Technical Memo 1: Review of Past Transportation Plans and Studies

Highway 169 Mobility Study

Version 1.0

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Introduction

This Review of Previous Studies is intended to provide a brief overview of the studies and plans that have given rise to the Highway 169 Study, and to review the outcomes of the studies, plans, and state and regional policies that will shape this study's parameters, scope, and conclusions. The document is organized into two sections: the first section provides a summary of studies that directly led to the Highway 169 study; the second section provides a summary of those studies that lend policy context and technical background to the Highway 169 Study. Within each section, studies are presented in reverse chronological order.

Plans and Studies that Precipitated the Highway 169 Study

2040 Transportation Policy Plan

Metropolitan Council, 2015

Study Purpose

The *2040 Transportation Policy Plan (TPP)* is one of three major system plans (transportation, parks, and water resources) that stem from the regional development guide: *Thrive MSP 2040*. The *2040 Transportation Policy Plan* is an update to the 2030 TPP prepared in 2010, and fulfills the federal requirement for a fiscally-constrained transportation plan and sets policies for the regional transportation system. The TPP sets the regional policy for highway improvements and expansions, stating:

> *"Expansion improvements include new or extended MnPASS lanes, strategic capacity enhancements, and highway access investments. The regional objective of providing a congestion-free, reliable option for transit users, carpoolers and those willing to pay through MnPASS lanes is the region's priority for expansion improvements. General purpose lane strategic capacity enhancements should only be considered if adding capacity through MnPASS lanes has been evaluated and found to not be feasible, the improvement is affordable, and the improvement is approached with a lower cost/high-return-on-investment philosophy."*

The TPP identifies the highway and transit investments anticipated between 2015 and 2040 under the Current Revenue Scenario. The investments and projects included in the Current Revenue Scenario were identified through the work done for the *Minnesota State Highway Investment Plan* 2014-2033 (MnSHIP) published by MnDOT in December 2013, which identified expected capital revenues and expenditures for all of the state highway system for the 20-year period. The plan also identifies potential investments and needs that cannot be funded under current revenue projections under the Increased Revenue Scenario. This includes expansion of the bus system and additional investments in transitways.

Relevance to Highway 169 Mobility Study

The regional policy on improvements and expansion stated in the TPP essentially defines the scope of work for the Highway 169 Study, which encompasses study of transit and MnPASS improvements, but not addition of general purpose lanes.

The TPP outlines all known highway and transit improvement projects planned in the corridor in both the long term and short term. Projects programmed for the first five years of the plan are identified in the 2015-18 Transportation Improvement Program (TIP) and 2016-2019 TIP. Programmed projects in the study area are listed below in Table 1.

Highway 169 is listed in the TPP as a potential transitway corridor and a potential MnPASS corridor under the TPP's Increased Revenue Scenario.

Table 1: Programmed Projects in the Highway 169 Corridor 2015-2019

Current Revenue Scenario 2015-2018

Project Year	Responsible Agency	Funding Stream*	Project Description
2015	Shakopee	CMAQ	Three years of start-up operating funds for express bus service from Marschall Road to the University of Minnesota
2015	Shakopee	CMAQ	Purchase of three coach buses for the above named transit service from Marschall Road to the U of M
2015	MnDOT	State (100%)	Construct a noise wall on the east side of Highway 169 from 16th Street W to just north of Wayzata Boulevard in St. Louis Park
2016	MnDOT	State (100%)	Replace the existing signals at the ramp to Highway 7 in Hopkins
2016	MnDOT	State (100%)	Replace signs along Highway 169 between Scott County Road 14 in Louisville Township and Old Shakopee Road in Bloomington.
2016	MnDOT	State (100%)	Reconstruct and widen the right shoulder for bus use and add signage and guardrails along Highway 169 between Canterbury Road and CSAH 18 in Shakopee
2016	MnDOT	State (100%)	Install traffic management system along Highway 169 from the Hennepin/Scott County line to east of Highway 169 in Savage
2016	MVTA	CMAQ returned funds	Purchase four 40' buses for Highway 169 Connector express bus service between Shakopee and Minnetonka
2017	Scott County	TAP	Scott West Regional Trail right-of-way acquisition and connection
2017	MnDOT	State (100%)	Close access and construct a visual barrier at 16th Street West in St. Louis Park
2017	MnDOT	State (100%)	Lengthen the acceleration and deceleration lanes, and replace storm sewer, lighting, and traffic management system on Highway 169 at Cedar Lake Road on the border of St. Louis Park and Minnetonka

Current Revenue Scenario 2015-2018			
Project Year	**Responsible Agency**	**Funding Stream***	**Project Description**
2017	MnDOT	NHPP	Mill and overlay, drainage, and noisewall removal and reconstruction from just north of Highway 62 in Edina to Highway 55 in Golden Valley
2017	Scott County	CMAQ	Deploy cameras, dynamic message signs, and vehicle detectors on Highway 169, as well as CSAH 83, CSAH 101, and local routes in Shakopee
TBD	MnDOT	TBD	Strategic Capacity Enhancement: construct an additional southbound lane from Scott County Road 18/Canterbury Road to Scott County Road 21
TBD	MnDOT	TBD	Redeck Highway 169 bridges over Highway 212/62 in Eden Prairie/Edina and construct new approach panels

* CMAQ = Congestion Mitigation and Air Quality
NHPP = National Highway Performance Program
STP=Surface Transportation Program

Table 2: Programmed Projects in the Highway 169 Corridor 2019-2024

Project Year	Responsible Agency	Project Description
2019-2024	MnDOT	Replace bridge over Nine Mile Creek and repair seven other Highway 169 bridges

* Specific projects have not yet been identified beyond 2024.

Table 3: Projects in the Highway 169 Corridor Under the "Increased Revenue Scenario"

Increased Revenue Scenario 2015-2040*		
Project Year	**Responsible Agency**	**Project Description**
TBD	MnDOT	Construct MnPASS lanes from Scott County Road 17 to I-494

*The projects under the Increased Revenue Scenario are illustrative and may not identify the region's highest priorities for investment. Metropolitan Council, MnDOT, and other regional highway partners will continue to develop state highway projects and identify priorities as part of the on-going transportation planning process.

This comprehensive list of planned physical improvement projects in the corridor, along with other regional multi-modal projects included in the TPP, will define the No-Build alternative for the project and the background assumptions for the Build alternatives. These assumptions will apply to all technical analyses and evaluation of alternatives (Task 1.9).

Highway Transitway Corridor Study

Metropolitan Council, 2014

Study Purpose

The Metropolitan Council initiated the *Highway Transitway Corridor Study* to examine the potential for all-day, frequent, station-to-station, highway bus rapid transit (BRT) along nine

Twin Cities corridors: I-94 in the north, Highway 65, I-35E North, Highway 36, I-35E South, Highway 169 in the southwest, Highway 212, I-394, and Highway 55 in the west.

The study states that highway BRT is meant to provide fast, frequent, all-day service that is cost-effective in serving high-demand regional population, employment, and transit nodes in highway corridors, and fits within existing highway infrastructure.

Relevance to Highway 169 Mobility Study

The Highway 169 corridor in the study runs from the park-and-ride at Marschall Road Transit Station in Shakopee to downtown Minneapolis. The corridor is made up of eight Highway 169 stations, three stations on I-394, and is 26.9 miles long.

The Highway 169 corridor rated "high" for potential all-day station-to-station BRT service. The evaluation of each corridor was based on criteria derived from these goals.

- Provide mobility benefits and respond to trip patterns/needs and deficiencies for markets identified in the purpose and need
- Provide affordable, effective transportation improvements
- Meet 2030 Transportation Policy Plan ridership goals for transitway BRT service
- Seamlessly integrate with existing systems and provide valuable regional connections
- Support area development plans, forecast growth in population and employment, and redevelopment potential

The next step for a "high" rated corridor is to identify local partners to conduct a more detailed evaluation of the corridor, which resulted in the discussions about the Highway 169 Study.

There are several other findings from the Highway Transitway Corridor Study that are relevant to this Highway 169 Study:

- **The most cost-effective station type is an inline station.** Inline stations are preferred because they are located on entrance or exit ramps and offer a significant time savings by not requiring BRT vehicles to leave the freeway corridor and use local roads to access a station, as would be necessary for an offline station. They are also less expensive to implement than online stations, which are usually in the median of a highway, requiring significant reconstruction of the highway.
- **MnPASS lanes may not be the preferred runningway option for Highway BRT station-to-station service, unless online stations are used.** In the Twin Cities, MnPASS lanes are typically located in the median lanes of a highway. MnPASS lanes are the preferred runningway option for express transit service, which typically has only one or two stops outside the central business district. However, BRT station-to-

station service stops at all transit stations along a BRT corridor. Having various types of stops (online, inline, offline) requires BRT vehicles to cross several lanes of traffic to access stations, resulting in travel time delays and impacts to vehicular traffic, especially in congested conditions. Because the majority of stations assumed for the study are inline, the concept design concluded that BRT station-to-station service should operate along bus-only shoulders when congested and in mixed traffic during free flow operation. This eliminates the need for BRT vehicles to navigate across traffic lanes to access various station types.

- **End of line stations and park-and-ride facilities should be located in close proximity to major destinations (employment centers, developments, etc.).** Furthermore, park-and-ride facilities should be located where they can be served by inline stations to minimize additional travel time and should be located near major intersecting roadways to provide good access.

- **The pedestrian environment around the highway interchanges in the corridors in the study was identified as challenging or non-existent.** The implementation of transit stations would need to be closely coordinated with local transportation improvements and design to insure that pedestrian connections are provided if the station is intended to serve more than just park-and-ride customers.

- **Much of the land use surrounding many station locations is relatively low density.** The proposed station locations were placed to take advantage of existing and planned land uses, such as employment centers and park-and-rides, to the extent possible. Communities along these corridors would be encouraged to support future BRT and other transit investments by encouraging transit-supportive development and allocating growth around potential station locations.

- **Service frequency and ridership are closely related.** Off-peak station-to-station service ridership decreased across the corridors by 30 to 58 percent when off-peak frequencies were decreased from 15 minutes to 30 minutes. This reduction in service frequency resulted in an annual operating and maintenance reduction between 24 and 27 percent. Peak Highway BRT station-to-station service ridership increased across the corridors by 14 to 38 percent when peak frequencies were increased from 15 minutes to 10 minutes. When frequency was increased from 15 minutes to 10 minutes, annual operating and maintenance costs increased between 15 and 18 percent. Increasing frequency also impacted the number of peak buses required between 40 and 60 percent. This would also impact capital costs due to the need for additional vehicles to operate the service.

The basis for completion of the Highway 169 Transitway Detailed Definition of Alternatives/Conceptual Design (Task 1.8) will be the *Highway Transitway Corridors Study;* design, service, and other transitway parameters will be further informed by the *Regional Transitway Guidelines*.

MnPASS System Study Phase 2

MnDOT, 2010

Study Purpose

In 2005, MnDOT completed the *MnPASS Phase 1 Study* identifying the next set of roadways to be considered for managed lanes. That study assumed that the first MnPASS lanes would be conversions of the existing HOV lanes on I-394, and perhaps later on I-35W. Any further MnPASS lanes would have to be newly created, as there are no other HOV lanes for conversion in the Twin Cities Metropolitan region. Whereas the *MnPASS Phase 1 Study* assumed that any new MnPASS lanes would involve construction of new capacity to full highway standards, this *Phase 2 Study* assumed that a smaller envelope (i.e., corridor width) could be used to develop a MnPASS corridor. This change grew out of MnDOT's experience with the I-35W managed lane in which MnDOT used a priced dynamic shoulder lane (PDSL) to develop the additional lanes with minimal impacts and changes in the overall roadway footprint. Given this new approach to reduce impacts and costs, a number of potential corridors were evaluated to identify the best candidates for the next MnPASS facilities. The evaluation also considered many other factors including forecast travel demand, travel time savings, and toll revenue projections.

Relevance to Highway 169 Mobility Study

Of the original 19 corridors considered, 11 were eliminated leaving eight corridors with considerable merit for further consideration to move forward in the short term (two to 10 years) depending on available financing.

Highway 169 between I-494 and County Highway 17 (Marschall Road) consistently scored among the highest of the corridors studied. However, the study found that it is expensive and has significant risk (i.e., it could be determined that the bridge over the Minnesota River may require widening). It is a stand-alone project on the edge of the Metro region, but could become part of a larger MnPASS beltway system in the future. It currently has low levels of transit service.

The technical stakeholder committee composed of MnDOT and Metropolitan Council staff developed a set of recommendations for the best MnPASS opportunities moving forward for short-term implementation, divided into three tiers, from highest short-term priority (Tier 1) to more long-term opportunities (Tier 3).

Highway 169, along with I-494 between TH 212 and MSP Airport and TH 77 Northbound between 141st Street and Old Shakopee Road, was considered a Tier 3 corridor. These three corridors form the basis of a powerful MnPASS beltway system with service to growing outlying markets, the MSP airport, and the Bloomington employment corridor. However, with the exception of TH 77, they do not currently have strong transit services and do not serve the downtown cores. I-494 between 212 and the airport could serve as the linchpin of this system, but has high costs and risks.

2030 Transit Master Study

Metropolitan Council, 2008

Study Purpose

In 2008, as several Tier I transitway corridors were already in operation and several more were progressing, the Metropolitan Council undertook another evaluation of Tier II corridors and other potential transit corridors to see if the ratings and analysis of these corridors completed 10 years earlier held. The *2030 Transit Master Study* evaluates and ranks more than two dozen potential rail and busway corridors. The study also identifies local, arterial, and express bus service improvements, and addresses land-use and demographic issues that affect transit. The results of the study informed the Council's 2008 update to the *2030 Transportation Policy Plan* (TPP).

This study identified 29 corridors and analyzed them for their potential for light rail, commuter rail, or busway improvements. Staff from the Metropolitan Council, regional railroad authorities MnDOT and the core cities identified the corridors for screening. These corridors were evaluated for their potential for light rail, commuter rail, or busway improvements based primarily on ridership and cost.

Relevance to Highway 169 Mobility Study

As part of the Master Study, a ridership forecast for a BRT route on Highway 169 from Belle Plaine to downtown Minneapolis via I-394 was prepared. The forecast assumed:

- Eight buses per hour in the peak periods and six buses per hour during midday
- Downtown alignment and station locations consistent with I-394 transit service
- A full set of transit advantages (bus-only shoulders, signal priority, high-occupancy lanes, etc.) would be used to maintain BRT traveling speeds consistent with highway speeds;
- Existing transit services in Scott County would be modified to feed the BRT route
- Existing transit services in Hennepin County would not be modified but would connect to the Highway169 BRT as appropriate

With these assumptions in place, 2030 daily ridership for the corridor was estimated at 8,800 riders per day, with 6,900 riders boarding at or north of Southbridge Crossings.

Studies that Lend Context and Guidance to the Highway 169 Study

Northern Scott County Service Study

Scott County, 2015 (Ongoing)

Study Purpose

In 2015 Minnesota Valley Transit Authority (MVTA) began a study of local and express transit service in Northern Scott County. Historically, public transit service in Northern Scott County has been operated by several transit providers including the City of Shakopee, City of Prior Lake, Minnesota Valley Transit Authority (MVTA), and Scott County. In 2015, the transit services in Shakopee and Prior Lake were consolidated via an agency merger to be operated and managed by MVTA, and the communities became members of the Joint Powers Authority. This presented an opportunity to evaluate the current structure of transit services in the area, provide recommendations to better connect workers to jobs, and offer guidance on deploying a more efficient and effective system.

Relevance to Highway 169 Mobility Study

The initial activities in the study include a review of local policies, a summary of the existing scope of transit services, and a review of transit performance trends. Additionally, the project team conducted a multi-channeled stakeholder outreach effort that included interviews and questionnaires of public and elected officials, leaders in the business community, and social service agency partners. A combination of technical analysis and input will inform service options for future implementation that will result in improved transit service in Northern Scott County. Additionally, each planning recommendation will be evaluated for compliance with Title VI of the Civil Rights Act. The study is anticipated to be completed in December 2015. When complete, the *Northern Scott County Service Study* will provide input and guidance to the Transit Analysis (Task 1.5.2) and the Transit and Highway Operating Plan (Task 1.9.1).

Annual Park-and-Ride System Report

Metro Transit, 2014

Study Purpose

Metropolitan Council and Metro Transit collaborated with regional transit partners, counties, MnDOT and WisDOT to conduct an annual regional park-and-ride survey, which tracks facility use and emerging travel patterns by park-and-ride users across the Twin Cities.

In 2014, the regional park-and-ride system had 18,265 users, which was a decline of 4.6 percent from 19,149 users in 2013. After seeing strong annual growth in usage from 2004 to

2008, the regional park-and-ride system saw 1.8 percent usage growth from 2008 to 2014. This pattern is similar to express bus and commuter rail ridership over the same time period. The system currently has 32,463 spaces within 108 park-and-ride facilities, and a 56 percent utilization rate of these spaces.

Relevance to Highway 169 Mobility Study

Existing park-and-rides in the corridor include:

- Westwood Lutheran Church
- Hopkins
- Preserve Village Mall
- Southbridge Crossing
- Eagle Creek
- Seagate Technology
- Marschall Road Transit Center (constructed 2014, service began 2015)

Capacity and use of these facilities is reported in **Error! Reference source not found.** below. Consistent with the regional trend, use of the park and rides along Highway 169 generally declined between 2013 and 2014 but not by a substantial number of users. Marschall Road Transit Center Park-and-Ride opened in early 2015, after the survey was conducted.

Table 4: Capacity and Use of Park-and-Ride Facilities in the 169 Corridor

	2014 Capacity	2014 Use	2014 % Used	2013 Use	Change in Use	Percent Change
Westwood Lutheran Church	40	17	43%	14	3	+21%
Hopkins	52	43	83%	50	-7	-14%
Preserve Village Mall	50	6	12%	10	-4	-40%
Southbridge Crossing	515	254	49%	286	-32	-11%
Eagle Creek	535	85	16%	82	3	+4%
Seagate Technology	82	5	6%	10	-5	-50%
Marschall Road Transit Center	N/A	N/A	N/A	N/A	N/A	N/A

Scott County Transit Operations and Capital Plan

Scott County, 2013

Study Purpose

The *Scott County Transit Operations and Capital Plan* provides an overview of existing transit operations in Scott County, discusses the plan for future expansion of the system, and projects both operational and capital funding needs for commuter and transit-dependent services.

Existing transit services include: Express/reverse commute service provided by the Cities of Prior Lake and Shakopee and by Minnesota Valley Transit (MVTA), one local and one circulator route in Shakopee, as well as dial-a-ride services are also provided by Scott County. There are four park-and-ride facilities in Scott County: Southbridge Crossings, Eagle Creek, Seagate, and Savage.

Relevance to Highway 169 Mobility Study

The *Scott County Transit Operations and Capital Plan* notes that Highway 169 is included in the 2030 Transportation Policy Plan only for express bus with transit advantages, and only in the southern half of the corridor. The plan begins to make a case for the transitway improvements that will be studied in-depth in the Highway 169 Study including: bus-only shoulders, managed lanes, ramp meter bypasses, priced dynamic shoulder lanes and other running-way advantages; high frequency, all-day service; branded vehicles; and improved stations, including park-and-ride facilities and online stations. The plan states that Scott County should also pursue this corridor for managed lanes, as they can also provide a substantial transit benefit.

The plan concludes that Scott County should continue to pursue a change in the regional Transportation Policy Plan so that Highway 169 is included for consideration as a transitway. In the meantime, the County should pursue as many transit advantages as possible to reduce travel time, including a bus-only ramp at the Marschall Road site, bus shoulders and bus shoulder enhancements in the Highway 169 corridor and other investments to speed trips.

Congestion Management Safety Plan

MnDOT, 2013

Study Purpose

Phase III of the *Congestion Management and Safety Plan* (CMSP) identifies a list of lower-cost/high-benefit projects that seek to maximize mobility and reduce crash risk at key congestion and safety problem locations. This list of projects was then provided to MnDOT decision makers for selection of solutions for additional scoping and eventual programming/implementation.

Relevance to Highway 169 Mobility Study

Several projects along Highway 169 in the study area were identified on the opportunities list:

- Grade separation of Highway 169 and Highway 41
- Geometric improvements to the north ramp intersection of Highway 169 and Marschall Road
- Restriping of northbound Highway 169 Minnesota River crossing to provide an additional lane
- Reconfiguration and access modifications to the I-394/Betty Crocker Lane/Highway 55 interchanges along Highway 169

These projects and their assessments will be taken into account as part of the Highway Operational Analysis (Task 1.5.3), as well as during the Definition of Alternatives/ Conceptual Design (Task 1.8).

METRO Green Line Extension Studies

Draft Environmental Impact Statement

Hennepin County Regional Railroad Authority, Metropolitan Council, and Federal Transit Administration, 2012

Study Purpose

The *Southwest Transitway*, now referred to as the Southwest LRT (METRO Green Line Extension), *Draft Environmental Impact Statement (EIS)* analyzed the potential impacts of the No Build, Enhanced Bus, and Build Alternatives for the Southwest Transitway corridor, which follows a route from downtown Minneapolis to Eden Prairie.

Relevance to Highway 169 Mobility Study

Under the Locally Preferred Alternative, the LRT tracks would pass under Highway 169 at Excelsior Boulevard in Hopkins. The LRT would then turn south just east of Shady Oak Road and run parallel to Highway 169 approximately one-half to one mile west of the highway. Planned LRT stations in the 169 market area include: Blake, Downtown Hopkins, and Shady Oak Stations in Hopkins, Opus Station in Minnetonka, and City West and Golden Triangle Stations in Eden Prairie. The *Draft EIS* projects that the Locally Preferred Alternative would divert 9,600 person trips from auto to transit modes (including buses) compared to the No-Build Alternative. This reduction in auto person trips would primarily be diverted from the major interstate and trunk highways in the southwest metro area, such as I-494, I-394, I-35W, and Highways 62, 7, 169, 100, and 212.

Supplemental Draft EIS

Metropolitan Council and Federal Transit Administration, 2015

Study Purpose

The *Southwest LRT* (METRO Green Line Extension) *Supplemental Draft Environmental Impact Statement (EIS)* discloses the potential impacts of the LRT project, which follows a route from downtown Minneapolis to Eden Prairie. The *Supplemental Draft EIS* updates information contained in the 2012 *Draft EIS*.

Relevance to Highway 169 Mobility Study

The *Supplemental Draft EIS* discloses the planned location for the LRT line's operations and maintenance facility site, an approximately 15-acre parcel between the CP Railroad on the south, 5th Street South (K-Tel Drive) on the north, 15th Avenue South on the east, and the LRT on the west. Regional access to the OMF would be via Highway 169.

Regional Transitway Guidelines

Metropolitan Council, 2012

Study Purpose

The purpose of the *Regional Transitway Guidelines* is to provide technical guidance that supports the development and operation of transitways in a way that is consistent, equitable, and efficient, and delivers an effective, integrated, and user-friendly transit system throughout the Twin Cities region.

The *Transitway Guidelines* address commuter rail, light rail transit, highway bus rapid transit (BRT), and arterial BRT. The guideline address these modes across several topics: service operations; station spacing and siting; station and support facility design; runningways; vehicles; fare-collection systems; technology and customer information; identity and branding; and project development, leadership, and oversight.

Relevance to Highway 169 Mobility Study

The guidance regarding Highway BRT will be applicable to any Highway BRT station-to-station service or express service considered during the Highway 169 Study. The *Transitway Guidelines* define Highway BRT as follows:

- Highway BRT station-to-station service is a coordinated set of routes that stop at all or most stations in the Highway BRT corridor, which is defined by stations and runningway infrastructure. It provides service 7 days a week, 16 hours a day, and at least every 10 minutes during peak periods with lower frequencies during mid-day and evenings. Weekend frequency is based on demand.

- Highway BRT express service is express routes coordinated with station-to-station service, using at least one corridor station, the Highway BRT runningway and park-and- ride facilities. It provides at least 30-minute service during the peak periods in Transit Market Areas 1 and 2 (as defined in the *2030 Transportation Policy Plan*, Chapter 7) with at least three peak period trips in Transit Market Areas 3 and 4.

The design, service characteristics, and other parameters of the Highway 169 transitway alternatives will be informed by the *Regional Transitway Guidelines*.

Arterial Transitway Corridors Study

Metro Transit, 2012

Study Purpose

The purpose of the *Arterial Transitway Corridors Study* (ATCS) was to develop a bus facility and service plan to enhance efficiency, speed, reliability, customer experience, and transit market competitiveness on 11 high-demand urban transitway corridors: American Boulevard in Bloomington, West Broadway Avenue, Central Avenue, Chicago Avenue, Hennepin Avenue, Lake Street, and Nicollet Avenue in Minneapolis, and East 7th Street, West 7th Street, Robert Street, and Snelling Avenue in Saint Paul. Two additional corridors were studied in 2014: Penn Avenue North and Chicago Avenue -Emerson/Fremont Avenues North in Minneapolis.

Relevance to Highway 169 Mobility Study

The American Boulevard arterial BRT line studied in the ATCS would intersect with Highway 169 BRT at Viking Drive/Washington Avenue in Eden Prairie, as shown in the *Highway Transitway Corridors Study*. While the American Boulevard Arterial BRT line is not funded in the 2040 Transportation Policy Plan under the current revenue scenario, several of the ATCS routes are funded: Snelling Avenue (A Line), Penn Avenue (C Line), and Chicago Avenue -Emerson/Fremont Avenues. The A Line is currently under construction.

Regional Service Improvement Plan

Metropolitan Council, Regional Transit Service Providers, 2012

Study Purpose

The *2030 Transportation Policy Plan* required that regional transit providers prepare a short-term Service Improvement Plan every two years that identifies their priorities for transit service expansion over the following two to four years. The service improvement plans are submitted to the Metropolitan Council, which reviews and combine service improvement projects into a single regional list, evaluates the projects based on regional performance measures, and prepares a categorized and prioritized list of projects to guide planning work and funding allocation decisions.

Relevance to Highway 169 Mobility Study

Expansion of existing Blue Xpress Route 490 (now MVTA Route 490), which operates on Highway 169 in the study area, was proposed for 2015 to serve Marschall Road Transit Station using three coach buses. A bus-only ramp from the station to Highway 169 would be constructed to facilitate the express service. Some trips may serve U of M and a midday trip may be added. New buses may also enhance reverse commute express service. This project was found to meet all four criteria: increase capacity to meet growing demand, improve connectivity and coverage, develop new markets, and increase service quality. It was ranked "medium" priority. The Regional Service Improvement Plan is used to inform regional decisions regarding funding of transit expansion projects.

2030 Hennepin County Transportation Plan

Hennepin County, 2011

Study Purpose

The purpose of the *Hennepin County Transportation Plan* is to set the stage for future transportation investments that will keep the county competitive in attracting businesses and future work force, and will sustain a high quality of life for county residents into the future.

Relevance to Highway 169 Mobility Study

The segment of Highway 169 between the Minnesota and Mississippi Rivers is in Hennepin County. Aside from referencing MnDOT's planned reconstruction of the Highway 169/I-494 interchange, the Hennepin County plan does not include any roadway improvement projects near Highway 169 in the study area.

Travel Demand Management Evaluation and Implementation Study

Metropolitan Council, 2010

Study Purpose

The purpose of the *Transportation Demand Management Evaluation and Implementation Study* (TDM Study) was to outline a clear process for selecting, funding, and implementing transportation demand management (TDM) strategies, and to structure and evaluate the Twin Cities TDM program.

The study did not offer recommendations specific to individual corridors. Rather, the study: inventories existing TDM products and service characteristics used in the Twin Cities; identifies best practices from other regions, issues with the Twin Cities TDM program, and areas for future TDM programs; and recommends employment densities and other conditions necessary for implementation of TDM programs; and recommends a series of strategies for improving and expanding the Twin Cities TDM program.

Relevance to Highway 169 Mobility Study

The study notes that TDM strategies and techniques can be applied in areas outside of downtowns that meet specific thresholds of employment density (a minimum of 10 employees per acre *outside* of downtown employment areas and greater than 25,000 employees overall) and multimodal infrastructure availability. The study, which used 2008 LEHD data, shows no employment centers along Highway 169 that met this threshold. Congested corridors are also considered areas where TDM strategies may be applied. Highway 169 was not included on the map of congested corridors. Finally, the study recommends that local and regional TDM efforts should also be focused in corridors where the region has made significant investments in multimodal options, including transit service, managed/HOV lanes, and bicycling/walking facilities.

Metropolitan Highway System Investment Study

Metropolitan Council, MnDOT, 2010

Study Purpose

This 2010 study, completed concurrently with the *MnPASS System Study Phase 2*, proposes a future transportation investment strategy that optimizes the highway capacity in the region by using multimodal-oriented managed lanes and comprehensive system management strategies.

Initially, a total of 41 separate projects were identified for analysis in the *Metropolitan Highway System Investment Study* (MHSIS). Thirty-four of these projects were developed by the MHSIS Project Management Team (PMT), composed of MnDOT and Metropolitan Council representatives, prior to the conduct of the MHSIS study. Seven additional facilities were added to the MHSIS analysis based upon preliminary study corridors identified by the *MnPASS System Study Phase 2*. Given the desire for concurrence and performance metrics which indicated a preference for expansion over conversion, only managed lane expansions were forwarded for analysis in the final report.

Relevance to Highway 169 Mobility Study

Highway 169 north of I-394 was not recommended for implementation due to low performance metrics across the analysis. Performance metrics included:

- Effectiveness of person throughput measured by daily new vehicular trips per lane mile and daily new person trips per lane mile
- Optimization of the existing system measured by daily reduction in congested VMT, daily reduction in peak hours of delay per trip, and daily reduction in average travel time per trip

- Reduction of demand on the highway system measured by change in transit mode share and change in corridor attractiveness for SOV trips
- Cost effectiveness measured by a benefit/cost valuation, standard deviation in cost effectiveness, an investment opportunity rating, and an investment parity rating

Highway 169 between Highway 62 and the Minnesota River and between Highway 62 and I-394 were recommended for long-term (2030 – 2060 timeframe) implementation:

- Highway 169 between Highway 62 and the Minnesota River: Managed lanes on Highway 169 offer moderately strong performance metrics, but poor cost effectiveness due to the limited market for this facility relative to cost. As population expands in the southwest Twin Cities, this facility may become more necessary in order to enhance mobility options from the growth sectors to the urbanized area. Planned improvements to the I-494 and Highway 169 interchange provide an opportunity to reduce the cost of development of managed lanes. At a minimum, it is recommended that this interchange effort consider the future implementation of managed lanes on not only Highway 169, but also I-494 in the design of the facility.
- Highway 169 between Highway 62 and I-394: If an opportunity for cost reduction is available for Highway 169 in this segment, the performance metrics suggest a productive corridor for managed lanes. Without an opportunity for cost reduction, this project is not recommended for the 50-year horizon.

2030 Scott County Transportation Plan

Scott County, 2009

Study Purpose

The *2030 Scott County Transportation Plan* provides the basic framework for development of the Scott County transportation system including highways, transit, and travel demand management, through the year 2030.

Relevance to Highway 169 Mobility Study

Highway 169 is the second-most traveled route in Scott County, after I-35, and is identified as an important Minnesota River crossing, as the Bloomington Ferry Bridge is credited with triggering the growth of population and economic development within Scott County. The plan also notes that MnDOT has published a Tier I Environmental Impact Statement for a future river crossing connecting Highway 169 to Highway 212 west of Shakopee. The plan also recommends Highway 169 between County Roads 9 and 69 for a capacity improvement, and recommends improvements to many of the county roads that connect to Highway 169. Finally, the plan references the Highway 169 Interregional Corridor Study, which recommended conversion of Highway 169 to a freeway in Scott County.

Principal Arterial Study for the Twin Cities Metropolitan Area

Metropolitan Council, MnDOT, 2008

Study Purpose

The *2030 Transportation Policy Plan* (TPP) requires that the Metropolitan Council work with MnDOT, counties, and cities to conduct an analysis to determine highway needs on Principal and "A" Minor Arterials to accommodate the region's projected growth to 2030. Four general approaches were proposed for improving the Principal Arterial System.

1. The TPP approach: commits to large projects that aim to fix congestion in specific locations; projects would reduce congestion significantly in their immediate area, but have little system-wide impact on congestion or speeds
    - Conclusion: Because the region can afford to implement so few of these major projects, they typically result in just shifting bottlenecks.
2. The Low-Cost/High-Benefit approach: consists of widely disbursed, low-cost projects to reduce congestion or accidents without increasing capacity; projects may require design exceptions
    - Conclusion: The limited scope of the projects would help to control the cost and time to implement the projects. However, the limited scope of each project, focusing on specific problems, would have limited impact on overall congestion levels. The dynamic lanes assumed in this approach were not priced. These could be implemented as priced lanes and provide an alternative to congestion for the single occupant vehicle (SOV) users as well as transit users and high-occupancy vehicles (HOVs). A partnership would be needed with the Federal Highway Administration if low-cost/high-benefit projects are to be widely implemented as design exceptions will likely be needed in a number of cases.
3. The Priced System approach: provides a congestion-free alternative in the most congested corridors in the region by installing a priced facility
    - Conclusion: Priced lanes provide an alternative to congestion and will generate revenue from tolls. However, this revenue is unlikely to pay for construction of the lanes.
4. The Fix Congestion approach: distributes major investments across the region, results in shift of traffic away from minor arterials to principal arterials; improves the P.A. system to greatly eliminate congestion; approach would require nearly every Principal Arterial in the region to be reconstructed and/or widened
    - Conclusion: Current funding, even with significant increases, will not provide roadway facilities to satisfy peak demand because the public will not support the substantial funding increases needed and the impacts on the man-made or natural

environment would be too extensive. Fixing congestion would reduce transit use and encourage more low-density development further from the urban core.

Relevance to Highway 169 Mobility Study

While the report provides some high-level maps showing locations of improvements under each approach, it does not offer specific locations of projects.

- There are no changes to Highway 169 included in the TPP approach.
- The Low-Cost/High-Benefit approach includes several segments of 169 north of I-394, near Highway 55, and near I-94, as well as one segment in Shakopee.
- There are no changes to Highway 169 included in the Priced Facility approach.
- The Fix Congestion approach includes: adding lanes to Highway 169 within the I-494/I-694 Beltway and between the Minnesota River and Marschall Road; changing the road type and adding lanes between I-694 and Highway 10, between I-494 and the Minnesota River, and between Marschall Road and Highway 21.

The study concluded that future growth should be accommodated by low-cost/high-benefit projects, including MnPASS lanes.

Unified Transit Management Plan

Scott County, 2005

Study Purpose

Scott County developed the *Unified Transit Management Plan* in conjunction with all municipalities in the county. The plan recommended adding more commuter express trips into downtown Minneapolis along Highway 169, the consolidation of park-and-ride lots, creation of a transit center along Highway 169 south of the Bloomington Ferry Bridge, and consolidation of dial-a-ride services under one provider, Scott County.

Relevance to Highway 169 Mobility Study

This plan introduced the idea of the Cities of Shakopee and Prior Lake formally joining an existing opt-out such as MVTA, and initiated discussions concerning this long term strategy, which was implemented in 2015. The plan essentially established the general framework for the transit system in Scott County as it exists today.