

## Chapter 8. Capital Resources

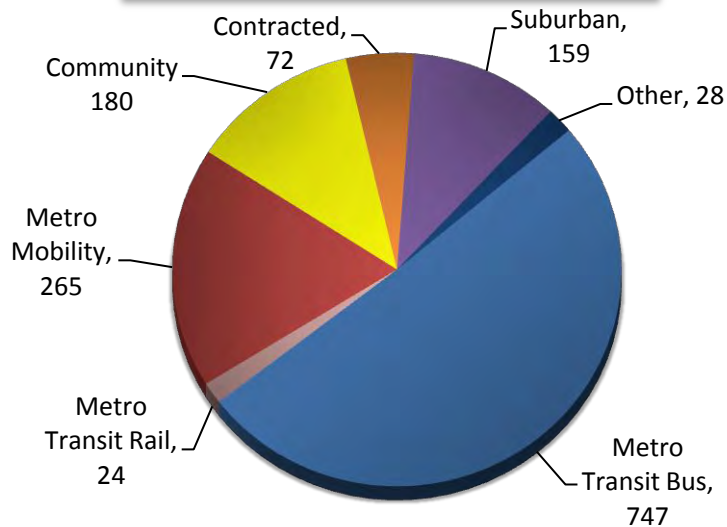
This chapter looks at five transit capital resource categories: (1) vehicles operated during peak periods, (2) support facilities, (3) park-and-ride facilities, (4) technology improvements, and (5) transit advantages, which includes bus-only shoulders on freeways.

### Peak Vehicles Operated

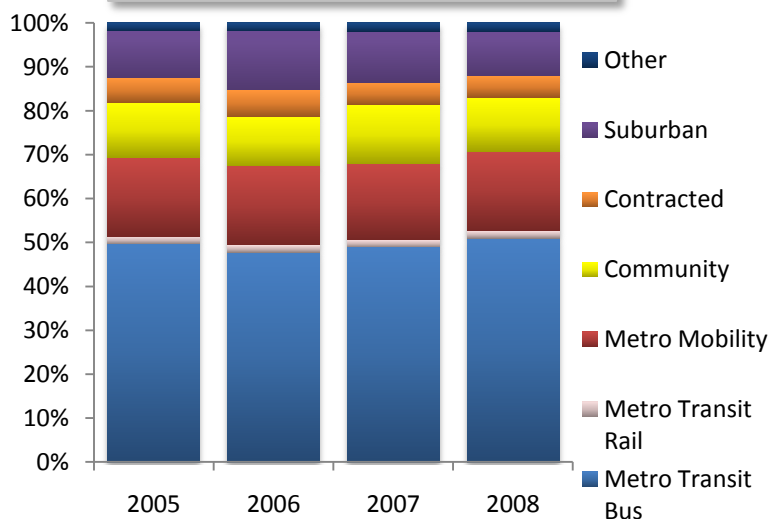
The core of any transit system is its vehicles. In 2008, the maximum number of buses used on any given day in the Twin Cities was 1,475. Slightly more than half of these vehicles were used by Metro Transit Bus and Rail, with the remaining vehicles used by the other programs in the region. These vehicles are overwhelmingly buses, although there are a small number of vans as well.

The maximum number of vehicles in service overall has increased by 3% since 2004. Changes in vehicles operated have not been uniform across all programs, as Metro Transit maximum number of vehicles has remained relatively steady while other providers have seen increases and decreases.

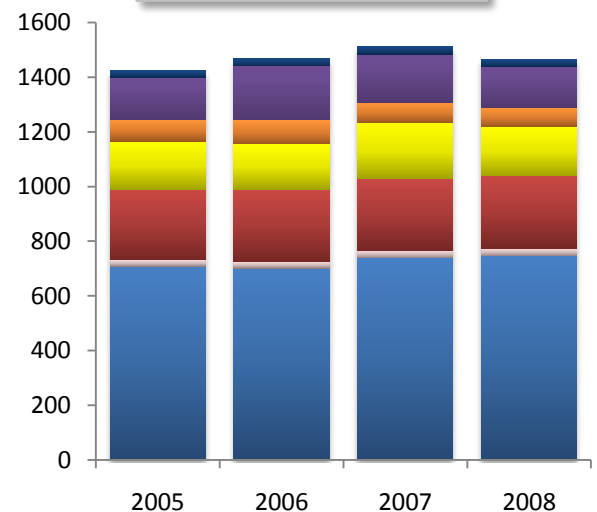
**2008 Max Vehicles in Service:  
1,475 Total**



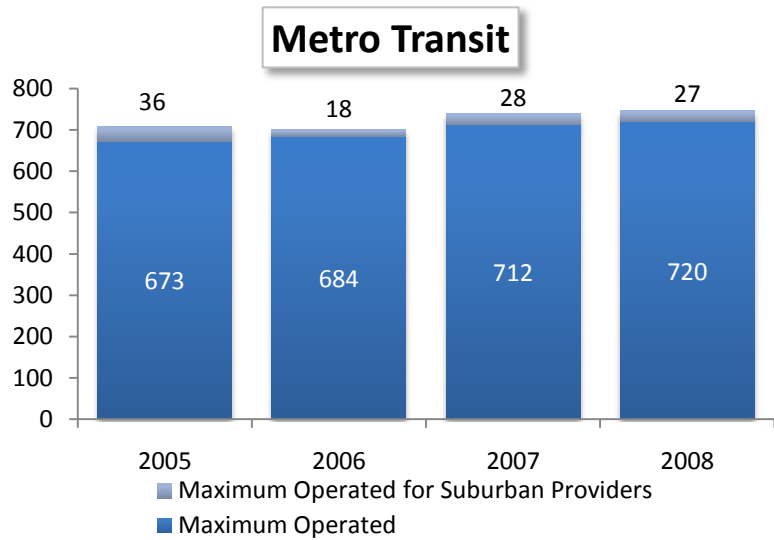
**Max Vehicles in Service, % of Total**



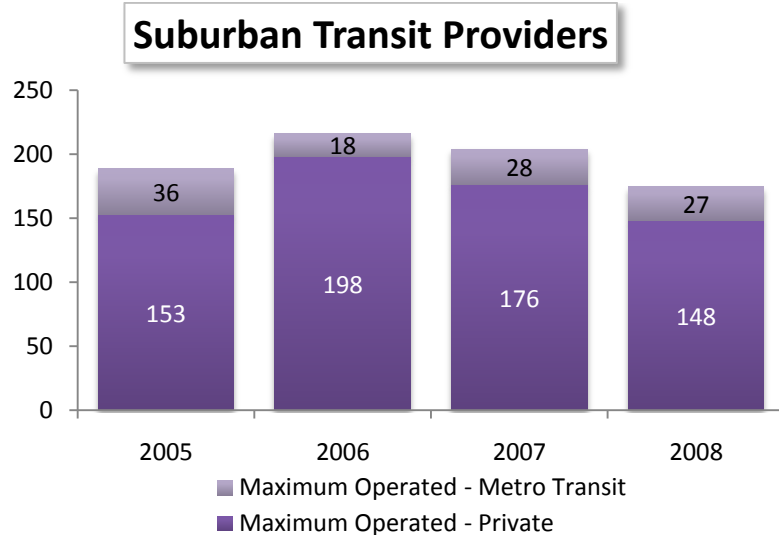
**Max Vehicles in Service**



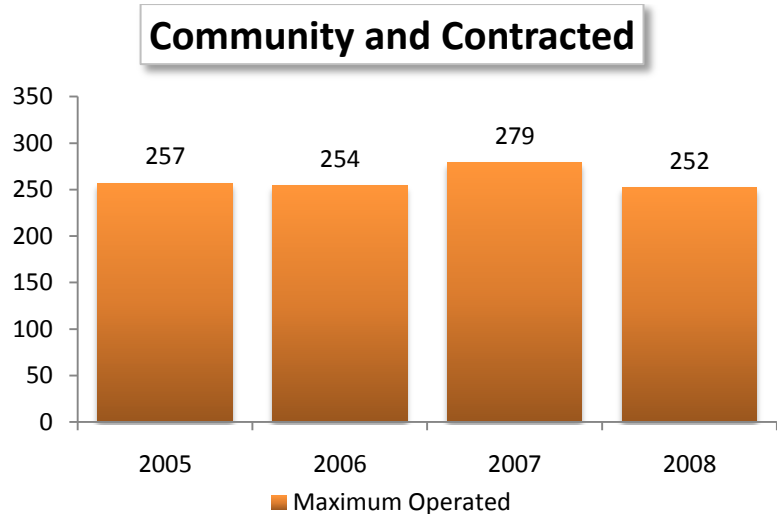
Metro Transit has remained steady in maximum operated vehicles between 2005 and 2008, with an increase of only 38 vehicles, about 5%. Metro Transit operates some buses for service provided under contract with Suburban Transit Providers.



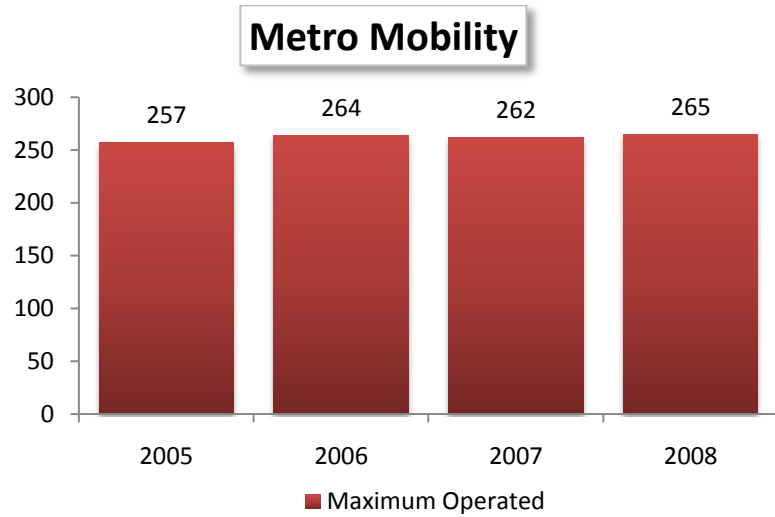
Suburban Transit Provider vehicles had increased from 2005 to 2006, reaching a peak of 198 privately operated vehicles. This is in large part due to increases in operating budgets, significant fleet expansion opportunities through federal funding programs such as the Congestion Mitigation and Air Quality (CMAQ) program, and less reliance on Metro Transit as a contracted service provider. However, the maximum number of vehicles has decreased since 2006 because of budget constraints and evaluations of service performance.



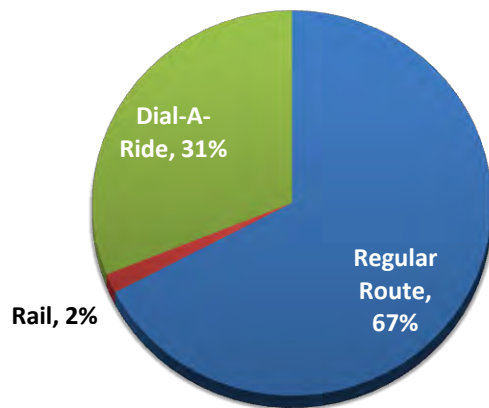
The contracted regular-route and community programs share some buses and, therefore, are shown together. The number of maximum vehicles in service has remained steady as new services are provided replacing underperforming routes.



The Metro Mobility peak vehicle operation has remained relatively stable over the years.

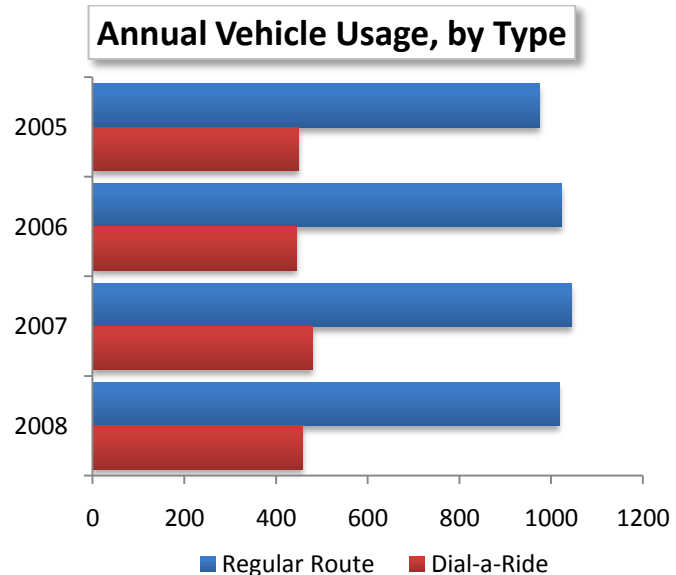


**2008 Max Vehicles in Service:  
1,475 Total**



Two out of every three vehicles are used on regular-route transit, whether bus or rail. The remaining vehicles are used for dial-a-ride service such as Metro Mobility or community programs.

Over the last five years, the dial-a-ride vehicle requirement at maximum service increased by only 5%. The vehicle requirements for regular-route service increased 3% from 2004 to 2008.



**Table 8-1. Maximum Vehicle Requirement, by Year and Provider**

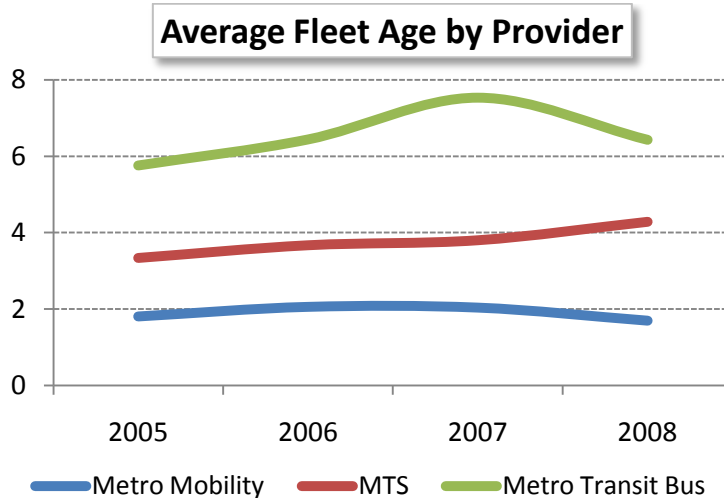
Max In-Service Vehicles	2005			2006			2007			2008		
	Regular Route	Dial-a-Ride	Total	Regular Route	Dial-a-Ride	Total	Regular Route	Dial-a-Ride	Total	Regular Route	Dial-a-Ride	Total
<b>Metropolitan Council</b>												
Metro Transit Bus	709	0	709	702	0	702	740	0	740	747	0	747
Metro Transit Rail	23	0	23	24	0	24	24	0	24	24	0	24
MTS Community <sup>1</sup>	0	177	177	0	166	166	0	204	204	0	180	180
MTS Contracted	80	0	80	88	0	88	75	0	75	72	0	72
Metro Mobility	0	257	257	0	264	264	0	262	262	0	265	265
<b>Council Subtotal</b>	<b>812</b>	<b>434</b>	<b>1,246</b>	<b>814</b>	<b>430</b>	<b>1,244</b>	<b>842</b>	<b>466</b>	<b>1,308</b>	<b>846</b>	<b>445</b>	<b>1,291</b>
<b>Suburban Transit Providers</b>												
MVTA	83	0	83	86	0	86	90	0	90	91	0	91
SouthWest Transit	45	0	45	58	0	58	61	0	61	42	0	42
Maple Grove	25	4	29	31	4	35	13	4	17	1	4	4
Plymouth	15	8	23	15	8	23	28	8	36	28	7	35
Shakopee	3	3	6	6	3	9	9	0	9	9	0	9
Prior Lake	3	0	3	5	0	5	3	0	3	4	0	4
<b>Suburban Provider Subtotal</b>	<b>174</b>	<b>15</b>	<b>189</b>	<b>201</b>	<b>15</b>	<b>216</b>	<b>204</b>	<b>12</b>	<b>216</b>	<b>175</b>	<b>11</b>	<b>186</b>
<b>Metro Transit/Suburban<sup>2</sup></b>	<b>36</b>	<b>0</b>	<b>36</b>	<b>18</b>	<b>0</b>	<b>18</b>	<b>28</b>	<b>0</b>	<b>28</b>	<b>27</b>	<b>0</b>	<b>27</b>
<b>Other Providers</b>												
U of Minnesota	17	2	19	18	2	20	18	2	20	18	2	20
Ramsey Star	-	-	-	-	-	-	2	0	2	2	0	2
NCDA	6	0	6	6	0	6	6	0	6	6	0	6
<b>Total</b>	<b>973</b>	<b>451</b>	<b>1,424</b>	<b>1,021</b>	<b>447</b>	<b>1,468</b>	<b>1,044</b>	<b>480</b>	<b>1,524</b>	<b>1,020</b>	<b>458</b>	<b>1,478</b>

<sup>1</sup> Some community-based programs also provide concurrent ADA service under contract with Metro Mobility. These vehicles are reflected in the Metro Mobility figure.

<sup>2</sup> Metro Transit provides service under contract to the some Suburban Transit Association Providers. These numbers are reflected in the Metro Transit total but not the Suburban Providers total.

A standard, 40-foot transit bus has an average life of 12 years. A typical dial-a-ride bus, including Metro Mobility buses, has an average life of 5 years. In 2008, Metro Transit's active, non-State Fair fleet had an average age of 6.43 years, down from a high of point of 7.53 in 2007. MTS fleet consists of vehicles for both regular and dial-a-ride service. MTS's regular-route fleet includes mostly large 40-foot and coach buses. This fleet also includes the suburban transit provider buses. MTS's fleet has seen its average fleet

age increase from 3.9 years in 2004 to 4.28 years in 2008. The Metro Mobility's average fleet age varies from year to year because bus replacement occurs in large numbers at irregular intervals. In 2008, the average fleet age was 1.7 years.



## Support Facilities

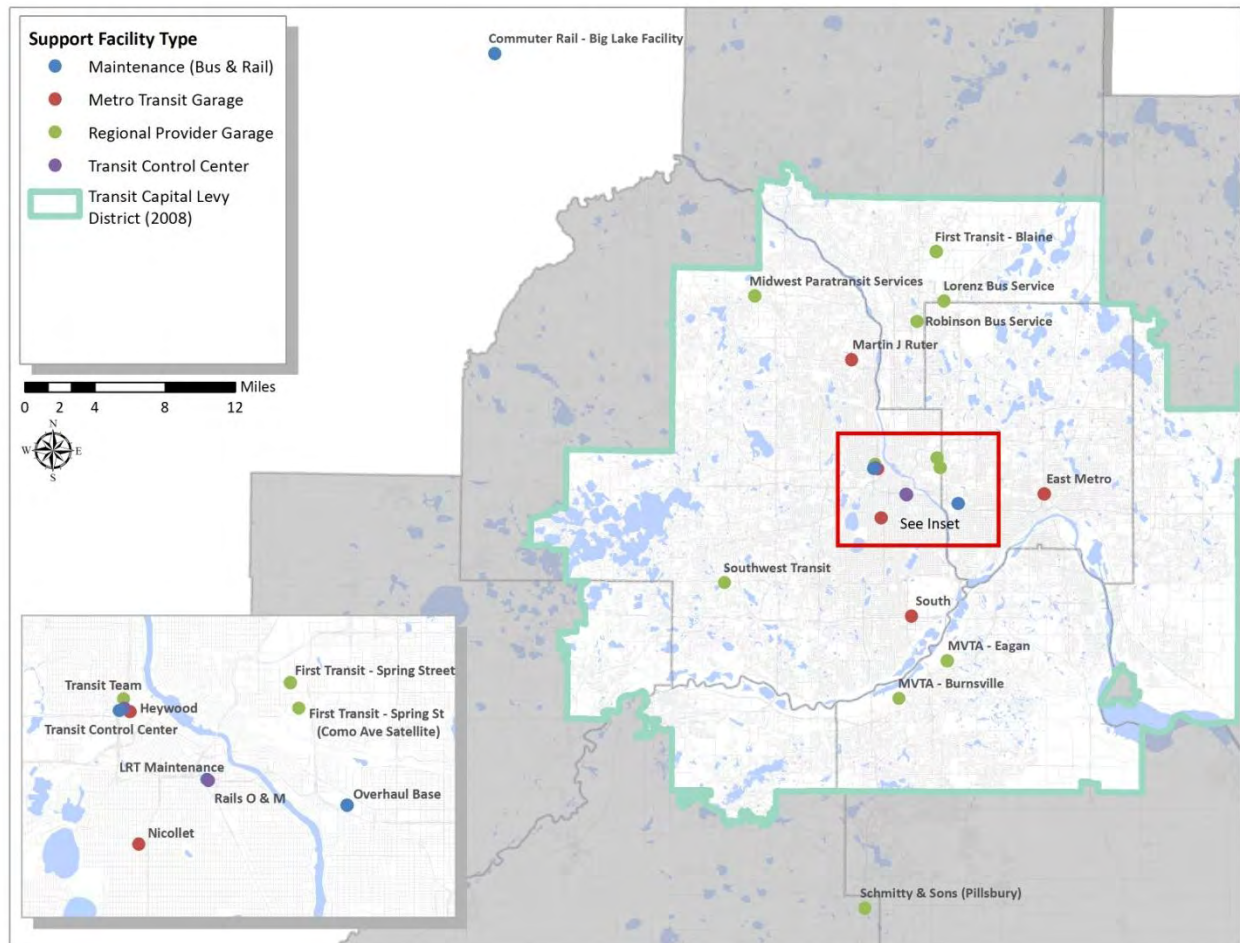
The Twin Cities Transit System is served by a variety of support facilities. Metro Transit currently has 11 vehicle-related support facilities with the other facilities servicing Metro Mobility, Suburban Transit Providers, MTS, and other contracted service vehicles. Metro Transit also has a transit control center (TCC) and other operations-related facilities. All facilities, except the Big Lake Commuter Rail facility, are located in the seven-county metro area. Several facilities are shared between providers and services.

**Table 8-2. Contracted Support Facilities**

Garages	Location	Regular Route	Dial-a-Ride	Providers
First Transit	Blaine	16	11	NCDA, MTS
First Transit	Mpls. – Spring Street	33	17	Plymouth, MTS
First Transit	Mpls. – Como	65	-	MTS, U of MN
First Transit	Roseville	-	168	Metro Mobility
Lorenz Bus Service	Blaine	16	-	MTS
Robinson Bus Service	St. Louis Park	16	-	MTS
Schmitt & Sons	Lakeville	9	-	Prior Lake, Shakopee
Transit Team	Minneapolis	18	124	MTS, Metro Mobility
H.S.I.	Stillwater Township	-	17	MTS
DARTS	West St. Paul	-	35	MTS
Midwest Paratransit	Maple Grove	1	17	Maple Grove
PRISM	Golden Valley	-	6	MTS

**Table 8-3. Directly Operated Support Facilities**

Garages	Location	Regular Route	Dial-a-Ride	Providers
MVTA	Eagan	55	-	MVTA
MVTA	Burnsville	61	-	MVTA
Southwest Transit	Eden Prairie	63	-	SouthWest Transit
Scott County	Shakopee	-	32	MTS, Metro Mobility
Hastings	Hastings	-	4	MTS
Heywood Garage	Minneapolis	248	-	Metro Transit
Ruter Garage	Brooklyn Center	149	-	Metro Transit
South Garage	Minneapolis	141	-	Metro Transit
Nicollet Garage	Minneapolis	166	-	Metro Transit
East Metro Garage	St. Paul	205	-	Metro Transit
Overhaul Base	St. Paul	N/A	-	Metro Transit
Light Rail Facility	Minneapolis	28	-	Metro Transit
Maintenance of Way	Minneapolis	N/A	-	Metro Transit
Hoover Street	Minneapolis	N/A	-	Metro Transit
Operations Support	Minneapolis	N/A	-	Metro Transit
Northstar Facility	Big Lake	3	-	Metro Transit



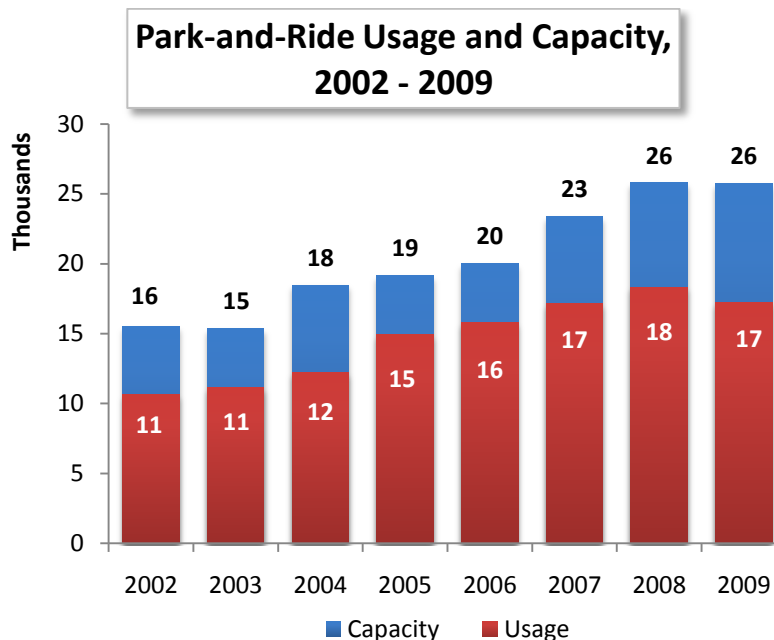
## Park-and-Ride Facilities

The facilities and capacity of the Twin Cities regional park-and-ride system are continuously in flux as new facilities are opened, underutilized facilities are closed, facilities are temporarily closed for expansions, and temporary facilities are open during expansion or until permanent facilities can be constructed. The Twin Cities area had 108 active park-and-ride lots as of fall 2009, with a total capacity of 25,765 spaces. This is up from a capacity of 15,533 spaces in fall 2002, increasing by 65% over the past seven years; however, both capacity and usage saw a decrease between 2008 and 2009.

Usage over since 2002 has grown from 10,678 to 17,247 in 2009, an increase of 61%. However, the percentage of spaces used has actually decreased. In 2002, 69% of all spaces were used. In 2009, 67% of all spaces were used.

Even though there are 108 lots, 54% of spaces are concentrated in the 20 largest lots. The three largest – the Burnsville Transit Station, Foley Park and Ride, and I-35W and 95<sup>th</sup> Ave. – have over 15% of the region's total park-and-ride capacity.

Spaces are provided through three types of arrangements. Some park-and-rides are owned by transit agencies like Metro Transit or Suburban Transit Provider organizations. Others are owned by Mn/DOT, typically on excess highway right-of-way and used under agreement between Mn/DOT and the transit agency. Third, some are joint use with private entities like theaters, shopping centers, or churches. Park-and-rides are served by Metro Transit and the region's suburban transit agencies. Metro Transit accounts for about 60% of park-and-ride spaces. MVTA, the Suburban Transit Provider with the most park-and-ride spaces, accounted for 22% of all spaces in 2002 and 17% in 2007.



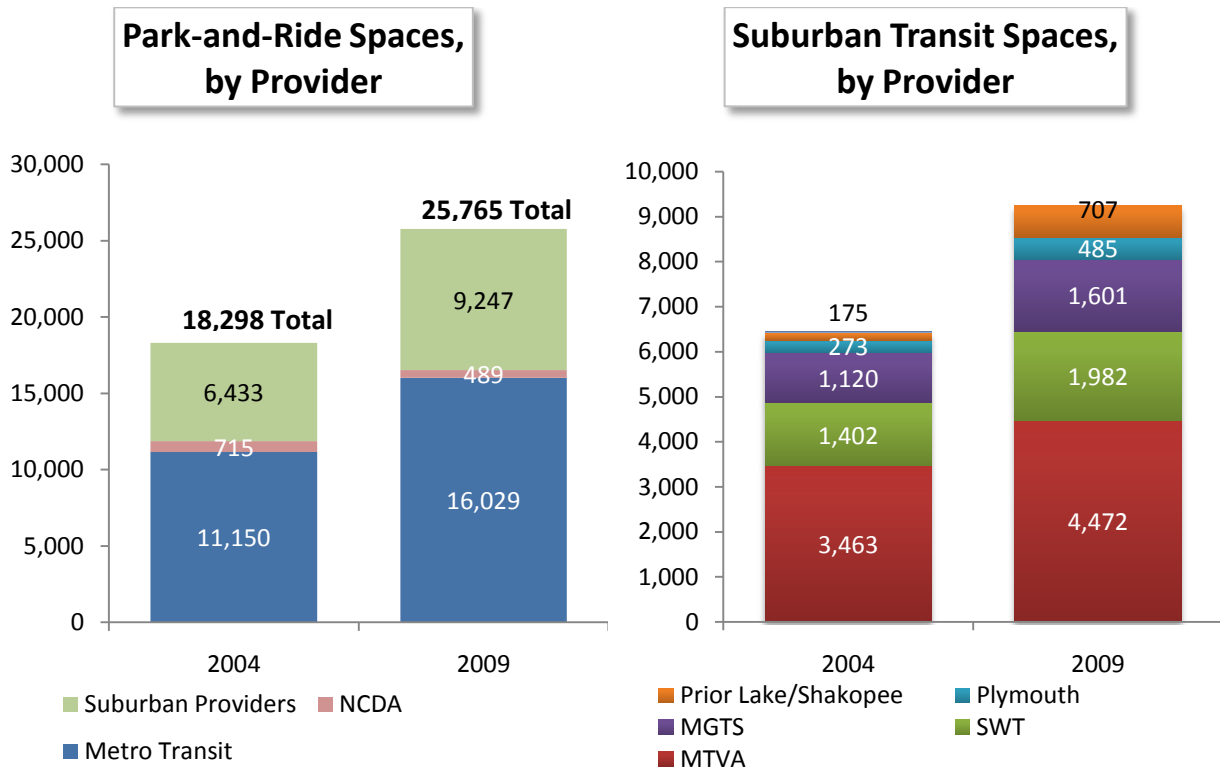


Table 8-4. Annual Park-and-Ride Capacity and Usage by Provider

	2004			2005			2006			2007			2008			2009		
Provider	Capacity	Usage	% Full	Capacity	Usage	% Full	Capacity	Usage	% Full	Capacity	Usage	% Full	Capacity	Usage	% Full	Capacity	Usage	% Full
Metro Transit	11,150	6,999	62.8%	11,763	8,435	71.7%	11,337	8,901	72.1%	14,026	9,880	70.4%	15,220	10,899	71.6%	16,029	10,684	66.7%
MTVA	3,463	2,720	74.7%	3,645	3,199	87.8%	3,645	3,119	85.6%	4,025	3,202	79.6%	4,400	3,279	74.5%	4,472	2,907	65.0%
SouthWest Transit	1,402	997	71.1%	1,383	1,243	89.9%	1,403	1,287	91.7%	1,382	1,450	97.7%	1,982	1,492	75.3%	1,982	1,447	73.0%
Maple Grove	1,120	674	60.2%	1,120	794	70.9%	1,120	960	85.7%	1,511	1,216	80.5%	1,601	1,353	84.5%	1,601	1,239	77.4%
Plymouth	273	254	93.0%	304	269	88.5%	374	322	86.1%	484	317	65.5%	485	279	57.5%	485	221	45.6%
Prior Lake/Shakopee	175	54	30.9%	175	62	35.4%	261	119	45.6%	708	229	32.3%	707	275	38.9%	707	334	47.2%
NCTD	715	516	72.2%	774	584	75.5%	794	618	77.8%	1,397	628	45.0%	1,397	758	54.3%	489	415	84.9%
<b>Total</b>	<b>18,478</b>	<b>12,214</b>	<b>66.1%</b>	<b>19,164</b>	<b>14,586</b>	<b>76.1%</b>	<b>19,914</b>	<b>15,326</b>	<b>77.0%</b>	<b>23,533</b>	<b>16,822</b>	<b>71.5%</b>	<b>25,792</b>	<b>18,335</b>	<b>71.1%</b>	<b>25,765</b>	<b>17,247</b>	<b>67.0%</b>



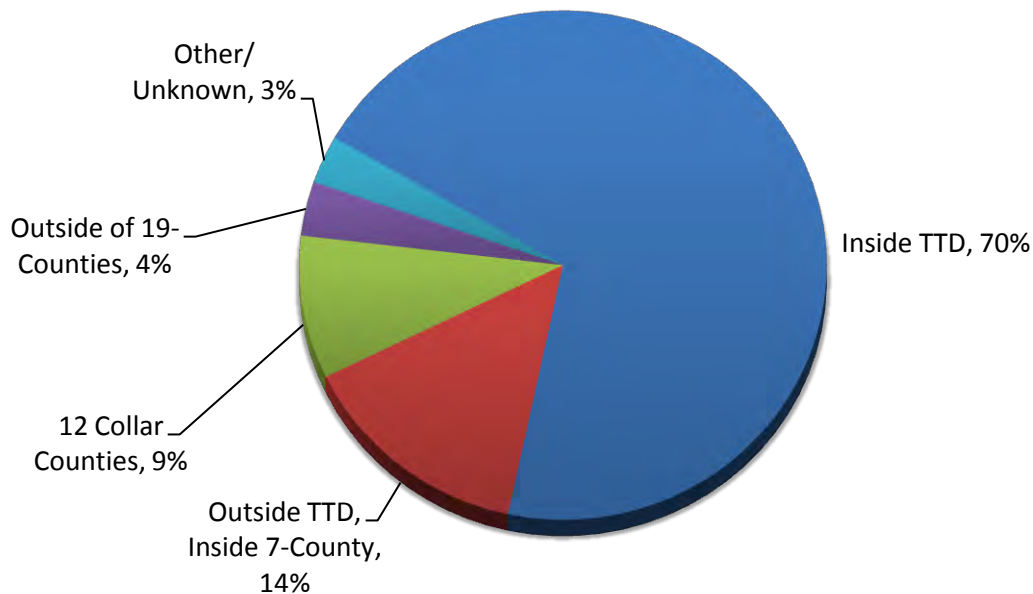
## Park-and-Ride User Survey

The Metropolitan Council, in collaboration with Metro Transit and other regional transit providers, conducts annual park-and-ride surveys to analyze capacity issues, usage statistics, and origins of transit park-and-rider users throughout the system. The last survey was completed in October 2009.

The survey indicates these key points about park-and-ride users in the region:

- Park-and-ride usage has increased throughout the region since 2002, up 61% since 2002. However, usage decreased by 6% between 2008 and 2009 but remained above 2007 levels.
- Capacity and consistent service are the major driving forces behind park-and-ride usage. Capacity is up 66% since 2002.
- Park-and-ride users are coming from beyond the transit taxing district (TTD). Only 70% are from inside the TTD and 84% are from inside the seven-county metro area.

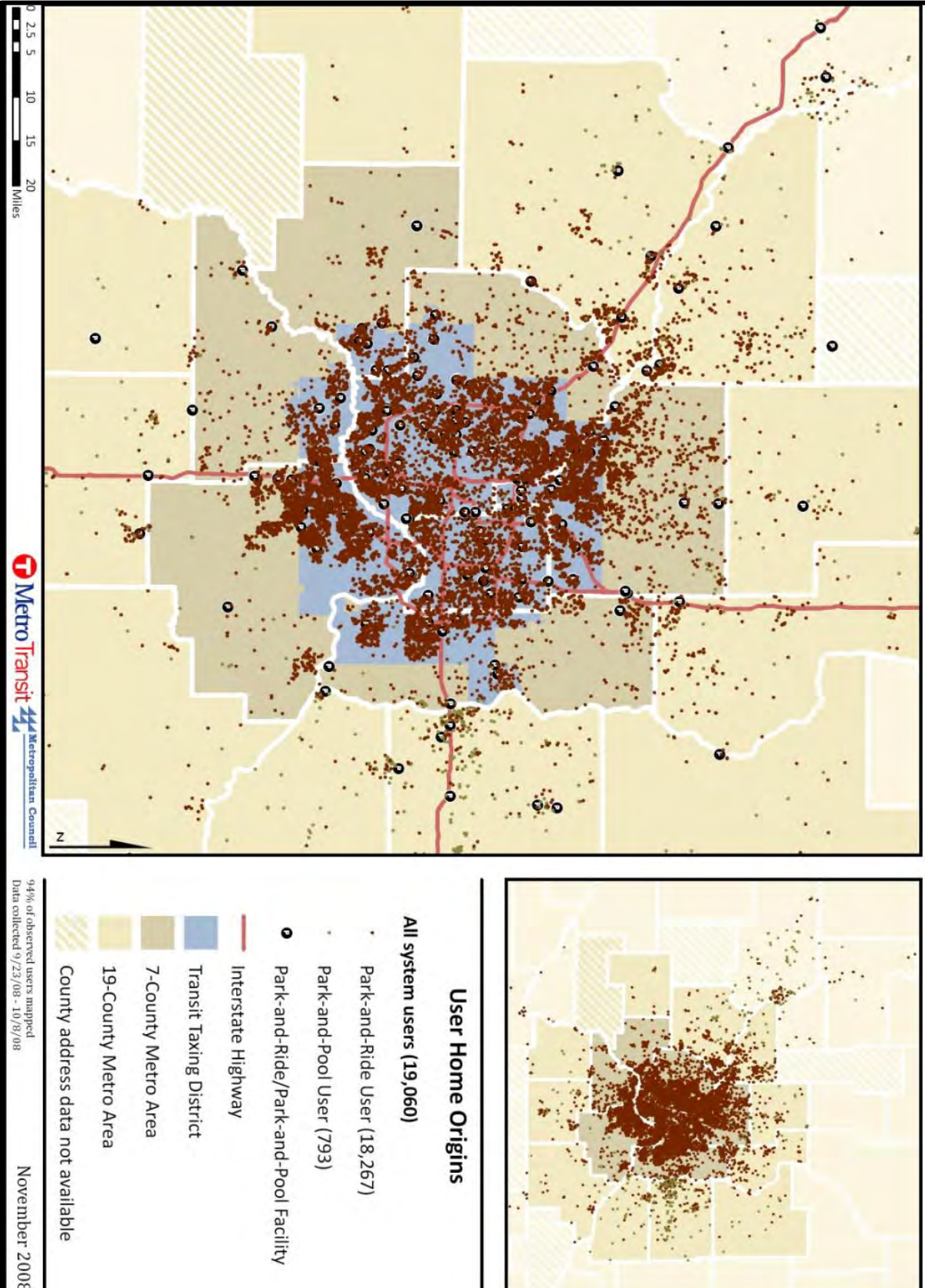
### Park-and-Ride User Origins



The following maps depict the home origins, based on license plate survey information, for various transit provider market areas throughout the region.

## 2008 Annual Regional Park-and-Ride System Survey

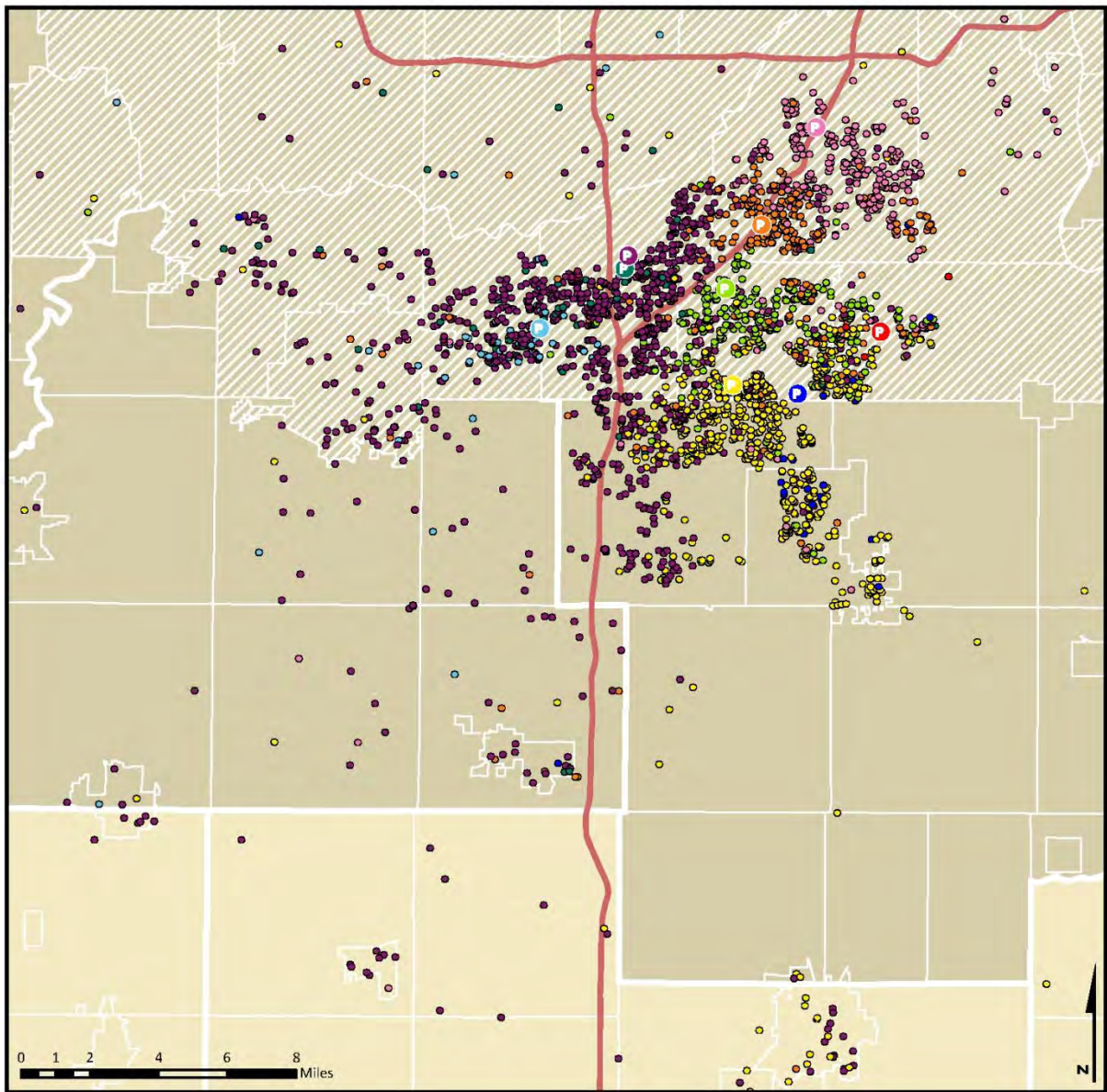
Twin Cities Metropolitan Area





# 2008 Annual Regional Park-and-Ride System Survey

## Minnesota Valley Transit Authority Facilities



**Park-and-Ride (Users)**

- 157th St Station (33)
- Apple Valley Transit Station (750)
- Blackhawk (330)
- Burnsville Transit Station (1,305)

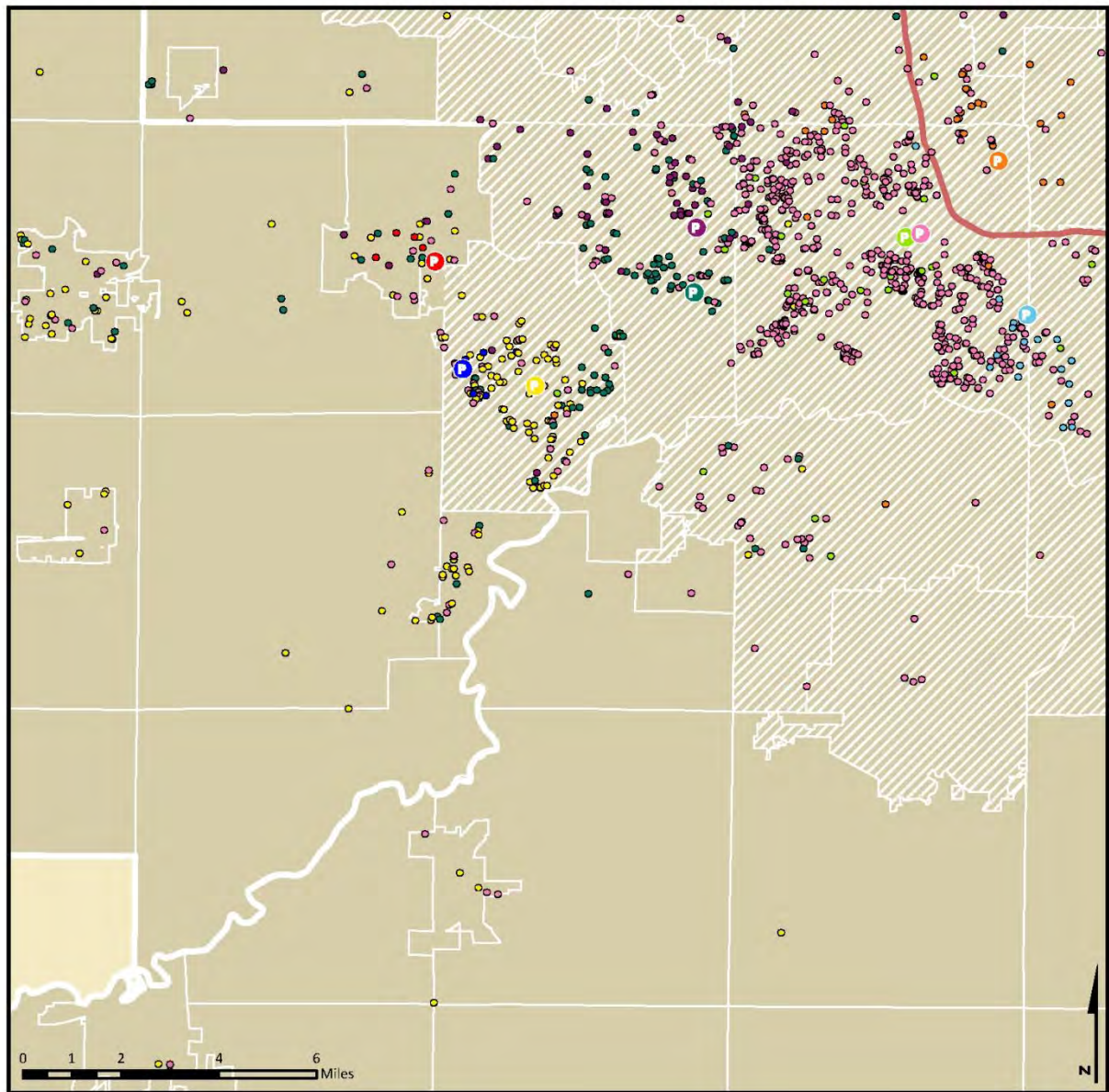
- Co Rd 42 & Huntington (79)
- Eagan Transit Station (380)
- Heart of the City (99)
- Palomino Hills (297)
- Rosemount Community Center (6)

- Interstate Highway
- Transit Taxing District
- 7-County Metro Area
- 19-County Metro Area



## 2008 Annual Regional Park-and-Ride System Survey

### *SouthWest Transit Facilities*



#### Park-and-Ride Name (Users)

- P Clover Fields (13)
- P East Creek Station (198)
- P Hwy 212 & Shady Oak Rd (48)
- P Market Blvd & Pauley Rd (89)

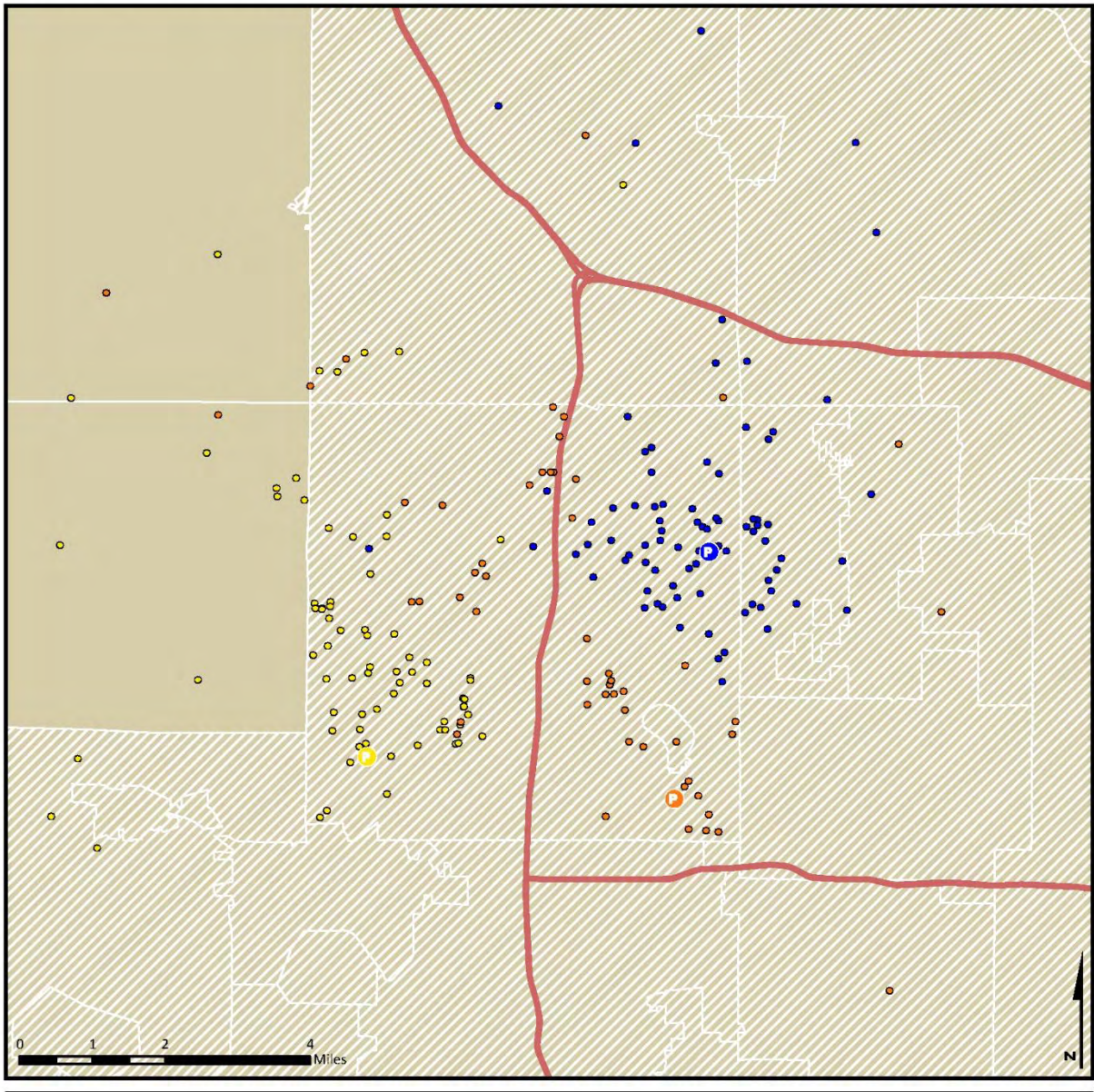
- P Preserve Village Mall (26)
- P SouthWest Station (905)
- P SouthWest Village (165)
- P St Andrew Lutheran Church (44)
- P Victoria (4)

- Interstate Highway
- Transit Taxing District
- 7-County Metro Area
- 19-County Metro Area










# 2008 Annual Regional Park-and-Ride System Survey

## *Plymouth Metrolink Facilities*



**Park-and-Ride Name (Users)**

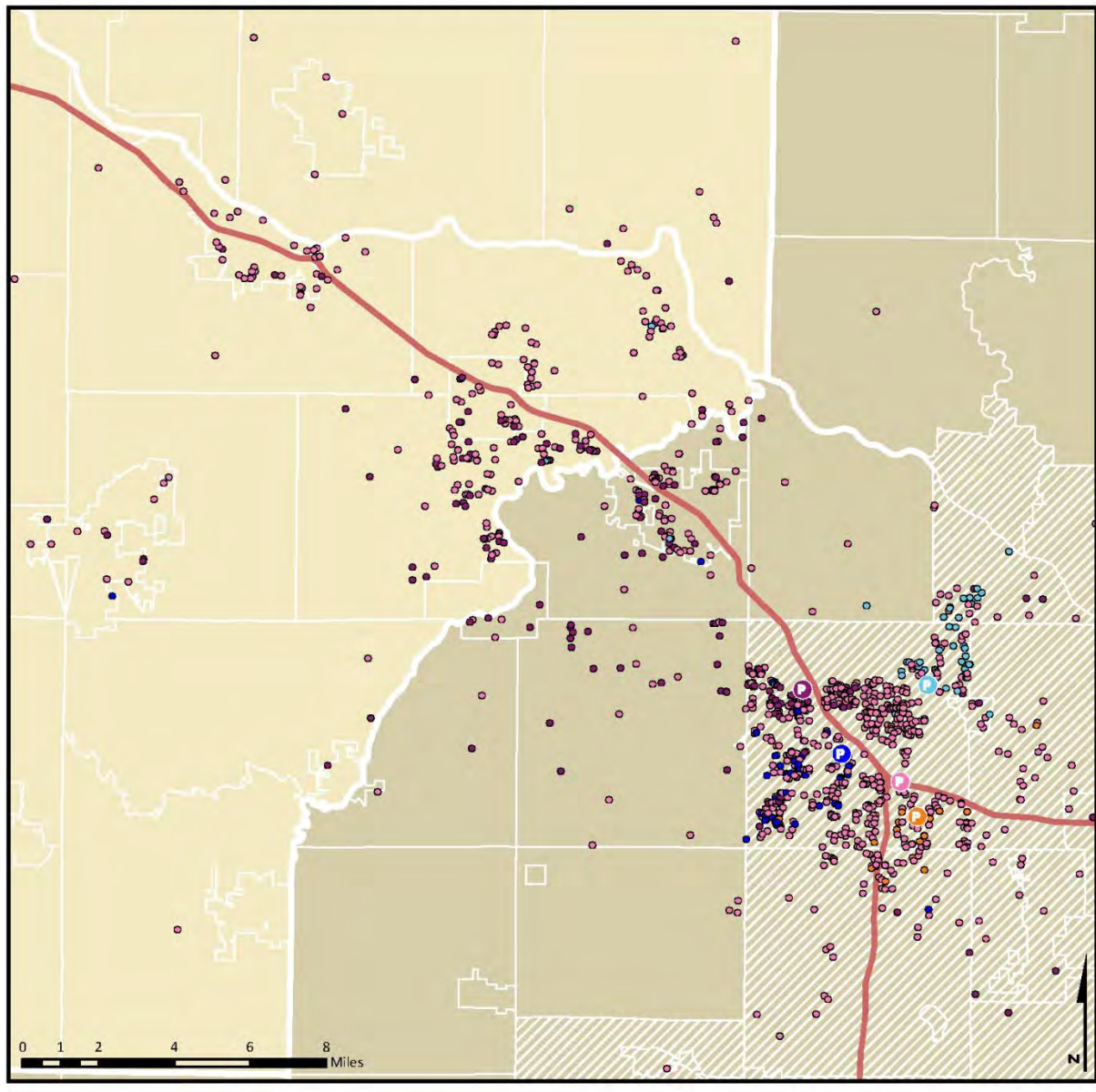
-  Cub Foods - Plymouth (107)
-  Messiah United Methodist Church (103)
-  Station 73 (69)

-  Interstate Highway
-  Transit Taxing District
-  7-County Metro Area
-  19-County Metro Area



## 2008 Annual Regional Park-and-Ride System Survey

### Maple Grove Transit Facilities



#### Park-and-Ride Name (Users)

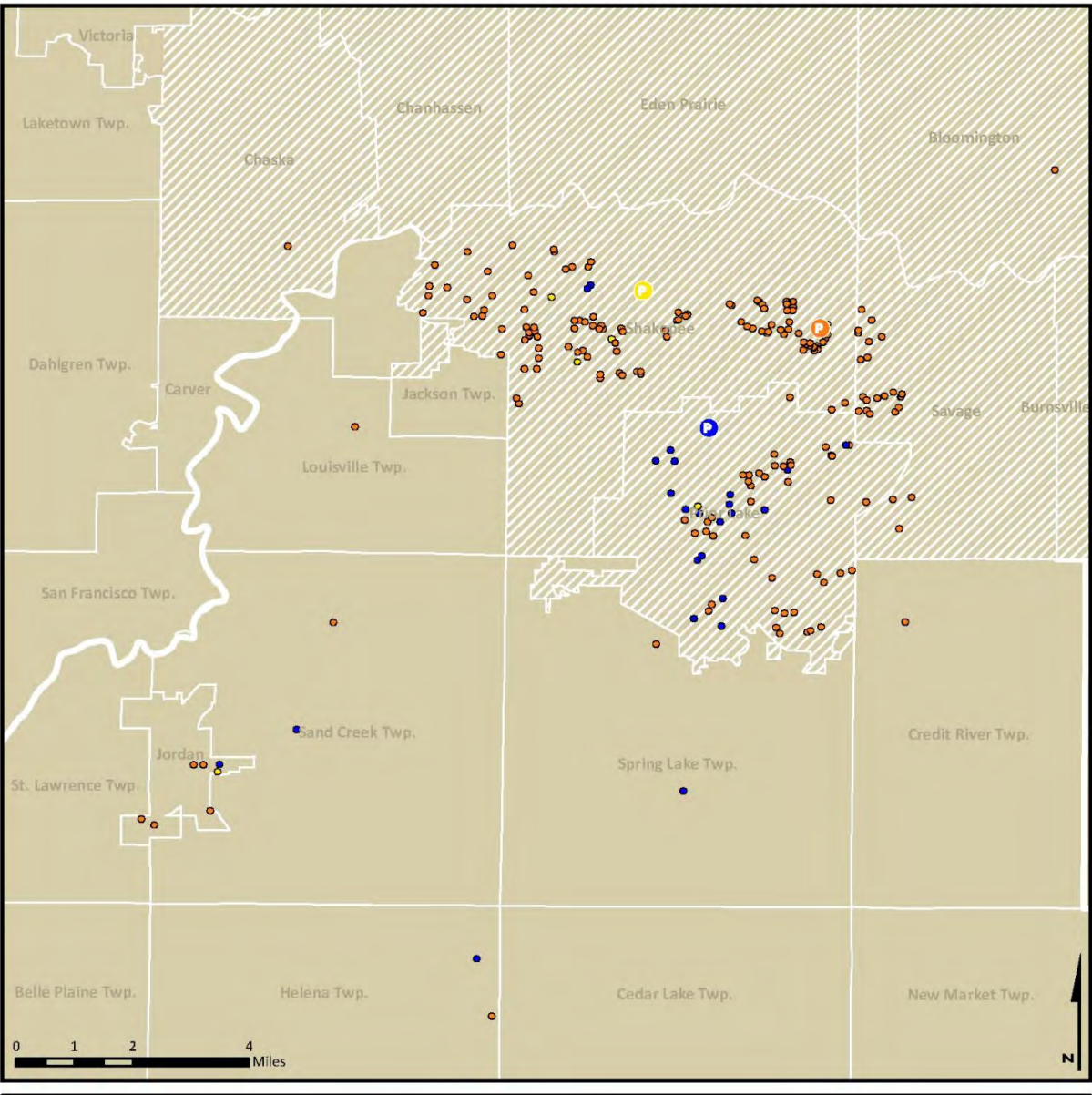
- P Crosswinds Methodist Church (53)
- P Maple Grove Transit Station (1,000)

- P Shepherd of the Grove Church (23)
- P Wal-Mart (218)
- P Zachary Square (49)

- Interstate Highway
- Transit Taxing District
- 7-County Metro Area
- 19-County Metro Area

# 2008 Annual Regional Park-and-Ride System Survey

## Scott County Facilities



**Park-and-Ride Name (Users)**

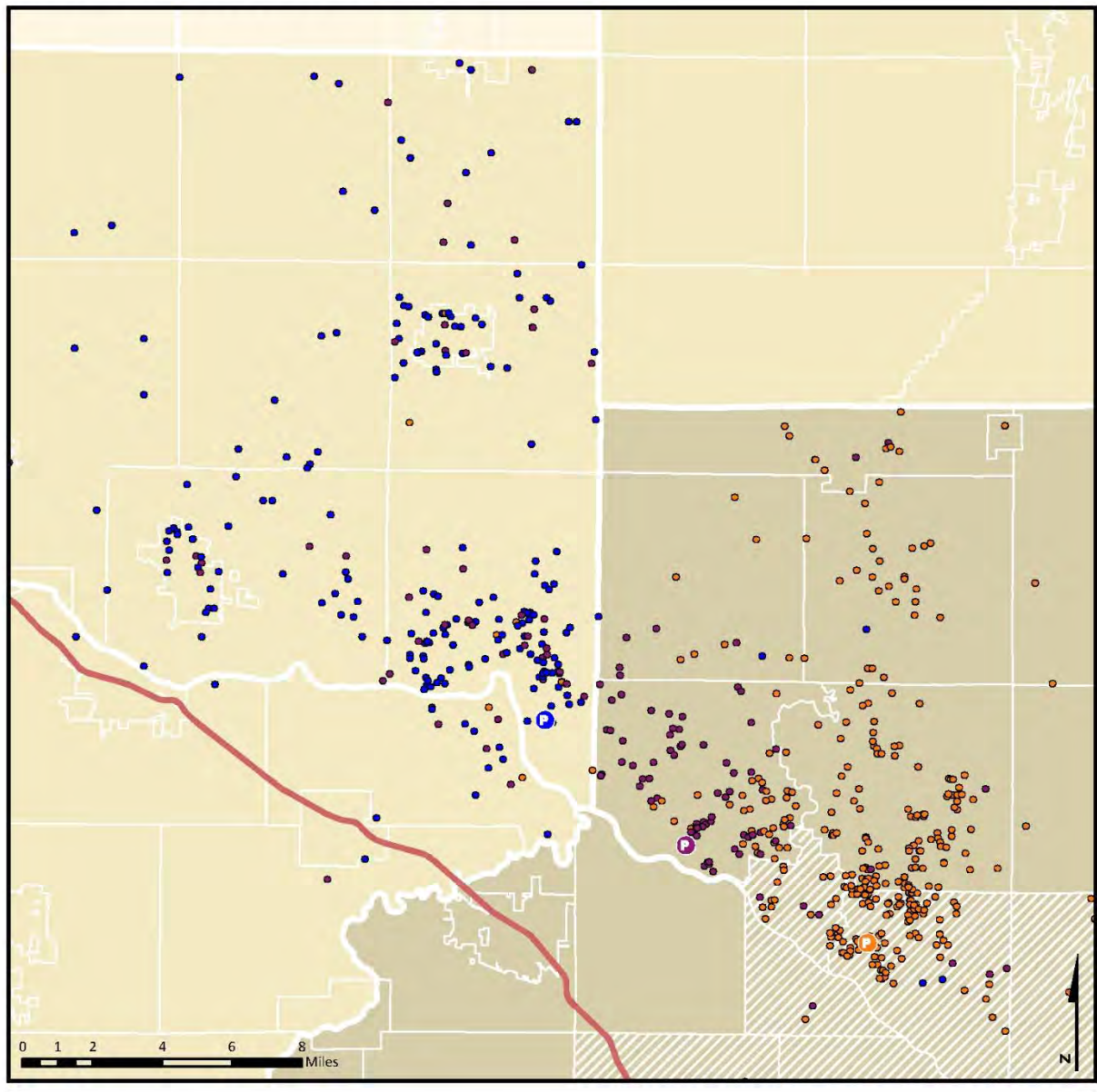
- Safe Haven (31)
- Seagate Technology (10)
- Southbridge Crossing (234)








- Interstate Highway
- Transit Taxing District
- 7-County Metro Area
- 19-County Metro Area



## 2008 Annual Regional Park-and-Ride System Survey

### *Northstar Corridor Facilities*



Park-and-Ride Name (Users)		 Interstate Highway
	171st Ave & Tyler St (231)	 Transit Taxing District
	Ramsey Town Center (153)	 7-County Metro Area
	Riverdale (374)	 19-County Metro Area



## Technology Improvements

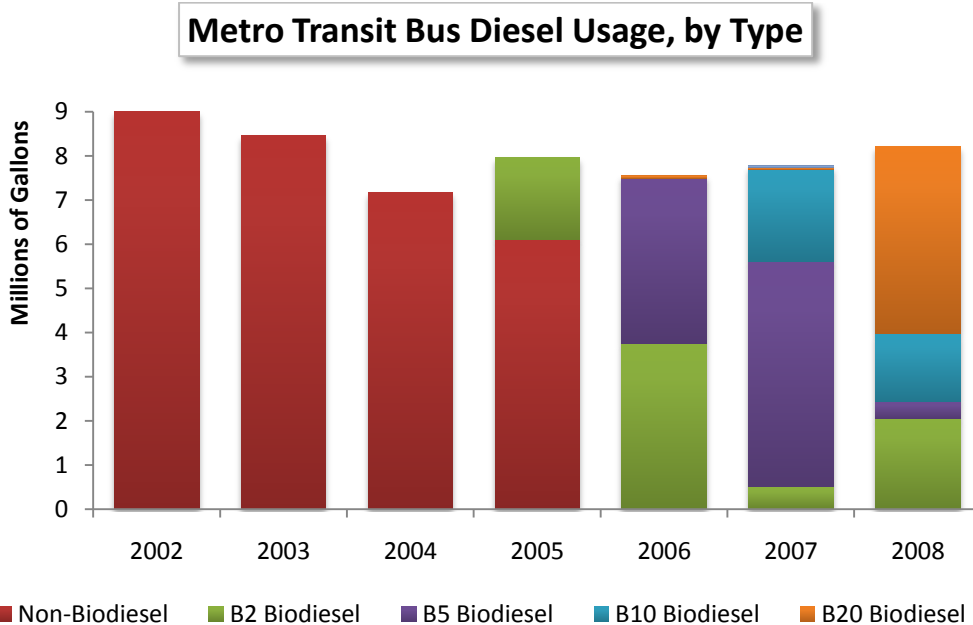
### Go Greener Campaign

In August 2006, Metro Transit initiated the “Go Greener” campaign in conjunction with the Governor’s office. The effort will include several steps, including the planned addition of 150 hybrid-electric buses by 2012, replacing 164 buses with more fuel-efficient models that reduce emissions, incorporating biodiesel into all buses and participating in marketing campaigns that put the focus on environmentally friendly transit service. As of December 2009, 67 hybrid-electric buses were in use with 30 more to be added in 2010. The environmental benefits of hybrid buses include:

- 90% fewer emissions than the buses they replace
- 28% better fuel economy when compared to the buses they replace
- A significant drop in noise levels

### Biodiesel Initiative

In July 2005, Metro Transit began using an ultra-low sulfur diesel fuel on all buses in an effort to reduce emissions. The following year, Metro Transit increased their biodiesel content to 5% in all fuel for Metro Transit buses. In 2007, Metro Transit increased biodiesel content to 10% for all buses and began testing biodiesel contents of 20% and 40%. In 2008, Metro Transit continued testing higher mixes by using B20 in over 50% of their fuel usage. However, Metro Transit scaled back to B-5 Biodiesel usage for much of 2009.



### Automatic Vehicle Location (AVL) Technology

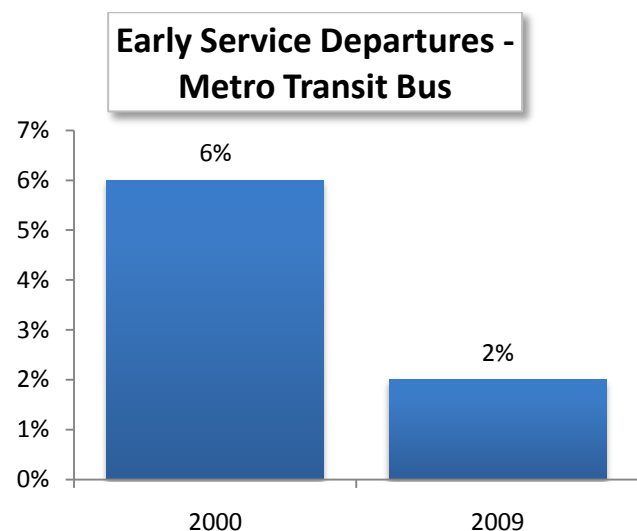
Siemens TransitMaster (i.e., SMARTCoM) is the AVL technology that allows the location of vehicles to be tracked using global positioning systems (GPS). The system was initially installed at Metro Transit in spring 2002. Full fleet installation was achieved in fall 2003 and final acceptance of the SMARTCoM system occurred in November 2005.

As of late 2009, 922 buses, 25 district supervisor vehicles, 18 transit police vehicles, and 11 maintenance vehicles were installed with the SMARTCoM system. The SMARTCoM system is designed to be a base system upon which other applications/features can be added, expanded, or integrated. Some examples include:

- Go-To Card Reader Interface
- Automatic Passenger Counters (APCs) currently on 251 buses
- Real-Time Next Departure LED Signs/LCD Displays – currently 57 signs/ displays installed at 49 locations
- Audio Real-Time Next Departure at Bus Stops (Annunciators) – currently 44 annunciators installed at 39 locations
- NexTrip Web (real-time next arrival via webpage) – start up occurred in June 2008
- TransitLine Interactive Voice Response (IVR) (real-time next arrival via phone) – start up occurred in July 2008
- Transit Signal Priority – currently installed at 29 intersections
- Internal Garage Bus Locator System – system acceptance to occur in March 2010
- Transit Commuter Information System – provides real-time transit bus vs. car travel time comparison, park-and-ride space availability, next bus departure information on freeway and arterial signs and via phone IVR & web page – currently 26 signs installed in four park-and-ride areas

The introduction of AVL into the Metro Transit system has resulted in improved efficiency in service, customer satisfaction, and data reporting.

MTS is overseeing the expansion of TransitMaster AVL to all regular route buses in the region. This project, which should be complete by mid-2010, will add AVL units to more than 300 regional buses and will add passenger counters (APC) to 156 buses. In addition, this project will provide a level of standardization and coordination among all transit providers in the region. All items listed on this page (Go-To interface, real time signs, etc.) will be made available regionwide because of this project.



On-time performance and monitoring has improved dramatically since the introduction of AVL. Early service arrivals have dropped significantly, creating more confidence in on-time performance among transit riders. The Metro Transit Control Center is able to monitor and intervene more effectively in buses operating ahead of schedule and improvements can be made to schedules that more accurately reflect running times and ridership loads.

Twelve agency departments currently use SMARTCoM to identify issues and improve department efficiency. Customer complaints for early, late, and no-show service can be checked against AVL reports to determine their legitimacy and decrease follow-up investigations. Street operations can investigate more incidents and respond quicker. Transit Police can respond to vehicle locations without direct communication to driver. Garage operations can track the times when buses pullout. The inclusion of AVL technology is allowing customer service to become more automated and increasing the on-time performance of the system. Service Development has a wealth of data to use to determine more accurate schedules.

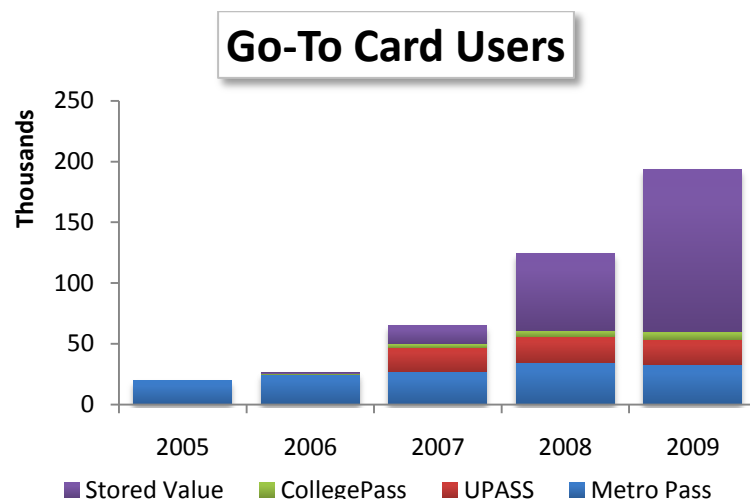
### Fare Collection Technology

Implementation of the Go-To Card has been phased in over several years and several different payment options.

In November 2001, Metro Transit entered into an agreement with Cubic Transportation Systems Inc., to design, manufacture, fabricate, furnish, assemble, test, inspect, and install a regional transit fare collection system for use in its seven-county metropolitan area bus and light rail transit operations. The new fare

collection system provides a faster and easier way to pay fares using a Go-To Card. The Go-To Card is a durable plastic card that tracks 31-Day Passes, stored value and stored rides on a microchip. There are three types of Go-To Cards: Full Fare, Reduced Fare, and Mobility. The existing and future benefits of the Go-To Card are rechargeable convenience, automatic recharging, faster boarding time, regional acceptance, and improved security.

The Go-To Card results in faster boarding time for users. A recent analysis of bus boardings shows that riders using Go-To Cards require 2 to 3 seconds less time to board the bus than customer using cash or magnetic fare cards. Over hundreds of boardings on a trip and hundreds of thousands of boardings per day, the more Go-To Cards that are used, the faster service will operate. Metro Transit has already reduced running time on some routes because of the time saved from Go-To Cards. On other high ridership routes, bus operators have been able to stay on time despite heavier than normal loads because of the time saved by riders using Go-To Cards. Metro Transit estimates that 37% of year-to-date 2009 rides were taken using Go-To Cards.



## Transit Advantages

Transit is able to make use of facilities in the transportation system that give it a travel time and flow advantage over regular traffic.

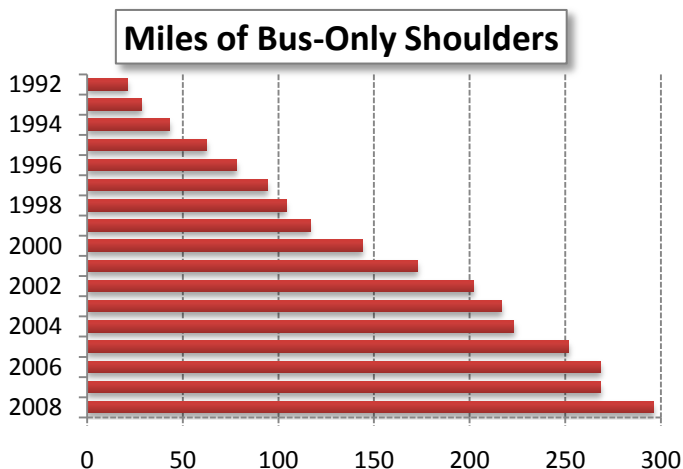
State law allows shoulder lanes on highways to be used by buses to bypass congestion and to improve travel times over automobiles. Most of these bus shoulders are 10 to 12 feet wide, wider than the typical shoulder that was constructed solely for automobile breakdowns and emergency vehicles. These lanes are also signed as being for bus use only. In 1992, the Twin Cities first bus only shoulder was constructed. Since that time, there has been a dramatic growth in the number of bus-only shoulders in the Twin Cities. The growth of bus-only shoulders continues to be restricted by funding and the decreasing availability of potential bus only shoulder sites, whether through completion of such shoulders or physical constraints. In 2008, the opening of new Highway 212 in Carver County contributed to a significant increase in bus-only shoulder lanes in the metro area.

**Table 8-5. 2008 Summary of Existing Transit Advantages**

Year	Shoulder Lane Miles	High-Occupancy Lane Miles	Ramp Meter Bypasses	Busway Lane Miles	Bus Lane Miles (Local)
2008	296.0	38.63	88	6.81	15.70

In addition to bus only shoulders, the region has several other transit facilities that give an advantage to transit vehicles. Those include:

- High-occupancy vehicle (HOV) lanes
- High-occupancy toll (HOT) lanes
- Ramp meter bypass lanes
- Dedicated busways (U of M transitway)
- Dedicated bus lanes, primarily in the downtowns



**Table 8-6. Bus-Only Shoulder Mileage, 1992-2008**

Year	Total Miles	Miles Added
1992	21.3	21.3
1993	28.5	7.2
1994	43.1	14.6
1995	62.6	19.5
1996	78.2	15.6
1997	94.4	16.2
1998	104.0	9.6
1999	116.5	12.5
2000	144.2	27.7
2001	172.5	28.3
2002	202.0	29.5
2003	216.6	14.6
2004	223.2	6.6
2005	251.6	28.4
2006	268.5	16.9
2007	268.5	0
2008	296.0	27.6

## 108

