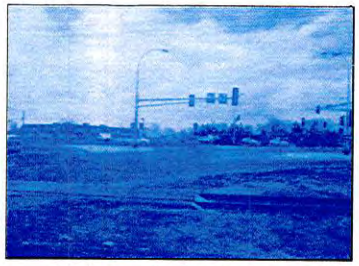
Photo/Visual Aesthetics

Figure 4.35A
Northwest Corridor

BRW

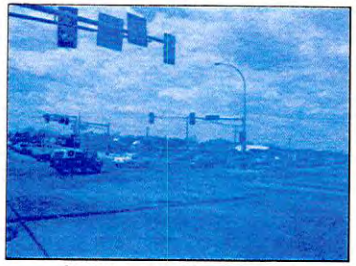
85th Avenue Looking Southeast
Toward T H 169 and County Road 81

Looking South from Shingle Creek
Toward 77th Avenue

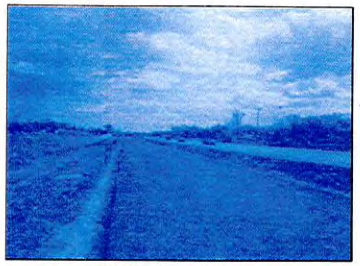


73rd Avenue Looking Northeast at
Commercial Node

69th Avenue Area Looking
Southeast Toward I-94/I-694 Bridge

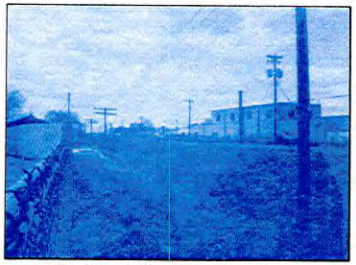


63rd Avenue Looking Northwest
Commercial - Industrial Strip

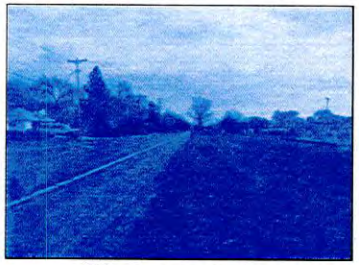


Crystal Airport Area
Looking Southeast

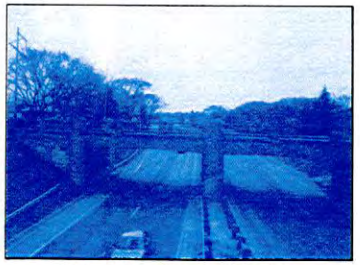
Becker Park Looking East to Bass
Lake Road and County Road 81



Soo Line Railroad Looking North
Through Industrial Area



46th Avenue Area Looking
Southeast Through Residential Area



T H 100 Looking Southwest at
Railroad Bridge

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- Corvallis Avenue North of Highway (TH) 100:

  South of Corvallis the land use is a mixture of residential and small commercial. When crossing Broadway the vista opens up with the road and residential use to the east, and open lots with some residential backyards to the west.

  The visual images are of overhead wires along the west side of the right-of-way, open storage and parking lots, roadway traffic along Broadway, and residential backyards. Vegetation along this segment is minimal.

- TH 100 to 36th Avenue North:

  The crossing of TH 100 opens up views of the highway corridor to the north and south. South of 42nd Street residential uses continue on the west side of the right-of-way, with the commercial center of Robbinsdale to the east. The image is of one- to three-story buildings, open parking lots and commercial signage. There are overhead wires along the west side of the right-of-way.

- 36th Avenue North to TH 55:

  The segment south of 36th Avenue is dominated by parkland with intermittent areas of one- and two-story single-family residential. North of Golden Valley Road the parkland is on both sides of the right-of-way. South of Golden Valley Road, Theodore Wirth Park abuts the right-of-way to the west.

  The visual character is of overhead wires along the right-of-way; residential front and backyards; bridge structures and piers at 36th Avenue North, Golden Valley Road and Theodore Wirth Parkway; and varying densities of vegetation through the parkland and wetland areas.

- Burlington Northern Right-of-Way to Bryant Avenue North:

  The general character of this segment is a divided six-lane highway to the north and a mix of one- and two-story single-family residential, two- to eight-story multi-family housing, and some office/commercial uses to the south.

  The view is primarily of highway traffic to the north and downtown Minneapolis to the east. The view to the south is of the sides of the single-family residential units, open parking lots and older, taller multi-family housing.

4.6.15 Historic and Cultural Resources

The Sumner Library, built in 1935, and Sumner Field Project are located at 611 North Emerson. These historically and architecturally significant properties are just north of Olson Memorial Highway.

4.7 UNIVERSITY CORRIDOR

4.7.1 Demographics

Table 4.33 presents data on demographic conditions within the University Corridor for 1980, 1988, and 2010. As shown in the table, declines are expected for all indicators except household income. The data reflect a decline in enrollment and employment at the University of Minnesota that began in the mid-1970s and is expected to continue through the mid-2010s.

The population base within the University Corridor is dominated by students at the University of Minnesota. With the planned shift from undergraduate programs to graduate studies, the undergraduate population within the University area is projected to decline.

The University currently provides more than half the jobs within the LRT corridor area, with Riverside Medical Center being the second largest employer. Small retail establishments, services, and small scale industrial firms account for the remainder of the University area's employment base.

Table 4.34 reflects the University Corridor's contribution to Hennepin County's demography for 1980, 1988 and 2010.

Transit Dependent Statistics:

1980 census track data revealed approximately 14,600 potentially transit dependent individuals who reside in the University Corridor area.

A Metropolitan Council study[1/] cited the following demographic statistics for the University area:

- Elderly (ages 65 to 74), less than one per acre
- Elderly (ages 75+), one to 1.5 per acre
- Youth (11 to 18), one to three per acre

1/ Transit Dependent Data Analysis, Metropolitan Council of the Twin Cities, February 1988.

TABLE 4.33
UNIVERSITY CORRIDOR DEMOGRAPHIC TRENDS

YEAR	POPULATION	HOUSEHOLDS	PERSONS PER HOUSEHOLD	AVERAGE HOUSEHOLD INCOME*	EMPLOYMENT
1980	10,379	3,100	1.89	$ 25,000	20,100
1988	9,940	3,100	1.82	26,000	19,900
2010	8,720	3,000	1.63	33,300	19,300
University Corridor					
Percent Change (1980-2010)	-16%	-3.2%	-14%	.33%	-4.0%
Annual Rate of Change (1980-2010)	-.58%	-.11%	-.49%	.96%	-.14%
Hennepin County					
Percent Change (1980-2010)	19%	31%	-9%	33%	34%
Annual Rate of Change (1980-2010)	.6%	.9%	-.3%	1%	1%

* 1987 Dollars

Source: Metropolitan Council of the Twin Cities

TABLE 4.34
UNIVERSITY AVENUE CORRIDOR AS A PERCENT OF HENNEPIN COUNTY

YEAR	POPULATION	HOUSEHOLDS	TOTAL INCOME	EMPLOYMENT
1980	1.1%	.85%	.47%	3.3%
1988	.99%	.75%	.42%	2.8%
2010	.78%	.63%	.34%	2.3%

Source: Metropolitan Council of the Twin Cities

- o Low-income households, more than three per acre
- o Zero car households, two per acre
- o Persons in group quarters, more than two per acre

The University area ranks relatively high in all of the transit dependent groups except elderly (65-74 age). This can be attributed to the large student population, with limited incomes and automobile availability. The high concentration of persons in group quarters reflects the student dorm population on campus.

4.7.2 Community and Neighborhood Boundaries

Only the City of Minneapolis is included in the University Corridor study area. The study area covers the western and eastern sides of the Mississippi River and includes the Central and University Neighborhood Planning Districts. Figure 4.36 illustrates the study area boundaries as they relate to planning district and neighborhood boundaries.

4.7.3 Community Facilities and Services

Figure 4.37 depicts the locations of facilities and services within the study area.

Police and Fire Protection: Although the Minneapolis police station located at 350 South 5th Street is not included in the study area boundaries, it services the area. Police and fire facilities within the study area include:

- University of Minnesota Police Department Headquarters, Oak Street/University Avenue Southeast
- Fire Station Number 1, 3rd Street South/Portland Avenue South
- Fire Station Number 19, Ontario Street Southeast/Beacon Street

Religious Institutions: The study area includes fourteen religious institutions.

Post Offices: Three post offices are located within the University Corridor study area.

Library: One public library is located within the corridor study area.

Hospitals: Four extensive hospital complexes are located in the University Corridor.

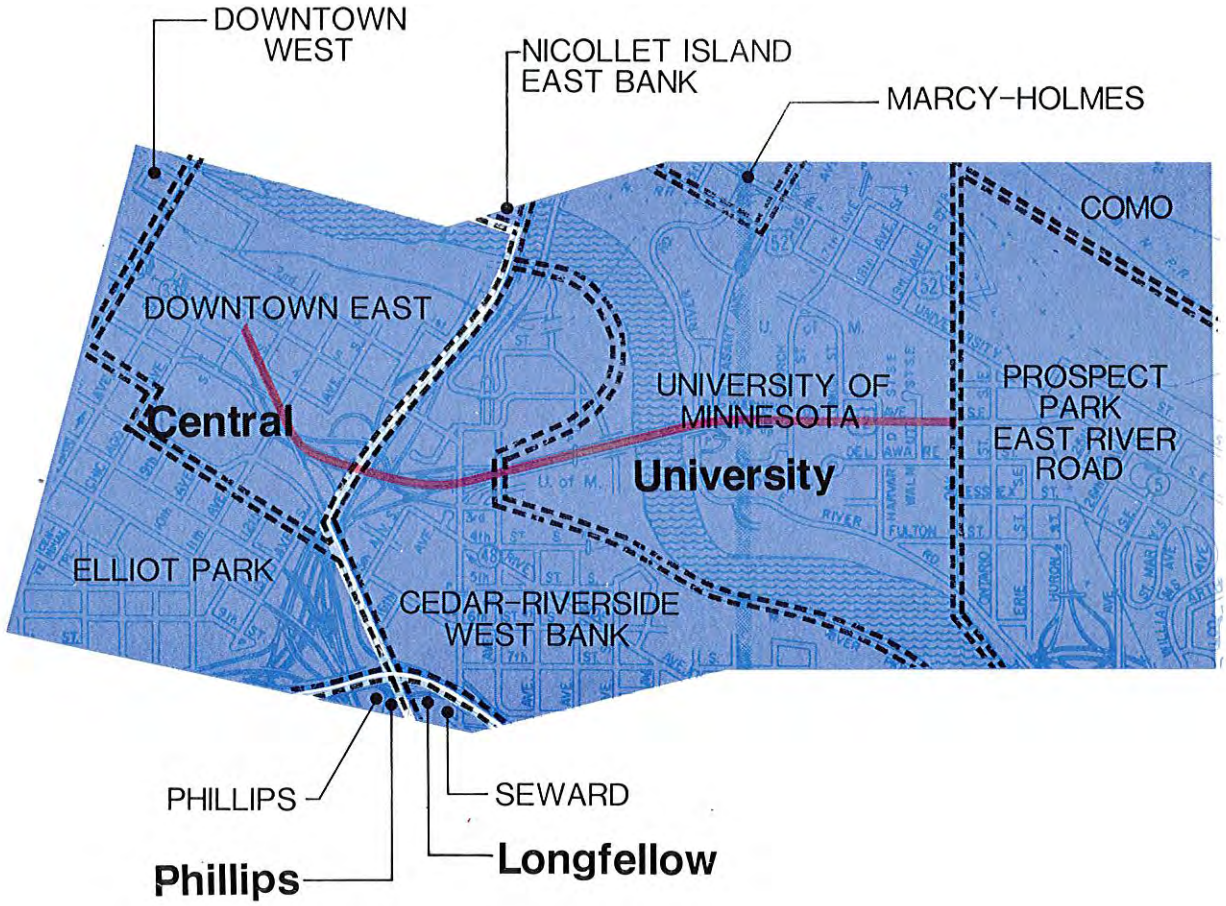

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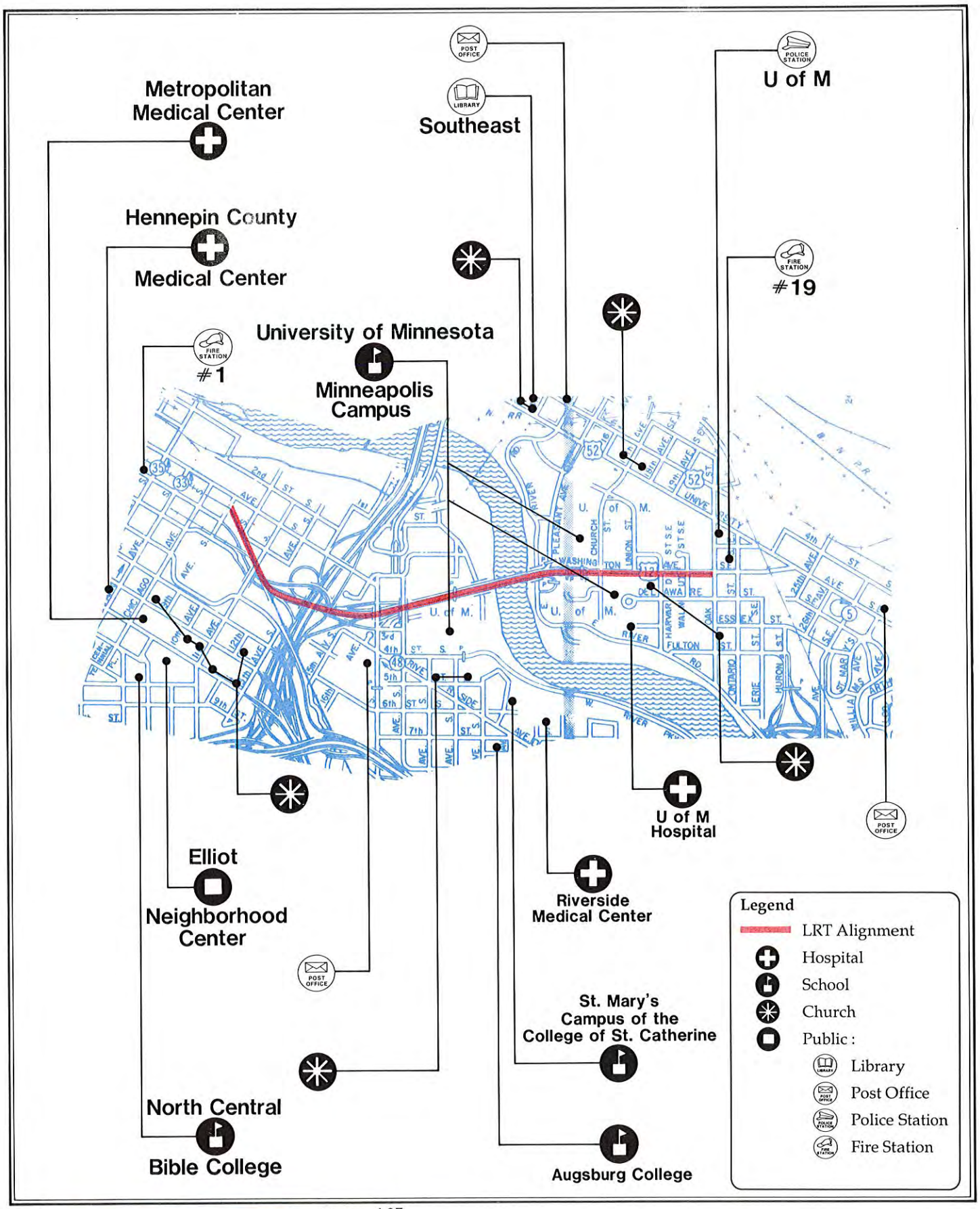
Figure 4.36

University Corridor

BRW

0' 1,000' North

Planning Districts and Neighborhood Boundaries



HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.37

University Corridor

BRW

0' 1,000' North

Community and Educational Facilities

Community Centers: The Elliot Neighborhood Center is located in the corridor study area.

Educational Facilities: No elementary or secondary schools are located within the study area. Four post-secondary institutions are within the study area.

4.7.4 Land Use and Zoning

Land Use

The University Corridor (Figure 4.38) is an area of extensively developed urbanized land.

On Washington Avenue from Oak Street to Cedar Avenue, the University of Minnesota's Minneapolis Campus dominates land use. Focal points on the campus include: the University Hospital and Clinic Complex, Coffman Memorial Union and Blegen Hall. The Riverside Medical Center is located to the south of the University campus.

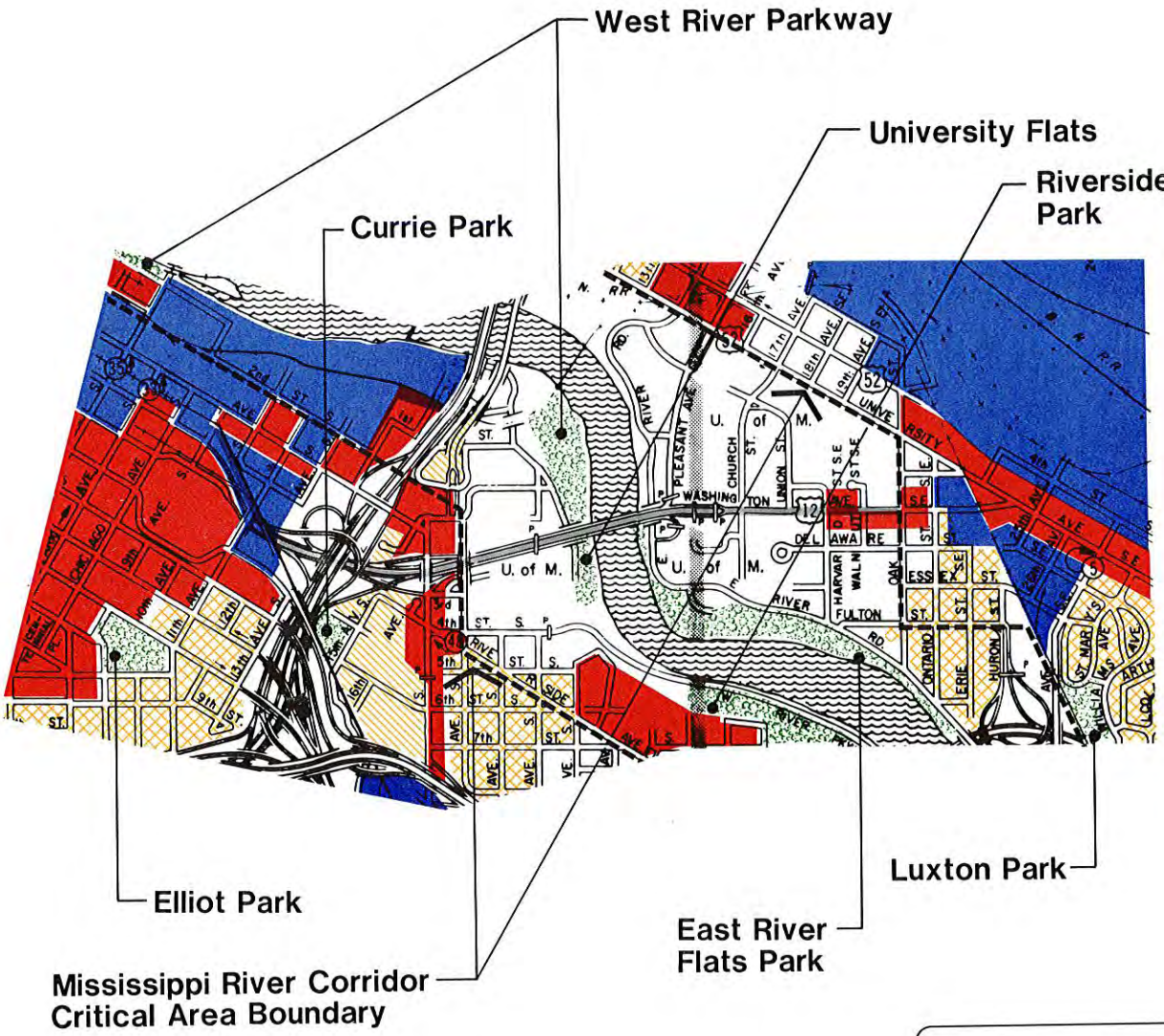
On Washington Avenue between Cedar Avenue and 3rd Street, commercial, multiple family residential and industrial uses are common. Significant developments in the area include the Cedar-Riverside Apartments and the Seven Corners Theater/Commercial District.

Zoning

Figure 4.39 identifies the zoning for the University Corridor. Based on the comparison of information identified in the zoning and land use maps, the existing zoning within the corridor is generally consistent with the prevailing land use patterns.

4.7.5 Traffic

Within the study area, Washington Avenue varies from a four-lane, limited access roadway on the west to a two-lane roadway with on-street parking on the east. Four through traffic lanes with no parking are provided west of Harvard Street. East of Oak Street, two through traffic lanes plus on-street parking are provided. In the section between Harvard Street and Oak Street, on-street parking is allowed only during off-peak hours. Two through traffic lanes are provided during off-peak hours, and four through lanes are provided during peak hours. The section of Washington Avenue included in the study segment currently serves as a through truck route. Grade separations with ramps are provided at the intersections of Washington Avenue with



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LRT System

Environmental Impact Statement

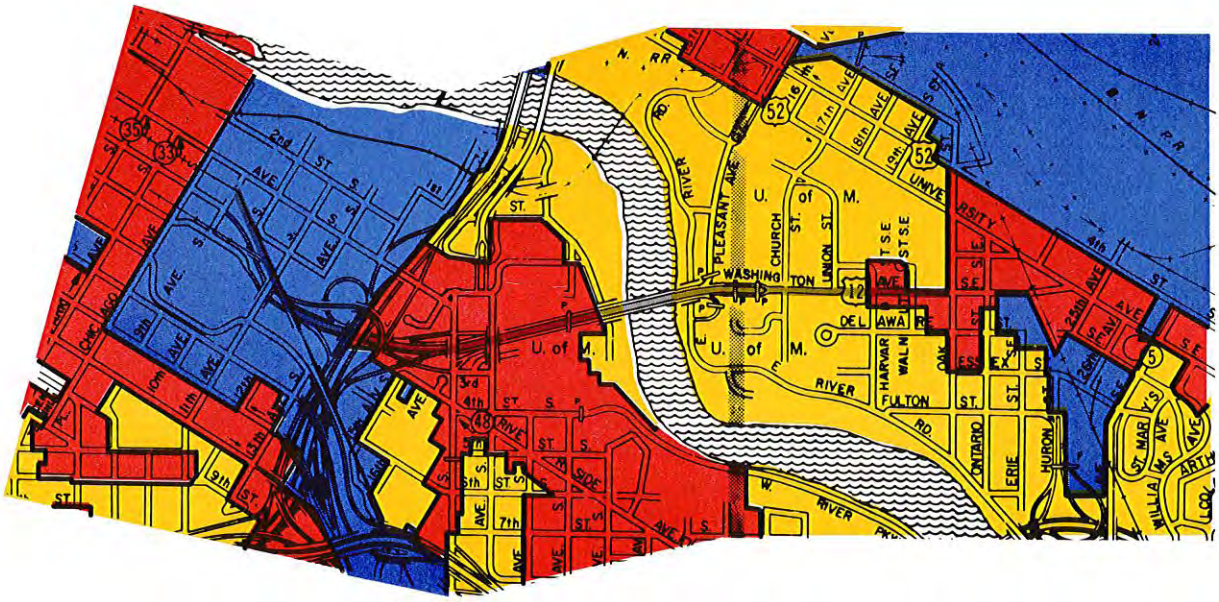
Figure 4.38

University Corridor

BRW

0' 1,000' North

Land Use



Legend

- LRT Alignment
- Residential
- Commercial
- Industrial
- Other : (open, institutional, public/semi-public, planned development)

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LRT System

Environmental Impact Statement

Figure 4.39

University Corridor

BRW

0' 1,000' North

Corridor Zoning

Cedar Avenue and East River Road. Traffic signals exist at the intersections of Washington Avenue with Church Street, Union Street, Harvard Street, Oak Street, and Ontario Street. The other Washington Avenue intersections in the study area are unsignalized.

Several nearby streets were considered in the study as possible alternate routes for Washington Avenue traffic. University Avenue and 4th Street form a one-way pair north of Washington Avenue with three through lanes provided on each one-way street. East River Road is a two-lane street which crosses Washington Avenue and then runs parallel for several blocks. Farther to the south, Interstate 94 crosses the Mississippi River along a six-lane bridge which runs parallel to the Washington Avenue bridge. Oak Street is a four-lane street which crosses Washington Avenue and provides a connection to the parallel streets described above.

Table 4.35 summarizes a capacity analysis conducted for existing and future (Year 2000) traffic conditions.

4.7.6 Transit Service

The University Corridor is the smallest of the transportation corridors, but offers the widest variety of existing transit services (Table 4.36). Three MTC routes connect the University to downtown Minneapolis, one of which extends to downtown Saint Paul. Two MTC crosstown routes service the University, linking the University to Riverplace to the northwest, and Franklin Avenue to the west.

The MTC operates the Route 52 lines which extend into each of the travel corridors in the Minneapolis area. These routes provide direct service to the campus area, avoiding a downtown transfer. Service generally operates on an hourly basis, traveling to the University in the morning and from the University in the afternoon.

The RTB's Transit Service Needs Assessment, 1987, concluded that approximately 37 percent of the University students, faculty and staff currently travel to and from the campus by bus. Additionally, 16 of the 37 percent use the Route 52 bus routes. Further analysis revealed that if the Route 52 lines were discontinued, an additional 20-25 peak hour regular route buses would be required, and approximately 1,500 additional parking spaces would be needed in the University area.

The Medicine Lake Lines, an independent bus company, provides extensive bus service between the various segments of the University of Minnesota Campus. A total of nine routes shuttle students and staff between the West Bank, East Bank,

TABLE 4.35
ROADWAY CAPACITY ANALYSIS

Roadway	Location	SCENARIO: Existing (1986) Daily[1] Traffic	Existing (1986) Estimated[3] Roadway Capacity	Existing (1986) Volume[4] to Capacity Ratio	SCENARIO: Future (2000) Daily[2] Traffic	Future (2000) Estimated[3] Roadway Capacity	Future (2000) Volume[4] to Capacity Ratio
Washington Avenue	Mississippi River Bridge	27,200	50,000	0.54	28,000	50,000	0.56
	East of Church Street	19,400	20,000	0.97	20,000	20,000	1.00
	West of Oak Street	16,000	20,000	0.80	16,500	20,000	0.83
	West of University Avenue	10,800	15,000	0.72	11,100	15,000	0.74
4th Street	East of 15th Avenue	14,200	27,000	0.53	15,900	27,000	0.59
University Avenue	East of 15th Avenue	16,200	27,000	0.60	18,100	27,000	0.67
East River Road	South of Washington Avenue	3,500	10,000	0.35	3,900	10,000	0.39
Oak Street	South of Washington Avenue	13,900	20,000	0.70	15,600	20,000[6]	0.78
Interstate 94	Mississippi River Bridge	109,800	100,000	1.10	123,000	140,000[7]	0.88

1/ Source: City of Minneapolis 1986 Traffic Flow Map.

2/ Year 2000 traffic conditions based on growth projections from the Southwest/University Avenue Corridors Study Transit Alternatives Analysis and Draft Environmental Impact Statement. The Year 2000 traffic scenario with LRT assumes some traffic diversion from Washington Avenue to parallel routes.

3/ Source: BRW based on information contained in the 1985 Highway Capacity Manual.

4/ Volume to capacity ratios of 0.90 or less are considered to reflect acceptable traffic operations.

St. Paul Campus and remote parking sites. An additional shuttle bus travels between the Administrative Services Center and the East Bank.

TABLE 4.36
UNIVERSITY CORRIDOR TRANSIT SERVICE

ROUTE	TYPE	OPERATOR	DAILY MILES[1/]	DAILY PASSENGERS
2	Crosstown	MTC	488.8	2,340
6A,B	Local	MTC	432.0	1,420
8B,C,F	Local	MTC	108.0	320
13	Circulator	MLL	1,676.0	16,200
16	Local	MTC	490.7	9,000
52	Special	MTC	2,785.9	5,620
73	Crosstown	MTC	165.3	310
TOTAL*			6,146.7	19,010

* Excludes University of Minnesota Circulator

1/ Daily bus miles includes non-revenue miles.

4.7.7 Noise

The dominant noise source within the University Corridor is traffic noise generated by vehicles traveling on Washington Avenue and on I-94 and I-35W. Each of these roadways carries a significant amount of medium and heavy truck traffic. The volume of traffic on I-94 and I-35W in the area adjacent to the University Corridor is approximately 89,200 and 83,700 vehicles per day, respectively.

A majority of the corridor is made up of land uses which are not highly sensitive to traffic noise, because exterior use of space is not associated with them. Thus, noise monitoring within the corridor was not completed. However, West River Parkway and University Flats, urban park areas, lie adjacent to the river. The proposed alignment of LRT extends through the park areas on the elevated section of Washington Avenue. The park areas presently experience traffic noise from Washington Avenue.

4.7.8 Vibration

Within the University Corridor there are existing sources of vibration. Specifically, vibration is being generated by heavy vehicles currently using Washington Avenue, I-35W and I-94.

As the guidelines document in Table 4.9, a number of non-residential uses are particularly susceptible to vibration impacts at relatively low exposure levels.

Within the University there are ongoing research projects which are susceptible to the affects of vibration at low exposure levels. The building locations of these projects are not known and change over time. Thus, all of the buildings adjacent to University Avenue have been identified as potentially sensitive receivers. The locations are displayed in Figure 4.40, and documented in Table 4.37.

4.7.9 Wetlands, Vegetation and Wildlife

Because of the urban nature of this corridor, there is no natural wetland or prairie vegetation present.

4.7.10 Water Resources

The University Corridor occurs within the middle Mississippi River Watershed area (Figure 4.41). A Watershed Management organization does not formally exist for this watershed area. The basin is largely comprised of area within the City of Minneapolis.

Figure 4.41 also identifies the affected floodplain boundaries in the University Corridor Study area.

Shoreland Zoning

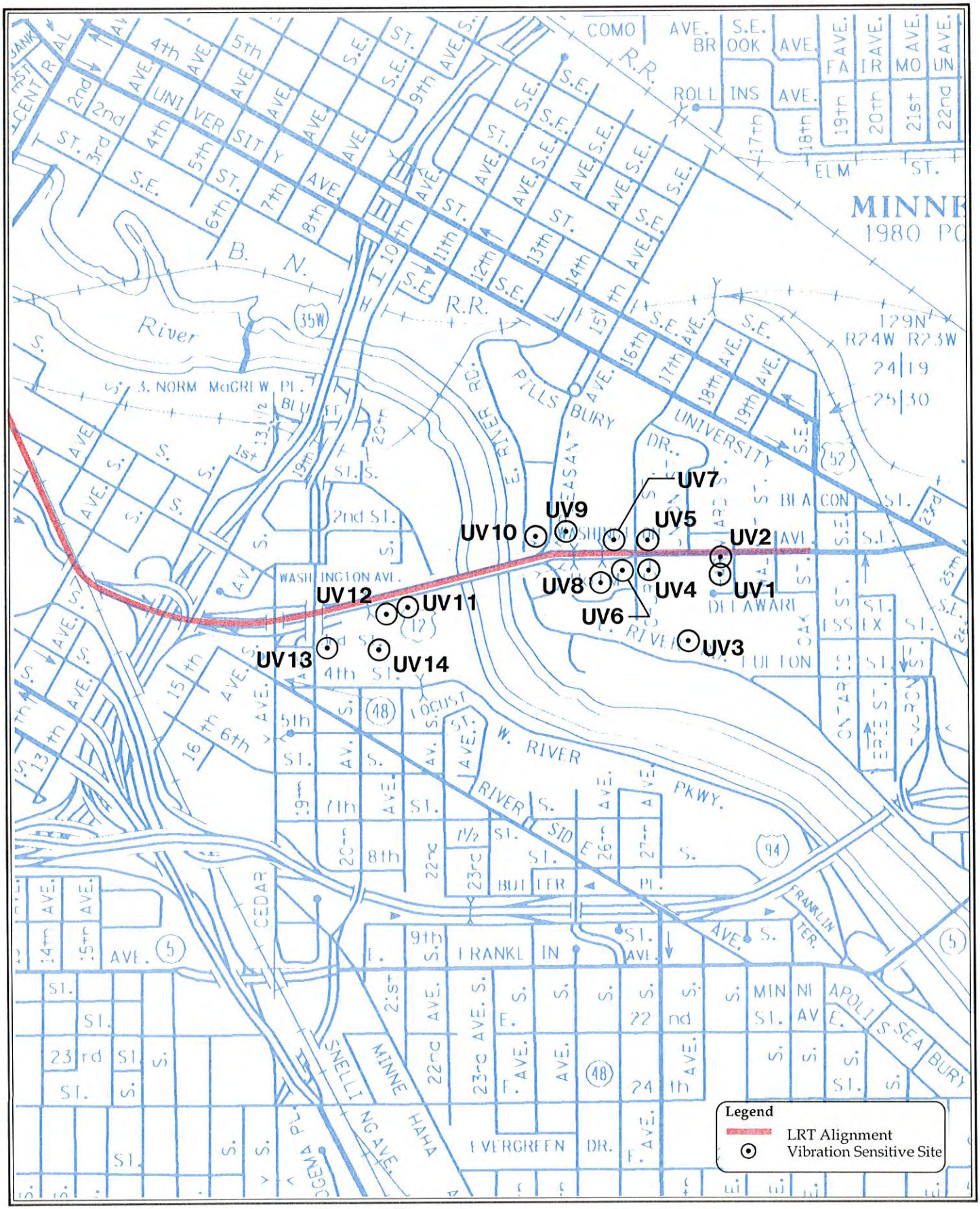
A Shoreland Zoning District boundary lies 300 feet from the edge of the Mississippi River, within the University Corridor study area.

Mississippi River Critical Area

Both the City of Minneapolis and the University of Minnesota have prepared management plans for their respective sections of the Mississippi River Critical Area corridor, which extends approximately two or three blocks back from the edge of the river, depending on the topography. Figure 4.38 (Land Use), outlines the boundary of the corridor.

Water Quality

Section 4.4.10 includes information regarding the water quality of the Mississippi River as it flows through Minneapolis.



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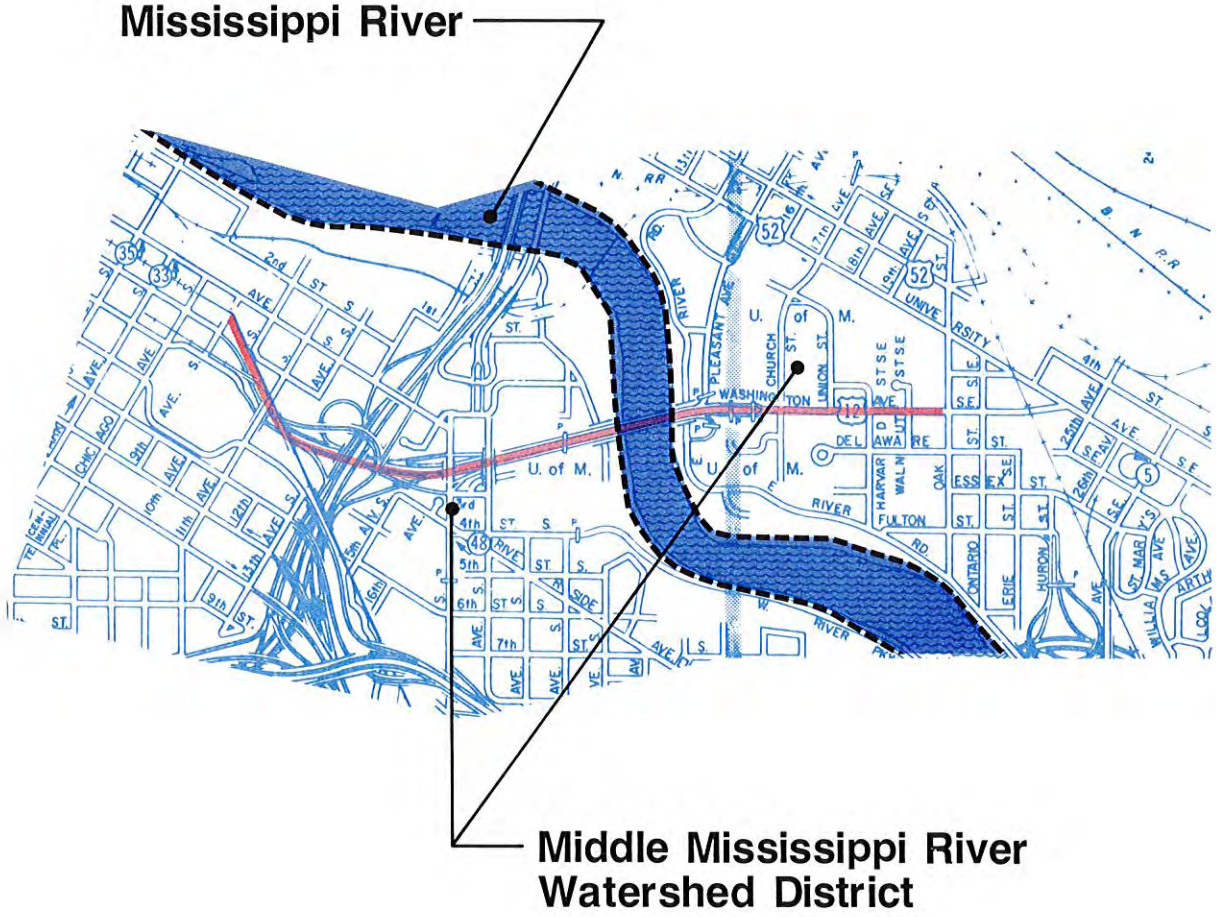
Environmental Impact Statement

Figure 4.40
University Corridor

BRW

Vibration Sensitive Use Locations



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Environmental Impact Statement

Figure 4.41

University Corridor

BRW

0' 1,000' North

Floodplains and Watershed Districts

TABLE 4.37
GROUND-BORNE VIBRATION SENSITIVE LOCATIONS IN UNIVERSITY CORRIDOR

LOCATION	USE	APPLICABLE GUIDELINE(dB)
1. North of Washington Avenue West of Harvard Street	Church	70
2. South of Washington Avenue West of Harvard	University Building	75-80
3. South of Delaware Street West of Harvard Street		70-75
4. South of Washington Avenue East of Church Street	University Building	75-80
5. North of Washington Avenue East of Church Street	University Building	75-80
6. South of Washington Avenue West of Church Street	University Building	75-80
7. North of Washington Avenue West Church Street	University Building	75-80
8. South of Washington Avenue West of Church Street	University Building	75-80
9. North of Washington Avenue East Pleasant Street	University Building	75-80
10. North of Washington Avenue West of Pleasant Street	University Building	75-80
11. South of TH 12 East of 19th Avenue South	University Building	75-80
12. South of TH 12 East of 19th Avenue South	University Building	75-80
13. South of TH 12 East of 19th Avenue South	University Building	75-80
14. South of TH 12 East of 19th Avenue South	Library	70

4.7.11 Soils

Contaminated Soil Sites

Figure 4.42 identifies the sites in the University Corridor which are included in the Minnesota Pollution Control Agency (MPCA) files that indicate there has been a release, or a threatened release, of a hazardous substance, pollutant, or contaminant. The sites are labeled according to the appropriate list which they are included in (List 1-8 defined in Table 4.12). The MPCA letter in Chapter 8.3 lists the corresponding address for each site. Also included in the figure are three sites where leaking underground storage tanks have been reported (addresses are listed in the Appendix). Included in the Underground Storage Tank Information Data Base, but not illustrated in the figure because of incomplete location information, is the list of hazardous substance and/or petroleum product spills. A complete listing of Minneapolis sites can be found in the Appendix.

One additional soil contaminated site (gasoline in the soil) was discovered in the review of the soil boring logs pertaining to the University area. The site labeled A, in Figure 4.42, is located at Washington Avenue and Walnut Street Southeast.

4.7.12 Steep Slopes

Steep slopes are encountered on both the east and west banks of the Mississippi River.

4.7.13 Parklands

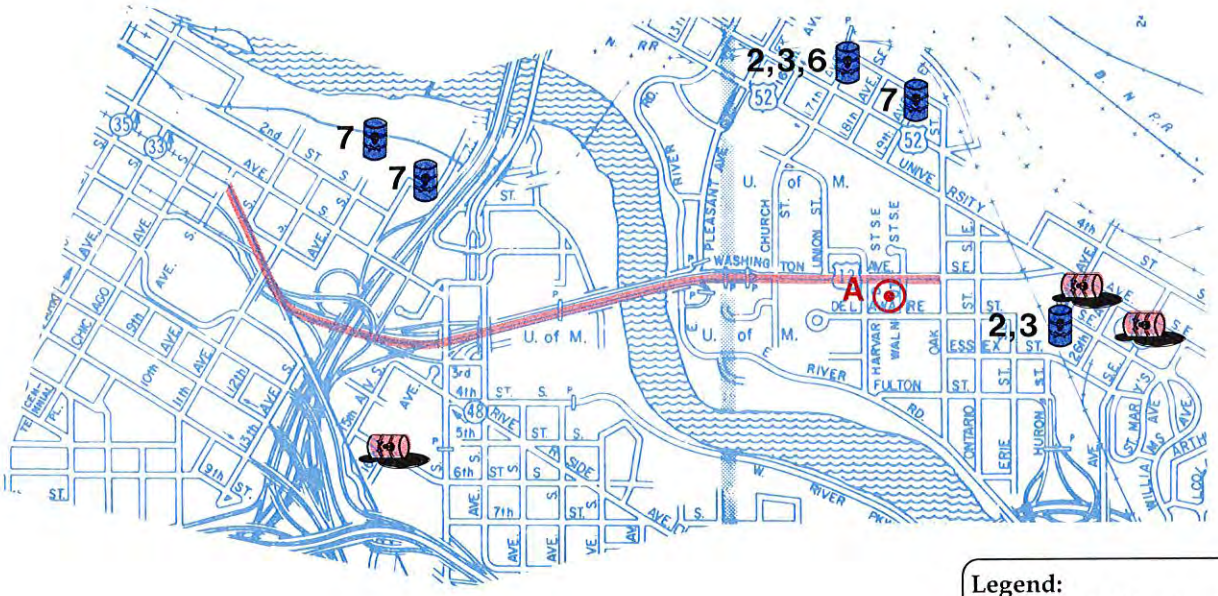
The municipal parks which are adjacent or close to the proposed LRT track lines are illustrated in Figure 4.38 (Land Use) and briefly described below.

- o West River Parkway (Minneapolis Park Board):

  The West River Parkway is a planned active recreation area including numerous softball and football/soccer fields, pedestrian and bicyclist trails, and river overlooks. This facility is part of the Minneapolis Parkway system and the Regional Park and Trail system.

- o University Flats (University of Minnesota):

  University Flats includes parkway and pedestrian-bicycle trail extensions, and river overlooks. This facility is planned to become part of the Minneapolis Parkway and Regional Park and Trail system.



Legend:

- LRT Alignment
- **Contaminated Sites Identified in Soil Boring Logs**
- **Minnesota Pollution Control Agency:**
  - Reported Leak Sites
  - Listed Sites
    1. National Priorities List (NPL)
    2. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
    3. Permanent List of Priorities (PLP)
    4. Regulatory Compliance, Hazardous Waste Enforcement Log
    5. List of Permitted Solid Waste Facilities
    6. Hazardous Waste Permit Unit Project Identification List
    7. 1980 Metropolitan Area Waste Disposal Site Inventory
    8. 1980 Statewide Open Dump Inventory

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Environmental Impact Statement

Figure 4.42

University Corridor

BRW

0' 1,000 North

Locations of Possible Soil Contamination

- University Flats East (Minneapolis Park Board):

  University Flats East is characterized by its steep and wooded river bluff and shoreline, and grassy open recreation area.

4.7.14 Visual and Aesthetics

The photos in Figure 4.43 illustrate the visual and aesthetic environment of the University Corridor area.

- Terminus station at Oak Street to the Washington Avenue bridge:

  The terminus station would be located in the Stadium Village commercial district. This location also acts as the easterly entry of the campus. The scale of this area is one- to four-stories. As the alignment moves west and into the campus, the character changes to taller buildings and is spatially denser. At the Mall area, the views open up to reveal the classically articulated center campus area. The visual character of the commercial area includes a variety of signs, along with overhead wires. This is a very busy pedestrian area and as one moves into the campus, pedestrian traffic becomes denser. West of Church Street, Washington Avenue begins to descend to the bridge elevation and the view of the campus begins to disappear.

- Washington Avenue Bridge to 3rd Street at 9th Avenue:

  Although the majority of this segment is below the surrounding neighborhood, the spatial feel is open. The visual image is primarily one of highway signs, with bridges and bridge piers.

4.7.15 Historic and Cultural Resources

There are no recorded historic properties in the University Corridor Study Area. The Minnesota Historical Society is currently conducting a survey regarding the prehistoric cultural resources in the area. An accurate assessment of the area's prehistoric cultural resources will not be available until the above-mentioned survey is completed.

4.8 CENTRAL AREA

4.8.1 Demographics

As shown in Table 4.38, the level of demographic change between 1980 and 2010 is forecast to be high--50 percent increase in population, 32 percent increase in the number of households, 44 percent increase in average household income, and 29 percent increase in employment.

Table 4.39 shows the extent to which the Central Area contributes to the demography of the County.

TABLE 4.39
CENTRAL AREA CORRIDOR AS A PERCENT OF HENNEPIN COUNTY

	POPULATION	HOUSEHOLDS	TOTAL INCOME	EMPLOYMENT
1980	1.4%	2.4%	.89%	21%
1988	1.5%	2.3%	.95%	20%
2010	1.7%	2.4%	.98%	21%

Source: Metropolitan Council of the Twin Cities

Transit Dependent Statistics:

The Transit Dependent Analysis, conducted by the Metropolitan Council of the Twin Cities, February 1988, indicates the following about the Central Area demographics:

- Elderly (ages 65 to 74), one to two per acre
- Elderly (ages 75+), one to 1.5 per acre
- Youth (ages 11 to 18), one to three per acre
- Low-income households, more than three per acre
- Zero car households, more than three per acre
- Persons in group quarters, one to two per acre

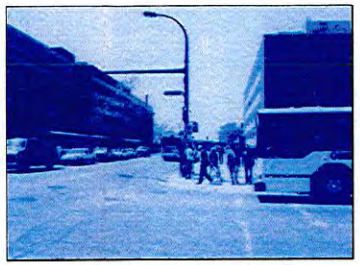
Relative to the LRT corridor statistics, the Central Area includes high concentrations of transit dependent individuals throughout the City. South of the downtown area (to Lake Street) there is a particularly high level of low-income, youth, elderly and zero car households.

In addition, the RTB's Transit Service Needs Assessment revealed that zero-car households comprise 45 percent of the downtown population.

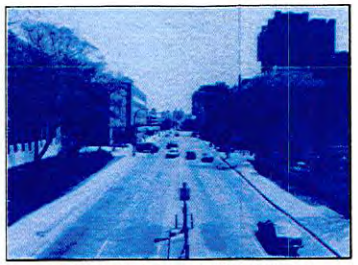
Photo/Visual Aesthetics

Oak Street Area Looking West at Commercial Node

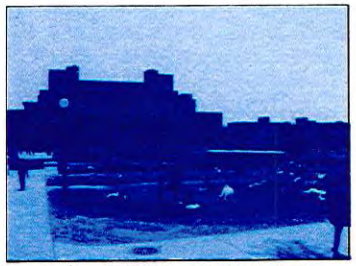
Harvard Street Area Looking East Commercial Node



Union Street Looking West at University Buildings

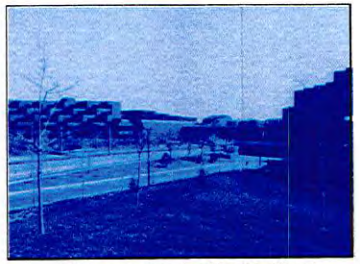


Looking East Toward Church Street and University Hospital Complex



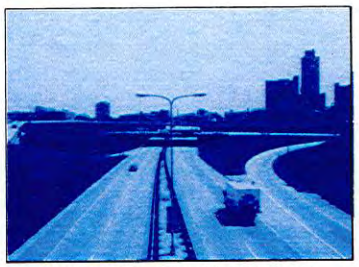
University Mall Looking South Across Washington Avenue at Coffman Union

Looking West at East River Road and Washington Avenue Bridge



19th Avenue Area Looking Northeast Toward University West Bank

19th Avenue Looking Northwest at Cedar Avenue Bridge and Central Business District



11th Avenue Area Looking Southeast Toward I-35W and Cedar - Riverside

Looking Southeast Down 3rd Street Beyond Metrodome

Figure 4.43
University Corridor

BRW

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TABLE 4.38
CENTRAL AREA CORRIDOR DEMOGRAPHIC TRENDS

YEAR	POPULATION	HOUSEHOLDS	PERSONS PER HOUSEHOLD	AVERAGE HOUSEHOLD INCOME*	EMPLOYMENT
1980	13,013	8,850	1.28	$ 16,800	132,600
1988	14,740	9,600	1.34	19,40D	143,000
2010	19,480	11,700	1.45	24,200	171,500
Central Area					
Percent Change (1980-2010)	50%	32%	13%	44%	29%
Annual Rate of Change (1980-2010)	1.4%	.93%	.42%	1.2%	.86%
Hennepin County					
Percent Change (1980-2010)	19%	31%	-.9%	33%	34%
Annual Rate of Change (1980-2010)	.6%	.9%	-.3%	1%	1%

* 1987 Dollars

Source: Metropolitan Council of the Twin Cities

4.8.2 Community and Neighborhood Boundaries

The Central Area Corridor is within the City of Minneapolis. Figure 4.44 identifies the Near North, Central, Northeast, University, Longfellow, Phillips, Powderhorn and Calhoun Isles planning districts and the numerous neighborhoods which comprise each of the planning districts.

4.8.3 Community Facilities and Services

The locations of facilities and services within the study area planning districts and neighborhoods are shown on Figure 4.45 and are described below:

Fire and Police Protection: There are eight fire stations and three police precinct stations within the study area. Generally, these facilities are located adjacent to or within close proximity to continuous streets that afford good access to surrounding areas.

Libraries: The libraries in the study area are located on easily accessible major thoroughfares.

Community Centers: The sixteen community centers in the study area include county, municipal, community, and neighborhood-oriented facilities. Some of these provide specialized services and attract clientele from the entire metropolitan area. Others provide general, yet highly localized services responding to the needs of neighborhood residents.

Educational Institutions: There are fourteen private and seven public educational institutions located in the study area.

Religious Institutions: There are 82 religious institutions in the corridor study area.

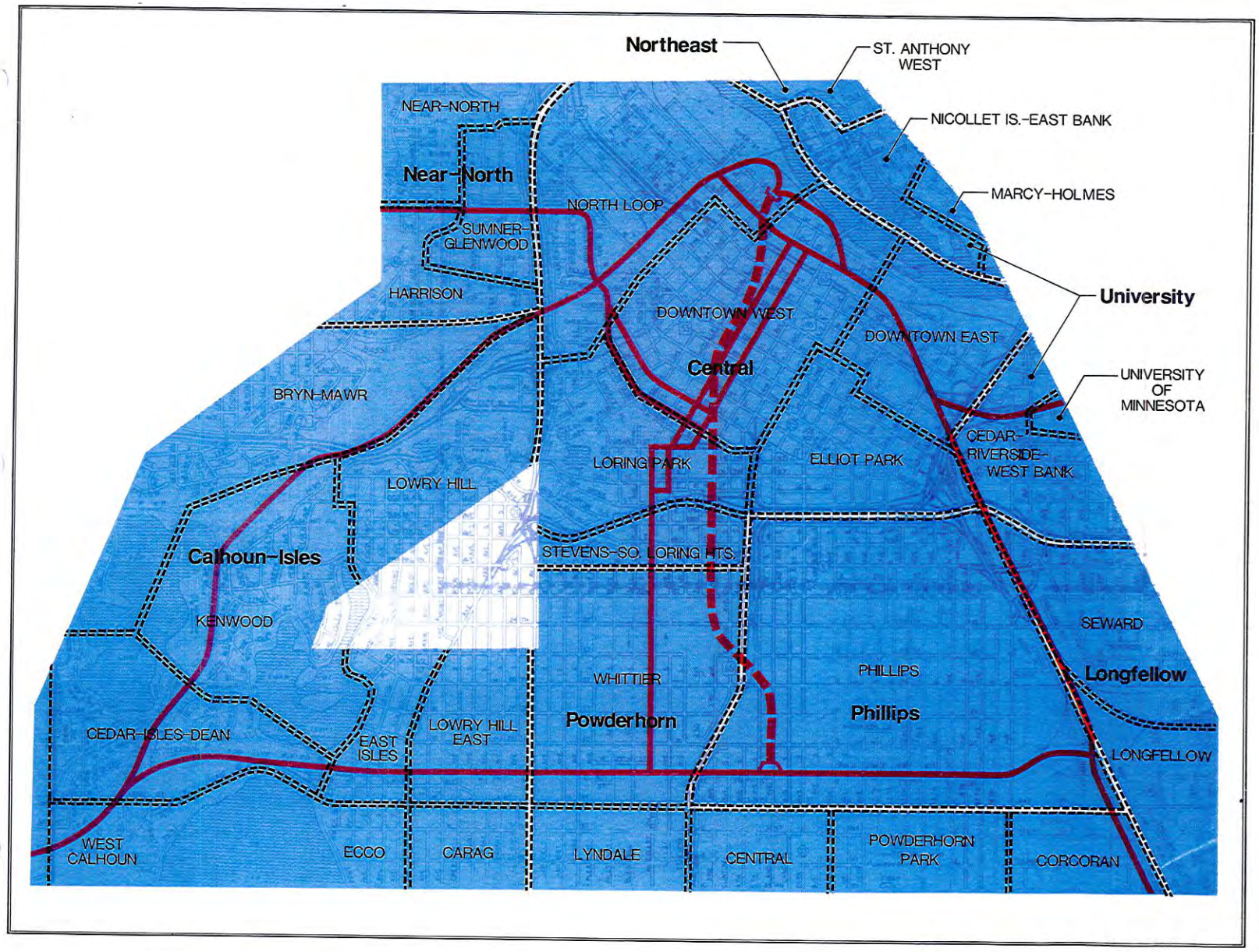
Hospitals: There are four major health care delivery facilities in the study area.

4.8.4 Land Use and Zoning

Land Use

Figure 4.46 identifies the land use in the Central Area.

The area from I-94 to Linden Street contains mostly industrial uses. From Linden Street to Hennepin Avenue land use changes to a commercial and multiple-family residential mix.



Planning Districts and Neighborhood Boundaries

Figure 4.44
Central Area

Legend

Planning Districts

Neighborhoods

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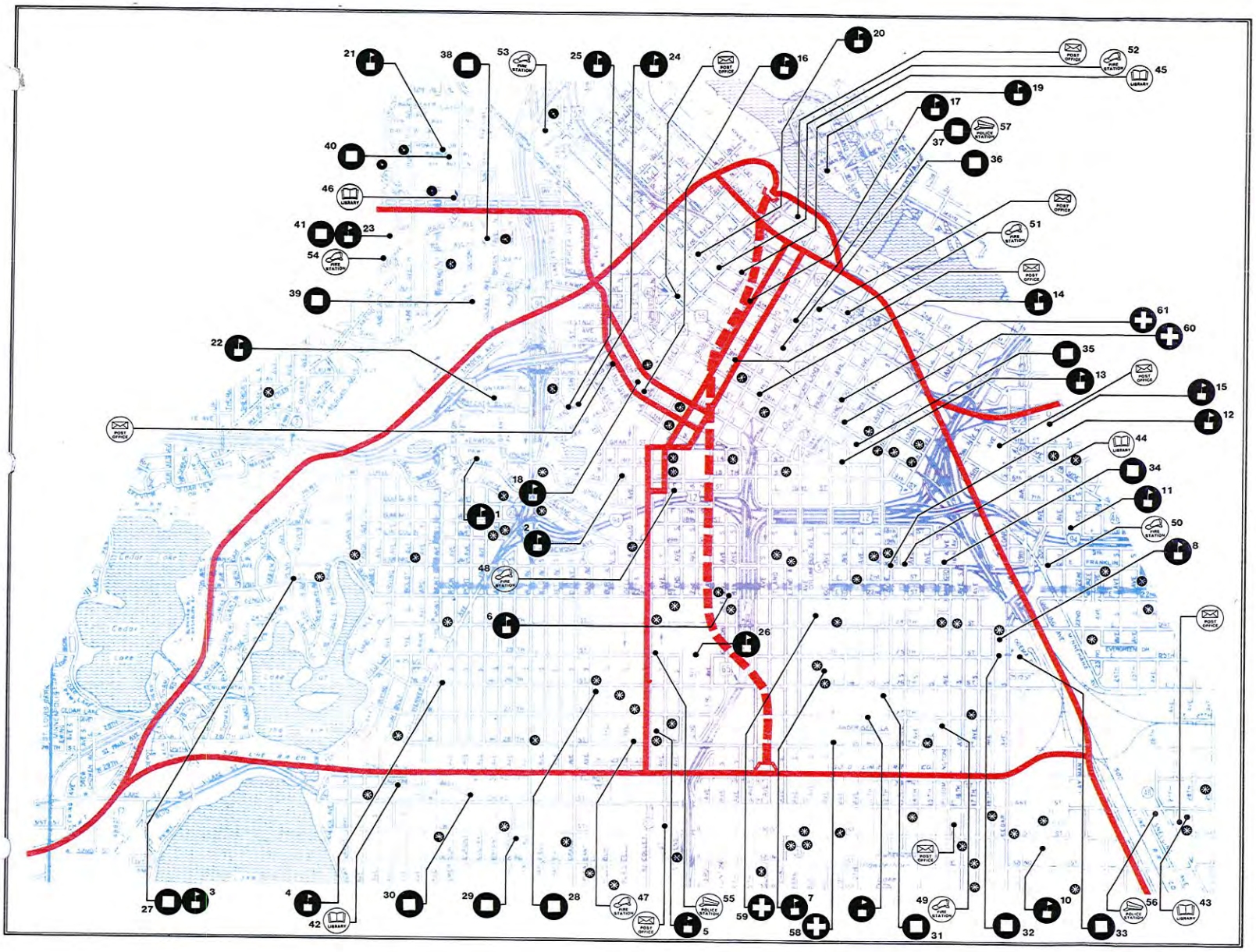
Environmental Impact Statement

Community and Educational Facilities

Figure 4.45

Central Area



BRW

1,000' 2,000' North

Legend

- Hospital
- School
- Church
- Public:
  - Library
  - Post Office
  - Police Station
  - Fire Station

1. Blake (Private/9-12)
2. Emerson(Special Ed. & P.M.H.S.)
3. Kenwood (K-6)
4. Jefferson (K-6)
5. Southside Family School (Private/K-6)
6. St. Stephen (Private/K-6)
7. Family Networks (Private /K-12)
8. Holy Rosary (Private/K-8)
9. Anderson (K-8)
10. South (9-12)
11. Augsburg College
12. Trinity First Lutheran (Private/K-8)
13. North Central Bible College (Private)
14. Trinity School (Private/7-12)
15. University of Minnesota
16. MacPhail Center for the Arts
17. College of St. Thomas Downtown Minneapolis Campus
18. Downtown Center Montessori (Private Pre K-K)
19. De La Salle (Private 9-12)
20. Walden University
21. Bethune (K-3)
22. Dunwoody Institute (Private)
23. Harrison Special Education & School Rehabilitation
24. Minneapolis Community College
25. Minneapolis Technical Institute
26. Minneapolis School of Art and Design
27. Kenwood Neighborhood Center
28. Whittier Neighborhood Center
29. Bryant Square Neighborhood Center
30. Lehman Center Work Opportunity Center & Administration Offices
31. Stewart Neighborhood Center
32. Christmas Community Center
33. Little Earth of the United Tribes Community Building
34. Minneapolis Regional Native American Center
35. Elliot Neighborhood Center
36. Hennepin County Government Center
37. Minneapolis City Hall
38. Glenwood-Lyndale Community Center
39. Transportation Center
40. Phyllis Wheatley Center
41. Harrison Neighborhood Center
42. Walker
43. East Lake
44. Franklin
45. Central
46. Sumner
47. #8
48. #6
49. #5
50. #7
51. #1
52. #10
53. #4
54. #16
55. 5th
56. 3rd
57. 1st
58. Abbott-Northwestern Hospital
59. Metropolitan Mt. Sinai Medical Center/Phillips Campus
60. Metropolitan Mt. Sinai Medical Center/Downtown Campus
61. Hennepin County Medical Center

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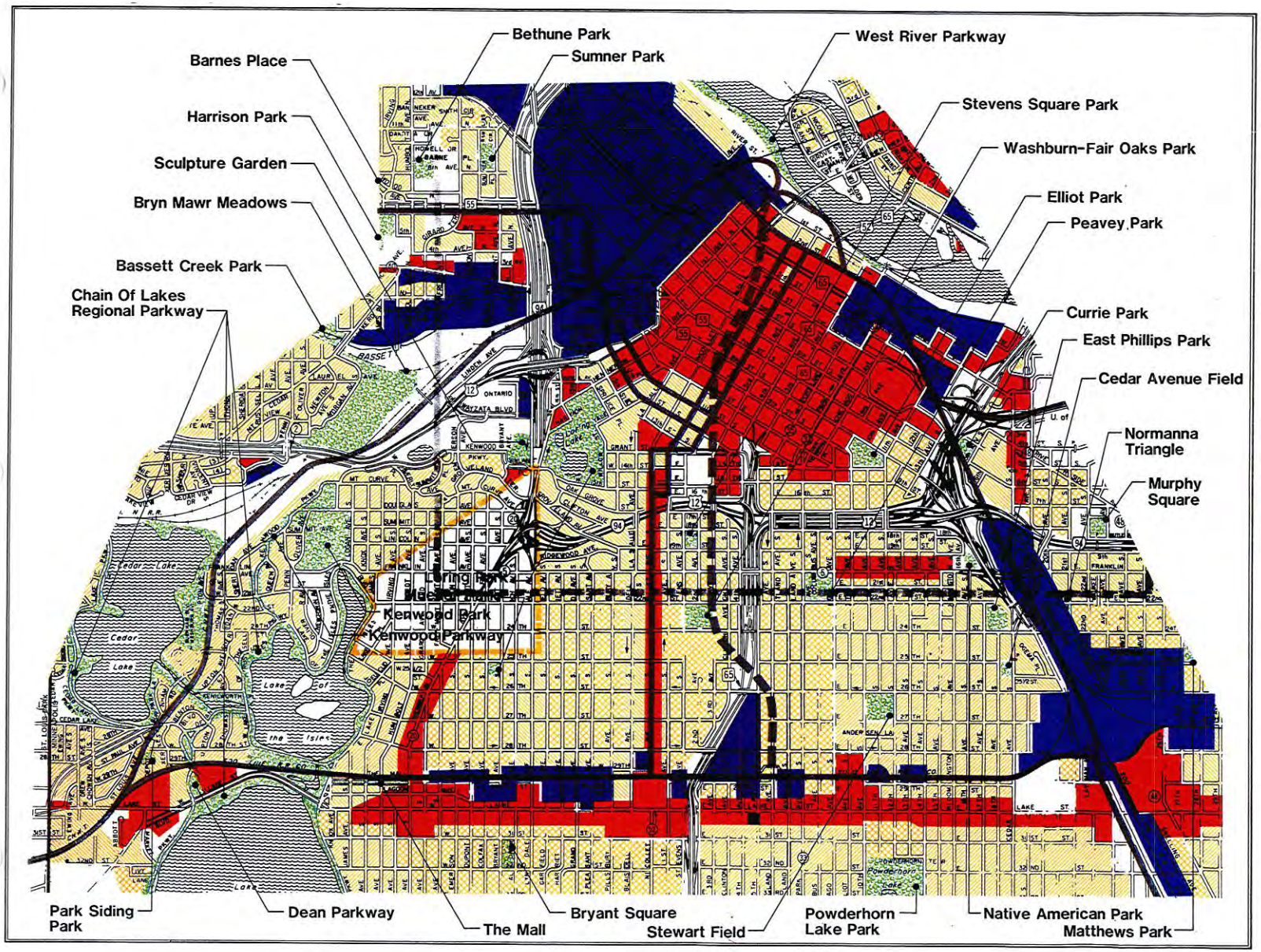

Land Use

Figure 4.46

Central Area

BRW

0' 1,000' 2,000' North

Legend

- Multiple Residential
- Single Residential
- Multiple-Single Mix
- Industrial
- Commercial
- Parks
- Other: open, institutional, public/semi-public
- Study Area Boundary

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Environmental Impact Statement

Multiple and single-family residential and commercial uses dominate the area from the Minneapolis/Saint Louis Park City limits to Lake Street. North of Lake Street to the former Cedar Lake Yard and Shops site, residential and open land uses are prominent. Beyond Cedar Lake to Glenwood Avenue, land use adjacent to the line is primarily industrial with the exception of the Bryn Mawr Meadows Park north of the I-394 (TH 12) overpass. Residential and institutional uses are set back from the adjacent industrial uses.

From the Saint Louis Park/Minneapolis boundary to the 29th Street/Soo Line Corridor, the area contains a mixture of land uses, with residential and parks being most prominent.

The 29th Street/Soo Line Corridor from Lake of the Isles Parkway to Hiawatha Avenue contains residential and commercial uses with scattered adjacent industrial use.

From the 29th Street/Soo Line corridor to 12th Street the area is characterized by commercial uses with single- and multiple-family residences set back from the road.

The area from 29th Street to the 9th Avenue is dominated by industrial use along the rail line with commercial and residential areas setback.

The area from 9th Avenue to 3rd Avenue is a redeveloping area dominated by industrial and commercial uses. Park uses are located to the north along the riverfront.

The downtown loop area, bounded by 1st and 12th Street and Hennepin and 3rd Avenues, is primarily a commercial high-rise area with multiple-family residential areas located at the north and south ends.

The area where the proposed yards and shops site would be located is bound by I-94 and Franklin Avenue to the north and south, and Hiawatha and Cedar Avenues to the west and east, respectively. Industrial land uses are prominent on both the proposed site and its adjacent properties. Commercial and multiple-family residential uses extend to the east and west, while industrial uses continue along the railroad corridor to the south. To the north, highway right-of-way containing the I-94, I-35W, and TH 55 interchange dominates land use.

Zoning

Figure 4.47 identifies the zoning for the Central Area. Based on the comparison of information identified in the zoning and land use maps, the existing zoning within the corridor is generally consistent with the prevailing land use patterns. However, because of the diversity and density

of development within the Central Area, conflicts exist. Specifically, residences are located in industrial districts along Glenwood Avenue and the 29th Street corridor, with residential and commercial use mixing along Lyndale Avenue and in the Downtown area.

4.8.5 Economic Activity: Downtown Minneapolis

Downtown Minneapolis has a strong office market which contributes to healthy retail and hotel sectors. The Convention Center currently under construction in the area will strengthen existing hotel and retail uses.

Employment forecasts for downtown Minneapolis are significantly tied to the demand for office space. Estimates indicate that downtown will absorb 9.4 million square feet of office space between 1988 and 2010. Office employment is predicted to replace much of the current area's existing manufacturing, warehousing, and distribution employment. The demand for office space is expected to increase from 13,610,800 square feet to 22,981,800 between 1988 and 2010 with a vacancy rate of eight percent. This is reflected in the increase of employment from 109,978 in 1988 to 149,105 in 2010 for the core area of downtown (Traffic Analysis Zones 1-26).

A growing general-occupancy office market would provide support for new hotels and additional retail space. Such activities, when combined with government, convention, health care, cultural, and residential activities already established downtown, will increase the economic viability and drawing power of downtown Minneapolis well into the next century.

These forecasts imply that downtown Minneapolis will continue healthy economic growth through 2010. The continued growth of downtown Minneapolis implicitly assumes that the area will continue to be accessible. Currently, four multilane highways, local streets, and public mass transportation provide access. Two major road projects will provide continued accessibility into the 1990s, thus supporting the continued growth and viability of the downtown. Beyond the 1990s, employment forecasts must rely on improvements in public transportation.

4.8.6 Traffic

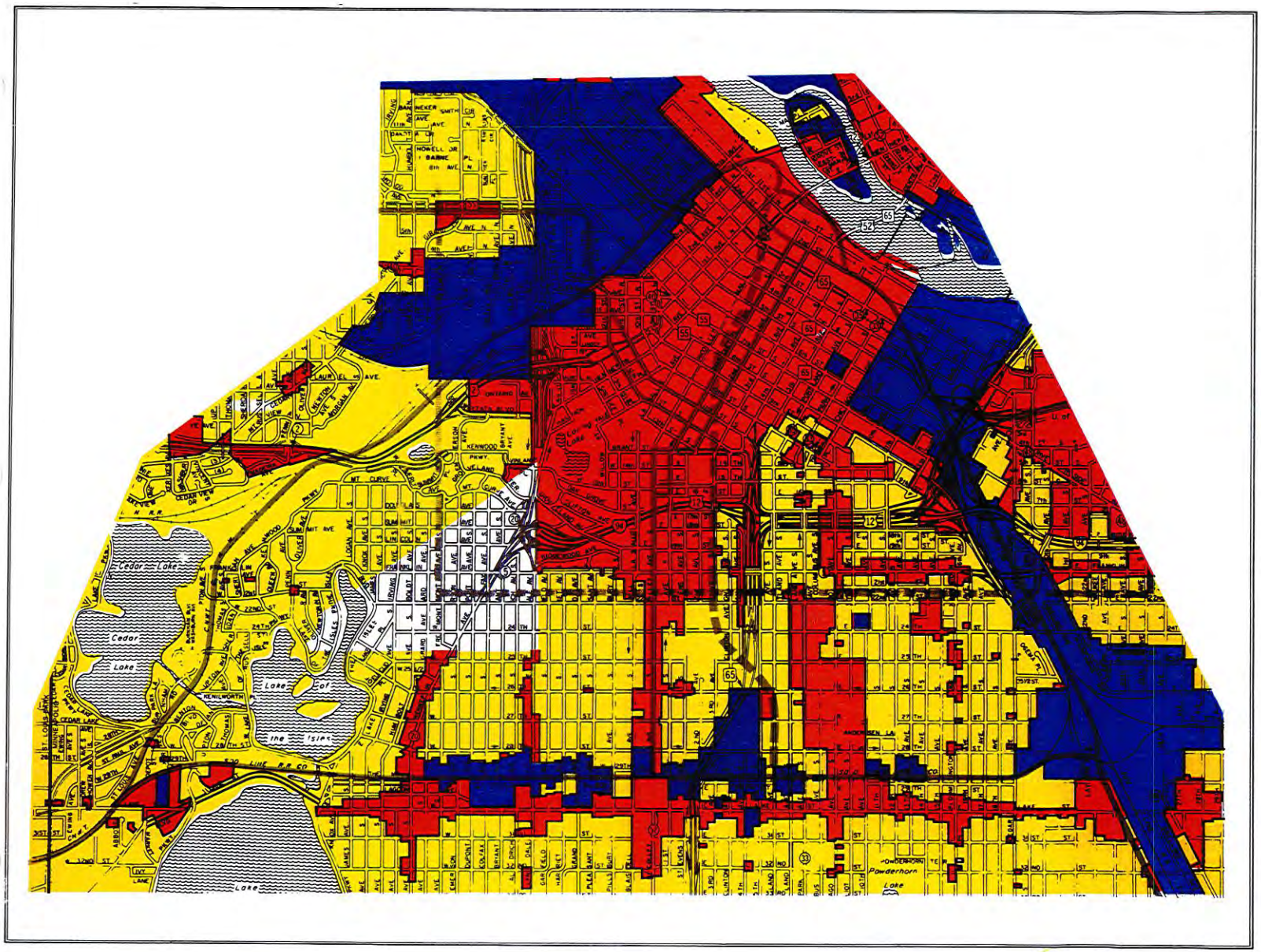
A description of roadways in the Central Area which could be impacted by the LRT are described below.

Royalston Avenue: TH 55 to Burlington Northern Right-of-Way - Royalston Avenue in this area has two lanes of traffic in each direction plus a medium, but no left turn lanes.

Corridor Zoning

Figure 4.47

Central Area



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Environmental Impact Statement

Parking is provided along both sides of the street. The Royalston Avenue bridge over the BN right-of-way near Holden Street is a two-lane bridge.

11th/12th Street, 2nd/Marquette to Burlington Northern Rightof-Way - Between 2nd Avenue/Marquette Avenue and Hennepin Avenue, 11th Street currently is a three-lane one-way street with parking along both sides of the street. Between Hennepin Avenue and Linden Avenue, parking is only provided on one side of the street. Between Linden Avenue and Currie Avenue, 11th Street narrows to two lanes with no parking. West of Currie Avenue, 11th Street and 12th Street join to form a four-lane undivided street.

12th Street between Currie Avenue and Chestnut Avenue is a two-lane one-way street with parking on one side of the street. Between Chestnut Avenue and Hennepin Avenue, parking is not allowed. East of Hennepin Avenue to Marquette Avenue/2nd Avenue, 12th Street is a four-lane undivided roadway with parking along both sides of the street.

Nicollet Avenue, 15th Street to 29th Street/Soo Line Rail Corridor - Nicollet Avenue is a two-lane two-way street in this area with parking provided along both sides of the street.

2nd Street, 2nd/Marquette to Burlington Northern Right-of-Way - In the segment of 2nd Street west of 1st Avenue North to the Burlington Northern right-of-way, one lane of traffic is provided in each direction and parking is provided on both sides of the street. In the area between Marquette Avenue and 1st Avenue North, a continuous two-lane roadway is not provided. Between 2nd Avenue and Marquette Avenue the area continous to the street right-of-way is occupied by a parking lot. Between Marquette Avenue and Hennepin Avenue, this right-of-way area is devoted to pedestrian uses. In the area between Hennepin Avenue and 1st Avenue North, four lanes of traffic are provided on a one-way street which forms the transition between the Hennepin Avenue/1st Avenue North one-way pair and Hennepin Avenue North.

In areas outside the CBD, the traffic analysis was based on the carrying capacity of streets on an average daily traffic (ADT) basis. Table 4.40 shows the estimated daily carrying capacity of various types of streets included in this analysis. Street capacities were estimated by BRW based on information contained in the 1985 Highway Capacity Manual.[1/]

1/ Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985.

Each street segment which was identified as an alternative LRT line was analyzed to determine existing roadway capacity.

TABLE 4.40
ESTIMATED DAILY CAPACITY FOR
VARIOUS ROADWAY CONFIGURATIONS

Roadway Configuration	Estimated Daily Traffic Capacity Which Will Provide Level of Service "D" Operations During Peak Hours[1/]
One-Lane, One-Way	8,000
Two-Lane, Two-Way, No Left Turn Lanes	9,000
Two-Lane, Two-Way, With Left Turn Lanes	13,500
Two-Lane, One-Way	16,000
Three-Lane, One-Way	24,000
Four-Lane, Undivided, No Left Turn Lanes	18,000
Four-Lane, Divided, With Left Turn Lanes	27,000

1/ Based on the 1985 Highway Capacity Manual.

Table 4.41 summarizes the existing daily traffic and estimated capacity in the roadways previously described.

4.8.7 Transit

Downtown Minneapolis represents the greatest concentration of bus routes in the region. Including the fringe areas, over 80 percent of the block faces in the downtown area have bus service. Currently, 472 buses, 176 from the LRT corridors, enter the downtown during the peak hour travel times.

The current bus routes are shown in Figure 4.48. North-south service is concentrated along Marquette, 2nd Avenue and the Nicollet Mall. The transit lanes on these streets are operating at capacity. East-west service focuses upon the 5th/6th and 7th/8th one-way pair streets.

TABLE 4.41
SUMMARY OF CENTRAL AREA EXISTING CONDITIONS

Roadway	Location	Existing (1988) Daily Traffic[1/]	Estimated Existing Daily Roadway Capacity[2/]
2nd Street	Portland Avenue to 2nd/Marquette	2,195	9,000
Marquette Avenue	1st Street to 15th Street	14,980	-- [3/]
2nd Avenue	1st Street to 15th Street	12,495	-- [3/]
Royalston Avenue	TH 55 to Burlington Northern Right-of-Way	3,380	27,000
11th Street	2nd/Marquette to Linden Avenue	8,415	24,000
	Linden Avenue to Currie Avenue	2,960	16,000
12th Street	Currie Avenue to Burlington Northern Right-of-Way	5,105	18,000
	Currie Avenue to Chestnut Avenue	3,710	16,000

TABLE 4.41
SUMMARY OF CENTRAL AREA EXISTING CONDITIONS
(CONTINUED)

Roadway	Location	Existing (1988) Daily Traffic[1/]	Estimated Existing Daily Roadway Capacity[2/]
	Chestnut Avenue to Linden Avenue	3,710	16,000
	Linden Avenue to Marquette/2nd	10,275	18,000
Nicollet Avenue	15th Street to 29th Street/Soo Line Rail Corridor	9,180	9,000
2nd Street	2nd/Marquette to Burlington Northern Right-of-Way	6,940	9,000

1/ Source: 1988 City of Minneapolis Traffic Flow Map. In some cases, the ADT varies along the length of each street. The number shown is the highest ADT along east segment.

2/ Estimated maximum daily roadway traffic which will provide level of service "D" operations during peak hours. See Table 4.40.

3/ This segment was the subject of detailed analysis conducted by the City of Minneapolis. For discussion regarding this segment see Section 5.8.4 (Impacts and Mitigation).

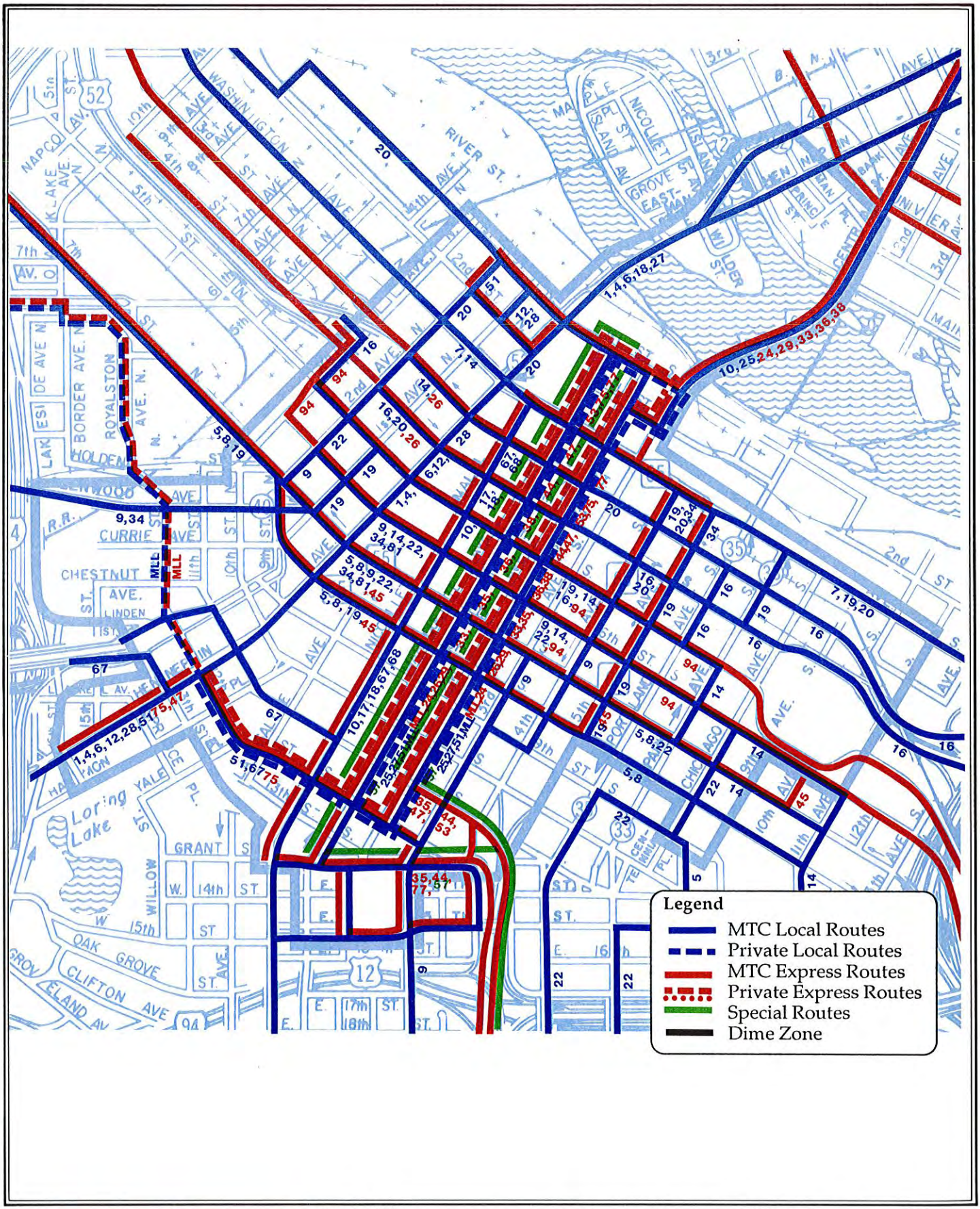

Figure 4.48

Downtown Minneapolis Area Transit System Map

Source: Regional Transit Board, January, 1988

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BRW

The downtown bus routes service three functions: regional access to downtown destinations, transfer for inter-corridor trips, and internal circulation. The access to downtown destinations is reflected by the concentration of routes along the office/retail core. This route concentration also enhances the ability to transfer between routes for inter-corridor trips.

The proximity of the various routes in the Central Area reduces the potential walking distance required to transfer between routes.

The circulation function, provided by the downtown bus operation, is reinforced by a reduced fare. Within the geographic boundaries shown in Figure 4.48, referred to as the "Dime Zone," any internal transit trip can be completed for a $.10 fare. This reduced fare increases the travel range for satellite parking patrons, discretionary lunch-time trips and reduces the need for auto usage for daytime business travel in downtown.

4.8.8 Noise

The dominant noise source within the Central Corridor is traffic noise. Within this corridor, noise receiver sites--generally sidewalk locations--are located immediately adjacent to roadways carrying significant levels of medium and heavy truck traffic. In addition to the proximity of the roadway source to the receiver sites, the location of the continuous multi-story building fronts creates a reflective barrier, which directs the traffic noise back to the sidewalk receiver.

Two receiver sites were located within the Central Area (Figure 4.49). The location, predominant land use and monitored noise level at the selected representative noise receivers are documented in Table 4.42. The monitored noise levels in the Central Area approached or exceeded the State Daytime Noise Guidelines.

4.8.9 Vibration

Within the Central Area there are existing sources of vibration. Specifically, along the railroad right-of-way segments freight trains currently cause ground-borne vibration at adjacent receivers during passby. Along roadway right-of-way segments, vibration is presently being created by heavy vehicles using the roadway.

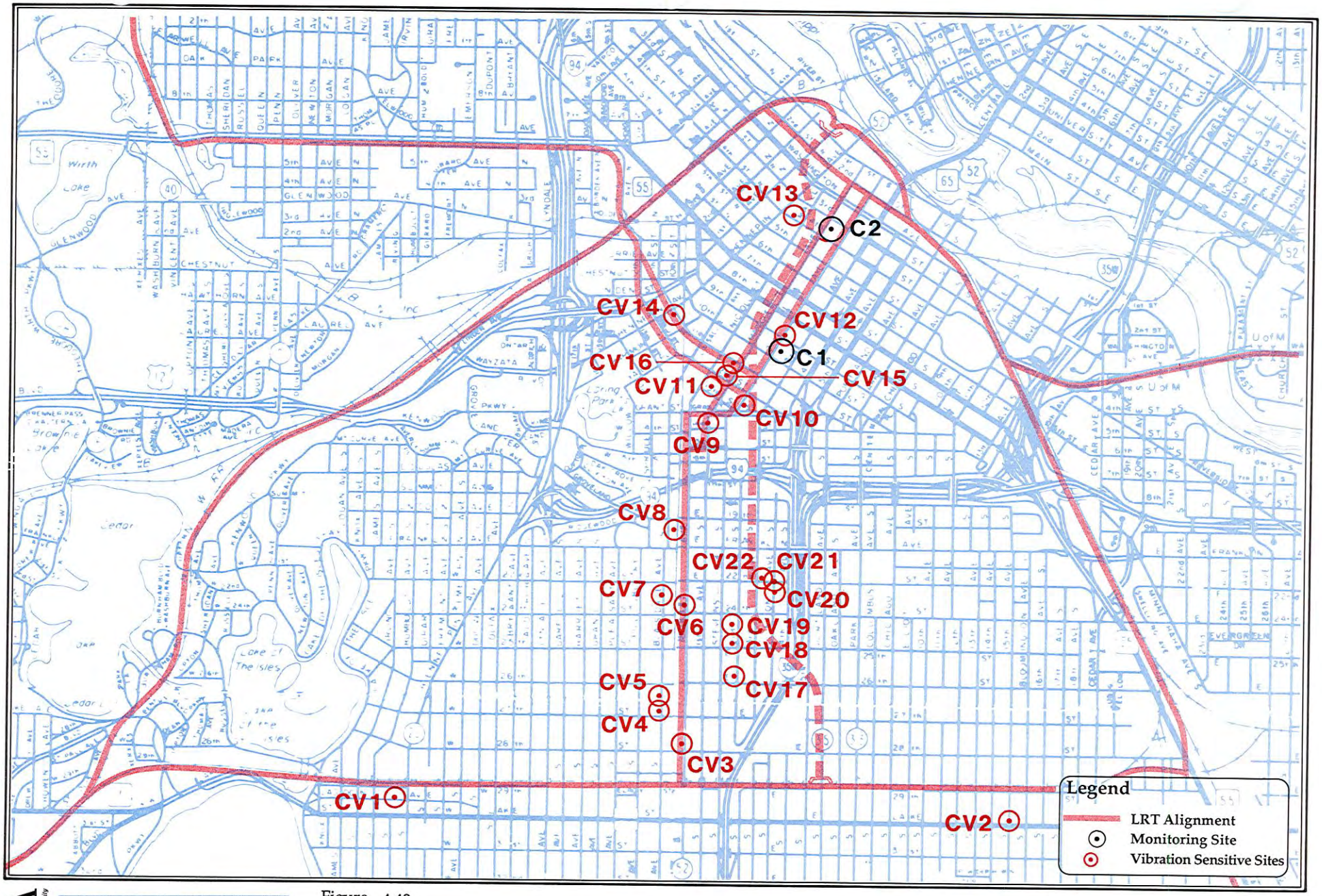

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Figure 4.49
Central Area

BRW
0 1/4 Mile North

Noise Monitoring and Vibration Sensitive Use Locations

TABLE 4.42
MONITORED NOISE LEVELS

Central Area

MONITORING SITE	LOCATION	DATE	MONITORING PERIOD	MONITORED LEVEL (dBA) L10	L50	COMMENTS
C1	E. of 2nd Ave.	7/5/89	5:00PM-6:00PM	70	65	Monitor 10 feet from street. Six bus passbys during 15 minute count.
C2	E. of Marquette Ave. N. of 3rd Street	7/7/89	4:45PM-5:45PM	71	66	Monitor 10 feet from street. Thirty-nine bus passbys during 15 minute count.

In the proposed Central Area there remain a number of alignment and location alternatives. These alternatives include both at-grade and tunnel plans within the outside the CBD.

The locations of uses potentially impacted by LRT along the at-grade and tunnel alternatives are displayed in Figure 4.49 and documented on Table 4.43.

As a result of the proximity of the LRT Line to the commercial along the CBD alignments, the buildings should be considered potentially impacted areas. Generally, the buildings would be located 40 to 50 feet from the near side rail line. At this distance, the proposed LRT could potentially produce ground-borne vibration levels in excess of established maximum levels for commercial uses.

4.8.10 Wetlands, Vegetation and Wildlife

This area includes segments within and just outside of the downtown area. The proposed alignments follow existing streets, medians or railroad rights-of-way. There is no wetland or prairie vegetation present, and because of the urban nature of this corridor, there would not be significant impacts to wildlife should the LRT tracks be located in any of the proposed areas.

Two parts of the central corridor cross protected waterways: the Kenilworth Lagoon and the channel between Lake of the Isles and Lake Calhoun. The existing railroad bridges are presently wide enough to accommodate the proposed LRT tracks. These waterways are part of the park system around the lakes. Currently, there is no wetland vegetation in or around the bridges that would be affected by the LRT system.

Even though the Kenwood segment is the least urban of the Central Area segments, the area doesn't have any significant native vegetation. The south half of this segment lies within a residential area. The railroad right-of-way is covered with non-native grasses and weeds, with trees and brush along the edges of the right-of-way. The area is littered with garbage. The north half of the Kenwood segment runs through old railroad yards and is crossed by two major highways. The area has been, and continues to be, exposed to a great deal of disturbance. The vegetation in this segment attracts limited wildlife.

The remaining segments of the Central Corridor are also in highly disturbed areas, which lack vegetation and therefore are unable to support wildlife.

TABLE 4.43
GROUND-BORNE VIBRATION SENSITITVE LOCATIONS IN CENTRAL AREA

Site	Location	Use	Applicable Guideline(dB)
CV1	West of Hennepin Avenue/ South of the Mall	Library	75 dB
CV2	East of 15th Avenue South/ North of Lake Street	Church	70 dB
CV3	East of Nicollet Avenue/ North of 28th Street	Church	70 dB
CV4	East of Blaisdell Avenue/ North of 27th Street	Church	70 dB
CV5	East of Blaisdell Avenue/ North of 27th Street	School	75 dB
CV6	East of Nicollet Avenue/ North of 24th Street	Church	70 dB
CV7	West of Nicollet Avenue/ South of 22nd Street	School	75 dB
CV8	West of Nicollet Avenue/ South of 19th Street	Church	70 dB
CV9	East of 1st Avenue/ South of Grant Street	Church	70 dB
	Marquette/2nd Avenue		
CV10	East of 2nd Avenue/ North of 12th Street	Church	70 dB
CV11	West of Marquette Avenue/ South of 12th Street	Church	70 dB
CV12	East of 2nd Avenue/ South of 8th Street	Church	70 dB
CV13	West of Nicollet Avenue/ South of 3rd Street	Library	75-80 dB

TABLE 4.43
GROUND-BORNE VIBRATION SENSITIVE LOCATIONS IN CENTRAL AREA
(CONTINUED)

Site	Location	Use	Applicable Guideline(dB)
	From Kenwood		
CV14	East of Hennepin Avenue/ North of 11th Street	Church	70 dB
CV15	West of Marquette Avenue/ North of 11th Street	Orchestra Hall	70 dB
CV16	West of Marquette Avenue/ North of 11th Street	TV Studio	65 dB
CV17	East of 2nd Avenue/ North of 26th Street	Theater	70 dB
CV18	West of Clinton Avenue/ North of 25th Street	College	75 dB
CV19	West of Clinton Avenue/ South of 24th Street	School	75 dB
CV20	East of Clinton Avenue South of 22nd Street	Church	70 dB
CV21	East of Clinton Avenue North of 22nd Street	School	75 dB
CV22	West of Clinton Avenue North of 22nd Street	Church	70 dB

4.8.11 Water Resources

The Central Area includes portions of the Bassett Creek Watershed District, Middle Mississippi River and Minnehaha Creek Watershed Districts.

Figure 4.50 identifies the watershed district and affected floodplain boundaries in the Central Area.

Shoreland Zoning

A Shoreland Zoning District boundary lies 1,000 feet from the edge of Cedar Lake, Lake of the Isles, and Lake Calhoun, and 300 feet from the edge of the Kenilworth Lagoon. To the east, a Shoreland Zoning District boundary lies 300 feet from the edge of the Mississippi River.

Mississippi River Critical Area

As indicated in Figure 4.45 (Land Use), a portion of the Mississippi River Critical Area extends into the Central Study Area.

Water Quality

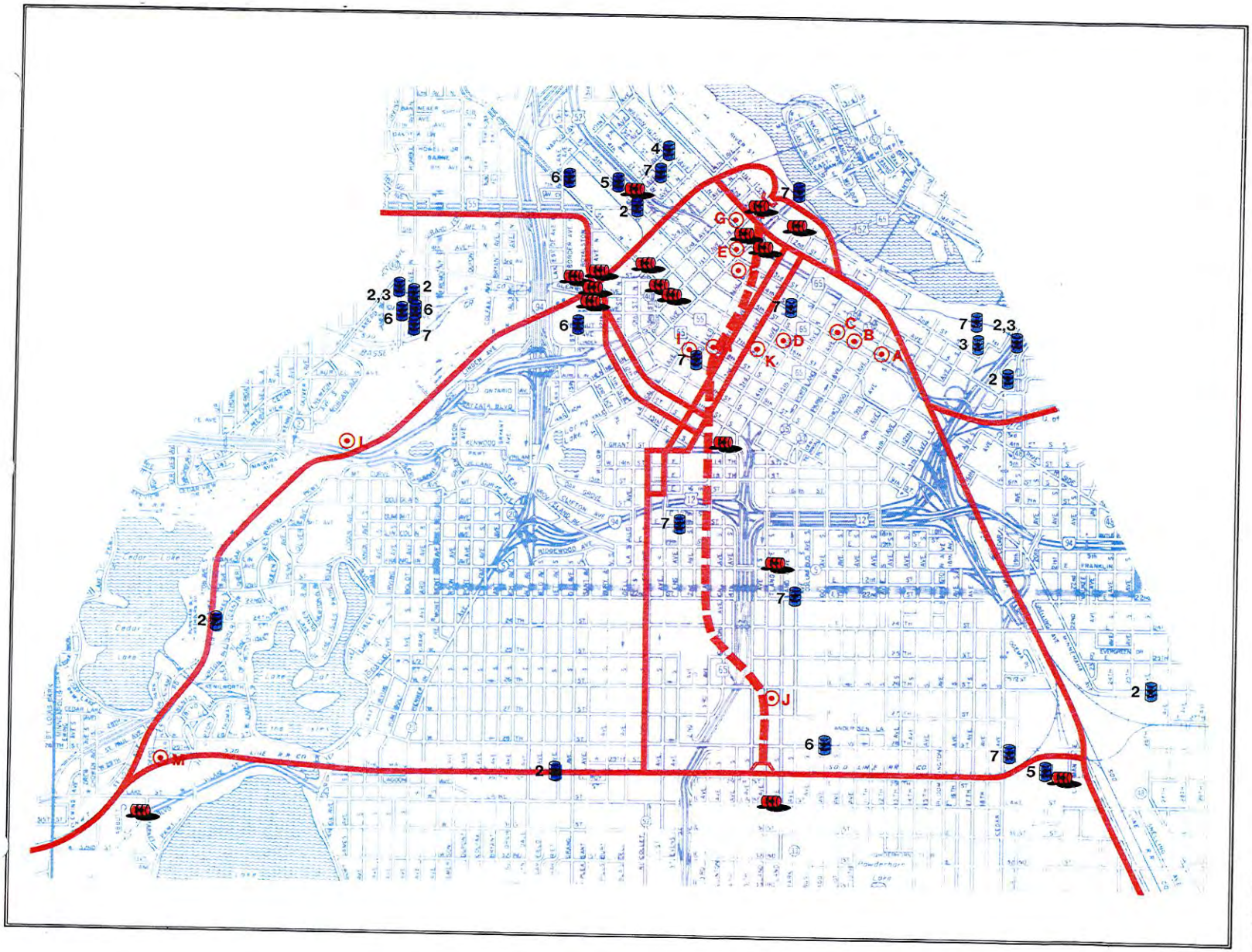
Existing Mississippi River water quality, in the Metropolitan area, is addressed in Section 4.4.10.

Lake Calhoun, Lake of the Isles and Cedar Lake are included in the Central Area. These lakes are classified as 2B, 3B, 4A, 4B, 5 and 6 class waters by the State of Minnesota (Minnesota Rules 7050.0430).

The Minnehaha Creek Watershed District currently conducts water quality analysis on each of the above-mentioned lakes. A copy of the 1987 data, from the Minnehaha Creek Watershed Districts 1987 Hyrologic Data Report is included in the Appendix.

Groundwater

The surficial soils, Platteville limestone and St. Peter sandstone all contain some groundwater. The groundwater in the soil results from percolation of surface water and occurs irregularly because of variations in surface land use and topography, soil type, permeability, bedrock elevations and other factors. The soils in the downtown area are generally pavement and are not saturated. The southern portion of the proposed LRT tunnel area has groundwater 50 to 60 feet below the surface.



Locations of Possible Soil Contamination

Figure 4.50

Central Area

BRW

0 1,000' 2,000' North

Legend

Contaminated Sites Identified in Soil Boring Logs

Minnesota Pollution Control Agency:

Reported Leak Sites

Listed Sites

1. National Priorities List (NPL)
2. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
3. Permanent List of Priorities (PLP)
4. Regulatory Compliance, Hazardous Waste Enforcement Log
5. List of Permitted Solid Waste Facilities
6. Hazardous Waste Permit Unit Project Identification List
7. 1980 Metropolitan Area Waste Disposal Site Inventory
8. 1980 Statewide Open Dump Inventory

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The Platteville limestone aquifer, with its base at the Glenwood shale aquitard, has very low natural permeability and porosity. As a result, groundwater flow occurs in open joints, seams, and bedding planes. In the absence of an aquitard above (Decorah Shale or till), these features may tap the water-bearing overburden. Horizontal seams or bedding planes in the limestone may carry water for considerable distances under pressure.

The Glenwood shale separates the limestone aquifer from the aquifer in the sandstone.

The water surface in the St. Peter sandstone aquifer is generally ten to forty feet below the top of the formation in the Central Area. South of I-94 the St. Peter aquifer is under confined or artesian condition, because the overlying shale is impermeable.

Low-permeability silt stone lenses or layers exist in the sandstone, particularly in the southern portion. One layer is commonly found about ninety feet below the top of the formation. The flow gradient of the St. Peter sandstone aquifer is generally from the west toward the Mississippi River.

4.8.12 Soils

General Conditions

Soil thickness ranges from eighty feet in the south to ten feet in the north. The soils primarily consist of sands mixed with silt and/or gravel, with occasional layers of clayey sand or sandy clay. The former is usually classified as alluvium and the latter as glacial till. Based on blowcounts, densities in the upper twenty feet are generally loose; below twenty feet the soils are usually dense to very dense.

Contaminated Soil Sites

Figure 4.51 identifies the sites in the Central Area Corridor, which are included in the Minnesota Pollution Control Agency (MPCA) files, that indicate there has been a release, or threatened release of a hazardous substance, pollutant, or contaminant. The sites are labeled according to the appropriate list which they are included in (List 1-8 defined in Table 4.12). The MPCA letter in Chapter 8.3 lists the corresponding address for each site. Also included in the figure are seventeen sites where leaking underground storage tanks have been reported (addresses are listed in the Appendix). Included in the Underground Storage Tank Information Data Base, but not illustrated in

the figure because of incomplete location information, is the list of hazardous substance and/or petroleum product spills. A complete listing of Minneapolis sites can be found in the Appendix.

In addition to the soil contaminated sites identified in the MPCA records, Table 4.44 outlines the sites identified in the available soil boring logs pertaining to the central area.

Yard and Shop Site

Three reports regarding investigating at the yards and shop site were discovered during a review of available records. The earliest investigation reported petroleum odors between 16 and 35 feet deep in one borehole. Later investigations found areas of diesel fuel/fuel oil hydrocarbon contamination in the upper five to six feet of soil at several locations. The most recent investigation also sampled and tested groundwater with the result that there appears to be a mineral spirit-like substance in all the samples tested.

4.8.13 Steep Slopes

Existing steep slope conditions are limited to the 29th Street/Soo Line Corridor segment of the study area.

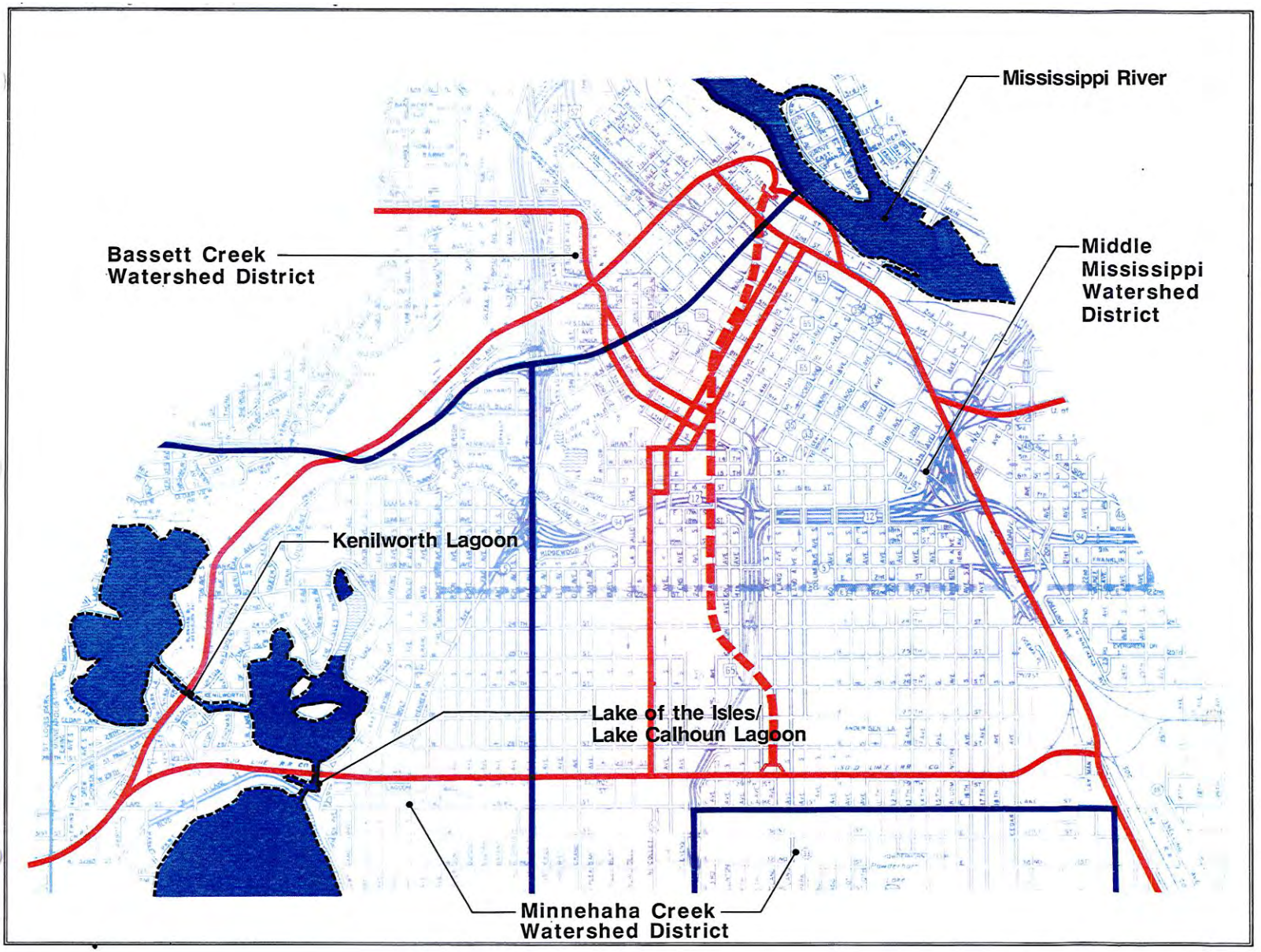
4.8.14 Tunnel Area Geological Conditions

The Twin Cities Metropolitan Area is underlain by near-horizontal to gently dipping sedimentary rocks which form the Twin Cities structural and hydrologic basin. The bedrock units are relatively uniform and predictable as a result of the sedimentary origin, except where preglacial rivers eroded valleys in the bedrock. A veneer of glacial and postglacial soil deposits cover the bedrock units and have filled the older bedrock valleys.

A description of the geologic units in the Central Area follows.

Decorah Shale is not known to exist in the Central Area but may occur in erosional remnants.

Platteville Limestone in the Central Area is bounded by the Mississippi River channel to the northeast and a deep buried valley to the northwest and west. Limbs of another buried valley to the south extend northward toward the downtown area.



Floodplains and Watershed Districts

Figure 4.51
Central Area

BRW

1,000' 2,000' North

Legend

Floodplain

Watershed District Boundary

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TABLE 4.44
SOIL CONTAMINATION SITES (Source: Soil Boring Records)

REFERENCE ON MAP	LOCATION	DEPTH	CONTAMINATION
A	East side of Chicago, 160' south of 3rd Street	30'-40'	Organic vapors 1PPM moderate petroleum odor in soil
B	West side of Park, 200' south of 3rd Street	various	1.-1.5 PPM, organic vapors in soil
C	NW corner of Portland and 4th Street	various	1.-1.5 PPM, organic vapors in soil
D	West side of 4th Avenue, 42' south of 5th Street	25'-30'	Strong petroleum odor in soil
E	South side of Washington, 105' west of Hennepin	34.5'	Petroleum odor noticed in shale
F	South side of 3rd Street 90' east of Hennepin	37'-40'	Petroleum product noticed in shale
G	East side of 1st Avenue, 41' north of Washington	25'	Petroleum product noticed in limestone
H	North side of 8th Street, 68' west of Marquette	1'-11'	1-26 PPM, organic vapors in fill
I	North side of 9th Street, 52' west of Marquette	2'	2 PPM, organic vapors in fill
J	SE corner of 26th Street and Portland	26'	1 PPM, organic vapors in soil
K	South 7th Street between 2nd and 3rd Avenue South	67'	Petroleum odor in soil
L	I-94 and C & NW Railroad	15'-65'	Creosote
M	Xerxes Avenue South and Soo Line Railroad, near 29th Street		Not recorded

The upper surface of the formation has been exposed to both glacial and river erosion. In the central portion of the area the formation is approximately 25 to 30 feet, although erosional pockets and channels exist. In the western portion of the area, above the monoclinal fold structure (described below), and to the south the formation is approximately 15 feet thick, and more likely to have local variations in thickness.

A monoclinal fold structure extends northeast-southwest through the Central Area. Southeast of the monocline, the rocks are generally flat-lying at about 760 MSL. Above the monocline to the northwest, the formations are approximately 50 feet higher at about 810 MSL.

The structural characteristics of the Platteville limestone are controlled by the member contacts, other bedding features and by a regular pattern of near-vertical joints.

The bedding and jointing is more prevalent in the area of the monocline, and adjacent to buried valleys where more stress relief weathering and erosion have occurred.

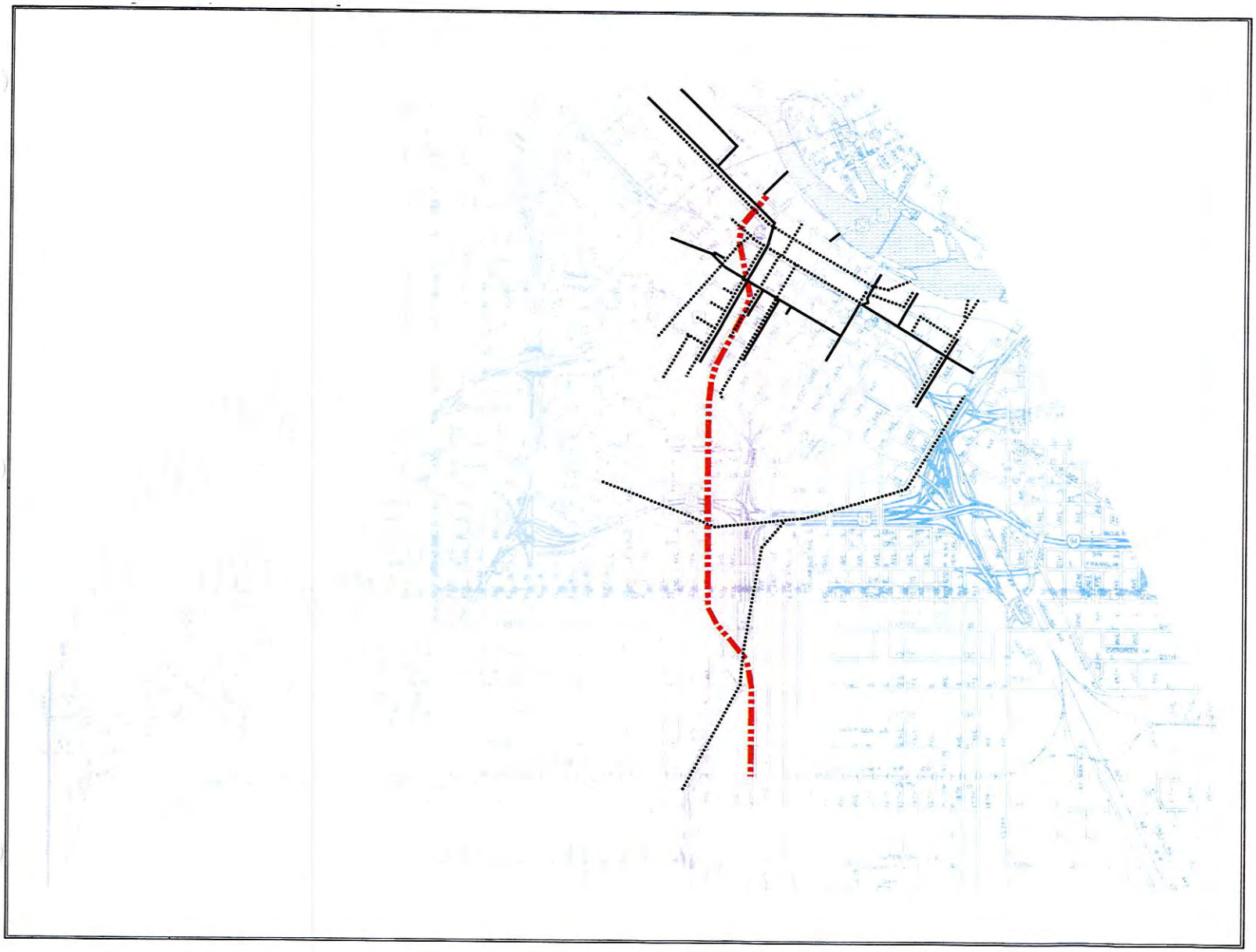
Glenwood Shale occurs at the base of the Platteville limestone, between the Platteville formation and the St. Peter sandstone. The shale is generally two to five feet thick with a transitional contact between the Glenwood and St. Peter formations. Several hard and soft shale layers occur within the Glenwood.

St. Peter Sandstone is a 150-foot-thick unit of low strength quartz sandstone. The St. Peter formation is layered with variations in color, strength and hardness.

4.8.15 Tunnel Area Utilities

Figure 4.52 shows the general location of storm and sanitary sewers in the project area owned by the City of Minneapolis, Metropolitan Waste Control Commission (MWCC) and Mn/DOT. The tunnels range from about five years to more than 100 years old. Other tunnels, which are most likely abandoned, exist in the Central Area.

One cave is known to exist in the Central Area, southwest of 4th Street South between Marquette and 2nd Avenue South. There is also evidence of a small cave at the top of the St. Peter sandstone on Nicollet Avenue one-half block north of 8th Street South. Caves also exist outside the Central Area, so the possibility of additional caves within the Area cannot be dismissed. The caves are thought to result from the erosion and removal of St. Peter sandstone because of running water.



Storm & Sanitary Sewer Tunnels in St. Peter Sandstone

Figure 4.52

Central Area

Legend

- LRT Tunnel Alignment
- Sanitary Sewer Tunnel
- Storm Sewer Tunnel

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Environmental Impact Statement

4.8.16 Parklands

The Central Area parks are illustrated in Figure 4.46 (Land Use) and briefly described below:

- Chain of Lakes Regional Park; Lakes Calhoun, Isles, and Cedar and Kenilworth Lagoon (Minneapolis Park Board):

  This is an extremely popular and extensive linear park and open space system which accommodates millions of visitors throughout each year. The parkways and trails are the heart of the Minneapolis Parkway system and an essential element of the Regional Park and Trail System. All facilities are intensively used. Activities include walking, jogging, bicycling, swimming, sunbathing, windsurfing, canoeing, organized road races, ice fishing, ice skating, and hockey.

- The Mall (Minneapolis Park Board):

  A local street (1,600-foot length) with a thirty-foot wide landscaped median and landscaped edges.

- Park Siding Park:

  A small neighborhood park containing children's play equipment.

- Bryn Mawr Meadows (Minneapolis Park Board):

  Bryn Mawr Meadows is a large, landscaped athletic complex including several baseball and softball fields, a lighted football field, and pedestrian and bicycle paths.

- West River Parkway (Minneapolis Park Board):

  The West River Parkway includes pedestrian and bicycle trails, historic interpretive features, river overlooks and promenade. The Parkway area is landscaped and includes special lighting structures. The Parkway and associated facilities are planned to be extended to and through the University Flats area, completing the West River Parkway system and connecting Downtown Minneapolis to the Minnehaha Park and Parkway. This portion of West River Parkway runs through the St. Anthony Falls Historic District.

- Cedar Avenue Field (Minneapolis Park Board):

  Cedar Avenue Field includes the following recreational facilities: softball and football fields, basketball court, play equipment, winter skating rink, and benches. Size: 1.7 acres.

- Native American Park (Minneapolis Park Board):

  This is a special local park under the jurisdiction of the Little Earth of United Tribes, Inc., which serves the recreational needs of this community. This park has an outdoor powwow area, the only one of its kind in the Twin Cities Area. Size: Two acres.

- East Phillips Park (Minneapolis Park Board):

  Facilities at this park include: softball and football fields, basketball court, horseshoes, skating area, hockey rink, restrooms, wading pool, tennis courts, children's play equipment, and recreation building. Size: 6.9 acres.

4.8.17 Visual and Aesthetics

The photos in Figures 4.53A-J illustrate the visual and aesthetic character of the Central Area. The Central Area has been divided into general segments to facilitate the description of its visual environment.

29th Street/Soo Line Corridor (Figure 4.53A)

East Saint Louis Park City Limits to Hennepin Avenue:

Building heights in the western portion of this segment range from two to four stories. The overall visual appearance in this segment includes residential uses adjacent to the right-of-way, some surface parking lots, and parkland vegetation. As the alignment approaches Hennepin Avenue the appearance becomes a tighter urbanized environment.

Hennepin Avenue to Hiawatha Avenue:

The 29th Street corridor has similar characteristics for its entire length. It is located in a trench with the avenues crossing above. Adjacent land use is a mixture of retail, commercial manufacturing and residential uses. This area has remained virtually unchanged for the last forty years. Visually, the corridor is interrupted by bridges and piers at almost every block. In addition, overhead wires run adjacent to the right-of-way, and sporadic vegetation dots the segment.

Nicollet Avenue (Figure 4.53B)

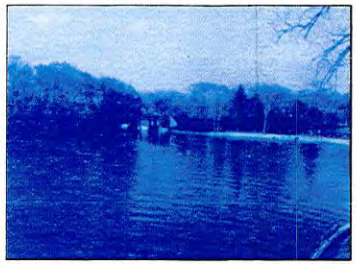
This north/south connector contains a neighborhood commercial district at the south end and a deteriorating commercial district at the north end. In-between is a mix of neighborhood commercial and multi-family housing. The character and scale of the commercial land use reflects both

Photo/Visual Aesthetics

West Lake Street Area Looking Northeast at Railroad Split

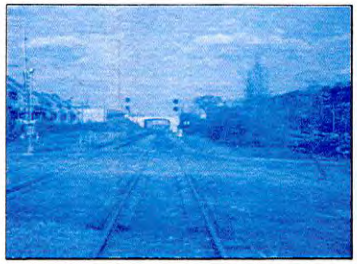
Dean Parkway Looking South Through Residential at Railroad Bridge

Lake Calhoun Beach Area Looking Northeast Across Lake Street

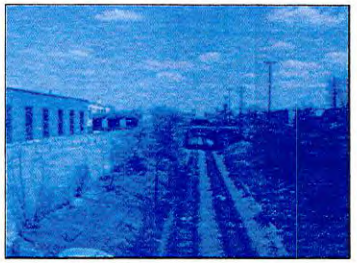


Lake Street Looking Northeast Across Lagoon Toward Railroad Bridge

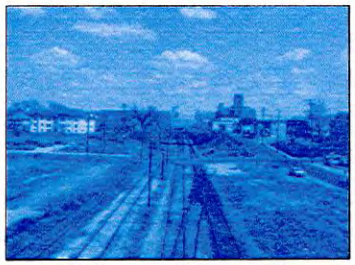
Lake of the Isles Parkway Looking North at Railroad Bridge



Humbolt Avenue Looking East at Hennepin Avenue Bridge



Blaisdell Avenue Looking East Toward Nicollet Avenue Bridge



4th Avenue Looking East to 5th Avenue At-Grade Crossing

11th Avenue Looking East Toward 12th Avenue Bridge

20th Avenue Looking Southwest Toward Cedar Avenue Bridge

Figure 4.53A

Central Area

29th Street

BRW

HCRRA

LRT System

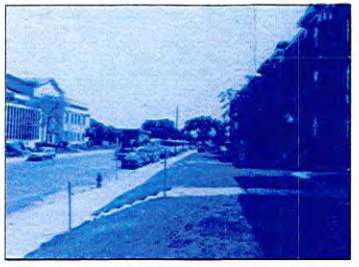
Environmental Impact Statement

Photo/Visual Aesthetics

Looking South Across 28th Street To Sunken 29th Street Rail Corridor

26th Street Looking South Through Retail Corridor

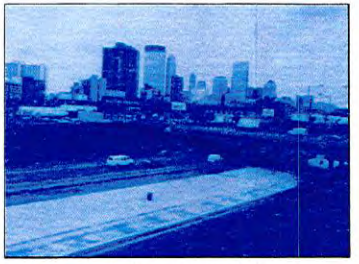
Looking North Up Nicollet Avenue Toward 25th Street



Looking South Along Nicollet Avenue To 24th Street

Nicollet And Franklin Avenue Intersection Looking North

Groveland Avenue Looking North Toward Central Business District



Looking Northeast At Nicollet Avenue Crossing I-94 Into Downtown

15th Street At Nicollet Avenue Looking East To Convention Center

South Down 1st Avenue From Grant Street

Marquette Avenue From Grant Street Looking Northeast Into Central Business District

Figure 4.53B

Central Area

Nicollet Avenue

BRW

the age of the neighborhood and its demographic makeup. The southern section of the segment is spotted with small storefront operations providing a variety of services and products. A more intensely developed area of neighborhood services and entertainment exists in the vicinity of 26th and 27th streets, which is more highly pedestrianized than the other sections of this segment. Another area exists at Franklin Avenue; however, its character is considerably less than that found at 29th Street. As this segment approaches the downtown, at its very northern point, the adjacent land uses become more densely urban in their scale.

The presence of visual clutter in this segment is more reflective of the area's age and in most cases helps to reinforce its image as a neighborhood commercial center. Such visual elements as overhead power lines help to maintain its scale, while the mix and age of building types help to reinforce its character. The smattering of signs present on local businesses does not greatly detract from the visual environment.

Kenwood to Central Business District (Figure 4.53C)

West City Limits to 21st Street:

Beginning at the west City limits, the right-of-way narrows and enters an area which is primarily single- and multi-family residential. Most building heights are one-to-four stories with some towers up to twelve stories. At some points, housing directly abuts the right-of-way. North of Cedar Lake Boulevard, the alignment enters a wooded area with adjacent single-family residential housing continuing to north of 21st Street.

21st Street to Glenwood Avenue:

Major visual issues in this segment include the open expanse through the rail yards, both I-394 and I-94 bridgework, and the industrial character at the east end (with open storage and parking lots).

11th and 12th Streets (Figure 4.53D)

The east/west segment consists of 11th and 12th Streets between 2nd Avenue and Glenwood Avenue. The eclectic nature of this area is reflected in the presence of different land uses ranging from Orchestra Hall on the eastern edge, to light industrial to the west. Because this segment is on the fringe of the downtown, its scale is less than that of the CBD core. Visual clutter within this segment is similar to that found in other portions of the CBD. The presence of

deteriorating buildings and light industrial land uses reduces the visual quality of the western portion. Additionally, the mixture of land use helps to deny the entire segment of any unifying visual identity.

Lake Street to 3rd/4th Streets (Figure 4.53E):

The area from Lake Street to I-94 is dominated by views of the Milwaukee Railroad's switching yard and adjacent industrial development.

The segment north of I-94 includes the Cedar-Riverside retail-commercial-residential area along with elderly high rise housing and other low scale commercial uses. From I-35 to 3rd/4th Streets, the visual environment is primarily rail use related, without adjoining commercial and manufacturing uses.

3rd/4th Streets to 1st Avenue/1st Street (Figure 4.53F):

The character of this segment is dominated by the presence of the "Mills District" and the adjacency to the Mississippi River.

The "Mills District" area is comprised of one- to eight-story industrial/milling structures. Also in this area are several buildings which have been converted to office/retail/hotel use. New high-rise residential construction is in contrast to the abandoned and empty Milwaukee Road Depot, with the adjoining railroad yard now used as a surface parking lot.

The visual aspect of this segment includes surface parking lots, some empty or underutilized industrial/milling/railroad buildings mixed with new construction and visible from the Third and Hennepin Avenue bridges. River uses and a revitalized riverfront are also evident.

Olson Memorial Highway and Bryant Avenue (Figure 4.53G)

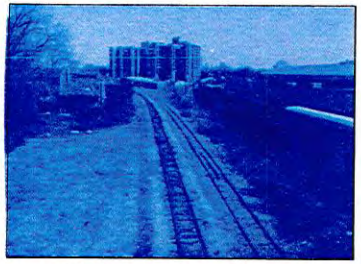
This section between Olson Memorial Highway and Bryant Avenue contains a mixture of land uses including low income housing, light industrial and warehousing, all of which contribute to low visual quality.

Holden Street to 1st Street/1st Avenue (Figure 4.53H)

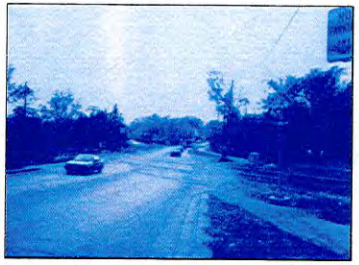
This segment is primarily in a rail corridor. General character is one- to eight-story manufacturing/industrial buildings with surface parking lots adjacent to the right-of-way. Numerous street bridges also cross over the corridor. The visual imagery is of industrial loading docks, bridgework, sporadic vegetation and parking lots.

Photo/Visual Aesthetics

Looking Northeast Toward Lake Street Bridge

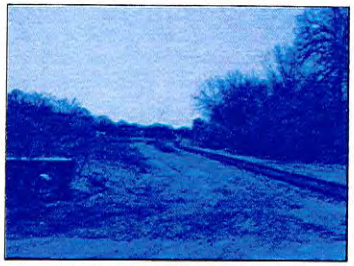


Lake Street Looking Northeast at Multiple Family Residential



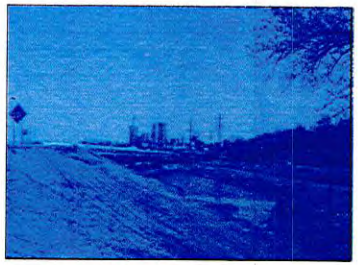
Cedar Lake Parkway Looking West Across Railroad Crossing

Looking Northwest Across Channel Connecting Cedar Lake and Lake of the Isles



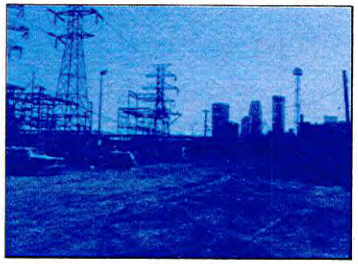
21st Street Looking South Toward the Burnham Road Bridge

Penn Avenue Area Looking Southwest Across Cedar Lake Meadows



Penn Avenue Area Looking East Toward I-394 and Central Business District

Colfax Avenue Area Looking Southwest Toward I-394



Colfax Avenue Area Looking East at I-94 and Central Business District

12th Street Looking Southwest Toward I-94

Figure 4.53C

Central Area

Kenwood Alternative

BRW

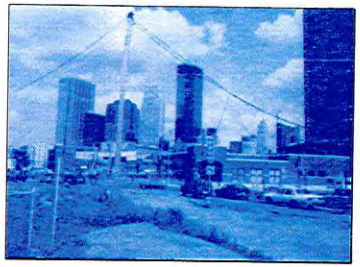
HCRRA

LRT System

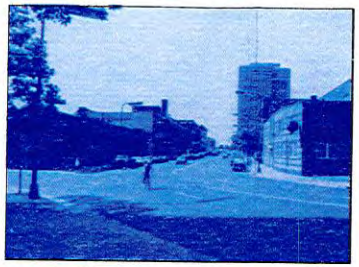
Environmental Impact Statement

Looking Northwest Across 12th Street And Glenwood Avenue

Looking South From Currie Avenue At 11th And 12th Street Split



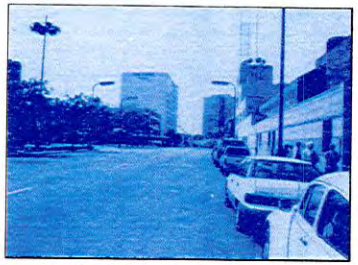
12th Street And Hawthorne Avenue Looking East To Central Business District



Looking Northwest Up 12th Street From Yale Place

12th Street At Yale Place Looking Southeast

12th Street Looking Southeast Across Nicollet Mall



Looking Northwest Along 11th Street To Nicollet Mall

Looking Southeast Down 11th Street Toward LaSalle Avenue

11th Street At Hennepin Avenue Looking Southeast

Looking Southeast Along 11th Street To Hawthorne Avenue

Photo/Visual Aesthetics

Figure 4.53D

Central Area

11th and 12th Street

BRW

HCRRA

LRT System

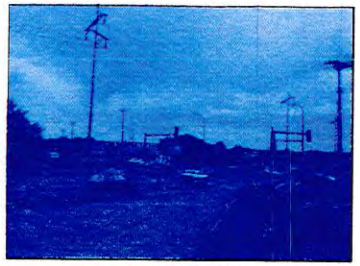
Environmental Impact Statement

Photo/Visual Aesthetics

28th Street Looking Northwest
Toward Railroad Crossing

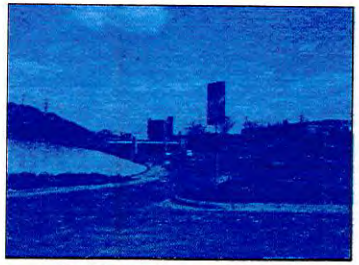
Looking Southeast at 26th Street
Intersection

26th Street Looking Toward Cedar
Square West Apartments



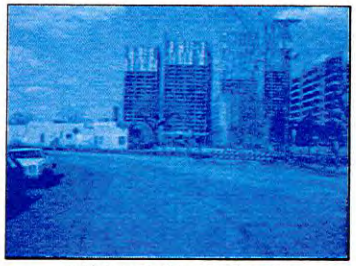
Looking Southeast at 24th Street
Intersection

Looking Northwest from 24th Street
Toward I-94 Crossing

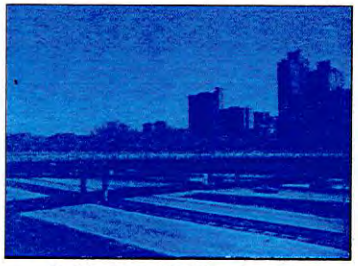


Looking Southeast at Rail Line
Crossing Franklin Avenue

9th Street Area Looking Northwest
Toward Central Business District



I-94 Area Looking Northeast to
Cedar-Riverside Housing



Looking East at Rail Line Crossing
I-35W

11th Avenue Looking North Across
3rd and 4th Street

Figure 4.53E

Central Area

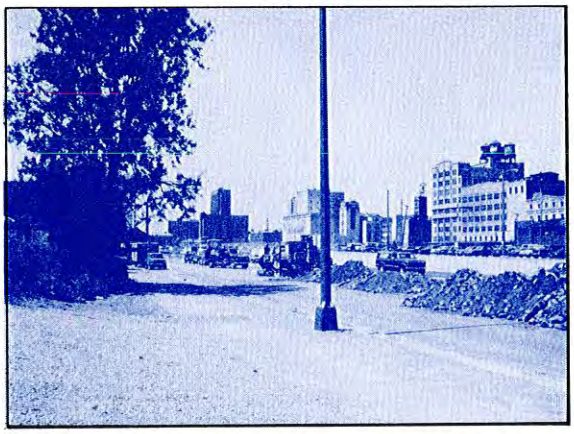
Lake Street to
Industry Square

BRW

HCRRA

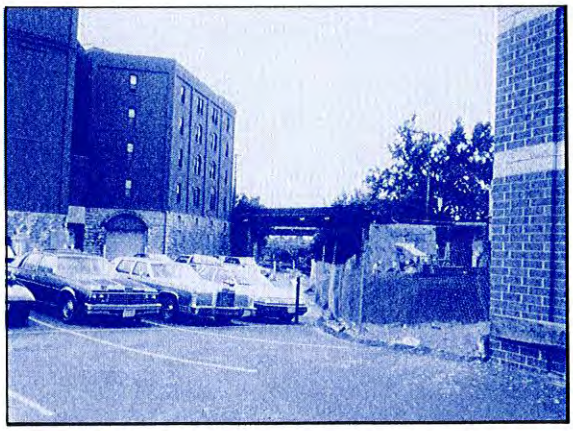
LRT System

Environmental Impact Statement



Looking Northwest Across Washington Avenue Toward Mills District

2nd Street At Portland Avenue Looking Northwest



Former Rail Corridor Access To Mississippi River

West River Parkway Looking Southeast Toward 3rd Avenue Bridge

Looking Southeast Along West River Parkway To Hennepin Avenue Bridge And Post Office

HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.53F

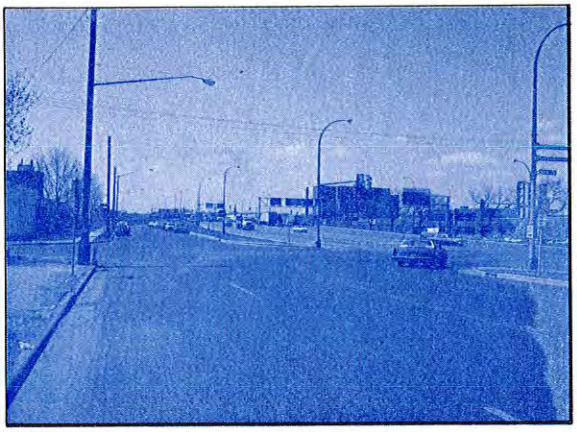
Central Area

Mills District

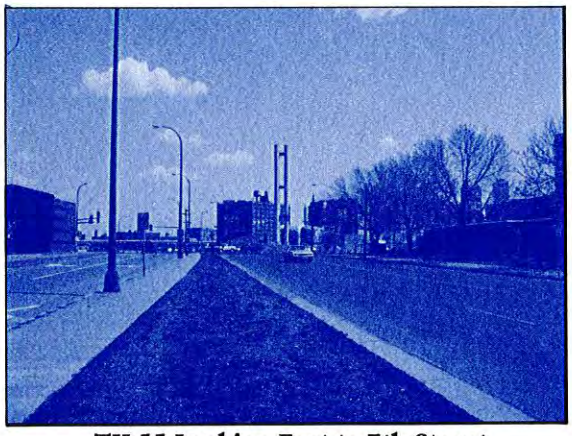
BRW

Photo/Visual Aesthetics

TH55 Looking East to I-94 and Central Business District

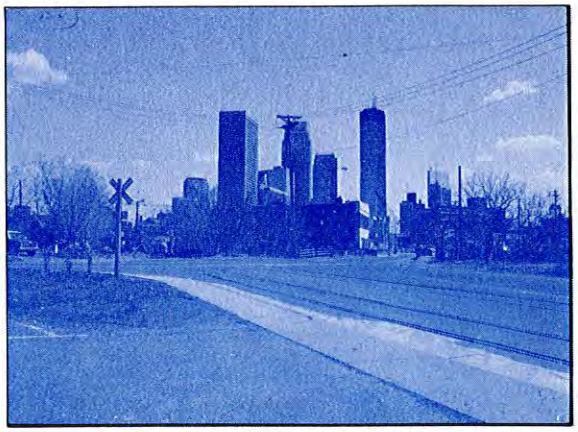


Looking West Along TH55 to I-94 Interchange



TH 55 Looking East to 7th Street and Royalston Avenue

Royalston Avenue Looking Southeast Toward Central Business District



Holden Street Looking Southeast Across 12th Street Bridge to Central Business District

HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.53G

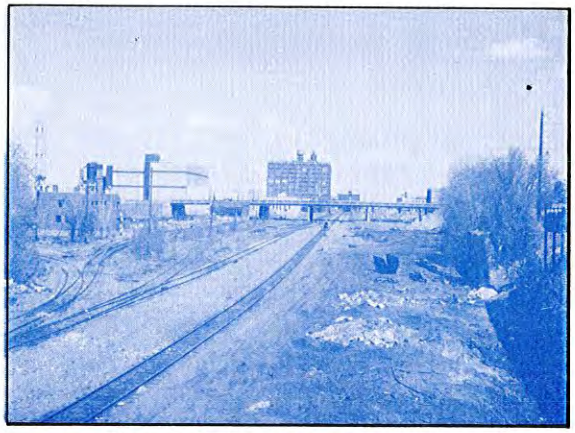
Central Area

Bryant to 3rd Avenue

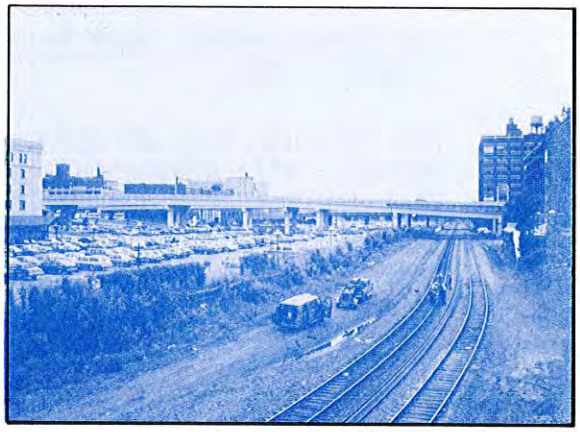
North Rail Corridor

BRW

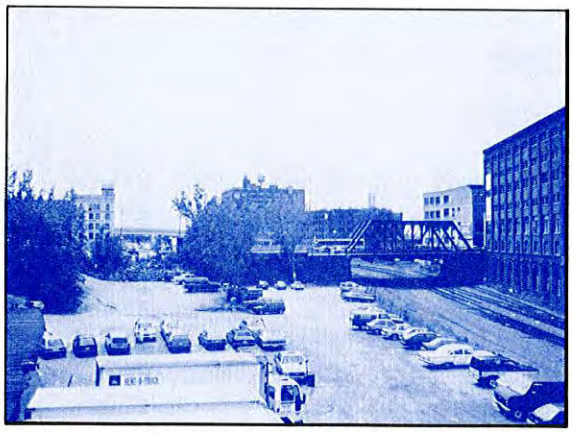
Photo/Visual Aesthetics



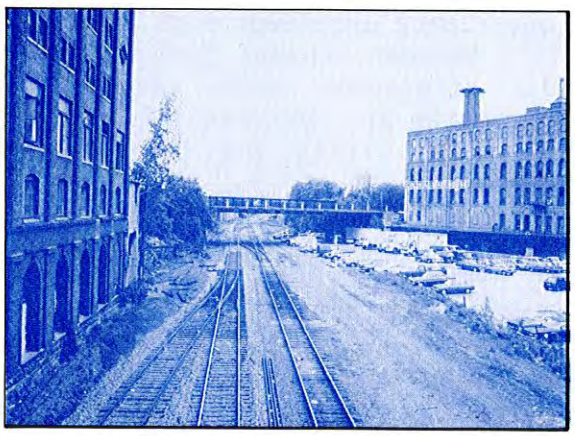
12th Street Area Looking Northeast Toward 7th Street Bridge



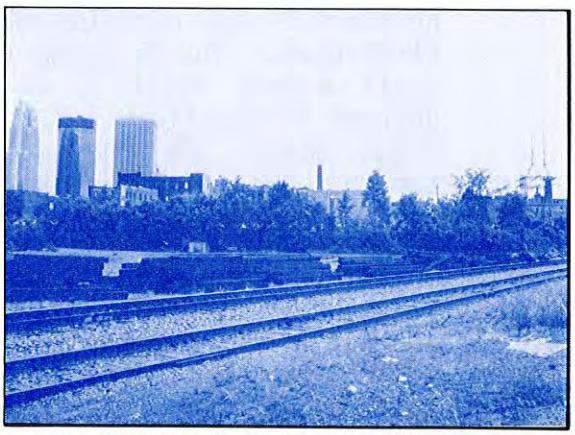
Looking Southwest From Washington Avenue To 3rd And 4th Street Freeway Access Bridges



Washington Avenue Bridge From 2nd Street



Looking Northeast to 2nd Street Bridge from Washington Avenue



Looking Southwest To Central Business District, Proposed Tunnel Portal Left of Picture

HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.53H

Central Area

3rd Avenue

North Rail Corridor

BRW

Photo/Visual Aesthetics

2nd Street North from 3rd Avenue North to Marquette Avenue (Figure 4.53I)

The western edge of this segment is primarily turn-of-the century office/warehouse brick and concrete structures. West of Hennepin Avenue the character changes to that of buildings built during the 1960s. The scale of this area is three to five stories. Between Hennepin Avenue and Marquette Avenue the character changes dramatically. To the north are high-rise apartment/condominiums with limited commercial at the ground floor, and on the south side is the Northwestern Life Insurance building. A pedestrian walkway and "park-like" atmosphere exists between these structures.

The major visual qualities of this segment are the older office/warehouse buildings along 2nd Street North. The cobblestone street is in disrepair, with random patches of bituminous paving.

Central Business District At-Grade

North/South Segments (Figure 4.53J):

The north/south segment is bounded by the Mississippi River to the north by Eleventh Avenue and the Metrodome station to the east, 11st Street to the south and Hennepin Avenue to the west. This segment can be characterized as being densely urban, particularly between 4th and 9th Streets where the highest concentration of office/retail use exists. North of 4th Street, the density decreases because of an almost total lack of retail activity and reduction in scale of development. South of 9th Street, building scale also decreases while vacancy of ground level space increases. The core area between 4th and 9th Streets is occupied by multi-story high rise office/retail/structures. In contrast, the northern fringe contains more open space and fewer high rise structures. The building quality between 9th and 11th consists almost entirely of older structures, with varying degrees of deterioration. Although the area generally lacks human scale, the near canyon effect within the core is somewhat mitigated by the presence of the Nicollet Mall and overhead skyways. The Nicollet Mall provides open space, while the skyways have the effect of lowering the overhead plain. While the area is not overly cluttered, the high level of both pedestrian and vehicular activity tends to promote a sense of visual confusion. Furthermore, there are few visual cues, other than those present on the Nicollet Mall, to orient persons unfamiliar with the CBD. Both Marquette and Second Avenues are lacking in visual identity.

Looking Northwest Along 2nd Street to the 4th Avenue Rail Corridor Crossing

2nd Street Looking Southeast Across 3rd Avenue

Looking Southeast Across Hennepin Avenue to the Pedestrian Plaza

Pedestrian Plaza Looking Northeast Toward Hennepin Avenue

Looking Northeast Across Marquette Avenue Through the Pedestrian Plaza

HCRRA Hennepin County Regional Railroad Authority

LRT System

Environmental Impact Statement

Figure 4.53I
Central Area
2nd Street Connection

BRW

Photo/Visual Aesthetics

4.8.18 Historic and Cultural Resources

Four properties in the Nicollet area have been designated by the Minneapolis Historic Preservation Commission as being potentially eligible for inclusion to the National Register of Historic Places. Included are: The Flame Bar and Cafe (c. 1940) at 16th Street and Nicollet Avenue; Former Christian Science Church (c. 1910) at 24th Street and Nicollet Avenue; Westminister Presbyterian Church (c. 1897; 1936) at 1201 Nicollet Avenue; and the Beaux Arts Commission Building (c. 1920) at 2344 Nicollet Avenue.

The LRT study area in downtown Minneapolis includes portions of the Historic Mills District, Saint Anthony Falls Historic District, Historic Warehouse District, and Mississippi National River and Recreation Area. Specific historic properties which could be impacted by the three Central Area alignment options are addressed in the Impacts section (5.8.14).

1st Street Crossing 2nd Avenue
Looking Northwest

Looking Southwest Along Marquette
Avenue To Washington Avenue

Marquette Avenue Looking Northeast
Across 5th Street

Looking Southwest Down Marquette
Avenue To 6th Street

Marquette Avenue Crossing 11th
Street Looking Northeast

2nd Avenue At 11th Street Looking
Northeast Into Central Business District

Looking Southwest Down 2nd Avenue
To 8th Street

2nd Avenue Crossing 5th Street
Looking Northeast

Looking Northeast Up 2nd Avenue
Toward 3rd Street

2nd Street Looking Southeast To 3rd
Avenue And Mills District

Photo/Visual Aesthetics

Figure 4.53J
Central Area
2nd/Marquette Avenue

BRW

HCRRA
LRT System
Environmental Impact Statement