



TRANSPORTATION

Introduction

The Transportation Chapter guides the creation of a safe, equitable and well-maintained multi-modal transportation system in Saint Paul that supports the needs of all users, enhances vitality, and sets the stage for infill development to accommodate the city's projected growth. The transportation system relies primarily on streets, which connect people to jobs, homes, shopping, education and recreation, but also includes water (the Mississippi River), trail and rail. It is important to have a consistent long-term vision that will gradually, strategically and consistently remake the city's transportation system so that it works better for all users.

Since opportunities to remake streets are infrequent due to limited funds and a high volume of needs (the life expectancy of Saint Paul streets is approximately 40 years, and many go 90 years or more before being reconstructed), the chapter establishes clear priorities for project selection. Projects will prioritize the safety of people walking and biking, equity, and improved access to economic opportunity. Maintenance is also established as a "first cut" for project selection, because regular maintenance is much more cost-effective in the long run and allows for a greater number of projects to be accomplished over time. Further, the ability to obtain outside funding will be considered. These priorities – as well as our land use priorities – will also guide our approaches to future technology changes.

Priorities are also established for the design of our rights-of-way, with the needs of pedestrians and bicyclists placed at the top. This includes aggressively evaluating and pursuing "road diets" that improve pedestrian safety while having a minimal impact on traffic flow. Considering pedestrians first will ensure a safe transportation system that works well for everyone.

The following goals guide the Transportation chapter:

1. Investment that reflects the City's priorities.
2. Safety and accessibility for all users.
3. A transportation system that supports access to employment and economic opportunity.
4. True transportation choice throughout the city, with a shift from single-occupant vehicles toward other modes.
5. Sustainable and equitable maintenance models.
6. Environmentally-sustainable design.
7. Functional and attractive Parkways.
8. A system that responds to technology and shapes its implementation.

Goal 1: Investment that reflects the City's priorities.

Policy T-1. Prioritize safety and racial and social equity benefits in project selection, followed by support of quality full-time, living wage jobs – both through business support and connection of residents to job centers. Priorities will also be informed by specific modal plans, such as the Bicycle Plan or the forthcoming Pedestrian Plan (See Sidebar and Maps T-1, T-3, T-5, and T-6).

Policy T-2. Use surface condition and multimodal usage rates to prioritize transportation projects and ensure well-maintained infrastructure that benefits the most people (See Maps T-10 and T-12).

Policy T-3. Design rights-of-way per the following modal hierarchy:

1. Pedestrians, with a focus on safety
2. Bicyclists, with a focus on safety
3. Transit
4. Other vehicles

Policy T-4. Significantly reduce carbon emissions from motor vehicles by developing infrastructure that supports vehicle electrification.

Goal 2: Safety and accessibility for all users.

Policy T-5. Adopt and implement a “Vision Zero” program with the long-term goal of achieving zero traffic fatalities and severe injuries. Components of the program should include street design improvements and behavioral safety improvements, such as reducing driver impairment, inattentiveness and speed through education and enforcement.

Policy T-6. Implement “road diets” for undivided four-lane roads to convert them to two or three lanes, where feasible, in order to prioritize pedestrian safety (See Map T-2).

Policy T-7. Implement intersection safety improvements such as traffic signal confirmation lights, pedestrian countdown timers, and leading pedestrian signal intervals. Reduce pedestrian roadway exposure via median refuge islands, curb extensions, narrowed travel lanes and other elements designed to lower motor vehicle speeds.

Policy T-8. Reduce speed limits where it will improve safety, and work with State and Ramsey County governments to overcome obstacles to implementing this policy.

Policy T-9. Design the rights-of-way for all users, including older people, children and those with mobility constraints, as guided by the Street Design Manual and Safe Routes to School Plans, and by thoughtfully addressing streetscape issues such as curb cut design, level sidewalks, lighting, accessibility to/from bus stops, and the presence of benches and buffers between sidewalks and streets.

Policy T-10. Design sidewalks, trails and transit stops for personal safety (real and perceived), including by providing lighting and boulevards.

Policy T-11. Support driver, bicyclist and pedestrian education to improve mutual awareness and safety.

Policy T-12. Minimize and consolidate driveway curb cuts as redevelopment opportunities arise for redevelopment sites that have sufficient existing access or can reasonably be accessed via side streets, alleys or shared driveways, especially in areas with anticipated high pedestrian activity or with adjacent planned bikeways.

Policy T-13. When street design changes involve the potential loss of on-street parking spaces, prioritize safety for all transportation modes. Explore mitigation of lost spaces where feasible and practical.

Economic and Social Impacts of Motor Vehicle Crashes

Transportation safety is worth the investment. According to a National Highway Traffic Safety Administration (NHTSA) study, in 2010 there were 32,999 people killed, 3.9 million people injured, and 24 million vehicles damaged in motor vehicle crashes in the United States. The economic costs of these crashes totaled \$242 billion, which represents the equivalent of nearly \$784 for each person living in the United States, and 1.6 percent of the \$14.96 trillion real U.S. Gross Domestic Product for 2010. These costs represent the tangible losses that result from motor vehicle crashes. However, in cases of serious injury or death, such costs fail to capture the rather intangible value of lost quality-of-life that results from these injuries. When quality of life valuations are considered, the total value of societal harm from motor vehicle crashes in 2010 was \$836 billion. In 2015, the number of traffic fatalities was 35,091, a 6% increase over 2010. In Saint Paul in 2018, there were 265 vehicular crashes involving pedestrians and bicyclists alone, including 4 fatalities and 208 injuries (140 requiring hospital attention).

Roadway Safety Plan

In January 2016, MnDOT released its Roadway Safety Plan for Saint Paul, a consultant-produced document with City of Saint Paul staff participation that identified the greatest opportunities to reduce the number of severe crashes based on the City's crash data, street contexts and strategies with demonstrated effectiveness in mitigating the types of severe crashes experienced here. The study recommended focusing on certain arterial streets, employing the following types of safety projects:

- improving pedestrian safety (primarily at intersections);
- reducing the frequency of red light violations at traffic signals; and
- improving the safety characteristics of undivided streets.
- The specific safety improvement strategies could include:
 - road diet (convert to three lanes);
 - access management;
 - traffic signal confirmation lights;
 - pedestrian/bicycle countdown timers;
 - pedestrian/bicycle leading pedestrian intervals
 - pedestrian/bicycle curb extensions; and
 - pedestrian/bicycle median refuge islands.

Goal 3: A transportation system that supports access to employment and to economic opportunity.

Policy T-14. Work with agency partners and the Saint Paul Port Authority to implement and support freight transportation improvements in and near industrial areas of regional economic importance, particularly West Midway, the Great Northern corridor, river industrial areas, and the portion of West Side Flats east of Robert Street, to improve safety and connections to the regional transportation network.

Policy T-15. Explore freight delivery solutions that resolve loading/unloading conflicts in congested areas to support businesses and provide safety to pedestrians, bicyclists and other road users. Solutions could include delivery coordination and timing, and use of smaller freight delivery vehicles.

Policy T-16. Support financing for above-standard streetscapes in business areas.

Policy T-17. Use pricing to manage parking demand and improve parking efficiency in areas with high demand and short supply.

Policy T-18. Work with agency partners and the Metropolitan Airports Commission to maintain a regional aviation system that balances commercial demand and capacity while being compatible with the community.

Policy T-19. Work with the Saint Paul Port Authority to maintain the Mississippi River as a working river through land use policy and support for jobs in river-related industries.

Policy T-20. Prioritize investments in infrastructure that improve river commerce and conditions necessary to maintain and grow regional logistics and commodities hubs connecting, river, rail, truck modes.

Goal 4: True transportation choice throughout the city.

Policy T-21. Reduce vehicle miles traveled (VMT) by 40% by 2040 by improving transportation options beyond single-occupant vehicles.

Policy T-22. Shift mode share towards walking, biking, public transit, carpooling, ridesharing and carsharing in order to reduce the need for car ownership.

Policy T-23. Formulate responses to traffic issues identified through traffic studies based on desired, rather than current, mode share.

Policy T-24. Implement the Bicycle Plan to make bicycling safe and comfortable throughout the city, and to increase bicycling mode share.

Policy T-25. Implement the forthcoming Pedestrian Plan to make walking safe and comfortable throughout the city, increase pedestrian mode share for short trips, and increase physical activity in people's daily routines. Until the Pedestrian Plan is adopted, focus pedestrian infrastructure improvements in areas with acute pedestrian safety hazards, with existing or anticipated high pedestrian activity, and/or in racially concentrated areas of poverty.

Policy T-26. Provide sidewalks throughout the city, generally on both sides of the street, except potentially in portions of Highwood as directed via other officially-adopted City plans (See Map T-1).

Policy T-27. Improve public transit mode share and support quality public transit in all parts of the city through strategic establishment of transit-supportive land use intensity and design, increased traffic signal optimization for transit, working with transit providers to improve their service offerings and supporting transit facilities (See Maps T-5 and T-6).

Policy T-28. Facilitate intermodal trips at mobility hubs (where walking, biking, public transit, ridesharing and carsharing are intentionally designed to connect) by providing enhanced security, lighting, information, shelter, placemaking, comfort and convenience.

Policy T-29. Expand commuter options with Travel Demand Management (TDM) and support of carpooling facilities.

1. Require a TDM Plan for all large developments and large employers.
2. Create incentives, employer programs and parking policies that encourage and accelerate use of walking, biking, transit and carshare.
3. Support the work of other agencies, organizations and the private sector to market and support transit, carshare, rideshare, carpooling, biking, walking, flexible work hours and telecommuting.
4. Consider options to enforce and improve implementation of TDM Plans.

Policy T-30. Design holistically for all mode users, especially pedestrians and bicycles, in any bridge reconstruction or maintenance project such as for bridges (or lids) over interstate highways or the Mississippi River. Ensure that the project scope incorporates adjacent intersections as necessary.

Policy T-31. Establish (or re-establish) the right-of-way grid with block lengths of 300 to 600 feet as redevelopment occurs on large sites in order to increase neighborhood connectivity and accommodate pedestrian-oriented, higher-density development.

Policy T-32. Accommodate access to community events and around construction projects by all mode users, including by working with Metro Transit to provide additional transit service, providing sufficient bicycle parking, generally avoiding the closure of bicycle lanes and sidewalks and providing detours for all modes.

Policy T-33. Improve pedestrian and recreational connections to the Mississippi River.

Policy T-34. Promote safe walking and bicycling to school by supporting Safe Routes to School efforts and investing in sidewalk connectivity and crossing enhancements near schools.

Working River

Barges move millions of tons of raw materials on the Mississippi River every year in one of the most efficient and environmentally responsible ways possible. Saint Paul's four river terminals are important economic generators, hosting 34 companies that employ over 1,000 people. (St. Paul Port Authority 2017)



Goal 5: Sustainable and equitable maintenance models.

Policy T-35. Pursue fiscally- and environmentally-sustainable models for equitably maintaining transportation infrastructure in Saint Paul, including for right-of-way maintenance, bridges, sidewalks, trails and alley snowplowing.

Policy T-36. Consider the full long-term infrastructure costs when allocating maintenance funding compared to reconstruction funding.

Policy T-37. Maintain roadway pavements in pursuit of achieving a Pavement Condition Index (PCI) of 70 on all City-owned streets. (See Map T-10).

Policy T-38. Reduce the number of heavy vehicle trips on local streets through measures such as consolidation, coordination and route designation/planning, in order to reduce maintenance costs.

Goal 6: Environmentally-sustainable design.

Policy T-39. Seek opportunities to improve the environmental sustainability of rights-of-way in the city, such as through shared, stacked-function green infrastructure (SSGI) planting trees to reduce the urban heat island effect and reducing the amount of land devoted to parking.

Policy T-40. Lessen the negative impacts of interstate highways by supporting design interventions, such as “land bridges” and landscaping and liner buildings on new bridges, that improve connectivity, hide the road and/or reduce pollution.

Goal 7: Functional and attractive Parkways.

Policy T-41. Maximize space for recreation and landscaping uses within Parkway rights-of-way, and prioritize recreation and landscaping in Parkway design in order to maintain a park-like feel, particularly on the Grand Round.

Goal 8: A system that responds to technology and shapes its implementation.

Policy T-42. Ensure that new technologies, such as automated vehicles, further the City's transportation and land use priorities.

Policy T-43. Ensure that right-of-way design and management accounts for changing vehicle technologies and forms of use, such as automated vehicles, car-sharing, curbside pickup and delivery, ride-hailing and ride-sharing.

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Appendix A

Map T-1: Missing Sidewalks 76

Map T-2: Number of Lanes on Arterials 77

Map T-3: Bikeways..... 78

Map T-4: Regional Bicycle Transportation Network 79

Map T-5: Job Concentrations and Transit 80

Map T-6: Households without Vehicles and Transit..... 81

Map T-7: Existing Transitways 82

Map T-8: Planned/Potential Transitways 83

Map T-9: Boardings and Alightings on Transit System..... 84

Map T-10: Pavement Condition Index 85

Map T-11: Functional Road Classification 86

Map T-12: Annual Average Daily Traffic 87

Map T-13: Forecasted 2040 Average Daily Traffic..... 88

Map T-14: Future Right of Way Needs 89

Map T-15: Freight Corridors and Facilities..... 90

Map T-16: Planned Improvements to Metro Highways..... 91

Map T-17: Airport Safety Zones and Noise Contours 92

Map T-18: Transit Market Areas..... 93

Note: ACP50 data for all from Metropolitan Council via MN Geospatial Commons, from annual release (2/5/2018). Other data as noted.

Appendix B

List of Potential Projects.....94

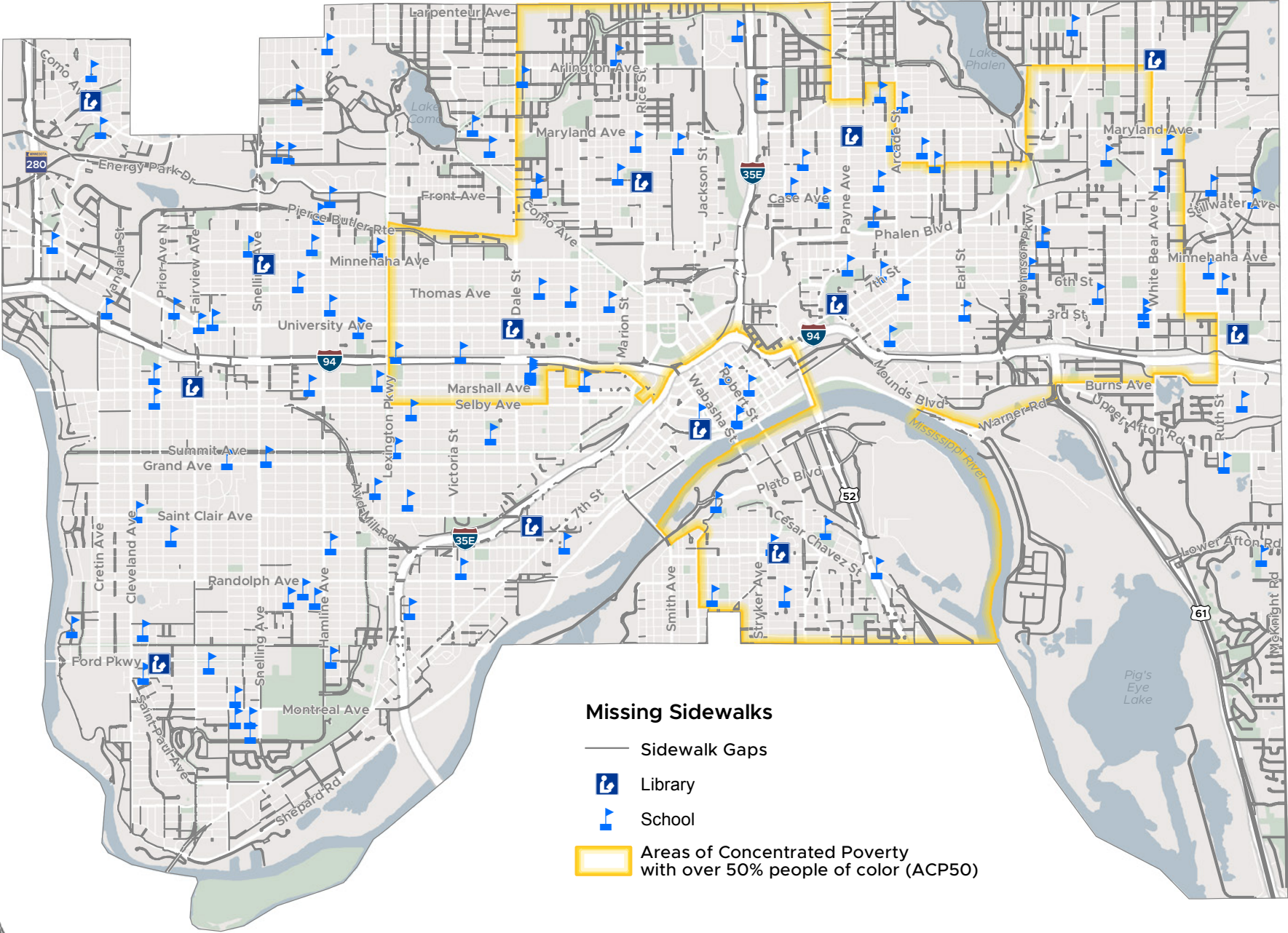
Appendix C

Other Required Transportation Information 95

Appendix D

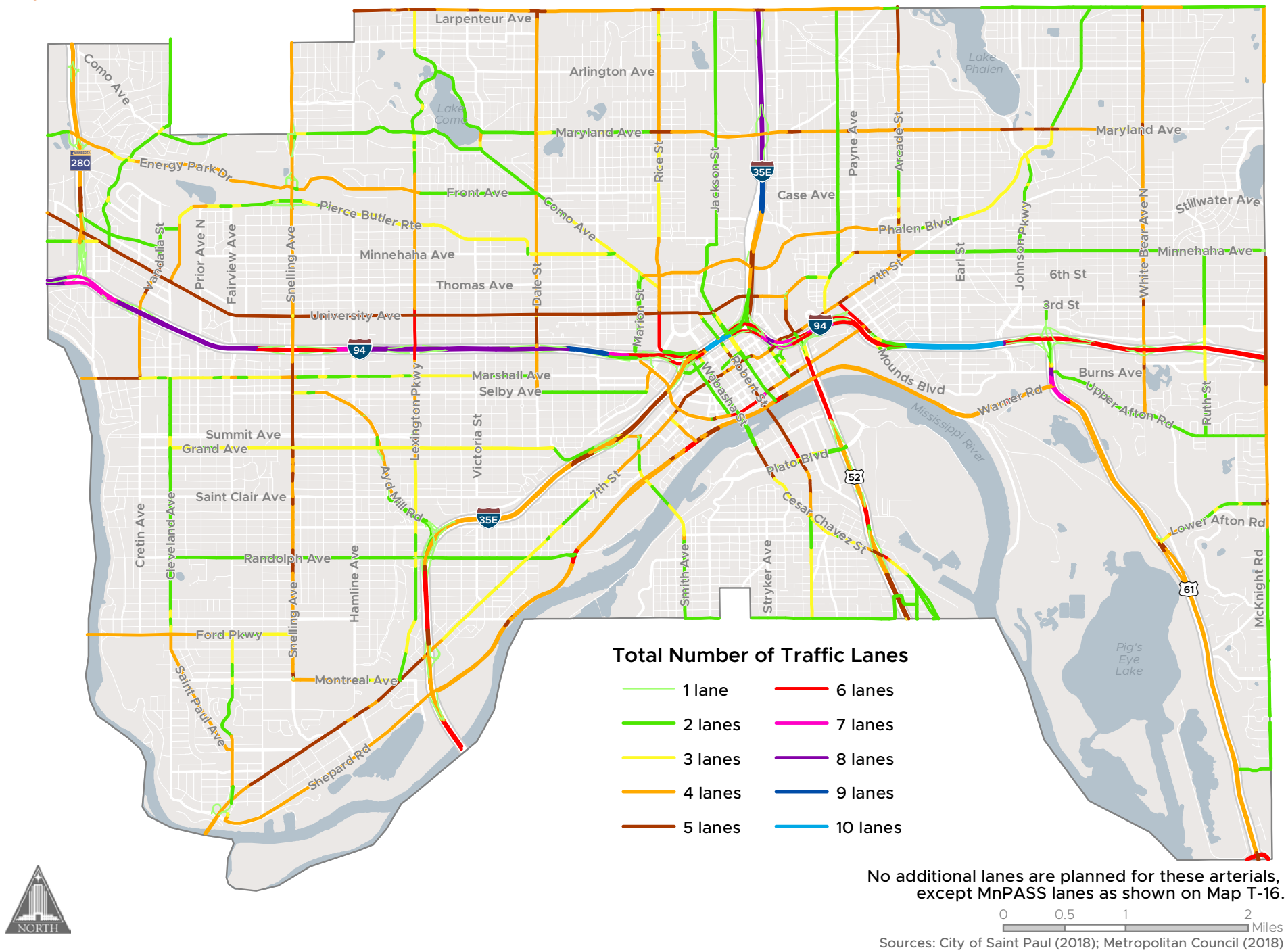
Figure T-1: Transportation Analysis Zone (TAZ) Estimates.....96

Map T-1: Missing Sidewalks

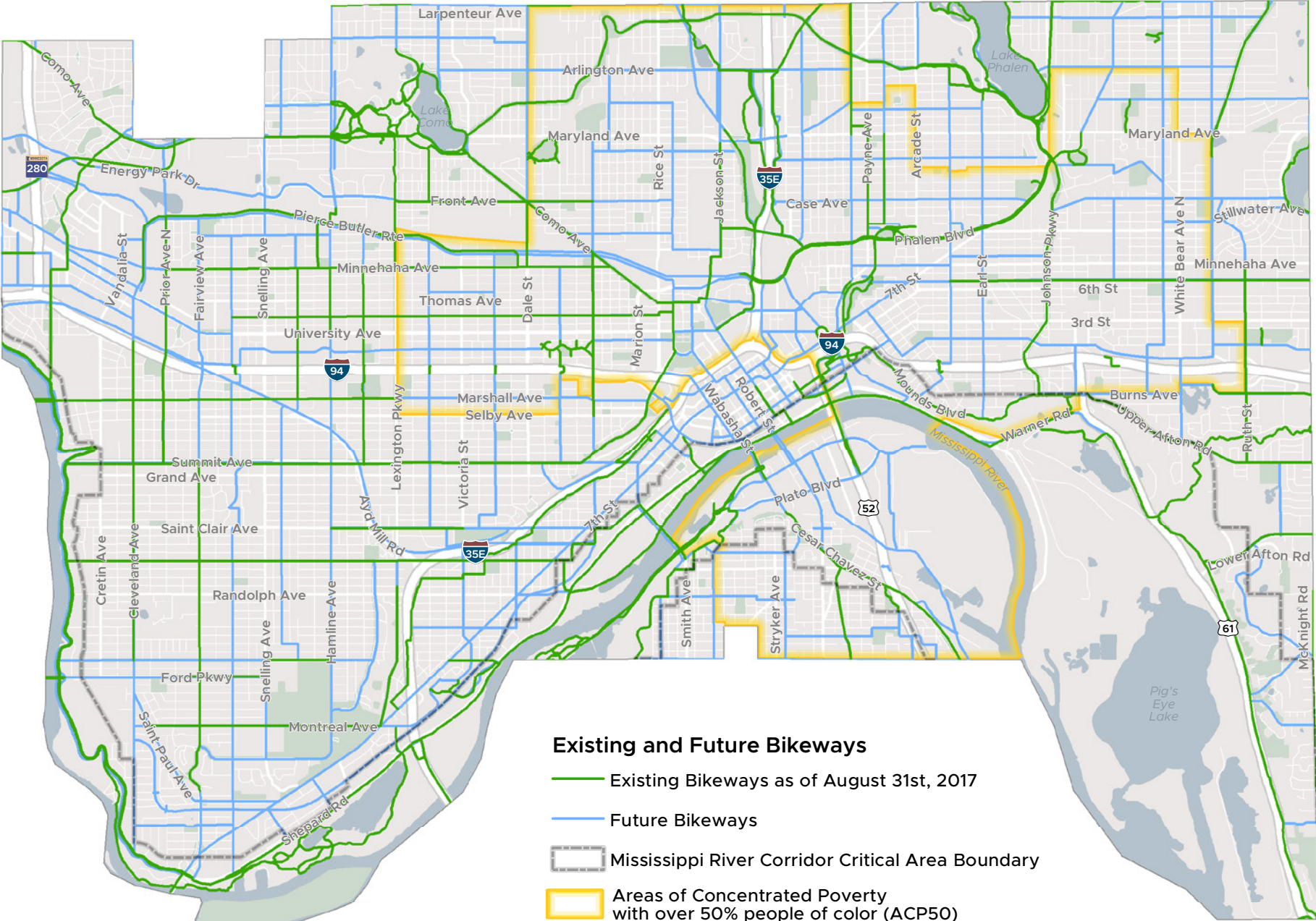


Sources: City of Saint Paul (2017); Minnesota Department of Education (2017); Metropolitan Council (2018)

Map T-2: Number of Traffic Lanes on Arterials

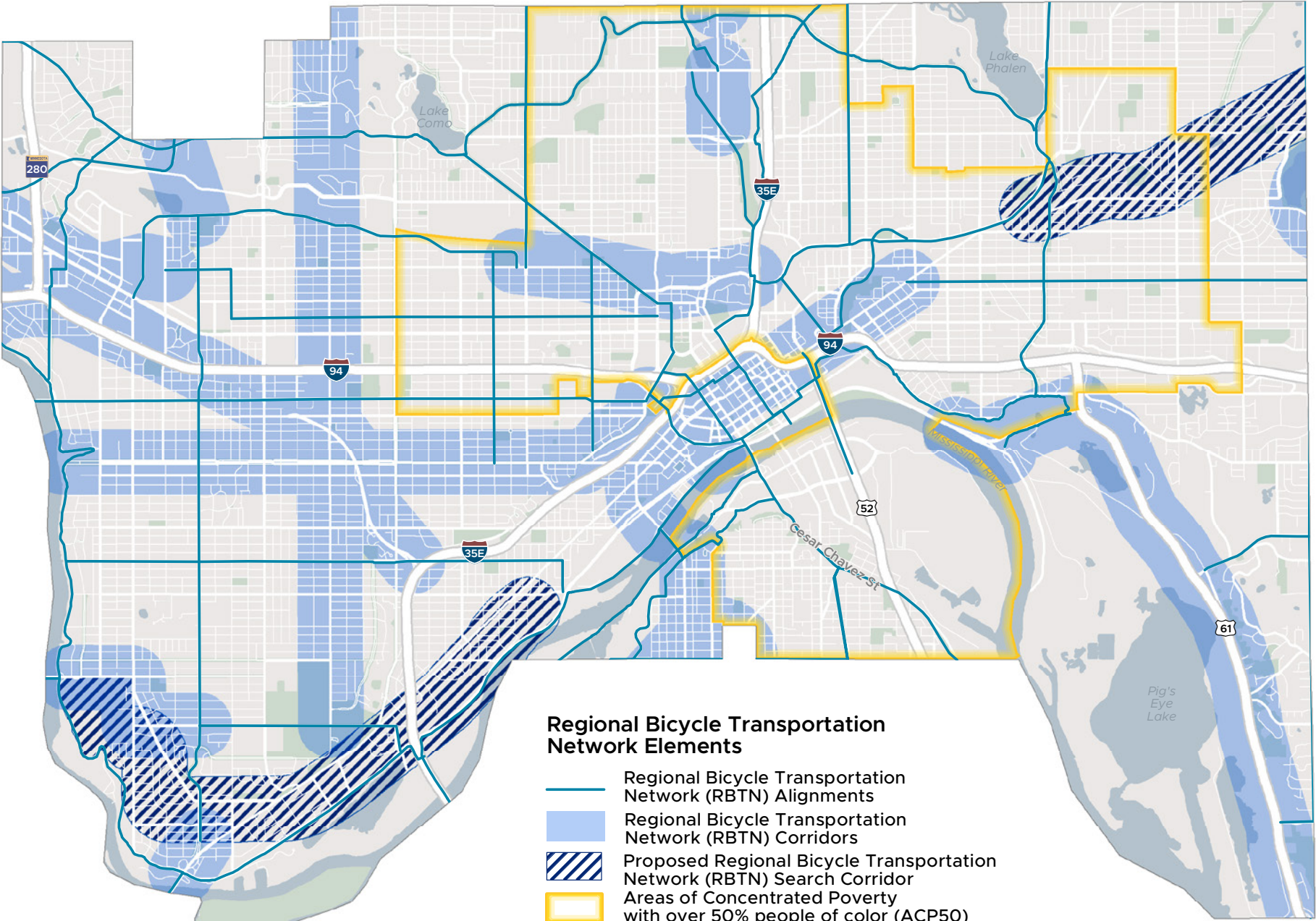


Map T-3: Bikeways

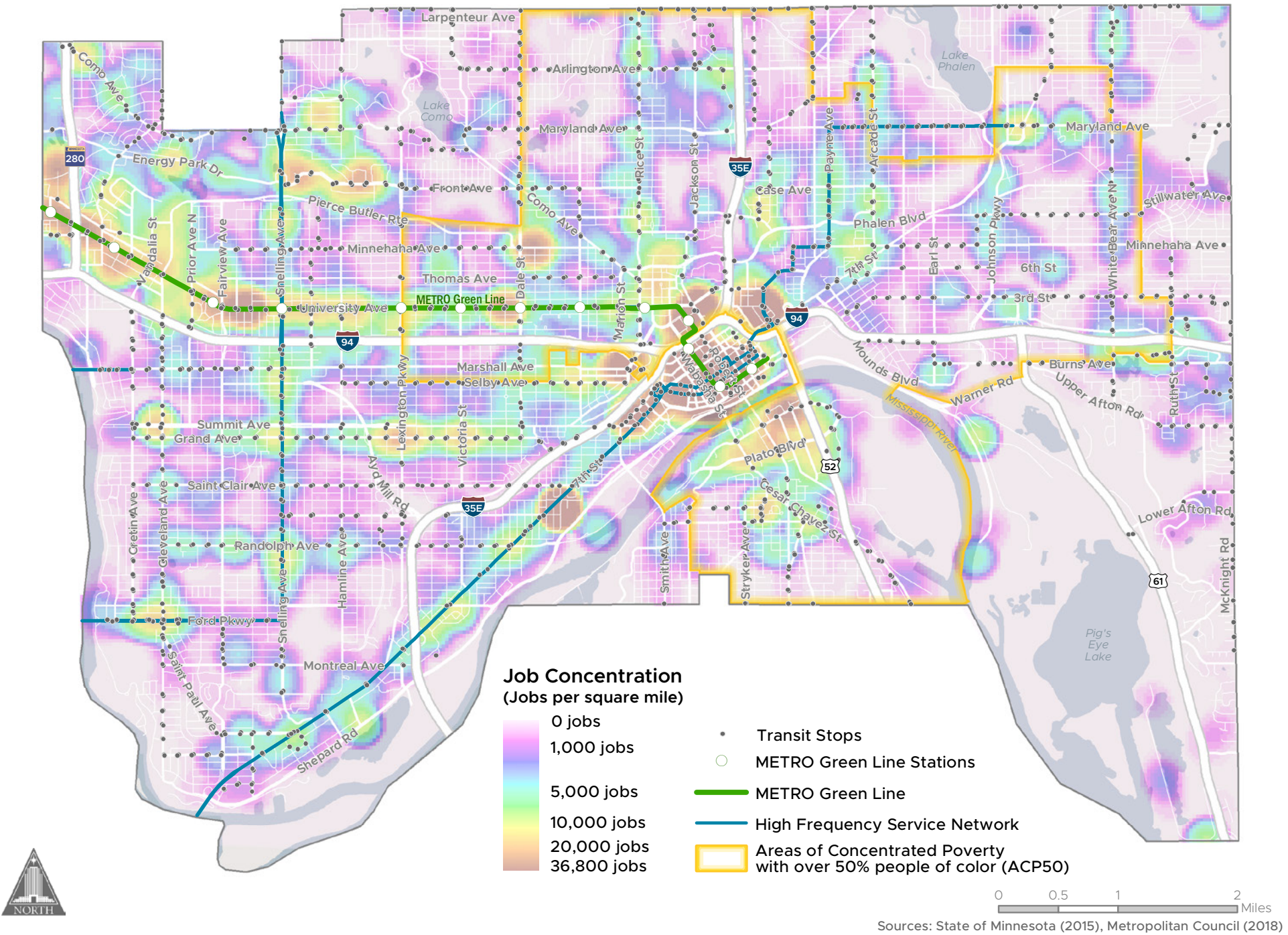


Sources: City of Saint Paul (2018); Metropolitan Council (2018)

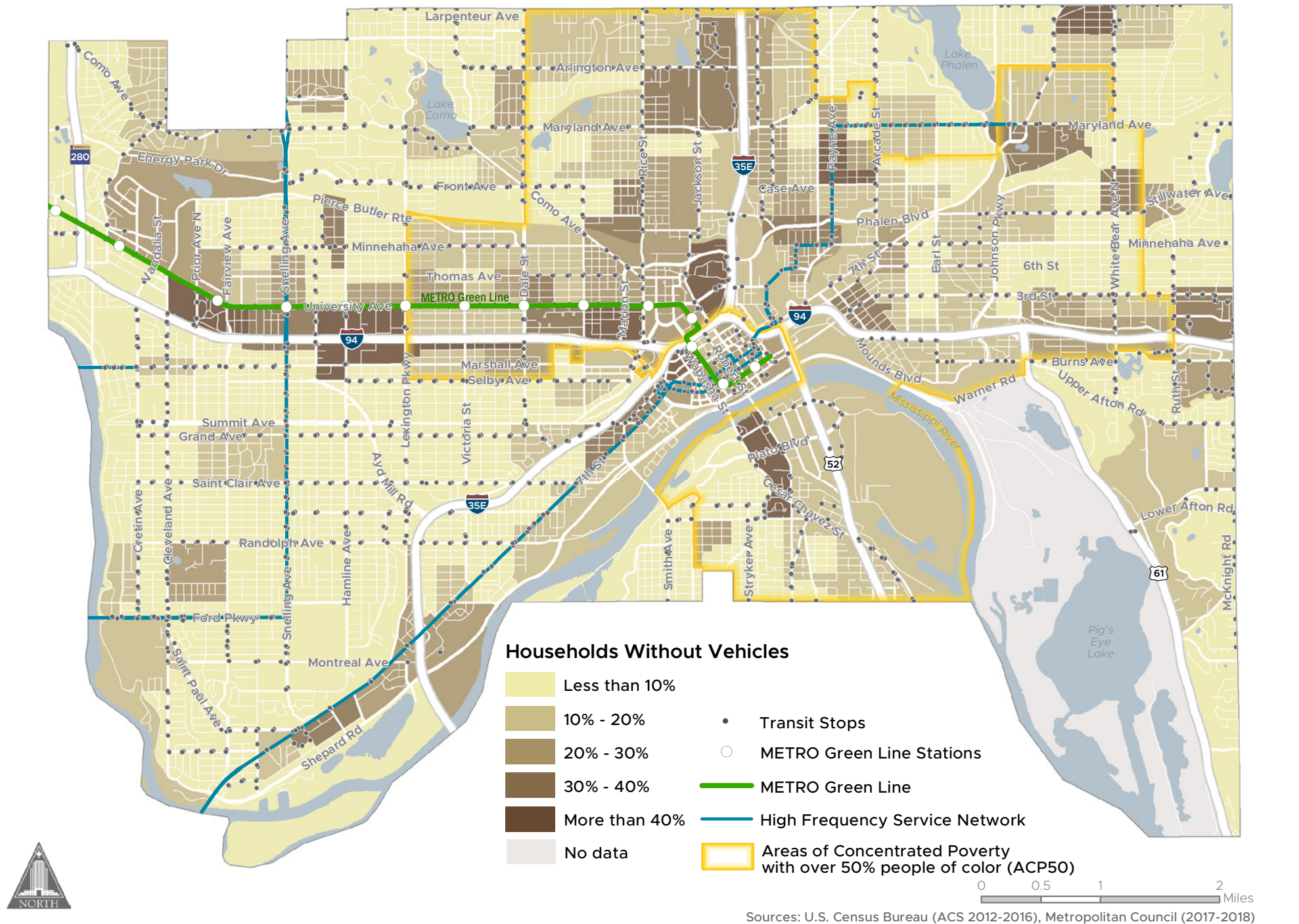
Map T-4: Regional Bicycle Transportation Network



Map T-5: Job Concentrations and Transit



Map T-6: Households without Vehicles and Transit Network

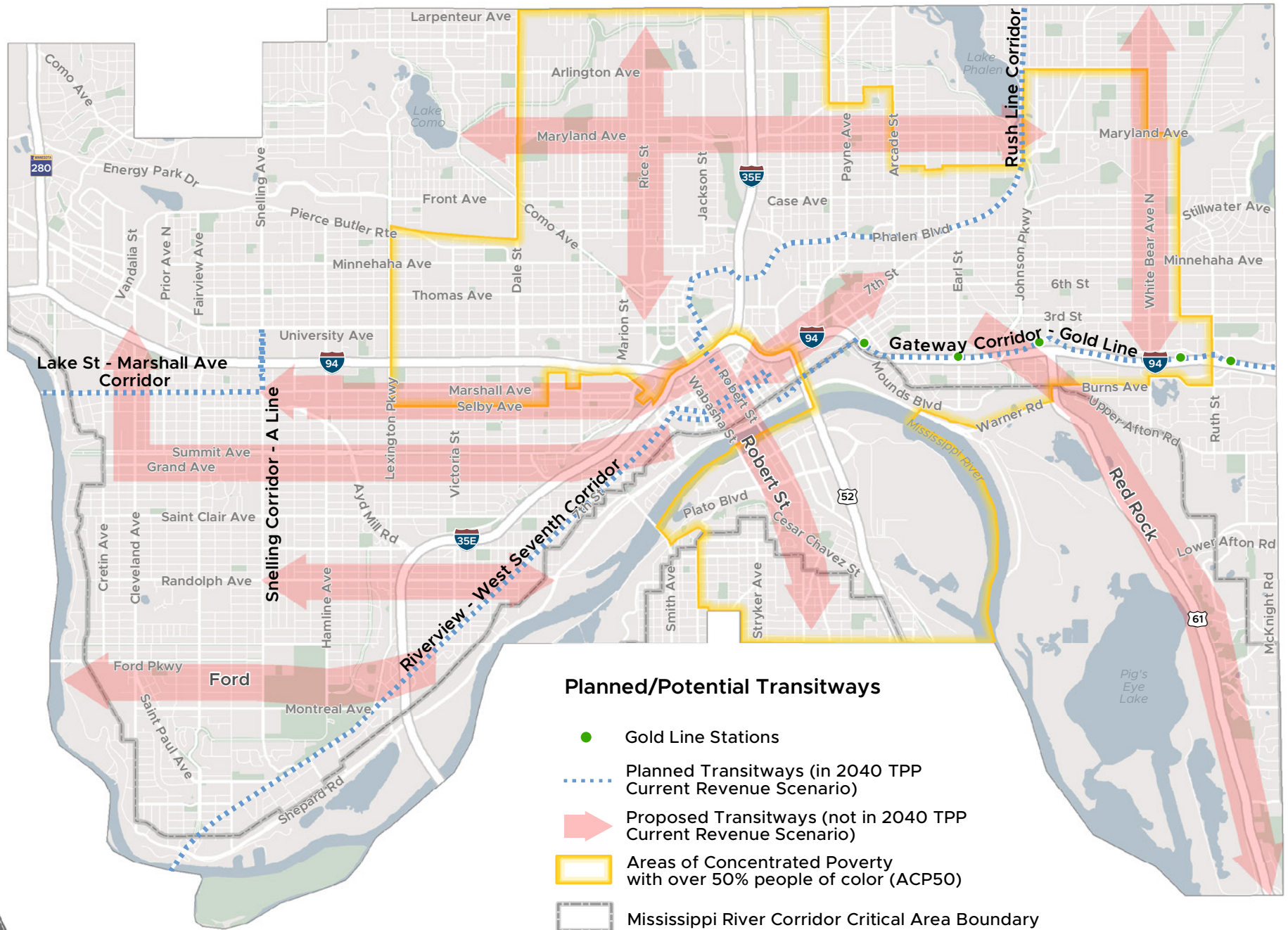


Map T-7: Existing Transitways



Source: City of Saint Paul (2016); Metropolitan Council (2017-2018)

Map T-8: Planned/Potential Transitways



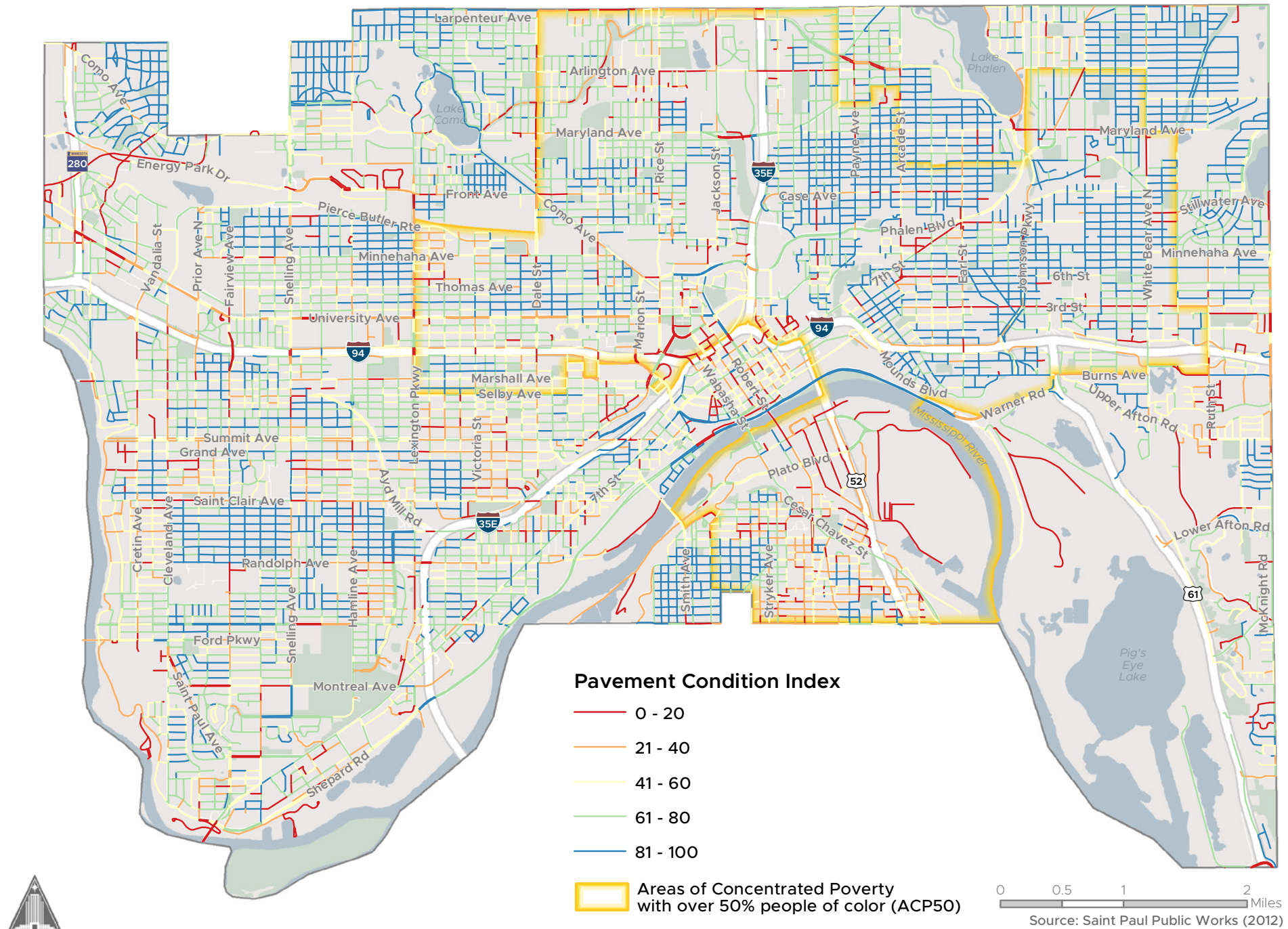
Map T-9: Boardings and Alightings on Transit System



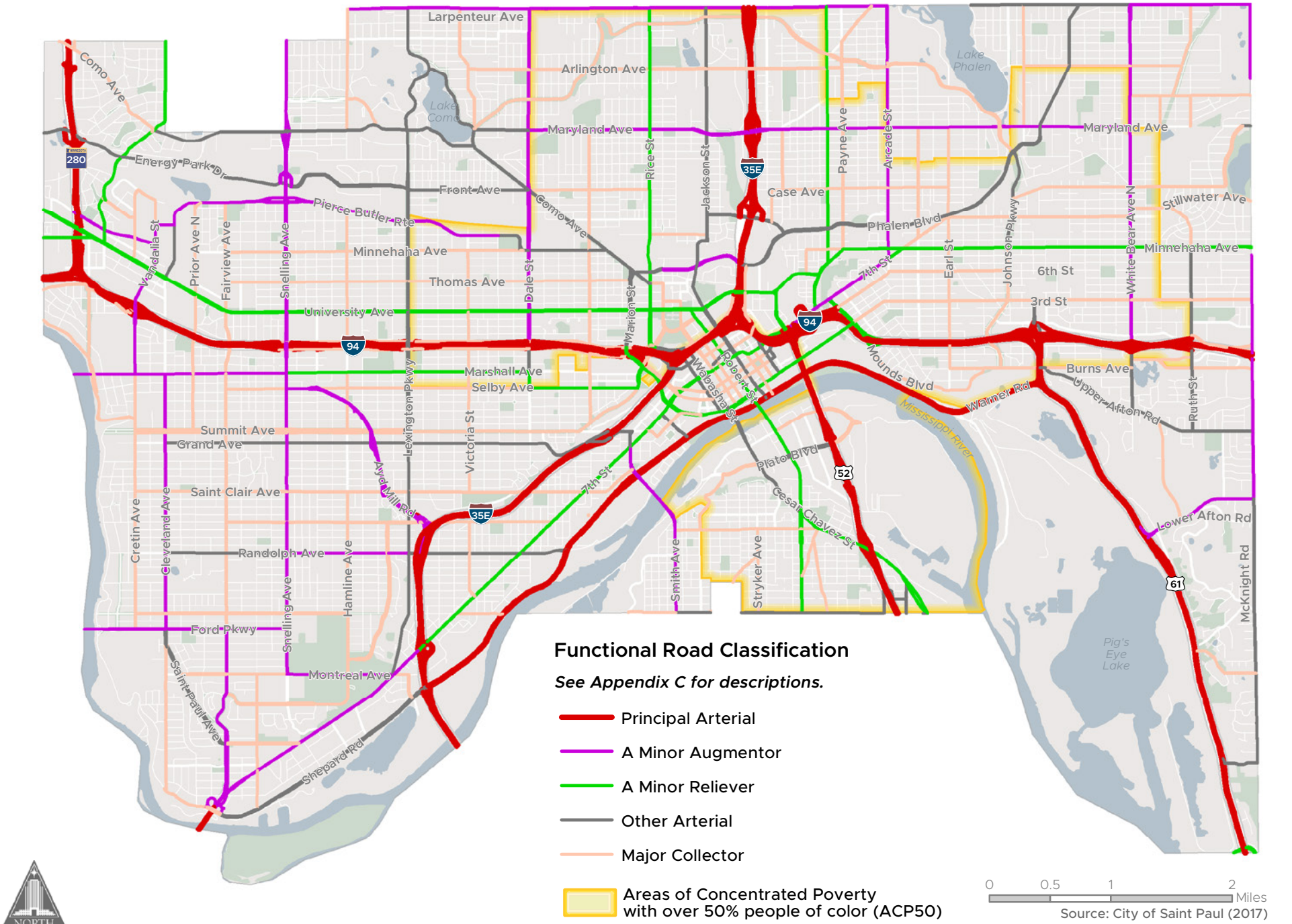
Source: City of Saint Paul (2016); Metropolitan Council (2017-2018)



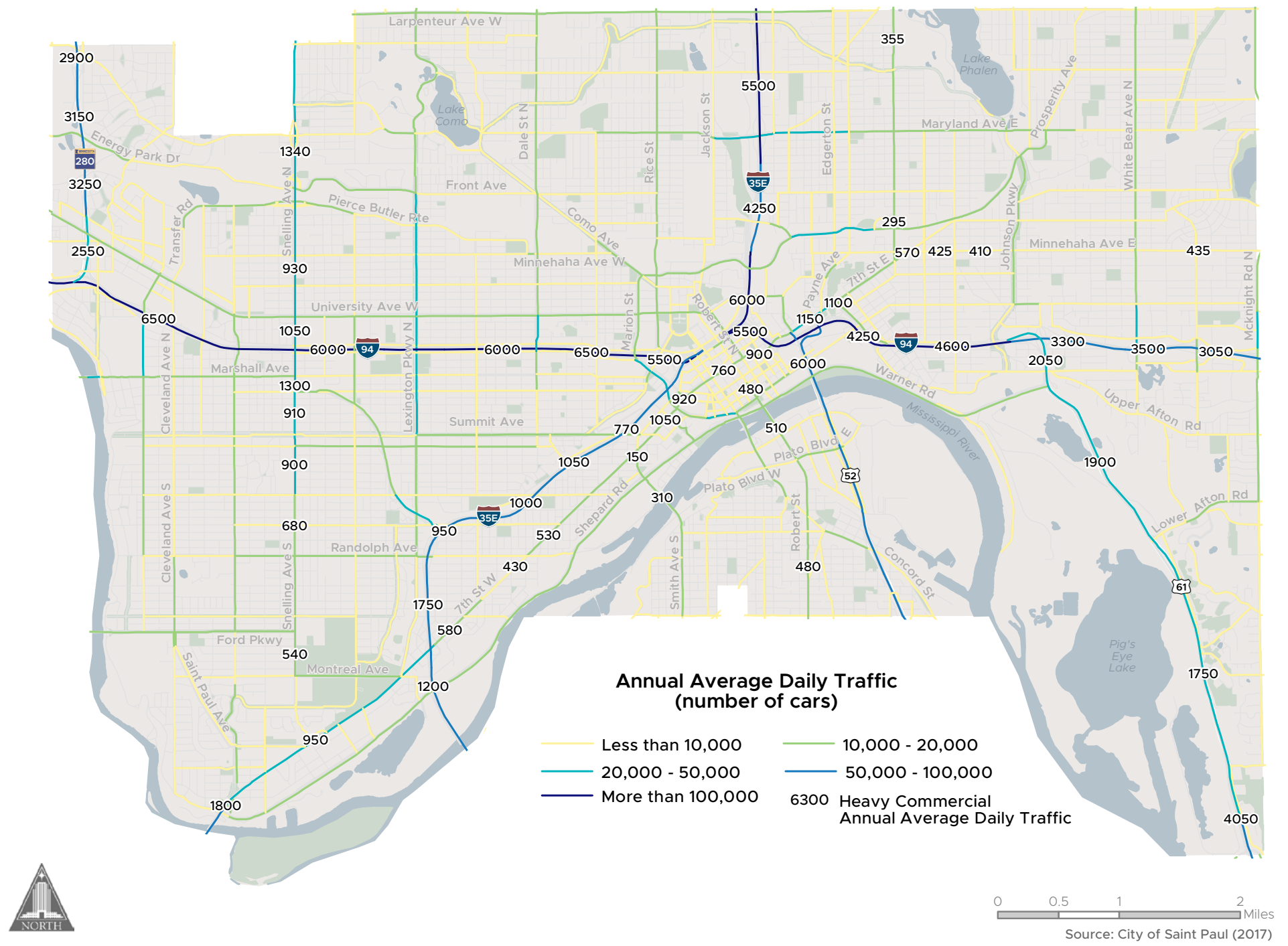
Map T-10: Pavement Condition Index



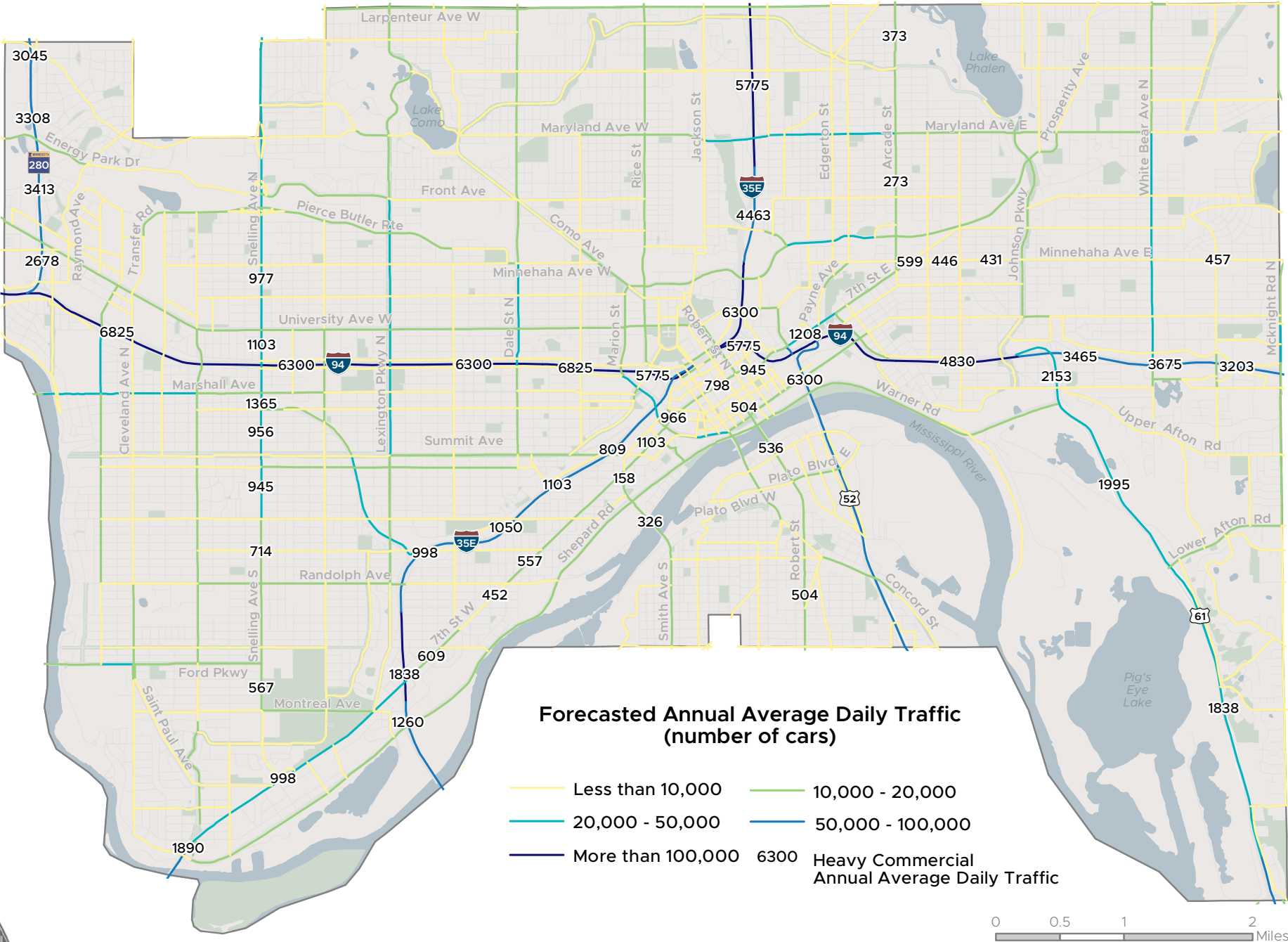
Map T-11: Functional Road Classification*



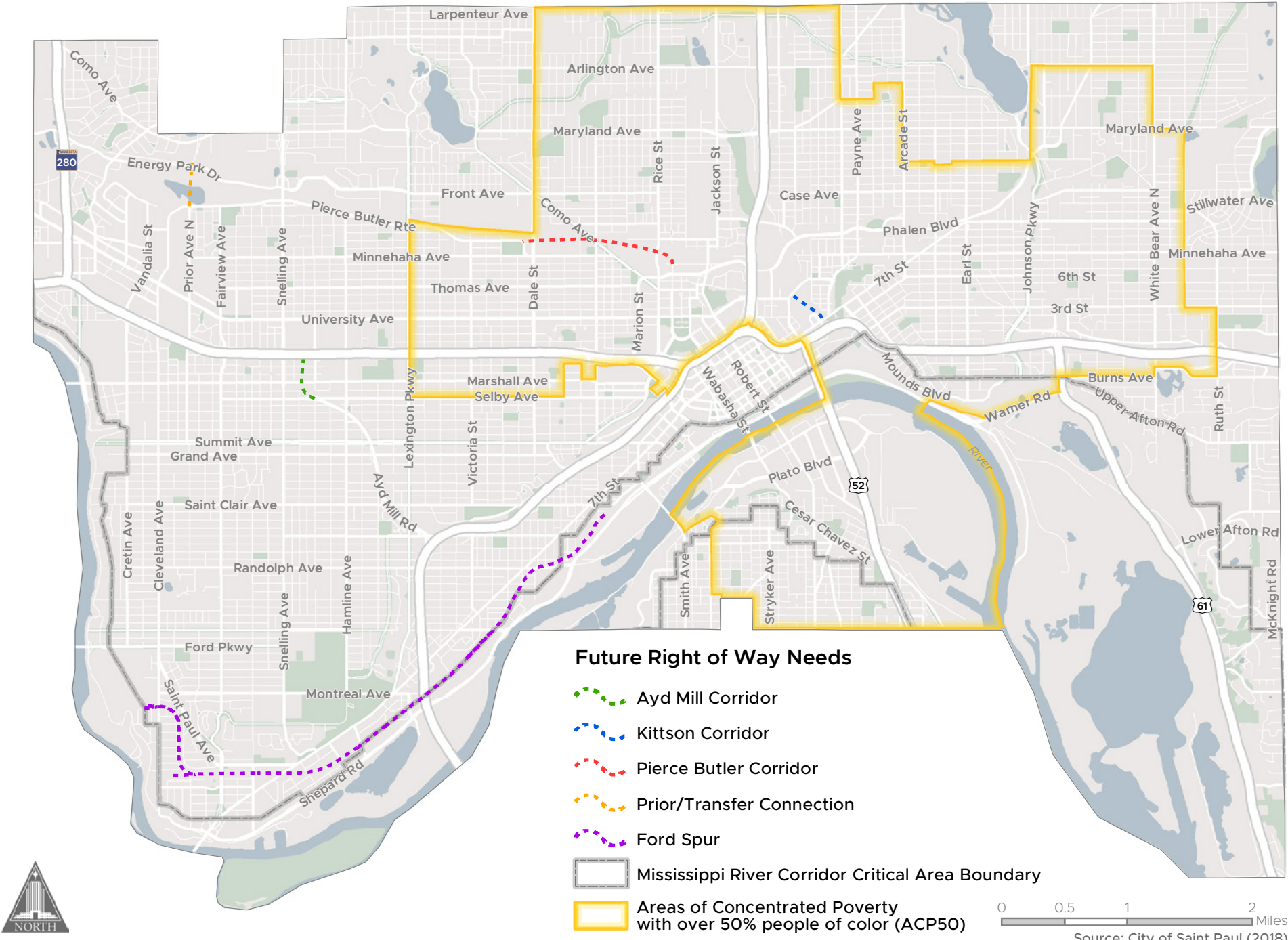
Map T-12: Annual Average Daily Traffic (ADT)



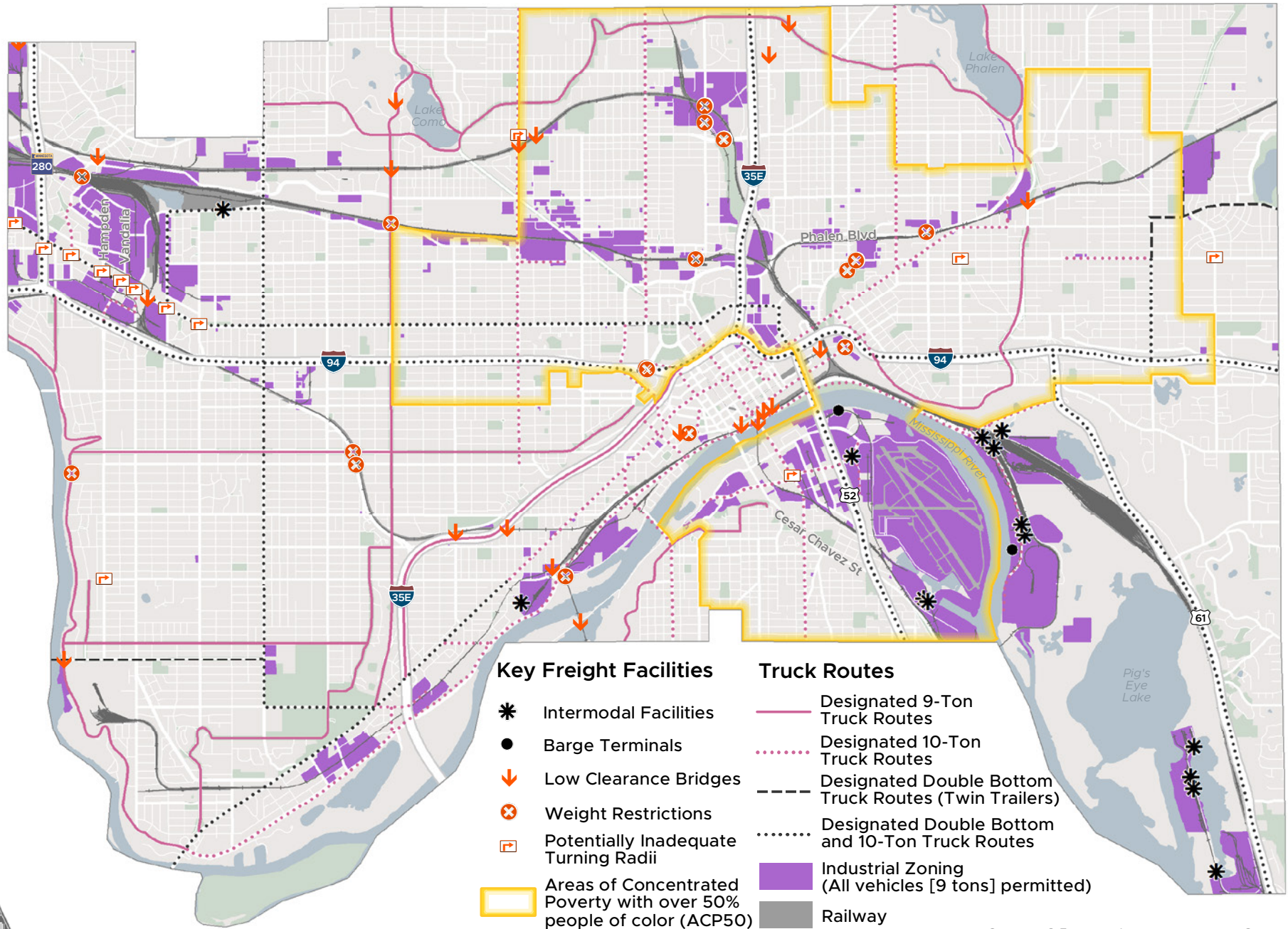
Map T-13: Forecasted 2040 Average Daily Traffic (ADT)



Map T-14: Potential Major Future Right-of-Way Connections



Map T-15: Freight Corridors and Facilities

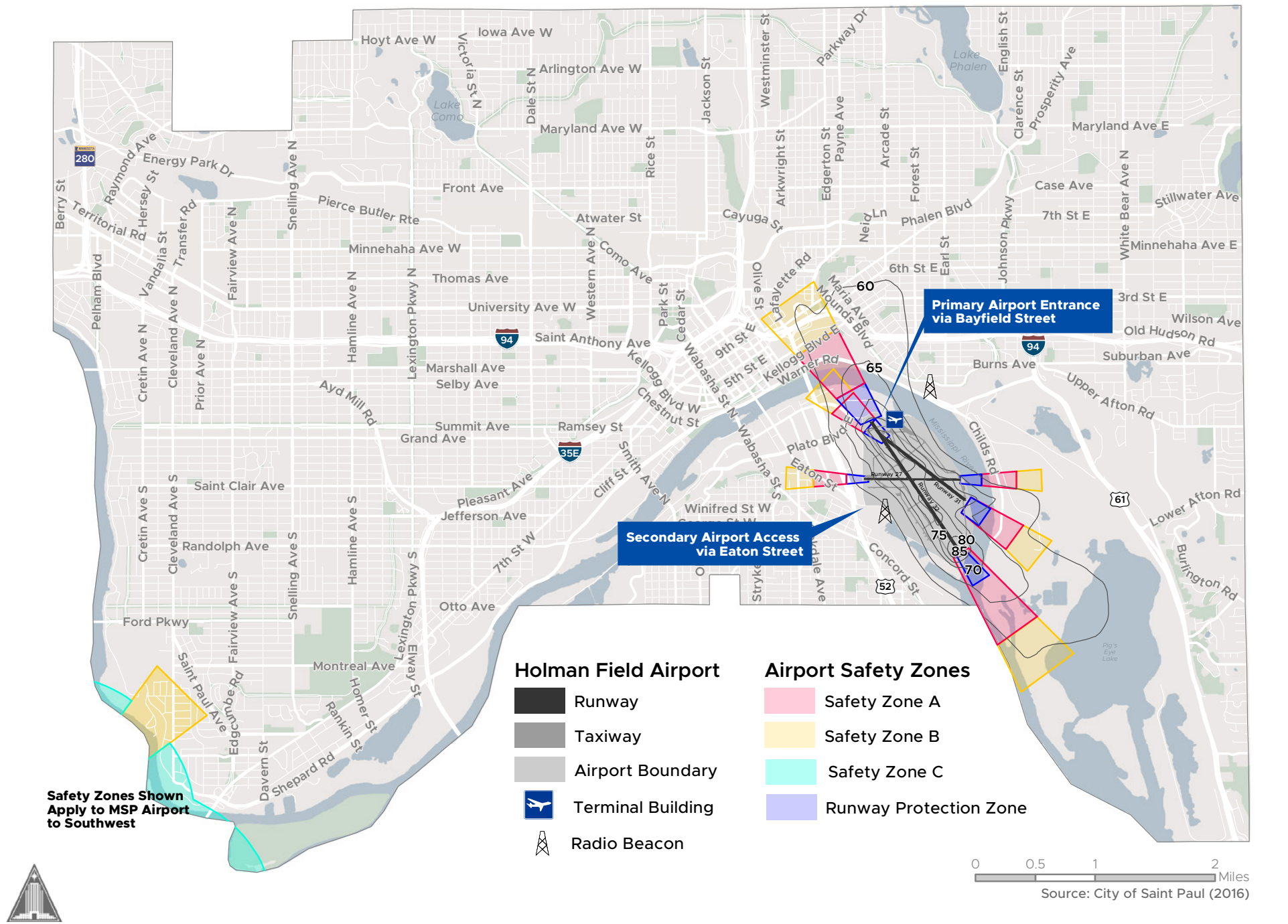


0 0.5 1 2 Miles
Source: City of Saint Paul (2015-2018); Metropolitan Council (2016)

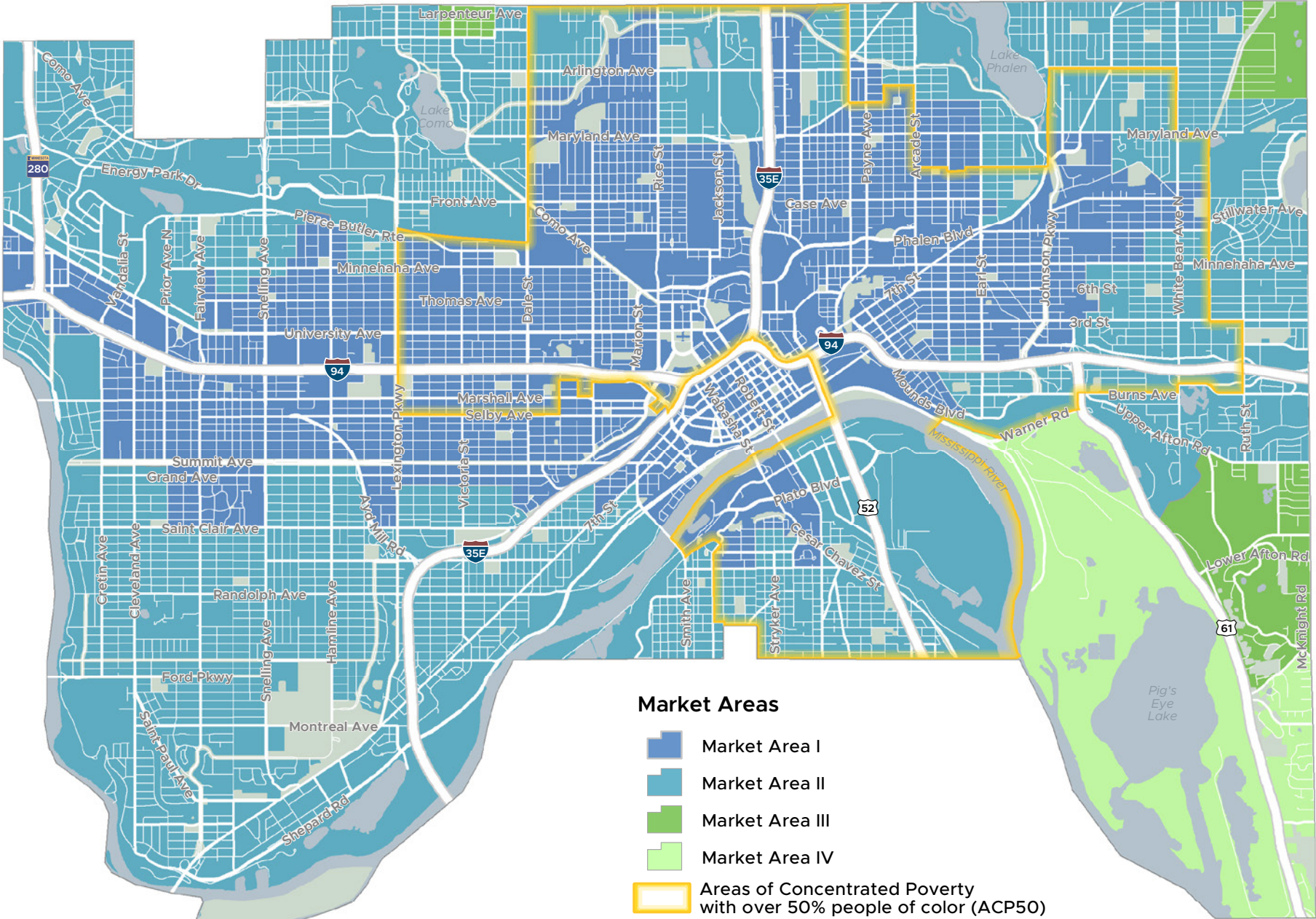
Map T-16: Planned Improvements to Metro Highways



Map T-17: Airport Safety Zones and Noise Contours



Map T-18: Transit Market Areas*



*See Appendix C for Transit Market Areas

0 0.5 1 2 Miles
Source: Metropolitan Council (2015)



Appendix B

List of Potential Projects

The following projects are representative of those that could be considered for implementation of this chapter:

Projects
Conversions of four-lane roadways to three-lane roadways
Intersection improvements for safety
Pedestrian facilities
Bicycle facilities
Bridge improvements to safely accommodate all users, over interstates, rivers, railways, and other obstacles to connectivity
Kellogg Boulevard/3rd Street Bridge reconstruction
West Midway (Vandalia/Ellis/280/I-94/University) trucking improvements
Kittson Corridor
Pierce Butler Corridor
Ayd Mill Corridor, subject to a Supplemental Environmental Impact Statement (EIS) process involving a community task force
Shepard, TH 5, and I-35E connection improvements
Midtown Greenway extension into Saint Paul
Grand Round completion
Capital City Bikeway completion
4th Street and/or 5th Street pedestrian-oriented improvements to enhance the connection between Mears Park and Rice Park
Connect pedestrians to the river by opening new points of river access
Canadian Pacific Rail Spur (Ford Spur) conversion to other transportation uses
New transitways:
Riverview
Gold Line/Gateway
Rush Line
Robert Street
Modern streetcars
Arterial Bus Rapid Transit

Appendix C

Other Required Transportation Information

1. Roles and responsibilities in transitway development

Transitway planning and development is generally led by county governments or Metro Transit. The City of Saint Paul participates in both the policy and technical aspects of that planning and development. It is possible that in the future the City of Saint Paul might choose to lead development of a transitway, such as a streetcar. The City of Saint Paul is currently participating in the planning for the Riverview/Ford, Rush Line and Gold Line transitway corridors.

2. Seaplanes

Seaplanes may be used on the Mississippi River as regulated by the Minnesota Department of Transportation.

3. Existing and future functional and operational characteristics of the St. Paul Downtown Airport

The Downtown Airport (STP) is designated by the FAA as a Reliever Airport for the metropolitan area. It serves an important role to reduce congestion at Minneapolis/Saint Paul International Airport (MSP) by accommodating general aviation traffic that might otherwise use MSP. STP is classified as a Primary Reliever Airport by MAC; a Key Airport by the Minnesota Department of Transportation State Aviation System Plan; and an Intermediate Airport by the Metropolitan Council Regional Aviation System Plan. Further, the FAA has classified STP as a National category general aviation airport. It accommodated approximately 40,500 aircraft takeoffs and landings in 2017. By 2040, approximately 50,000 to 70,000 annual flight operations are predicted.

4. Additional Transit Services

The Metropolitan Council provides Transit Link and Metro Mobility transit services throughout Saint Paul. Private/nonprofit transit services also operate in Saint Paul.

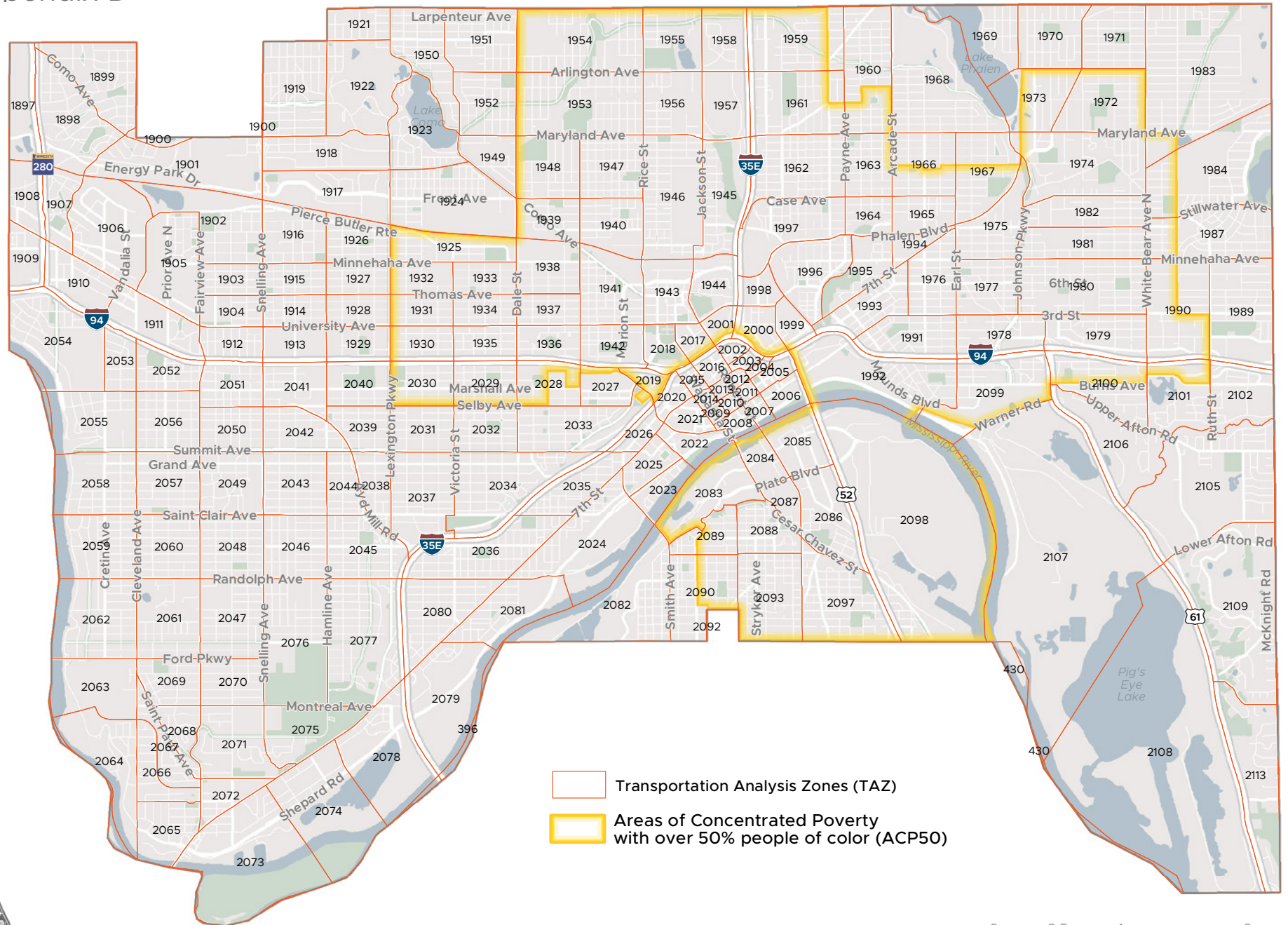
5. Functional Class Descriptions

Roads in our region are categorized into functional classes, including Principal Arterials, Minor Arterials, Collectors and Local Streets. Principal Arterials provide the highest vehicle speeds and least access, and are designed for longer trips. Minor Arterials in Saint Paul can either augment (add to) Principal Arterials' function or relieve traffic from them, and are intended for multimodal medium-length trips and to support our businesses. Collectors provide finer-grained multimodal linkages to larger developments and community amenities, and generally do not link communities to one another. Local Streets provide direct multimodal access to other individual parcels throughout the city.

6. Transit Market Areas

Transit Market Areas are Metropolitan Council designations that indicate the likely cost effectiveness of transit service investments. Transit Market Area I has the potential transit ridership necessary to support the most intensive fixed-route transit service, typically providing higher frequencies, longer hours, and more options available outside of peak periods. Market Area II can support many of the same types of fixed-route transit as Market Area I, although usually at lower frequencies or shorter service spans. Market Area III primarily supports commuter express bus service with some fixed-route local service providing basic coverage. Market Area IV can support peak-period express bus services if a sufficient concentration of commuters likely to use transit service is located along a corridor.

Appendix D



0 0.5 1 2 Miles

Source: Metropolitan Council (2016, 2018)
Source: Metropolitan Council



Figure T-1: Transportation Analysis Zone (TAZ) Estimates

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
1897	2	1	608	0	0	583	0	0	654	3	3	722
1898	1616	671	838	1683	722	933	1692	727	913	1729	734	909
1899	1848	654	729	2081	825	729	2634	1073	752	3410	1369	773
1900	269	133	0	546	228	0	1241	521	0	2161	915	0
1901	868	422	1267	1086	477	2151	1199	512	2479	1312	542	2785
1902	1435	607	302	1546	622	266	1494	603	251	1471	593	240
1903	1286	554	92	1382	569	68	1338	554	63	1322	548	60
1904	872	481	4337	1211	499	4432	1164	484	4259	1129	470	4140
1905	719	304	3281	783	323	4192	766	318	3892	747	311	3640
1906	890	505	3186	1190	534	4068	1200	512	4734	1221	494	5400
1907	582	276	436	584	293	590	594	285	689	616	280	789
1908	601	171	2415	409	203	3246	507	240	3525	612	277	3797
1909	976	543	1369	1142	567	1682	1149	546	1829	1171	530	1973
1910	43	32	2106	264	149	3487	573	324	4094	842	468	4656
1911	975	475	3212	1428	633	3182	1385	649	3754	1372	669	4316
1912	876	388	1368	1025	485	1563	991	459	1825	978	438	2076
1913	0	0	1551	108	48	2158	533	253	3138	1262	620	4258
1914	1197	506	457	1511	553	573	1554	588	651	1623	627	722
1915	1100	437	77	1269	470	112	1266	485	135	1268	496	158
1916	1668	457	1238	2111	488	1229	2236	499	1194	2369	511	1190
1917	1225	730	4745	1526	773	4454	1625	775	4293	1747	780	4200
1918	1241	600	652	1453	642	551	1454	647	613	1478	654	672

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
1919	3232	1204	1100	3442	1291	1207	3503	1306	1334	3600	1329	1453
1921	1175	617	60	1491	660	109	1492	665	128	1519	672	148
1922	334	145	241	354	155	122	354	157	141	359	159	158
1923	642	272	18	777	292	46	770	290	38	769	289	30
1924	2215	1030	138	2959	1114	148	2965	1121	128	3001	1132	110
1925	1196	529	484	1789	634	789	1742	676	827	1696	717	865
1926	1071	453	205	1199	482	265	1246	489	259	1319	496	260
1927	1106	444	174	1300	475	88	1276	481	118	1247	480	147
1928	1042	413	91	1214	450	212	1241	476	245	1286	503	277
1929	1064	573	1777	1534	691	2348	1496	713	2750	1195	590	3118
1930	954	325	357	1165	367	413	1117	395	488	1074	423	562
1931	1320	435	260	1478	511	292	1431	520	310	1395	531	328
1932	1044	367	124	1227	424	123	1162	422	135	1106	421	149
1933	1487	453	20	1561	539	37	1560	566	47	1561	594	59
1934	1871	478	732	1744	603	673	1886	685	710	2034	774	745
1935	1472	472	638	1695	535	624	1619	575	729	1537	607	828
1936	964	397	351	1188	497	303	1398	603	354	1574	694	405
1937	1572	408	533	1527	502	492	1667	587	470	1827	683	450
1938	1663	451	501	1597	543	533	1685	611	510	1733	670	490
1939	331	120	741	416	141	630	458	157	594	516	177	560
1940	1502	516	630	1678	568	614	1678	575	581	1687	579	550
1941	2584	761	2068	2638	887	2126	2658	954	2042	2677	1021	1970
1942	1599	612	704	1770	694	1555	1835	733	1694	1746	717	1824
1943	484	194	3762	572	232	3370	635	260	3264	685	284	3240
1944	1820	604	77	1607	696	376	1739	793	372	1863	893	370
1945	1307	399	334	1339	445	382	1373	466	394	1415	487	408
1946	2709	847	623	2681	947	437	2758	997	455	2848	1045	476
1947	2254	699	302	2305	775	434	2334	792	411	2378	809	390

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
1948	1696	590	653	1922	651	912	1933	662	870	1955	671	830
1949	931	468	180	1144	487	161	1093	477	176	1069	471	188
1950	1554	644	58	1605	683	99	1582	691	119	1596	703	138
1951	1801	760	18	1889	800	48	1842	800	71	1840	806	98
1952	1322	558	157	1383	588	124	1351	590	142	1353	596	158
1953	4129	1578	126	4276	1689	281	4315	1682	238	4413	1683	200
1954	3004	1305	1527	3552	1392	921	3575	1382	772	3642	1377	639
1955	1376	509	137	1322	556	185	1404	567	181	1494	579	180
1956	867	334	575	867	371	558	944	387	538	1034	406	530
1957	2	1	806	8	4	863	18	8	838	33	13	830
1958	2482	602	83	1690	724	67	2107	863	62	2536	996	60
1959	3970	1288	275	3813	1442	210	3992	1510	195	4196	1578	180
1960	2560	889	542	2581	986	655	2725	1037	630	2885	1084	610
1961	3737	1088	389	3316	1251	499	3616	1364	474	3952	1482	450
1962	4225	1266	548	4252	1448	587	4375	1533	563	4530	1621	550
1963	1975	536	1059	1844	626	970	1981	683	961	2115	738	959
1964	679	201	230	678	230	396	705	244	391	731	257	390
1965	1061	278	358	997	328	362	1079	361	340	1159	395	320
1966	2707	825	428	2845	932	494	2886	963	466	2927	994	440
1967	2512	805	15	2739	908	290	2843	953	507	2937	994	700
1968	1952	800	319	2091	889	356	2203	940	327	2341	987	300
1969	815	277	13	800	303	20	838	316	20	877	326	20
1970	2057	601	114	1767	678	90	1934	738	90	2111	794	90
1971	1759	728	298	2046	795	252	2112	821	255	2192	843	259
1972	2895	1050	42	2933	1150	40	3046	1193	48	3186	1234	59
1973	1368	414	55	1210	463	83	1315	500	81	1443	541	80
1974	4555	1520	735	4634	1650	760	4690	1700	728	4736	1748	710
1975	1755	496	155	1479	567	319	1643	624	339	1858	691	358

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
1976	2450	696	29	2289	784	72	2427	849	108	2588	920	147
1977	1924	574	105	1715	648	120	1858	698	133	2021	744	148
1978	2066	897	310	2587	979	393	2669	1001	416	2768	1016	437
1979	1577	509	358	1504	566	580	1607	605	562	1752	649	550
1980	2641	810	310	2411	906	301	2584	968	288	2783	1025	280
1981	1740	578	122	1676	631	138	1730	651	133	1801	667	130
1982	2394	849	366	2578	918	711	2597	941	691	2612	964	680
1983	4959	1764	317	5080	1935	388	5310	2008	382	5589	2076	380
1984	2527	893	415	2586	988	394	2783	1050	381	3026	1115	370
1987	3088	1218	78	3554	1359	86	3875	1460	77	4252	1563	70
1989	2585	1017	653	2717	1125	577	2914	1202	604	3143	1273	636
1990	2965	1189	355	3315	1320	688	3504	1377	556	3714	1427	430
1991	2482	746	123	2419	826	182	2487	867	226	2547	902	266
1992	1187	465	185	1146	510	35	1265	562	37	1431	630	40
1993	1715	606	1028	1906	670	1183	1980	700	1259	2042	720	1331
1994	35	11	116	36	11	322	37	12	502	36	11	663
1995	511	127	661	526	152	539	630	178	565	744	206	596
1996	1863	598	293	1843	684	439	1916	740	509	1965	791	573
1997	1696	530	1837	1700	607	1751	1753	645	1688	1811	684	1650
1998	353	3	526	366	4	481	397	4	455	380	5	430
1999	0	0	3892	0	0	3923	0	0	3735	0	0	3560
2000	504	28	765	524	28	678	564	26	638	541	24	600
2001	3	1	5258	30	9	5455	141	42	5267	283	86	5180
2002	198	143	110	465	228	188	668	307	245	887	384	295
2003	373	186	52	577	282	127	762	349	164	919	396	197
2004	484	298	560	848	380	975	933	379	1137	984	373	1293
2005	819	585	1332	1451	750	1591	1353	769	1878	1154	789	2150
2006	538	360	322	1042	488	236	1181	520	289	1213	505	345

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
2007	8	0	3536	61	14	4112	109	32	4220	177	56	3802
2008	522	364	4394	1287	512	4628	1233	568	4656	811	543	4717
2009	251	174	3743	607	241	3775	572	261	3720	364	242	3690
2010	0	0	3302	72	23	2795	314	90	2813	677	188	2852
2011	586	411	1868	1188	615	2683	1327	784	3156	1432	966	3601
2012	366	257	2373	775	347	1903	917	372	2350	1051	397	2775
2013	0	0	4878	67	21	5116	288	83	5143	615	171	5206
2014	126	111	1980	374	158	2304	372	187	2316	226	192	2344
2015	893	740	934	1389	818	984	1269	836	1160	1021	805	1321
2016	918	641	1137	1748	1003	2276	1777	1073	2459	1437	976	2280
2017	45	1	3275	53	0	3488	53	0	3532	55	5	3597
2018	0	0	2023	0	0	2201	0	0	2240	0	0	2292
2019	0	0	407	0	0	319	0	0	283	0	0	250
2020	500	144	2285	728	185	3062	910	254	3555	1121	336	4018
2021	22	15	5797	29	19	6662	40	26	6906	51	31	7183
2022	1	1	2509	119	42	2537	180	62	2765	84	28	2994
2023	1037	608	18	1451	651	43	1521	638	41	1599	628	40
2024	866	377	1595	1239	455	1302	1438	503	1419	1627	545	1543
2025	763	352	412	984	384	600	1049	383	956	1116	385	1315
2026	206	161	6035	405	205	6030	504	251	5838	594	289	5780
2027	861	464	655	1024	489	728	1050	485	720	1090	484	719
2028	1654	701	951	1574	742	769	1623	740	761	1696	741	759
2029	1991	817	91	2278	856	228	2247	845	222	2239	839	220
2030	1568	572	49	1618	602	33	1601	595	31	1600	592	30
2031	1447	565	406	1661	594	385	1643	588	373	1641	585	370
2032	1727	797	401	2219	835	285	2189	824	274	2180	817	270
2033	3170	1873	1149	3777	1958	1237	3575	1918	1222	3370	1887	1218
2034	3107	1604	1269	3532	1679	1271	3469	1636	1204	3467	1608	1140

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
2035	1543	635	496	1822	706	449	1883	728	468	1954	748	488
2036	2371	1056	477	2696	1122	706	2711	1115	710	2782	1111	718
2037	2586	1240	972	2696	1306	1235	2664	1284	1176	2684	1273	1120
2038	881	484	1225	1147	514	1674	1139	513	1584	1148	515	1500
2039	1310	502	45	1229	550	40	1283	576	35	1355	605	30
2040	1021	272	700	1106	289	669	1103	289	623	1119	290	580
2041	363	172	647	411	184	580	411	185	544	419	188	510
2042	1405	662	141	1506	694	175	1464	686	191	1447	682	208
2043	1942	842	478	1960	901	542	1959	916	574	1992	936	606
2044	989	473	283	1070	497	321	1043	492	340	1034	491	358
2045	2008	996	182	2268	1043	167	2159	1021	188	2106	1007	208
2046	2192	980	202	2290	1055	240	2259	1072	264	2280	1096	287
2047	2192	953	474	2407	1010	458	2362	1014	449	2385	1021	450
2048	2192	912	209	2273	973	182	2233	987	190	2261	1003	199
2049	2337	512	1376	2499	548	1428	2636	567	1377	2736	585	1350
2050	1642	701	194	1592	755	165	1631	774	176	1691	795	188
2051	1381	591	520	1348	635	743	1378	649	769	1424	665	796
2052	1239	537	97	1233	571	149	1244	576	143	1272	583	140
2053	697	256	63	631	281	85	665	297	81	716	315	80
2054	908	392	209	948	435	210	988	462	203	1036	485	200
2055	3514	644	2162	3940	714	2360	4027	715	2247	4145	717	2170
2056	2069	838	228	1953	908	219	2022	942	207	2122	979	200
2057	2090	962	191	2135	1020	169	2115	1023	159	2132	1030	150
2058	1759	543	89	1695	586	131	1721	588	125	1757	593	120
2059	1728	677	100	1701	721	94	1721	744	91	1768	770	90
2060	2258	940	259	2377	977	266	2316	977	261	2275	980	260
2061	2043	458	1578	2120	481	1546	2189	484	1488	2248	488	1450
2062	2643	1322	969	3122	1384	1042	3086	1379	939	3124	1377	850

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
2063	636	464	1312	2068	1031	2271	3770	1847	3254	5097	2428	4141
2064	380	166	2	635	316	91	811	397	162	790	377	243
2065	842	360	1952	973	382	952	952	374	981	950	368	1010
2066	736	337	26	831	356	113	805	348	133	800	342	156
2067	993	534	42	1305	564	120	1261	550	137	1250	541	156
2068	562	223	3	560	242	55	559	244	70	571	247	88
2069	1042	466	256	1143	494	693	1108	483	709	1100	476	728
2070	1187	474	115	1313	508	145	1342	519	157	1376	526	169
2071	1234	466	332	1364	505	289	1433	529	312	1524	556	337
2072	789	352	359	974	379	420	1010	393	440	1057	407	458
2073	2835	1336	306	2874	1510	502	3250	1626	872	3689	1748	1230
2074	1561	1033	796	2070	1169	934	2104	1269	1272	2172	1376	1609
2075	116	45	40	110	51	47	113	54	43	119	58	40
2076	1612	759	474	1780	808	454	1714	807	426	1692	811	400
2077	2675	1146	615	2696	1254	592	2707	1307	555	2774	1367	520
2078	797	512	966	1161	557	1352	1267	577	1733	1386	597	2102
2079	253	136	752	1005	383	1173	1215	491	1561	1478	573	1937
2080	2372	1002	319	2389	1073	342	2424	1093	339	2492	1112	339
2081	874	360	273	1480	623	559	1316	551	975	1194	497	1377
2082	1155	464	92	1309	500	104	1346	519	97	1406	537	90
2083	82	50	1120	139	72	1108	188	101	980	227	124	860
2084	0	0	2009	772	242	2177	886	280	2238	660	207	2309
2085	0	0	2942	0	0	3287	0	0	3485	0	0	3685
2086	1517	459	1848	1490	524	1871	1549	581	1915	1609	631	1962
2087	626	172	560	566	203	629	669	235	651	793	263	677
2088	1731	683	615	2222	726	609	2288	736	650	2376	748	685
2089	1072	409	8	1128	435	14	1153	441	21	1198	449	29
2090	2328	833	129	2288	881	146	2319	884	171	2377	887	198

Figure T-1: Transportation Analysis Zone (TAZ) Estimates - Continued

TAZ #	2010			2020			2030			2040		
	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP	POP	HH	EMP
2093	2589	957	215	2635	1016	161	2687	1027	188	2782	1040	217
2097	3121	1010	142	3322	1105	163	3437	1142	222	3576	1176	284
2098	738	239	1299	815	282	873	909	320	575	1005	351	290
2099	1348	529	404	1354	569	480	1407	581	444	1478	594	410
2100	1687	649	259	1742	701	260	1798	717	250	1874	732	240
2101	1148	417	728	1240	502	628	1508	592	655	1764	670	685
2102	1996	1053	206	2260	1118	210	2232	1112	224	2176	1095	238
2105	2722	946	129	2744	1008	39	2798	1022	24	2834	1021	10
2106	485	183	2	493	213	15	569	241	13	645	266	10
2107	0	0	134	0	0	297	0	0	186	0	0	80
2108	0	0	500	0	0	600	0	0	650	0	0	700
2109	2938	1005	289	2965	1080	153	3011	1101	100	3062	1119	50
2113	625	213	132	1189	384	94	1860	603	97	2376	770	99