

## TRANSPORTATION ADVISORY BOARD

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Metropolitan Council, 390 Robert Street North, Saint Paul, Minnesota 55101

NOTICE OF A MEETING  
of the  
PLANNING COMMITTEE  
**Thursday, December 14th**  
**1:00 PM – Metropolitan Council, Room LLA**  
**390 Robert Street N, Saint Paul, MN**

### AGENDA

- 1) Call to Order
- 2) Adoption of Agenda
- 3) Approval of the Minutes from the November 2017 Meeting
- 4) Action Items
  1. 2018-08: MnDOT Performance Measures Memorandum of Understanding (Katie White)
  2. 2018-02: Regional Solicitation – Adopt Functional Class Map (Rachel Wiken) (map)
- 5) Info Items
  1. Info: Regional Bike Barriers Study Results – (Steve Elmer)
  2. Info: TPP Update - Bike/Ped draft chapter (Steve Elmer)
  3. Info: TPP Finance Red-Lined Chapter (Amy Vennewitz)
  4. Info: TPP Highways Red-Lined Chapter (Steve Peterson)
  5. Info: TPP CMP Draft Chapter (Dave Burns)
  6. Info: TPP Work Program Chapter (Katie White)
- 6) Other Business
- 7) Adjournment

Full Meeting Packet

TRANSPORTATION ADVISORY BOARD  
Metropolitan Council  
390 N. Robert St., St. Paul, Minnesota 55101-1805

Notes of a Meeting of the  
**TAC-PLANNING COMMITTEE**  
Nov 9<sup>th</sup>, 2017

**MEMBERS PRESENT:** Holly Anderson, Jack Byers, Charlie Cochrane, Paul Czech, Bill Dermody, Innocent Eyoh, Jack Forslund, Lisa Freese, Elaine Koutsoukos, Michael Larson, Joe Lux, Steve Mahowald, Dan McCormick, Jason Pieper, Ann Pung-Terwedo, Bridget Rief, Katie White, Rachel Wiken

**OTHERS PRESENT:** Amy Vennewitz, Cole Hiniker, Steve Peterson, Russ Owen, Steve Elmer, Tony Fischer, Heidi Schallberg, David Burns, Jonathan Ehrlich, Carl Ohrn, Andrew Emanuele

**1. Call to Order**

The Meeting was called to order by Lisa Freese.

**2. Adoption of the Agenda**

The agenda was modified to remove Info Item #5 Bike Barriers Study. That agenda was approved.

**3. Approval of the Minutes from the October 2017 meetings**

Minutes were approved for the October meeting. Pung-Terwedo moved, Lux seconded.

**4.**

**1. Action Item 2017-37 Functional Class Changes 1351 – 1352 – Rachel Wiken**

Rachel Wiken presented the functional class change requests #1351 (Highway 95) and #1352 (Chestnut Street), submitted by MnDOT.

Both changes are located in Stillwater and are related to new Highway 36 bridge over the St Croix River. With the opening of the bridge in summer of 2017, the Principal Arterial designation moved from the old bridge to the new bridge. This left a section of Highway 95 and Chestnut street with a PA designation that dead ended at the old bridge, which is being rehabbed into a bike / ped facility. MnDOT requested changing Highway 95 to an A-Minor Connector, which is the current class of the roadway to the north and south. The change would provide a uniform designation for the roadway through all of Washington County. MnDOT requested on behalf of Stillwater to change Chestnut street to local, as it no longer functioning as a PA or Major Arterial. The committee agreed that both changes were logical technical corrections with the opening of the new bridge and moved to recommend the changes unanimously.

**2. Action Item 2017-38 Regional Solicitation - Approve Updated RBTN Map – Steve Elmer**

Steve Elmer presented the changes made to the regional bikeway transportation network map for the purpose of the Regional Solicitation. Dan McCormick asked about future changes and Elmer reiterated that this map and this action item were strictly for inclusion in the 2018 Regional Solicitation. White moved, Larsen seconded. Motion passed.

**3. Action Item 2017-39 MAC 2018-2023 CIP – Russ Owen**

Russ Owen presented the MAC CIP to the Committee. State law requires that the Met Council review the MAC CIP. Staff review focused on environmental effects of proposed projects, adequate public participation process, and consistency with the Transportation Policy Plan. Lux moved, Eyoh seconded. The committed moved to accept the staff analysis and forward to the Council for consideration.

#### **4. Action Item 2017-41 Proposed Safety Performance Measures and Short-Term Targets – Dave Burns**

Jonathan Ehrlich opened with a short review of performance measure and target setting. Dave Burns presented the action item for the proposed safety performance measures (PM). The Council has til Feb 2018 to accept the targets as set by MnDOT in 2017. The targets will be adjusted and set annually. Data are a 5-year rolling average.

Burns reviewed that not meeting targets has an impact at the state level with reductions in programming, but no direct affect at MPO level if targets aren't met. However, the financial impacts at the state level would filter to the MPO level.

White moved, Dermody seconded. Motion passes.

### **5. Info Items**

#### **1. TPP Update- Equity and Environmental Chapters (Heidi Schallberg)**

Heidi Shallberg gave an update on the changes coming to the Equity and Environmental Justice chapter. Her presentation can be seen here <https://metro council.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2017/TAC-Planning-Committee-11-09-17/5-1-info-Equity.aspx> Pung-Terwedo asked if elderly populations were considered a group for analysis (answer: federal definitions for EJ use people of color and poverty only). Jack Byers recommended calculating access to jobs using the current and increased revenue scenarios of transit, to see access impacts for transit dependent populations. Eyoh suggested looking at health impacts of air quality changes.

#### **2. TPP Update - Highway/freight investments (Steve Peterson)**

Steve Peterson presented on highway investment direction, reminding the committee that the red-lined chapter would be coming next month. He received comments on the freight section, with Rief asking if the truck waystation system coming back (referring to roadway deterioration from overweight trucks). Peterson passed the question to MnDOT, with Paul Czech answering that it was not in consideration now. Lisa Freese added there is a system of mobile enforcement. Full presentation here [https://metro council.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2017/TAC-Planning-Committee-11-09-17/5-2-TAC\\_Planning-Highways-Investments-20171109.aspx](https://metro council.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2017/TAC-Planning-Committee-11-09-17/5-2-TAC_Planning-Highways-Investments-20171109.aspx)

#### **3. TPP Update - Aviation draft chapter (Russ Owen)**

Russ Owen presented the aviation draft chapter, noting there were not major policy changes. Funding and system are unchanged. Major changes to the chapter included a section on drones. <https://metro council.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2017/TAC-Planning-Committee-11-09-17/5-3-Aviation-Draft-Chapter.aspx>

#### **4. TPP Update - Transit Draft Chapter (Cole Hiniker)**

Cole Hiniker handed out the Transit draft chapter, including a cover memo that highlighted changes in the lengthy chapter. Many of the changes were simply language clarification, not policy changes. Jack Byers asked for a map of transitways by status, to see built, under construction, built, etc.

<https://metro council.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2017/TAC-Planning-Committee-11-09-17/5-4-Info-Transit-draft-chapter.aspx>

## **5. Other Business**

Chair Freese reminded the Committee of an extra meeting planned for Thursday January 25<sup>th</sup> to handle the TPP discussion.

## **6. Adjournment**

Adjourn at 3:00pm

**ACTION TRANSMITTAL 2018-08**

**DATE:** December 1, 2017  
**TO:** TAC Planning  
**PREPARED BY:** Katie White, Senior Planner, 651-602-1716  
**SUBJECT:** Performance Measures Memorandum of Understanding  
**REQUESTED ACTION:** Request that the Transportation Advisory Board recommend adoption of the memorandum of understanding for performance measures between the Metropolitan Council and MnDOT, and recommend adoption to the Metropolitan Council.  
**RECOMMENDED MOTION:** Recommend adoption of the metropolitan planning organization memorandum of understanding for performance measures for the Twin Cities Metropolitan Area.

**BACKGROUND AND PURPOSE OF ACTION:** Per federal regulations, the Council must select performance targets for required federal performance measures in coordination with MnDOT. These performance measures and associated targets are critical in tracking the performance of the region's transportation network and ensuring that the Council's planning and project programming processes are geared towards meeting specific regional objectives. Both MnDOT and the Council must establish targets either annually or on a 2- or 4-year basis. MnDOT is responsible for establishing state-wide targets, after which the Council has 6 months to either support the state targets or adopt different targets. In either case, the Council must report both the targets and all data associated with the performance measures to MnDOT who, in turn, report the measures to the Federal Highway Administration. The establishment of this MOU will allow for the structured coordination of this process and help ensure both MnDOT and the Council meet federal reporting requirements.

The MOU is intended to formalize the working relationship between the Council and MnDOT on performance measures. A separate procedures document has been drafted by MnDOT to lay out the specifics of the relationship with regard to timing, reporting, and agency responsibilities. The procedures document will be amended as needed, while this MOU will be modified less frequently.

**RELATIONSHIP TO REGIONAL POLICY:** This MOU is a requirement of USDOT and MnDOT.

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**ROUTING**

<b>TO</b>	<b>ACTION REQUESTED</b>	<b>DATE COMPLETED</b>
TAC Planning Committee	Review & Recommend	

Subject: 2018 Unified Planning Work Program

Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review & Recommend	
Metropolitan Council Transportation Committee	Review & Recommend	
Metropolitan Council	Review & Adopt	

**MEMORANDUM OF UNDERSTANDING (MOU)**

**BETWEEN**

**THE MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT) AND THE METROPOLITAN COUNCIL  
(MPO AND PUBLIC TRANSPORTATION PROVIDER)**

1. **PURPOSE AND SCOPE.** The purpose of this MOU is to support a performance-based approach to the metropolitan transportation planning and programming process as specified in 23 USC 134 (h)(2), 23 USC 135(d)(2), 49 USC 5303(h)(2), 49 USC 5304(d)(2), 23 CFR 450.206(c), 23 CFR 450.314(h), and 49 CFR 613.
2. **RESPONSIBILITIES.** To the extent practicable, MnDOT, the MPO and the Public Transportation Provider will work cooperatively to:
  - 2.1. Develop and share information related to transportation performance data.
  - 2.2. Select performance targets.
  - 2.3. Promptly report performance targets whenever a target is adopted or changed.
  - 2.4. Follow the specific procedures identified in the most current version of the Performance Planning Target Setting Procedures document. The document will be maintained by the MPO Coordinator within the MnDOT Office of Transportation System Management.
3. **CONTRACTUAL OBLIGATIONS.** This MOU is not a legally binding agreement and creates no legally binding obligations for any party. Any party may, upon written notice, amend, or discontinue its role outlined in the MOU. Because of this mutual desire to proceed, each party fully intends to make a good faith effort to achieve the goals described above including working together to comply with federal and state laws.
4. **GOVERNMENT DATA.** The parties acknowledge that this MOU, as well as any data created, collected, stored, or received under the terms of this MOU, are “Government Data” within the meaning of the Minnesota Government Data Practices Act (Minnesota Statutes chapter 13), and that they must comply with the provisions of the Act as it relates to such data.
5. **EFFECTIVE DATE.** This MOU shall be effective when all appropriate signatures have been obtained by MnDOT, the MPO, and the Public Transportation Provider.
6. **MODIFICATION.** Any amendments to this MOU must be mutually agreed to in writing.
7. **TERMINATION.** The terms of this MOU may be terminated by any one of the parties by giving 90 days written notice to each of the other parties. This MOU will remain in effect until terminated as provided in this clause, or until replaced by a new MOU.

The remainder of this page intentionally left blank.

**I concur with this Memorandum of Understanding**

Minnesota Department of  
Transportation

Maple Grove Transit

By: \_\_\_\_\_  
(with delegated authority)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

MnDOT Contract Management  
(as to form)

Minnesota Valley Transit Authority

By: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Metropolitan Council

Plymouth MetroLink

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

SouthWest Transit

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



# Performance Planning Target Setting Procedures

**Version:** 1.1

**Effective Date:** November 29, 2017

**Contact:** Bobbi Retzlaff, Office of Transportation System Management, MPO Coordinator;  
[bobbi.retzlaff@state.mn.us](mailto:bobbi.retzlaff@state.mn.us); 651-366-3793

## Overview

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### History

Version	Description	Date
1.0	Initial document describing the procedures for performance planning related to Highway Safety Improvement Program, Transit Asset Management, and State Asset Management Plan.	August 2017
1.1	Added contracts number for Grand Forks/East Grand Forks MPO and Fargo-Moorhead Council of Governments.	11/29/2017

### Purpose Statement

Federal law and regulations (23 USC 134(g)(2)(B), 23 USC 135((d)(2)(B), 23 CFR 450.314(h)) direct the State DOT, MPOs and public transportation providers to jointly agree upon and develop specific written provisions for cooperatively:

- Developing and sharing information related to transportation performance data
- Selecting performance targets
- Reporting performance targets
- Reporting performance used in tracking process toward attainment of critical outcomes for the MPO region
- Collecting data for the State asset management plan for the National Highway System.

This document details the procedures the State DOT, MPOs and public transportation providers will use related to performance planning. The document is divided into separate sections related to each performance planning area:

- National Performance Management Measures for the Highway Safety Improvement Program (23 CFR 490, Subpart B)
- Transit Asset Management (49 CFR 625)
- State asset management plan (23 CFR 515)

Each section provides a brief background, identifies to whom the requirement applies, and lists the responsibilities of each affected party.

Additional sections will be added to address:

- National Performance Management Measures for Assessing Pavement Condition (23 CFR 490, Subpart C)
- National Performance Management Measures for Assessing Bridge Condition (23 CFR 490, Subpart D)
- National Performance Management Measures to Assess Performance of the National Highway System (23 CFR 490, Subpart E)
- National Performance Management Measures to Assess Freight Movement on the Interstate System (23 CFR 490, Subpart F)
- National Performance Management Measures for Assessing the Congestion Mitigation and Air Quality Improvement Program – Traffic Congestion (23 CFR 490, Subpart G)
- National Performance Management Measures for Assessing the Congestion Mitigation and Air Quality Improvement Program – On-Road Mobile Source Emissions (23 CFR 490, Subpart H)
- Transit Safety (to be added once final rules published)

MnDOT, the MPOs and the public transportation providers agree to follow these procedures, regularly review and update the procedures as needed according to their respective Memorandums of Understanding (MnDOT Contract Numbers 1029078 (LAPC), 1029079 (MIC), 1029080 (APO), 1029081 (MAPO), 1029082 (ROCOG), 1029083 (Council), 1029703 (FMCOG), and 1029704 (GFEGF)).

## Repository of Procedure

The MnDOT Office of Transportation System Management (OTSM) retains the master copy of the procedures and all previous versions. Electronic copies are provided to the MPOs and public transportation providers after each revision. Additional copies are available upon request.

## Highway Safety Improvement Program Performance

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### Background

There are five performance measures identified in 23 CFR 490.207(a):

- Number of fatalities
- Rate of fatalities
- Number of serious injuries
- Rate of serious injuries
- Number of non-motorized fatalities and non-motorized serious injuries

The measures apply to all public roadways. State DOTs and MPOs must annually establish performance targets for these measures.

### Applicability

The requirements of the Highway Safety Improvement Program apply to:

- MnDOT
- MPOs

## Responsibilities

### *MnDOT*

The MnDOT Office of Traffic, Safety & Technology (OTST) is the lead MnDOT office in developing the performance targets. OTST will:

- Develop targets annually in cooperation with the Minnesota Department of Public Safety and the MPOs.
- Coordinate with the MPOs on the establishment of targets to ensure consistency, to the maximum extent practicable. This includes at least one meeting, in the spring, with the MPOs to discuss/gather feedback on the proposed targets for the upcoming reporting year.
- Provide fatality and serious injury data to the MPOs once calendar year data is available.
- Update the MPOs, as needed or requested, on the status of the performance targets.
- Report the targets to FHWA in the State's HSIP annual report by August 31.
- Provide a copy of the submitted HSIP annual report to the MPOs.

OTSM will assist OTST in working with the MPOs.

### *MPOs*

Each MPO will:

- Develop targets annually in cooperation with MnDOT.
- Coordinate with MnDOT on the establishment of targets to ensure consistency, to the maximum extent practicable.
- Establish a target for each performance measure for all public roadways in their metropolitan planning area within 180 days of August 31 by either:
  - Agreeing to plan and program projects so that they contribute toward the accomplishment of the State DOT safety target for that performance measure, or
  - Committing to a quantifiable target for that performance measure.
- Submit the resolution(s) approving the targets to OTSM. The resolution must clearly identify/state each target.
- If the MPO committed to a quantifiable target different from the state target, annually report to OTSM the VMT estimate used for the targets and the methodology used to develop the estimate.

## Transit Asset Management

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### Background

There are four performance measures identified in 49 CFR 625.43:

- Equipment: (non-revenue) service vehicles – percentage of vehicles that have either met or exceed their useful life benchmark
- Rolling stock – percentage of vehicles within a particular asset class that have either met or exceed their useful life benchmark
- Infrastructure: rail fixed-guideway track, signals and systems – percentage of track segments with performance restrictions
- Facilities – percentage of facilities within an asset class, rated below condition 3 on the TERM scale

## Applicability

The requirements of the Transit Asset Management Program apply to:

- MnDOT
- MPOs
- Public transportation providers

## Responsibilities

### *MnDOT*

The MnDOT Office of Transit is the lead MnDOT office in developing the performance targets. OT will:

- Develop targets annually in cooperation with the MPOs and public transportation providers.
- Make the targets available to the MPOs and public transportation providers.
- Update the MPOs, as needed or requested, on the status of the performance targets.

OTSM will assist the Office of Transit in working with the MPOs.

### *MPOs*

Each MPO will:

- Develop targets in cooperation with MnDOT and the public transportation provider.
- Coordinate with MnDOT and public transportation providers on the establishment of targets to ensure consistency, to the maximum extent practicable.
- Establish a target for each performance measure in their metropolitan planning area within 180 days of MnDOT or the public transportation provider setting targets by either:
  - Agreeing to plan and program projects so that they contribute toward the accomplishment of the State DOT safety target for that performance measure, or
  - Committing to a quantifiable target for that performance measure.
- Submit the resolution(s) approving the targets to OTSM. The resolution must clearly identify/state each target.

- Revisit the targets when the MPO updates its Transportation Improvement Program and its metropolitan transportation plan.

### *Public Transportation Providers*

Each public transportation provider will:

- Develop targets annually in coordination with MnDOT and the MPO.
- Make the transit asset management plan, any supporting records or documents performance targets, investment strategies, and the annual condition assessment report available to MnDOT and the MPO.
- Report the targets as defined 49 CFR 625.55. Provide this information to the MPO.

## **State Asset Management Plan**

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### **Background**

State DOTs are required to develop and implement risk-based asset management plans for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system. State DOTs are required to submit the plans to FHWA and update the plans at least every four years.

At a minimum, the plans must include a summary of NHS pavement and bridge assets, regardless of ownership.

The majority of Minnesota's NHS is owned by MnDOT. MnDOT collects and analyzes condition and performance for all NHS pavement and bridges, regardless of ownership.

### **Applicability**

The requirements of the State Asset Management Plan apply to MnDOT.

### **Responsibilities**

The MnDOT Office of Transportation System Management is the lead office in preparing the State Asset Management Plan. OTSM will:

- Prepare and implement the state asset management plan.
- Update the state asset management plan at least every four years.
- Gather data on the condition and performance of the NHS, regardless of ownership.
- Share asset-related data, as requested, with the MPOs.
- Regularly share information related to the State Asset Management Plan with the MPOs. This includes plan updates, status updates, etc.

**Transportation Advisory Board**  
of the Metropolitan Council of the Twin Cities

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**ACTION TRANSMITTAL 2018-02**

**DATE:** December 5, 2017  
**TO:** TAC Planning  
**PREPARED BY:** Rachel Wiken, Planner, 651-602-1572  
**SUBJECT:** Roadway Functional Classification Map for the Seven-County Twin Cities Region  
**REQUESTED ACTION:** Recommend adoption of the Roadway Functional Classification Map for the Seven-County Region  
**RECOMMENDED MOTION:** That the Transportation Advisory Board adopt the Roadway Functional Classification Map for the Seven-County Twin Cities Region.

**BACKGROUND AND PURPOSE OF ACTION:** The regional solicitation process is conducted biennially to allocate federal transportation funds. Federal rules allow recipients of these funds to focus or target them to meet defined regional needs. Roadway improvement projects must be on roadways functionally classified as A- Minor Arterials or Non-Freeway Principal Arterials to be eligible for federal funds in the regional solicitation.

The Technical Advisory Committee has approved a number of roadway functional classification changes since the 2016 regional solicitation, and these changes have been recorded in the official map. The TAB will adopt the roadway functional classification map to provide an official map for applicants and project reviewers to use as a resource in determining project eligibility in the next regional solicitation.

The map will be made available on the Metropolitan Council's website and will be referenced in the next regional solicitation package, which is scheduled to be released in Spring 2018.

**RELATIONSHIP TO REGIONAL POLICY:** The Transportation Advisory Board maintains a roadway functional classification system for all regional roads. TAB has delegated the responsibility of approving changes to the system to the Technical Advisory Committee, with the exception of Principal Arterials. The TAB adopts a functional classification map with the approved changes.

**STAFF ANALYSIS:** If closer review is desired, contact Rachel Wiken for GIS data or detailed map of smaller area.

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**ROUTING**

<b>TO</b>	<b>ACTION REQUESTED</b>	<b>DATE COMPLETED</b>
TAC Planning Committee	Review & Recommend	
Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review and Adopt	

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## Functional Classification Changes Made to the Regional TAB-Adopted Map since 2016

(Changes made between Feb 2016 and Dec 2017)

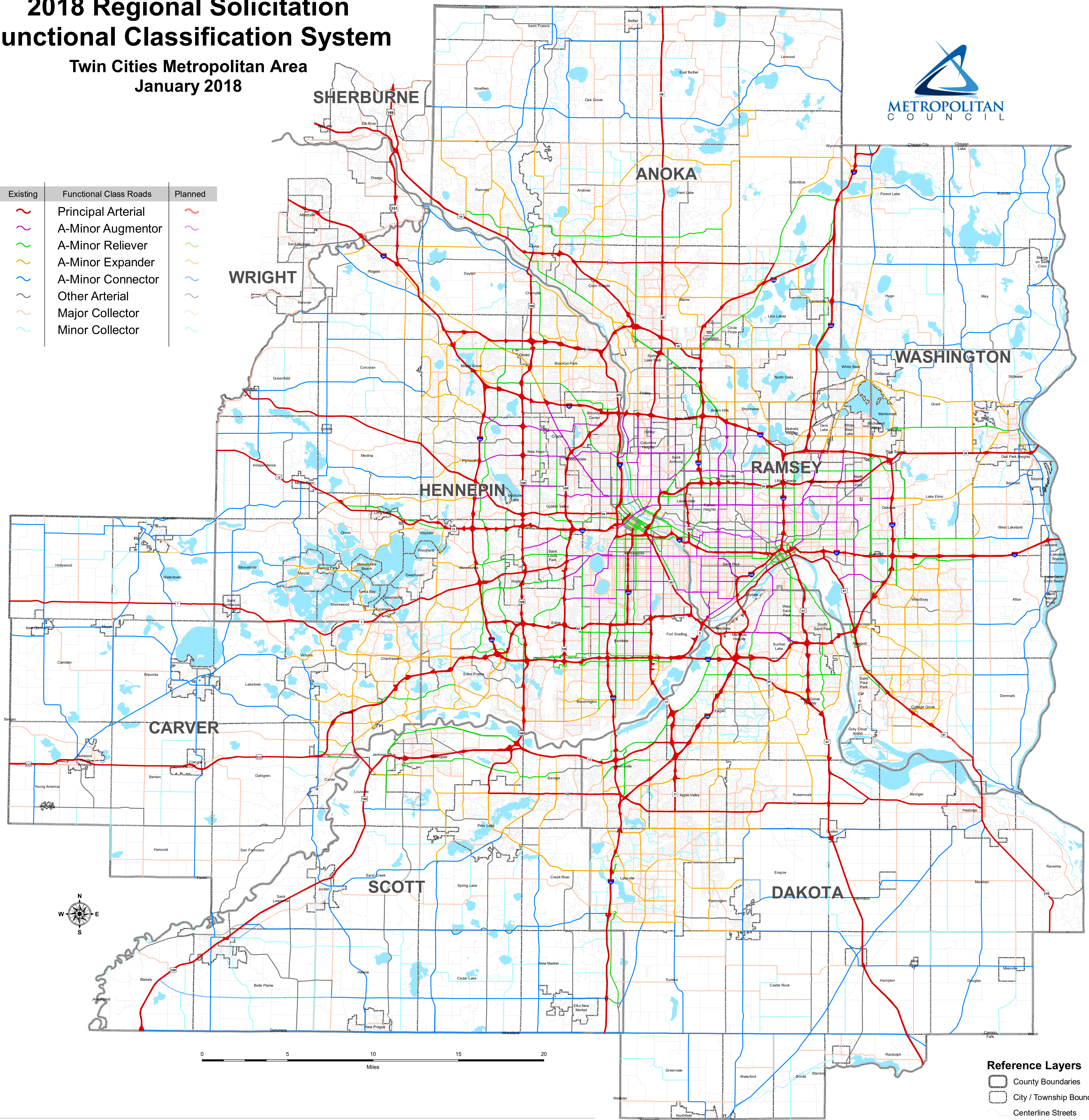
TAC Planning Date	ID	APPLICANT	NAME	ROAD_FROM	ROAD_TO	EXISTING	Original Fun.Class	Requested Fun.Class	NOTES
3/10/2016	1340	SCOTT COUNTY	CR 60 / CR 1	169	CR 6	Existing	Local	Major Collector	CR 60 upgraded to Collector, CR 1 downgraded to local
11/16/2016	1341	CARVER COUNTY	CSAH 10 NEW SEGMENT	CURRENT 10	TH 5	Planned	NA	A-Minor Connector	
1/12/2017	1342	SCOTT COUNTY	CSAH 16 EXTENSION	CR 15	CSAH 69	Planned	NA	A-Minor Reliever	
4/13/2017	1344	CITY OF ST PAUL	Cayuga	Jackson	Phalen	Existing	Major Collector	Other Arterial	
4/13/2017	1345	CITY OF ST PAUL	Westminster / Arkwright	Cayuga	Maryland	Existing	Local	Major Collector	
4/13/2017	1346	CITY OF ST PAUL	Burr	Minnehaha	Case	Existing	Major Collector	Local	
9/14/2017	1349	HENNEPIN COUNTY	LOWRY AVE	BROADWAY	NEW BRIGHTON BLVD	Existing	Other Arterial	A-Minor Augmentor	includes short section of St Anthony Blvd on east end
9/14/2017	1350	HENNEPIN COUNTY	VERNON	HWY 62	HWY 100	Existing	Other Arterial	A-Minor Reliever	
11/9/2017	1351	MnDOT	TH95	TH36	CHESTNUT	Existing	Principal Arterial	A-Minor Connector	Related to Stillwater bridge opening
11/9/2017	1352	MnDOT	CHESTNUT STREET	95	STATELINE	Existing	Principal Arterial	Local	Related to Stillwater bridge opening
NA	1343	METC	Peony Lane	CR 47	54th	Existing	A-Minor Expander	A-Minor Exp	Planned to existing once road opened
NA	1353	METC	Highway 610	I-94	Existing 610	Existing	NA	Principal Arterial	Shown as under construction in last TPP, included in dataset once opened
NA	1354	METC	Stillwater Bridge	MN95	WI	Existing	NA	Principal Arterial	Shown as under construction in last TPP, included in dataset once opened

# 2018 Regional Solicitation Functional Classification System

Twin Cities Metropolitan Area  
January 2018



Existing	Functional Class Roads	Planned
	Principal Arterial	
	A-Minor Augmentor	
	A-Minor Reliever	
	A-Minor Expander	
	A-Minor Connector	
	Other Arterial	
	Major Collector	
	Minor Collector	



**Reference Layers**

- County Boundaries
- City / Township Boundaries
- Centerline Streets
- Lakes and Rivers



## Chapter 7

# Bicycle and Pedestrian Investment Direction

## Overview

Bicycling and walking ~~are becoming~~ have become increasingly important in the Twin Cities for supporting the TPP’s goal of providing access to destinations, like commuting to work or school, running personal errands, and traveling to entertainment and activity venues. Bicycling and walking also support the TPP’s goal of healthier communities by providing more options that can facilitate active living choices. In addition, the region can support the TPP’s goal of stewardship by making investments in bike and pedestrian infrastructure, which are more cost effective compared to investments for other transportation modes. These investments are also efficient in terms of land use in that they require less space to construct and can potentially offset development costs by reducing the need to construct parking for automobiles. The region’s potential for further expanding bicycling and walking ~~in the region~~ for transportation purposes is significant.

According to data from the U.S. Census Longitudinal Employer Household Dynamics, approximately 20% of all employees who work in one of the major employment clusters in the Twin Cities live less than three miles from their workplace. About 20% of all bicycle trips in the region are less than one mile long and nearly 45% are less than three miles in length, according to the Council’s 2010 Travel Behavior Inventory. So the proximity of the region’s residents to their places of employment aligns well with residents’ tendencies to travel by bike or walk for shorter trips.

Although bicycling can accommodate longer trips, walking ~~still~~ actually accounts for a higher percentage of all trips region wide (6.5%), than either biking (2%) or transit (3%) and ~~is imperative to~~ represents the start and end of trips by any mode. The high level of importance of both walking and biking in connecting to the regional transit system should also be noted; there are many ~~more~~ residents who live within three miles of transit service but much farther from work (compared to proximity to work) who could take advantage of improved opportunities to combine transit with walking or biking.

Improvements to facilitate and encourage these connections (like bike lockers and storage facilities at transit stations or new local bikeway and sidewalk connections) will go a long way to expanding the reach of the transit system and in creating new opportunities for people to walk and bike for transportation. As a more comprehensive regional bicycle system and pedestrian facilities continue to develop over time ~~(including better options for bicyclists and pedestrians to get across or around physical barriers like rivers, rail corridors, freeways, and multi-lane arterial roadways)~~, walking and biking trips may continue to increase in volume and distance.

Based on bike and pedestrian counts from 2008 through 2013 by Transit for Livable Communities as part of the federal Non-Motorized Transportation Pilot project, biking activity increased 78% and walking increased 16% at 43 benchmark locations in Minneapolis, its surrounding suburbs, and Saint Paul. This was largely the result of investing more than \$28 million over this time period in 75 miles of new on-street bikeways and off-street trails and sidewalks, along with the education and promotion programs required to take full advantage of the new improvements. *[Insert link to Bike/Walk Twin Cities Non-Motorized Transportation Pilot project report.]*

According to the 2010 Travel Behavior Inventory, walking increased 16% and biking 13% between 2000 and 2010 region wide. In the core cities of Minneapolis and Saint Paul, walking and biking grew at an even faster rate; walking increased 32% and biking 20%, respectively, during that time.

The regional trail system and other off-street trails have played an increasingly important role in walking and bicycling for transportation, particularly in the urban and suburban developed areas of the region. According to Metropolitan Council estimates, there were over 13 million visits to the 360 miles of regional trail in 2016, which represents an 80% increase over 10 years. ~~there were over 11 million visits to the 300 miles of regional trail in 2012, which is a 69% increase in 10 years.~~ Past studies by Three Rivers Park District ~~studies~~ have shown that ~~use by commuters~~ commuter use has grown ~~by about~~ as much as 7% per year on some of its urban trails.

This ~~documented~~ demand for on- and off-street bikeway facilities offers a significant opportunity for a modal shift that would help to reduce congestion, improve air quality, improve personal health, and is an attractive and marketable component for making the Twin Cities a desirable place to live. ~~In addition, it~~ It is important to acknowledge that recreational bicycling is also growing, especially among young families, and that there is a corresponding need for protected or separated off-road bicycle facilities ~~bikeways~~ to accommodate less experienced cyclists. In addition, B bicycling for recreation and transportation ~~also~~ provides local economic benefits around the metro area.

~~Within and near congested activity centers, biking and walking can be effective transportation solutions because they accommodate shorter distance trips and require less space, less infrastructure, and fewer investment dollars than other transportation modes. Because walking is fundamentally tied to the end points of any trip (no matter the mode of travel) and As~~ pedestrian planning is integral to transportation planning for all other modes, there are ~~multiple~~ references and ~~detailed~~ descriptions of pedestrian facility planning, design, and funding in other sections of this Transportation Policy Plan. ~~The specific sections for highways, transit, and land use and local planning address p~~ Pedestrian planning issues are addressed as they relate to state highway funding in ~~the~~ Chapter X, 5 ~~[insert link to “Highway Investment Direction and Plan.”]~~, connecting to the regional transit system in Chapter X, 6 ~~[insert link to “Transit Investment Direction and Plan.”]~~, and to integrate land use planning and urban design best practices in Chapter X, 3 ~~[insert link to “Land Use and Local Planning.”]~~

While previous updates of the Transportation Policy Plan recognized that bicycling and walking were essential modes of transportation and encouraged the development of facilities to allow safe biking and walking, specific planning for these facilities was done at the local rather than regional level because of the relatively short distance of these trips. In general, Pedestrian facilities are still generally best planned at the local level, but the longer range of bicycle trips (and the facilities they rely on) are often long enough to necessarily cross municipal boundaries. In fact, more than About 55% half of the region's bicycle trips by bicycle (approximately 55% according to the Council's 2010 Travel Behavior Inventory) are greater than three miles in length, according to the Council's 2010 Travel Behavior Inventory. The Council and its transportation partners will plan for these longer bicycle trips in order to maximize the potential impact of choosing bicycling over driving alone for transportation.

With the increasing interest in bicycling for transportation, an arterial backbone network of regional bicycle facilities for transportation was developed and is included for the first time in this Transportation Policy Plan. This Regional Bicycle Transportation Network will continue to be refined and updated over time. The network is intended to be supplemented by local bikeway facilities similar to the way local streets supplement principal and minor arterials for motor vehicles.

## **The Existing Regional Bicycle and Pedestrian System Facilities**

### **System Description of Facilities**

Walking and bicycling are essential modes within the regional transportation system and have numerous benefits at local, regional, and global levels. These modes allow people to make purposeful daily trips without adding to roadway congestion and vehicle-related air pollution, including carbon and greenhouse gas emissions that are affecting our contribute to climate change. They make it possible to connect with bus and rail transit while making active lifestyle choices by and allowing allow travelers people to choose active lifestyles by incorporate incorporating exercise into their daily routines. On a personal level, they In addition, walking and biking can reduce the cost of a household's transportation costs; on national and while also providing global levels, they benefits such as reducing reduce our dependence on non-renewable energy sources.

Walking and bicycling trips tend to be relatively short in the region, averaging about one-quarter to one-half mile for walking, and between one and three miles for bicycling; however, more than half of the region's trips by bicycle (approximately 55% according to the 2010 regional Travel Behavior Inventory) are greater than three miles in length. The Council and its transportation partners will plan for these longer bicycle trips in order to maximize the potential impact of choosing bicycling over driving alone for transportation.

With the exception of a few state trails in the metro area, the ~~regional~~ region's bicycle and pedestrian ~~system-facilities is made up~~ consist of regional trails (as designated in the Council's 2040 Regional Parks Policy Plan), ~~and local~~ on-street bikeways networks of ~~and~~ off-road trails, ~~on-street bikeways,~~ and sidewalks for which local agencies have primary responsibility for planning, development, and maintenance. Due to typically short distances of walking trips ~~in particular,~~ development of pedestrian facilities is most effectively addressed at the local rather than regional level. ~~It should also be noted that the~~ The Metropolitan Council does not ~~operate~~ typically construct or maintain bikeways and ~~walkways-sidewalks,~~ but ~~only facilitates~~ assists in planning for their development and provides some funding for regional trails. The Council's roles with respect to biking and walking facilities ~~is to~~ include:

- Planning for local and regional ~~system-~~ networks that strives to ensure continuity and connectivity between jurisdictions-
- Assisting in coordinated planning to determine solutions for regional barriers to biking and walking-
- Providing guidance for biking and walking facilities to support other regional initiatives, such as transit investments, livable communities investments, and equity

The region's pedestrian infrastructure consists of:

- City sidewalks
- Street intersection treatments, including traffic signal technologies that assist disabled persons
- Local off-road trail systems and connections
- neighborhood alleyways
- Urban plazas

### Pedestrian Facilities

Additionally, downtown Minneapolis and Saint Paul have skyway networks that provide essential, all-weather connections between developed blocks in these high-density employment centers.

Many pedestrian facilities are planned and developed at ~~the site~~ a project design level and constructed by private developers. Because of this ~~smaller-scale~~ site level focus, local jurisdictions are in the best position to ~~oversee~~ plan and implement pedestrian infrastructure projects. ~~They~~ Cities have decision-making authority over ~~community~~ land use, ~~the~~ and street construction and maintenance ~~of local streets,~~ and are most familiar with local conditions and needs.

The region's pedestrian infrastructure consists of:

- City sidewalks
- Street intersection treatments, including traffic signal technologies that assist disabled persons

- Local off-road trail systems and connections
- Urban plazas
- Skyways (Minneapolis and St Paul downtowns)

The Council's interest in pedestrian infrastructure is primarily to ensure good safe and convenient pedestrian connections to transit stops and stations, including adequate waiting areas for ~~customers~~ transit users and full accommodations for the disabled or visually impaired. In addition, the Council's ~~role is to~~ encourage transit-oriented design in all transitway corridors or near bus transit centers (including transit stations and park-and-ride facilities). ~~This~~ Transit-oriented design includes the appropriate spacing and orientation of buildings ~~and structures that encourage and allow for~~ to facilitate efficient pedestrian movement. Overall pedestrian safety and connectivity (~~particularly as they relate to moving across major physical barriers~~) are also vital components of regional multimodal transportation ~~system~~ planning.

Usable pathways are particularly important to people with disabilities, and the Americans with Disabilities Act (ADA) of 1990 requires local governments to ensure that people with disabilities can use the transportation system in an accessible and safe manner. ~~construct accessible rights-of-way facilities to meet their needs.~~ Since ~~passage of the ADA,~~ communities have had differing levels of success in working toward the goal of universal accessibility. The federal government has recently put greater emphasis on ~~providing accessible routes~~ ensuring compliance with the ADA, and federal law requires that all government agencies with over 50 or more employees develop an ADA Transition Plan that details the steps to making the community accessible for all. Public agencies with fewer than 50 employees must still conduct a self-evaluation of facilities, programs, and services to identify any that must be modified to meet ADA requirements. Because existing sidewalks can potentially be barriers for people with disabilities due to slope, width, or other elements, they should be included in self-evaluations or transition plans.

### **Bicycle Facilities**

With regard to bicycling, the Twin Cities region is fortunate to have a well-developed system of on-street bicycle facilities in the core cities ~~as well as~~ and a widespread network of off-road trails through many parts of the region. Over time, Twin Cities' residents have ~~more successfully~~ more successfully advocated for bicycle-friendly infrastructure more successfully than residents of most North American ~~regions of~~ cities of similar size. The state and region have made investments that mirror this ~~strong~~ traditionally high level of advocacy.

~~The Council is refining the inventory and planning capabilities of Cycloplan, an extension of the bicycle trip planning resource known as Cyclopath. When fully implemented, this resource will aid the Council, cities, and counties in continuing to plan for the regional bikeways system by facilitating an integrated and efficient logging system of bicycle infrastructure improvements.~~

Examining the bikeway system today reveals a clear pattern of fairly well-connected bicycle trails in the newer, outer-ring suburbs that have developed since the 1980s. But the first-ring suburbs (those developed between 1950 and 1980) have tended to be the least bicycle-friendly areas because trails were not built when they were developed and the street systems were designed with little consideration for bicycling or walking. However, in recent years and thanks in part to the federal Non-Motorized Transportation Pilot Project administered through the Transit for Livable Communities Bike/Walk Twin Cities program, the network of on-street facilities has expanded greatly, especially in Minneapolis and Saint Paul. Several neighboring suburbs of Minneapolis also received funds to plan and/or construct on-street bikeways, including the cities of Richfield, Edina, St. Louis Park, Golden Valley, Brooklyn Center, Fridley, and Roseville.

Existing bikeways take on several characteristics in the region. On-road bicycle facilities have been developed in various forms. There are collector and arterial streets with bike lanes, roads with advisory bike lanes, roads with shared road markings (i.e., “sharrows”), and bicycle boulevards, as well as many designated bike routes that have either striped shoulders or are low-volume roads but without pavement markings. Typical bicycle transportation routes may include all of these types of bikeways. In addition, several “cycletracks” or “protected bike ways (formerly known as cycle tracks) lanes” have been installed or are planned within constructed in Minneapolis and Saint Paul. These are bicycle-bike-only facilities within street corridors that have include some a vertical separation from traffic lanes and are intended to provide a more comfortable user experience, similar to a trail.

The other notable aspect of the bikeway system is the extensive network of off-road trails, including the regional trail system, that has been developed over more than a century to provide multi-use connections between regional parks and other major activity nodes. Many of these trails parallel the region’s rivers and creeks or make use of abandoned railroad rights-of-way rail lines.

While the primary purpose of the regional trail system is to serve recreational needs, a subset of the trail segments also serve as high-use transportation corridors due to their straight and direct alignments, inherited from original alignments of railroad corridors. One of the benefits of a recently completed Regional Bicycle System Study was the determination of regional trail corridor segments that were deemed essential to the bicycle transportation network (see Chapter 7). Trails such as the Midtown Greenway, Cedar Lake, Sam Morgan, and Bruce Vento regional trails can be characterized as high demand bicycle transportation corridors.

## Bicycle and Pedestrian Improvements Trends since the Last Plan

Development of the bicycle system is progressing both physically and institutionally. Of the 182 local city and county comprehensive plans in the region, 41 have addressed neighborhood trail

access, 19 have individual trail master plans, and 24 have addressed bicycle and pedestrian safety on roadways through traffic calming techniques and/or transportation policies.

## Data Collection

Pedestrian and bicycle data collection efforts by cities and counties for walking and biking have continued and are expanding, along with in accordance to new guidance on how to conduct this data collection these counts. The Federal Highway Administration (FHWA) updated its Traffic Monitoring Guide to include standard guidance for counting pedestrians and bicyclists. Between 2014 and 2016, MnDOT's Bicycle and Pedestrian Counting Initiative further expanded the work within the state to institutionalize this data collection. MnDOT developed a Bicycle and Pedestrian Data Collection Manual to supplement the FHWA Traffic Monitoring Guide. Other elements in MnDOT's initiative have included annual training programs for local government staff on how to conduct counts; the installation of permanent monitoring stations throughout the state, including the Twin Cities region; and the development of a MnDOT district-based portable counting equipment loan program to support MnDOT districts and local governments in conducting bicycle and pedestrian counts.

The two largest cities in the region, Minneapolis and Saint Paul, have been conducting regular bicycle and pedestrian counts for several years. According to the 2016 Bicyclist and Pedestrian Count Report from the City of Minneapolis, bicyclists at 30 benchmark locations throughout the city increased 49 percent and pedestrians at 23 benchmark locations increased 23 percent from 2007 to 2016. The City of Saint Paul conducts annual bicycle and pedestrian counts at 30 benchmark locations for bicyclists and at 25 benchmark locations for pedestrians. According to the city's count report for 2016, bicycling has increased 32 percent between 2007 and 2016 at 5 benchmark locations. For the benchmark locations the city has counted from 2013 through 2016, walking has increased by 10 percent and bicyclist has increased by 2 percent.

~~. The Bike/Walk Twin Cities effort from 2008 through 2013 monitored participation in biking and walking at 43 benchmark locations in and around Minneapolis. In addition, the University of Minnesota conducted a comprehensive data collection research study. This That study recommendeds new standards for bike and walk trip data collection, and develops a methodology for estimating annual bike trips along a facility based on a sampling of counts.~~

~~Cyclopath, an on-line wiki-based bicycle routing tool, has been designed and implemented by the University of Minnesota to assist the public in identifying suitable bicycle routes based on individual biking preferences—for example, on-street convenience/speed versus off-road protection—and desired trip origin and destination points. It has resulted in a robust set of bicycling origin and destination data, which have been directly applied to planning for a regional network of bicycle corridors.~~

## Regional Bicycle System Inventory

A new regional bicycle sytem inventory was compiled in 2016 with the help of counties and their member cities in combining all local bike plan data into unified county datasets. The Council then assembled a unified regional dataset that included most cities with existing bike plans. The data include, at a minimum, existing and planned, on-street and off-road bikeways. Some cities and counties provided more detailed data regarding bicycle facility type, which eventually will be incorporated at the regional level in collaboration with Metro GIS. The purpose of the inventory dataset is to assist local planning agencies when developing or updating local bike plans or in reviewing regional and adjacent city plans. The Council will rely on regular bicycle facility updates from the counties to keep the regional bicycle system inventory current; ideally, annual updates compiled at the end of every construction cycle are preferred.

## Bicycle Sharing System

~~was formed through the Twin Cities Bike Share Project, an initiative started in 2008. This Nice Ride Minnesota is a public bike-sharing system that has been in operation in the Twin Cities since 2010. The system was designed to complement the transit system and to provide short connections between activity centers, became operational in 2010. Between 2010 and 2013 riders have taken nearly 900,000 rides on the 1,550 bicycles at 170 stations located mainly in Minneapolis and Saint Paul. Annual rentals have grown from 101,000 to about 305,000 in that time period, an increase of more than 200%. (Will update with 2016 data and the ongoing consideration of transitioning to a new system of dockless stations.)~~

## Protected Bikeways

The planning, programming and construction of protected bikeways is an emerging trend in the core cities of Minneapolis and Saint Paul, but other cities and counties are beginning to follow suit. Minneapolis adopted a Protected Bikeways Plan in 2015 calling for the construction of more than 30 miles of new protected bikeways by 2020. The City of St Paul completed the first leg of its downtown Capital City Bikeway four-mile loop in 2017.

(A few more details to add here...)

## Growth in Purchase and Operation of E-Bicycles (to be added)

## Winter Cycling is a “Thing” (to be added)

## Pedestrian and Bicycle Safety

Pedestrians and bicyclists are the most vulnerable travelers on our transportation networks. Increases in the number of people walking and bicycling can help improve safety by creating



greater visibility and driver awareness. Research has shown that as more people bike and walk, crash rates for these modes tend to decline.

## **Crash Statistics**

Within the seven-county core of the Twin Cities region, an average of 17 pedestrians and 3 bicyclists died each year, based on traffic crash data from 2013-2015. According to crash data from the Minnesota Department of Public Safety for 2013 through 2015, there were 1,159 traffic fatalities in Minnesota; over 26 percent, or 304, of these happened in the Twin Cities region. Of these 304 people who died in traffic crashes in the metro, 51 were pedestrians and 9 were bicyclists. A little over 58 percent of all traffic crashes and 28 percent of the overall traffic fatalities in the state happen in the Twin Cities region. However, the region's share of crashes looks much different for pedestrians and bicyclists because of its more urbanized area. Although the region has an average of 26 percent of the overall traffic fatalities that happen in the state, we have almost 55 percent of the state's pedestrian fatalities and almost 43 percent of the state's bicyclist fatalities.

While walking trips are 6 percent of all trips made within the region, pedestrian fatalities are a disproportionately larger percentage of the region's traffic deaths with almost 17 percent of all traffic fatalities from 2013-2015. The numbers are not as disproportionate for bicyclists, but they still are 3 percent of all Twin Cities traffic fatalities, compared to making 2 percent of all trips. Future additional analysis of crash data would provide more information about the nature of these crashes and safety issues within the region.

## **Pedestrian Safety (to be added)**

### **Traffic Speed**

The 2014-2019 Minnesota Strategic Highway Safety Plan identifies focus areas that represent contributing, and often correlated, factors for traffic crashes, and speed is one of these focus areas. As travel speed increases, so does the risk for death or severe injuries in a crash. Speed has also been highlighted as a common factor in crashes at the national level with a 2017 National Transportation Safety Board study, *Reducing Speeding-Related Crashes Involving Passenger Vehicles*. This report notes that speeding creates a "significant risk of death and injury" to travelers outside of vehicles. For the most vulnerable travelers on our transportation networks, vehicle speed relates to increased injury risk. The report cites a European Transport Safety Council study that showed 5 percent of pedestrians struck by a vehicle traveling at 20 miles per hour (mph) are killed; however, "this likelihood increases to 45 percent at 30 mph, and 85 percent at 40 mph." In Minnesota, the minimum speed limit on streets in urban districts is 30 mph. With a vehicle traveling at this speed, only about 5 out of 10 pedestrians survive being hit in a crash.

# ~~Proposed~~ Regional Bicycle Transportation Network

~~Regional Bicycle System Study~~ The Regional Bicycle Transportation Network (or “RBTN” as it has come to be known) was established in the last TPP update as the official regional bikeway network that sets the region’s priority vision for planning and investment. The network was based on a *Regional Bicycle System Study* analysis and prioritization of potential corridors based on factors such as bicycle trip demand, network connectivity, social equity, population and employment density, and connections to transit. Further details on the study completed in 2014 can be found on the ~~Metropolitan~~ Council’s website.

## Purpose of the Regional Bicycle Transportation Network

The purpose of the RBTN is shaped by the following goals:

- Establish an integrated and seamless network of on- and off-street bikeways;
- Provide the vision for a “backbone arterial” network to accommodate daily bicycle trips by connecting regional destinations and local bicycle networks
- Encourage local and state agencies to plan and implement future bikeways in support of the RBTN vision.

In support of these overall goals, cities and counties are encouraged to plan and implement the RBTN and its connections to local bicycle facilities that connect their local bikeway networks to the regional network.

## Guiding Principles

A set of guiding principles for ~~developing~~ defining the Regional Bicycle Transportation Network was developed during the Regional Bicycle System Study ~~by a project advisory committee and reviewed in a series of public workshops in 2013. The following guiding principles were used to develop~~ identify a regional bikeways network that would:

- **Overcome physical barriers and eliminate critical system gaps.**  
Specifically addressing gaps and barriers in the regional system will improve convenience and continuity for bicyclists.
- **Facilitate safe and continuous trips to regional destinations.**  
Developing and upgrading bicycle facilities along the ~~Regional Bicycle Transportation Network~~ RBTN will improve the convenience and safety of bicycling along these facilities.
- **Function as arteries to connect regional destinations and the transit system year round.**  
Emphasizing ~~Priority Tier 1 Regional Bicycle Transportation Corridors~~ corridors (as identified in this plan) through the implementation of the ~~Regional Bicycle Transportation Network~~ RBTN, will provide the needed connections to regional destinations and the regional transit system.

- **Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.**

Bicyclists have varying levels of comfort to ride based on facility type (on-street facility vs. off-road trail), roadway characteristics, and personal levels of experience and ability. In some urban, high demand corridors it may be appropriate to develop both an on-street facility and an off-road trail to accommodate the full range of cyclist preferences.

- **Integrate and/or supplement existing and planned infrastructure.**

When developing the ~~Regional Bicycle Transportation Network~~ **RBTN**, existing and planned infrastructure should be used when possible to reduce the need to purchase new right-of-way and to minimize the growing financial burden of preserving and maintaining existing facilities.

- **Provide improved opportunities to increase the share of trips made by bicycle.**

Implementing a complete ~~Regional Bicycle Transportation Network~~ **RBTN** that provides convenient connections to key regional destinations and the regional transit system will increase the likelihood of choosing bicycling for transportation over other travel modes.

- **Connect to local, state, and national bikeway networks.**

Connecting to other established bicycle networks will expand the reach and effectiveness of the regional network.

- **Consider opportunities to enhance economic development.**

New bicycling investments can be an effective tool for creating local economic development opportunities and to foster the Twin Cities' image as a highly livable region with many bike-friendly destinations.

- **Be equitably distributed throughout the region.**

Social equity and regional geographic balance were emphasized in identifying the ~~Regional Bicycle Transportation Network~~ **RBTN**. By focusing on population and employment concentrations, the network will be able to attract the greatest number of riders. By also applying the Metropolitan Council's identified Areas of Concentrated Poverty (where at least 50% of the residents are people of color), the network will offer equitable access to bicycling and the economic opportunities and health benefits afforded by bicycle ~~options~~ **infrastructure**.

- **Follow spacing guidelines that reflect established development and transportation patterns.**

The ~~Regional Bicycle Transportation Network~~ **RBTN** corridors were developed in a way that applied spacing concepts based on urban and suburban development patterns and plans. The resulting network is denser and has greater accessibility compared to regional bikeway corridors found in other metropolitan regions.

- **Consider priorities reflected in adopted plans.**

The ~~Regional Bicycle Transportation Network~~ **RBTN** was developed to reflect local bicycle plans and policies that inform regional priorities.

In addition to developing the initial RBTN, these guiding principles were used in reviewing potential RBTN map revisions proposed by local agencies since the last TPP update.

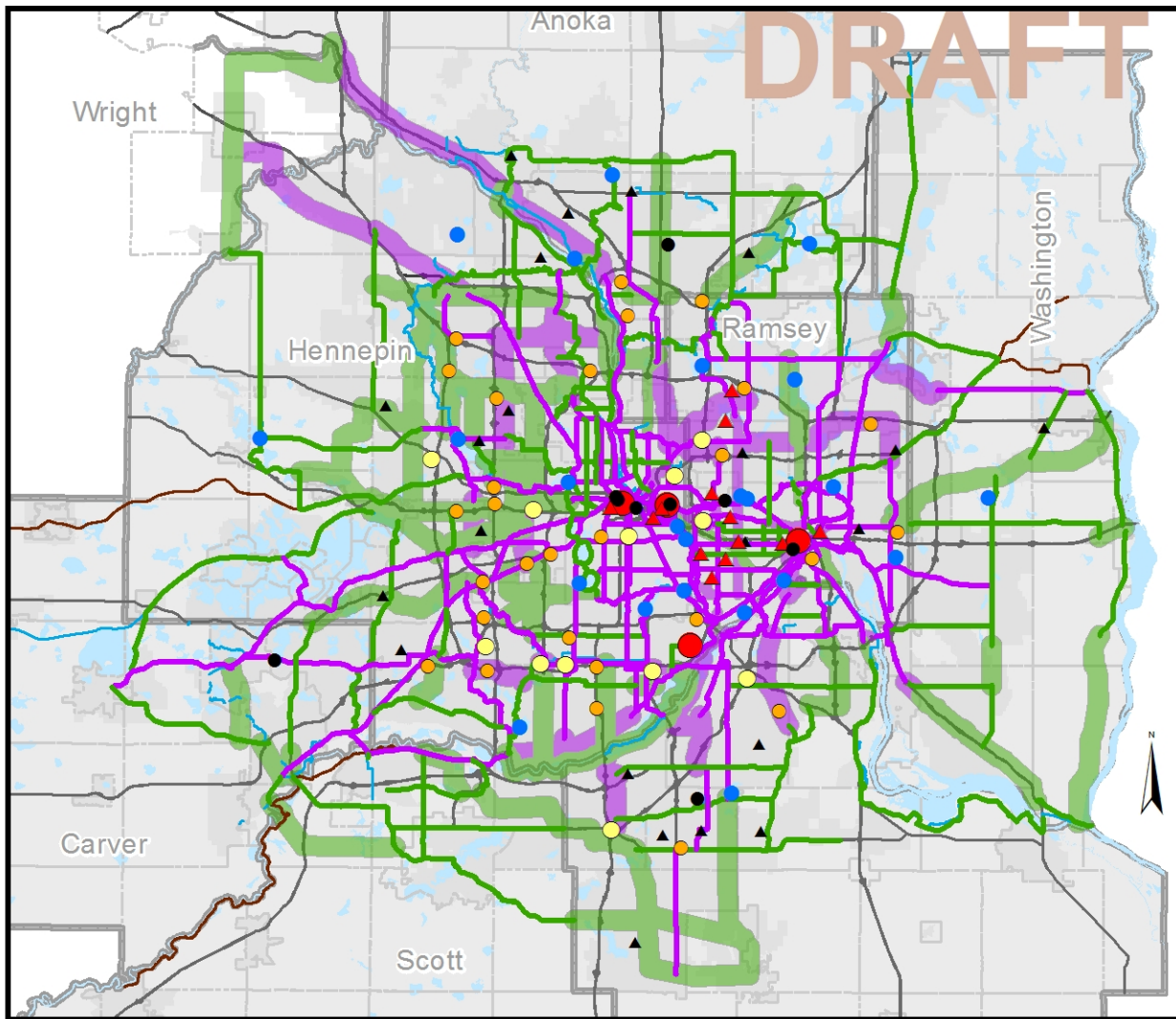
## **Description of Corridors and Alignments**

As shown in Figure X below and as a basic primer to the RBTN concept first introduced in the last Transportation Policy Plan, the RBTN network consists of a series of corridors and general alignments. The corridors are established where there is existing or potentially high bicycle trip demand between regional destinations and activity centers and also connecting to moderate-to-higher density local neighborhoods or commercial areas. Corridors reflect where alignments have not yet been identified; the presence of corridors allow for local planning processes to determine the most appropriate alignment that follows the orientation of the corridor and combines on-street bikeways with off-road trails, where appropriate.

Alignments are defined where there are existing or planned bikeways, or in the absence of these, a general consensus of which road or roadways would most efficiently meet the regional corridor's intent. When alignments are identified within an existing corridor, the original corridor will dissolve and be replaced by the alignment on the RBTN map. Corridors and alignments are classified as Tier 1 or Tier 2 priorities, with Tier 1 representing the region's highest priorities for bikeway planning and investment. Tier 1 corridors and alignments are planned in locations where they can attract the most riders and where they can most effectively enhance mode choice in favor of biking, walking, and transit over driving alone. High rates of bicycle travel demand, as well as current and planned population and employment densities, were heavily weighted in the Regional Bicycle System Study used to develop the RBTN.

Figure X. Regional Bicycle Transportation Network with Cumulative Changes

### Regional Bicycle Transportation Network



Nov 2017

**RBTN Alignments**

- Tier 1
- Tier 2

**RBTN Corridors**

- Tier 1
- Tier 2

**Other Trail Systems**

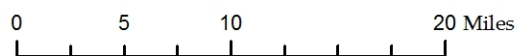
- Regional Trails (Regional Parks Plan)
- State Trails (DNR)

**Regional Destinations**

- Metropolitan Job Centers
- Regional Job Centers
- Subregional Job Centers
- Colleges & Universities
- Large High Schools
- Major Sport & Entertainment Centers
- Highly Visited Regional Parks

**Reference Items**

- Principal Arterial Highways
- Lakes and Rivers
- City Boundary
- County Boundary
- 2040 Urban Service Area
- MPO Area



For more detail, an online interactive map can be viewed here: [\(Insert link to online interactive RBTN map\)](#)

## Regional Bicycle Transportation Network Revisions since the Last Plan

Since the last TPP update, multiple changes have been incorporated into the RBTN. First, there were dedicated alignments within existing corridors which are defined as administrative adjustments in this plan and do not require a plan update or amendment. More substantive changes that are proposed in this update include corridor centerline adjustments, corridor or alignment extensions or deletions, and new corridors or alignments. The proposed adjustments and additions are the result of direct meetings or communications with counties and cities, as well as changes proposed by local agencies and approved by the Transportation Advisory Board for the 2016 regional solicitation of federal transportation funds. Figure X shows the updated RBTN with cumulative revisions since the version published in the TPP adopted in January 2015.

is subdivided into two tiers for regional planning and investment prioritization.

### **Tier 1 and Tier 2 Regional Bicycle Transportation Corridors**

**Tier 1 Priority Regional Bicycle Transportation Corridors** are a subset of the Regional Bicycle Transportation Network and have been identified as the highest priority for regional transportation planning and investment. The full Regional Bicycle Transportation Network with Tier 1 and Tier 2 corridors is shown in Figure 7-1 below with an interactive version available here [\(Insert link to interactive RBTN map as shown in Fig G1\)](#). The priority corridors/alignments are planned in locations where they can attract the most riders and where they can most effectively enhance mode choice in favor of biking, walking, and transit over driving alone. High rates of bicycle travel demand, as well as current and planned population and employment densities, were heavily weighted in the analysis of corridors described earlier. Tier 1 and Tier 2 corridors are further described under Investment Direction [\(insert link to Investment Direction\)](#).

**Tier 2 Regional Bicycle Transportation Corridors** are the remaining corridors in the overall Regional Bicycle Transportation Network (green corridors in Figure 7-1); these corridors are assigned the second tier priority for regional transportation planning and investment.

### **Tier 1 and Tier 2 Regional Bicycle Transportation Alignments**

Similar to the regional bicycle transportation corridors, there are Tier 1 and Tier 2 regional bicycle transportation alignments (shown as bold purple and green lines in Figure 7-1) where specific route alignments have been designated through the Regional Bicycle System Study process that included discussions with local agency staff. The designated Regional Bicycle Transportation Network alignments are based on local bicycle plans and in many cases (particularly in the core cities) already exist in some form and may need little or no improvement for the regional network. Other designated alignments have not been developed and are based on planned on-street and off-road route alignments or other

factors as discussed with local agency staff. Those regional trails that provide direct transportation connections to and between regional destinations (as identified in the Regional Bicycle System Study) were included as Tier 1 alignments (purple lines in Figure 7-1).

The *Regional Bicycle System Study* was completed in 2014 to develop a more complete understanding of how the region's on-street bikeways and off-street trails connect and how they work together to serve regional transportation trips by bicycle. The main outcomes of the study were to develop a Regional Bicycle Transportation Network [*insert link to definition*] that includes a subset of Priority Regional Bicycle Transportation Corridors [*insert link to definition*] and a definition for critical bicycle transportation links [*insert link to definition*]. Details of the study process, methodology, and analysis results can be found on [metro council.org](http://metro council.org) [*insert link to Regional Bicycle System Study Final Report*].

Although many of these trails were located to optimize their scenic or recreational value rather than to serve transportation as their primary function, some trail user studies have indicated a shift toward greater use by commuters in recent years, particularly in the urban and suburban developed areas of the region.

One task of the Regional Bicycle System Study was to identify which regional trails within the urban and suburban areas of the region are functioning primarily for bicycle transportation and should therefore be included on the Regional Bicycle Transportation Network. As a result, many regional trails were identified as important components of this regional network.

**Geographic information systems (GIS) analysis.** The methodology and approach for scoring and prioritizing the Regional Bicycle Transportation Network was a direct reflection of the guiding principles described earlier [*insert link to Guiding Principles discussion*]. A geographic information systems (GIS) analysis was used to evaluate each potential corridor based on measures of seven key analysis factors:

- **Emphasis on Regional Destinations.** A key function of a regional network is connecting regional destinations to population centers. For purposes of bike study corridor identification and evaluation, regional destinations were defined as:

*“Regional activity nodes or corridors where people work, shop, recreate, or are entertained. These may be further defined by one or more activity thresholds. Regional Destinations will typically be centers where multiple transportation modal options, such as high-level transit service, are provided.”*

- **Regional Job Concentrations.** Regional employment data were used to identify job concentrations across the region. These concentrations constitute many of the primary destination clusters that are important to serve via the Regional Bicycle Transportation Network. The threshold for any area to be recognized as a regional or sub-regional concentration was at least 7,000 jobs with a minimum density of 10 jobs per acre. The

analysis included metropolitan, regional, and sub-regional concentrations with varying job densities.

- **Other Regional Destinations.** Because the list of regional employment and activity centers was not all-inclusive, other destinations were added including sports venues, entertainment centers, highly-visited regional parks, colleges and universities, and large high schools. These were based on various other data sources and direct feedback received from a Project Advisory Committee and at the public workshops and focus group sessions held during the Regional Bicycle System Study. Data generated from an on-line bicycle destinations recording tool resulting from more than 200 user hits recorded during the regional bike study process, were also used to determine the list of regional destinations.
- **Bicycle Travel Demand.** The user route requests and cyclist origin and destination data collected via Cyclopath provided a great resource for estimating bicycle demand across the seven-county region.
- **Connecting with Transit.** The most meaningful connections between bicycle infrastructure and the regional transit system occur at stations on regional transitways, at major transit centers and at high-user park-and-rides. These locations offer the highest frequency of transit service and the greatest potential for the transfer and storage of bicycles.
- **Future Population.** Projected population densities across the region were used to ensure that the Regional Bicycle Transportation Network will serve long range transportation needs that closely match future population growth and distribution across the region.
- **Regional System Equity.** The relationship of the Regional Bicycle Transportation Network corridors to identified Areas of Concentrated Poverty (where at least 50% of the residents are people of color) was analyzed to ensure that the proposed identified bicycle network provided a level of equitable service to communities that may have diminished economic opportunity. Bicycling offers a flexible and cost-effective means of travel to residents of these areas unable to afford a car.

## **Regional Bicycle Transportation Network**

### **Regional Bicycle Transportation Network Vision**

The goal of the Regional Bicycle Transportation Network is to establish an integrated seamless network of on-street bikeways and off-road trails to most effectively improve conditions for bicycle transportation at the regional level and to encourage planning and implementation of future bikeways by cities, counties, parks agencies, and the state, in support of the network vision (see Figure 7-1). The network is subdivided into two tiers for regional planning and investment prioritization.

#### **Tier 1 and Tier 2 Regional Bicycle Transportation Corridors**

**Tier 1 Priority Regional Bicycle Transportation Corridors** are a subset of the Regional Bicycle Transportation Network and have been identified as the highest priority for regional



transportation planning and investment. The full Regional Bicycle Transportation Network with Tier 1 and Tier 2 corridors is shown in Figure 7-1 below with an interactive version available here (Insert link to interactive RBTN map as shown in Fig G1). The priority corridors/alignments are planned in locations where they can attract the most riders and where they can most effectively enhance mode choice in favor of biking, walking, and transit over driving alone. High rates of bicycle travel demand, as well as current and planned population and employment densities, were heavily weighted in the analysis of corridors described earlier. Tier 1 and Tier 2 corridors are further described under Investment Direction (insert link to Investment Direction).

**Tier 2 Regional Bicycle Transportation Corridors** are the remaining corridors in the overall Regional Bicycle Transportation Network (green corridors in Figure 7-1); these corridors are assigned the second tier priority for regional transportation planning and investment.

### **Tier 1 and Tier 2 Regional Bicycle Transportation Alignments**

Similar to the regional bicycle transportation corridors, there are Tier 1 and Tier 2 regional bicycle transportation alignments (shown as bold purple and green lines in Figure 7-1) where specific route alignments have been designated through the Regional Bicycle System Study process that included discussions with local agency staff. The designated Regional Bicycle Transportation Network alignments are based on local bicycle plans and in many cases (particularly in the core cities) already exist in some form and may need little or no improvement for the regional network. Other designated alignments have not been developed and are based on planned on-street and off-road route alignments or other factors as discussed with local agency staff. Those regional trails that provide direct transportation connections to and between regional destinations (as identified in the Regional Bicycle System Study) were included as Tier 1 alignments (purple lines in Figure 7-1).

**Figure 7-1: Regional Bicycle Transportation Network Vision**

## **Relationship Regional Bicycle Transportation Network to the and Regional Trails System**

Many regional trails were have been identified as important components-alignments within of the Regional Bicycle Transportation Network RBTN. Existing and planned regional trails, as well as general regional trail search corridors, are identified in the Regional Parks Policy Plan [*insert link to Regional Parks Policy Plan*] and are designed as multi-use facilities to serve both recreation and transportation trips. Regional trail corridors are designated by the Council in its 2040 Regional Parks Policy Plan. The specific Regional trail alignments of a regional trail is determined are identified by the the regional park implementing agency-agencies during through the development of a trail-specific master plans; which these master plans must be consistent with the regional Regional parks Parks plan-Plan in order to be approved by the Council. parks plan requires that regional Regional trails are required to provide connections between components of the Regional Parks System and notes that they are primarily multi-use recreation al trails, although many trails also serve and support bicycle transportation functions.

Regional trails were an important input in the original RBTN and while there is significant overlap between the two networks, there are also some distinct differences. For example, the RBTN is planned to facilitate bicycling for transportation, including commute trips to work and school, shopping trips, entertainment and social trips, while regional trails are planned and designed primarily for recreation. Consistent with the RBTN’s focus on transportation is its emphasis on connecting regional destinations by integrating on-street bikeways and off-road trails to create the most direct route that values trip efficiency over route aesthetics. For regional trails the planning philosophy is more about connecting regional parks and trails mainly through the development of off-road facilities that are planned to maximize scenic value rather than route efficiency.

Recreational bicycling, although not the focus of ~~this~~ the Transportation Policy Plan, is significant to the region in that it represents an important entry point for many cyclists to become familiar with the regional transportation and trail systems. Ultimately, many recreational cyclists will become users of the se systems s for commuting and other transportation purposes.

~~The role of regional trails in connecting to and between regional destinations, as identified in the Regional Bicycle System Study, was assessed and as a result, many regional trails were identified as important components of the Regional Bicycle Transportation Network. (See also "Development of a Regional Bicycle Transportation Network" for a more detailed discussion of study methodology. insert link to "Development of a Regional Bicycle Transportation Network" above). It should be noted that there are regional Regional trails outside of those that were are not included in the Regional Bicycle Transportation Network RBTN which may serve some provide a transportation function at a more local level, just as there are many trails and on-street bikeways identified on the Regional Bicycle Transportation Network within the RBTN that will also serve recreational al needs in the urban and suburban parts areas of the region.~~

~~While the primary purpose of the regional trail system is to serve recreational needs, a subset of the trail segments also serve as high-use transportation corridors due to their straight and direct alignments, inherited from original alignments of railroad corridors. One of the benefits of a recently completed Regional Bicycle System Study was the determination of regional trail corridor segments that were deemed essential to the bicycle transportation network. Trails such as the Midtown Greenway, Cedar Lake, Sam Morgan, and Bruce Vento regional trails can be characterized as high demand bicycle transportation corridors.~~

In practice, the ~~Regional Bicycle Transportation Network~~ RBTN, the regional trails system, and all local trail and bikeway networks ~~will~~ should complement ~~one another~~ each other to serve the overall bicycle transportation and recreation needs of the region.

~~The proposed bicycle network corridors shown in Figure 7-2 are intended to serve as the "backbone" arterial system for biking in the region. Existing and planned regional trails are highlighted to depict their relationship to the Regional Bicycle Transportation Network~~

corridors and to highlight the overlap between bicycle recreation and bicycle transportation networks.

Figure 7-2: Regional Bicycle Transportation Network and Regional Trail System

## Defining Critical Bicycle Transportation Links

There are several physical barriers to bicycle transportation types of barriers that can disrupt the connectivity of the Regional Bicycle Transportation Network regional and local bikeway networks and act as major obstacles for residents trying to access isolate communities from key destinations. The links overcoming these barriers are defined as critical bicycle transportation links.

**Critical Bicycle Transportation Links.** These perform one or more of the following

Critical bicycle transportation links serve to:

- ~~Serve to close~~ Close a gap in the Regional Bicycle Transportation Network or connect a local bikeway to a major regional destination.
- Improve continuity and connections between jurisdictions (on or off the regional network), OR
- Improve or remove a physical barrier (on or off the regional network)

## Closing a Gap in the Regional Bicycle Transportation Network

Gaps in the ~~Regional Bicycle Transportation Network~~ RBTN can be addressed by:

- Providing a missing link between existing or improved segments of the Regional Bicycle Transportation Network.
- Improving bikeability within an ~~Regional Bicycle Transportation Network~~ RBTN corridor to better serve all bicycling skill and experience levels within the corridor (for example, providing a safer, more protected on-street facility; improving traffic signals, signage, and pavement markings at busy intersections; or adding a bike route parallel to a highway or arterial roadway along a lower-volume neighborhood collector or local street).
- Providing a short (up to one mile) but critical link connecting a local bikeway to the Regional Bicycle Transportation Network, a major regional destination, a major transit-oriented development, or to a high-volume, multimodal transit station.

## Improving Continuity and Connections between Jurisdictions

There are many cases around the region where an existing bikeway may stop at one city's border and not carry through to an adjacent city or county. Creating more consistent,

continuous and connected bikeways will improve access ~~to~~ between local and regional bicycle systems networks, and as well as the convenience and overall experience of bicycling. ~~bikeability and convenience of, local and regional bicycle systems.~~

### **Removing or Circumventing a Physical Barrier**

Physical barriers to biking can be natural or man-made and include major rail corridors, rivers and streams, freeways or ~~multi-lane arterial roadways~~ expressways. In 2017, the Council conducted a *Regional Bicycle Barriers Study* to begin addressing the need for bikeway improvements across the region's physical barriers. This study is described in more detail below. Projects that remove or provide more bikeable options around or across physical barriers (for example, providing grade-separated crossings where appropriate) can arise in a number of ways. Planning work may underscore the need for a local bikeway to improve options through a major barrier.

Additionally, major roadway infrastructure projects can provide opportunities to create bicycle connections across one or several barriers, particularly in instances where there is not a usable parallel alternative within a reasonable biking distance. For roadway bridges crossing the region's major rivers, see the major river barrier crossings assessment below.

By their nature, projects to remove physical barriers can prove particularly costly and the potential to enhance such connections may be opportunity driven with respect to major highway, bridge, and transitway projects. Given the significant expense of building connections like bridges or underpasses and their anticipated long life, it is important to consider the inclusion of bicycle infrastructure in all projects that improve options to cross or get around these physical barriers, even if the full potential of the bicycle connection is not evident at the time of construction.

## **Addressing the Region's Physical Bicycle Barriers**

In beginning to address the region's physical bicycle barriers, particularly as they relate to the definition of critical bicycle transportation links, Council staff performed a general review of the region's major river crossings and conducted a *Regional Bicycle Barriers Study* to address the other regional physical barriers to bicycling. The region's primary rivers (Mississippi, Minnesota and Saint Croix Rivers) were not analyzed in the *Regional Bicycle Barriers Study* because of the large differences in approach and scale that would be required for these major rivers compared to the other smaller and less challenging barriers that were evaluated through the study. Also, there are many different and non-bicycle related factors that are the primary drivers for developing new bridge crossing projects. That said, this plan recognizes the major rivers as the longest and most challenging physical barriers to bicycling in the region.

### **Major River Barrier Crossings Assessment**

The Council conducted a high-level assessment of the existing roadway bridges and existing or planned stand-alone bikeway bridges crossing the region's primary rivers. The Twin Cities has

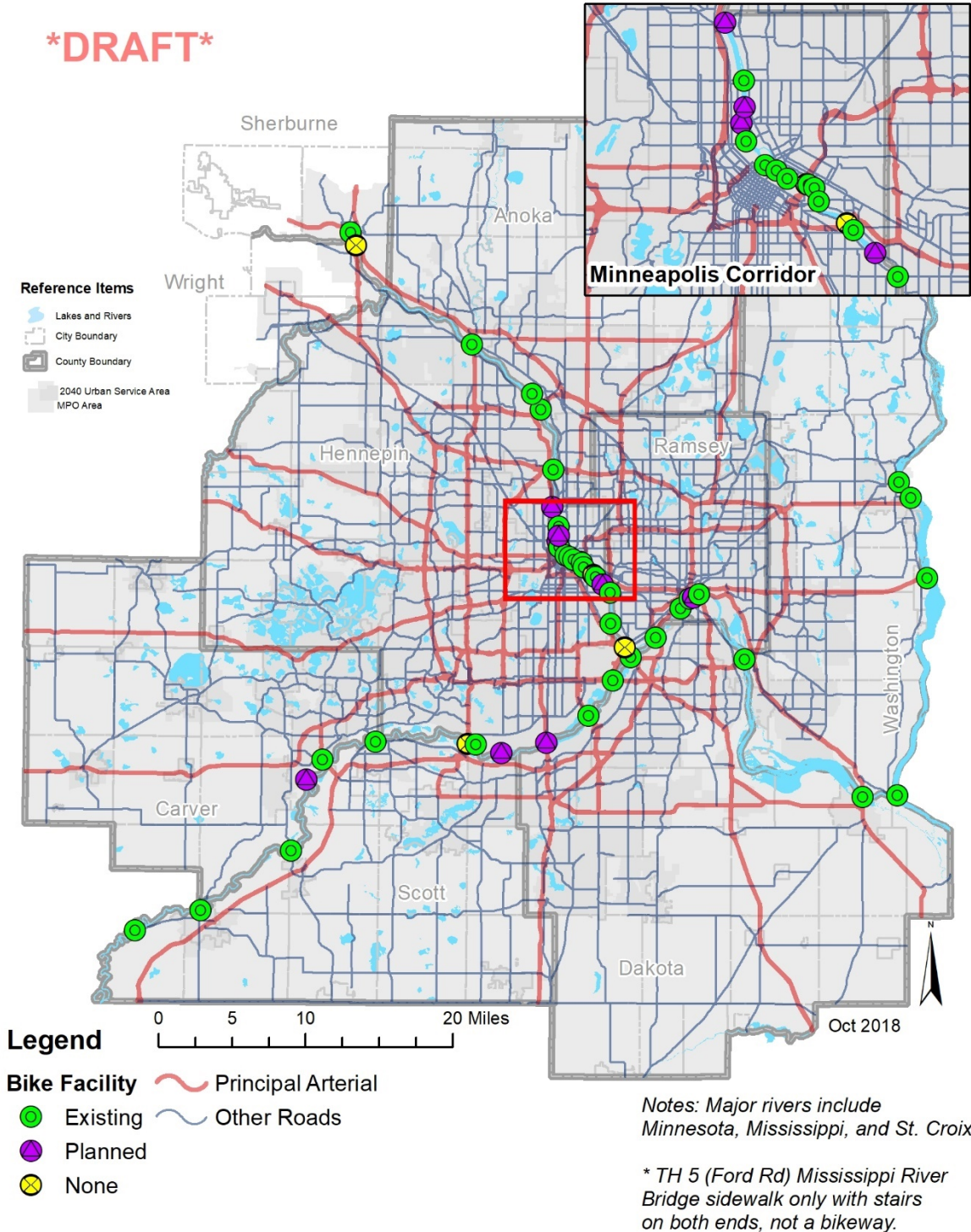
three primary rivers that run throughout the region that represent major barriers to all transportation modes. These include the Mississippi, Minnesota, and Saint Croix Rivers which serve as the boundary lines between cities, counties, and in the case of the Saint Croix, the Wisconsin/Minnesota state line. There are currently 38 roadway bridges and five independent stand-alone bicycle/pedestrian bridges that cross these major river barriers. As shown in Table X, of the 38 roadway bridges, 29 have existing bikeways, four have planned bikeways, and five have none existing or planned bicycle facilities.

**Table X. Major River Crossings by Bridge Type**

<u>Bridge Type</u>	<u>Existing Bikeway</u>	<u>Planned Bikeway</u>	<u>None existing or planned</u>	<u>Total</u>
<u>Road bridges</u>	<u>29</u>	<u>4</u>	<u>5</u>	<u>38</u>
<u>Rail bridges</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>
<u>Stand alone bike-pedestrian bridges</u>	<u>5</u>	<u>1</u>	<u>0</u>	<u>6</u>
<u>Total</u>	<u>34</u>	<u>8</u>	<u>5</u>	<u>47</u>

In addition to five existing stand-alone bicycle bridges, there are 4 stand-alone or rail bridge-adjacent bicycle crossings planned in Minneapolis, Stillwater and the Town of Carver. Figure X shows the locations of all major river roadway crossings, and all existing and planned independent bikeway crossings of the major rivers.

**Figure X. Major River Bicycle Barrier Crossings**



Because of high construction costs, long implementation timeframes, typically long distances between bridge crossings, and a much shorter range of bicycle trips compared to vehicle trips (average of under 3 miles, regionally) all of these crossings are designated as major river barrier crossings. Guidelines for applying this new designation of major river bicycle barrier crossings are further discussed in the “Investment Direction” section provided later in this chapter.

## **Regional Bicycle Barriers Study**

In 2017, the Council conducted a Regional Bicycle Barriers Study to begin addressing the need for bikeway improvements across the region’s physical barriers. The study defined physical barriers to include secondary rivers and streams, rail line corridors, and freeways and expressways. Freeways are highways with full access control meaning motorists do not encounter any cross-road intersections.- Expressways, for this study, were defined to include the region’s non-freeway principal arterials that comprise of at least four lanes and are divided by a median. These highways differ from freeways in that they do have cross-road intersections with traffic signals and some partial stop sign-controlled intersections with right turn in and out only access.

The purpose of the study was to identify the region’s major physical barriers to bicycle transportation and to analyze and prioritize points along these barriers having the greatest potential need for new or improved bicycle crossings. A series of potential barrier crossing points were identified and analyzed; the actual points were determined with assistance from a technical advisory work group of bike transportation professionals and advocates, from input received from two live focus group sessions with area cyclists representing a variety of backgrounds, and from results of an interactive, on-line map questionnaire. The study included bicycle barrier crossing locations already identified in local plans, points within or on RBTN corridors or alignments, plus additional points based on the spacing criteria shown in Table X. Points on local networks and regional facilities were considered equally in the analysis. Preferred spacing distances between bikeable crossings were determined by the study’s technical work group and ranged from ½-mile between crossings in urban centers to two miles between crossings in the region’s rural areas.

**Table X. Bicycle Barrier Crossing Spacing Criteria**

<b><u>Thrive Planning Area</u></b>	<b><u>Preferred Maximum Spacing</u></b>	<b><u>Example Cities</u></b>
<u>Urban Center</u>	<u>½-mile</u>	<u>Minneapolis, St Paul, Richfield, Hopkins, South St Paul</u>
<u>Urban</u>	<u>¾-mile</u>	<u>Golden Valley, Roseville, Maplewood, Crystal, Edina</u>
<u>Suburban, Suburban Edge, Emerging Suburban Edge</u>	<u>1 mile</u>	<u>Blaine, Woodbury, Maple Grove, Eagan, Lakeville</u>

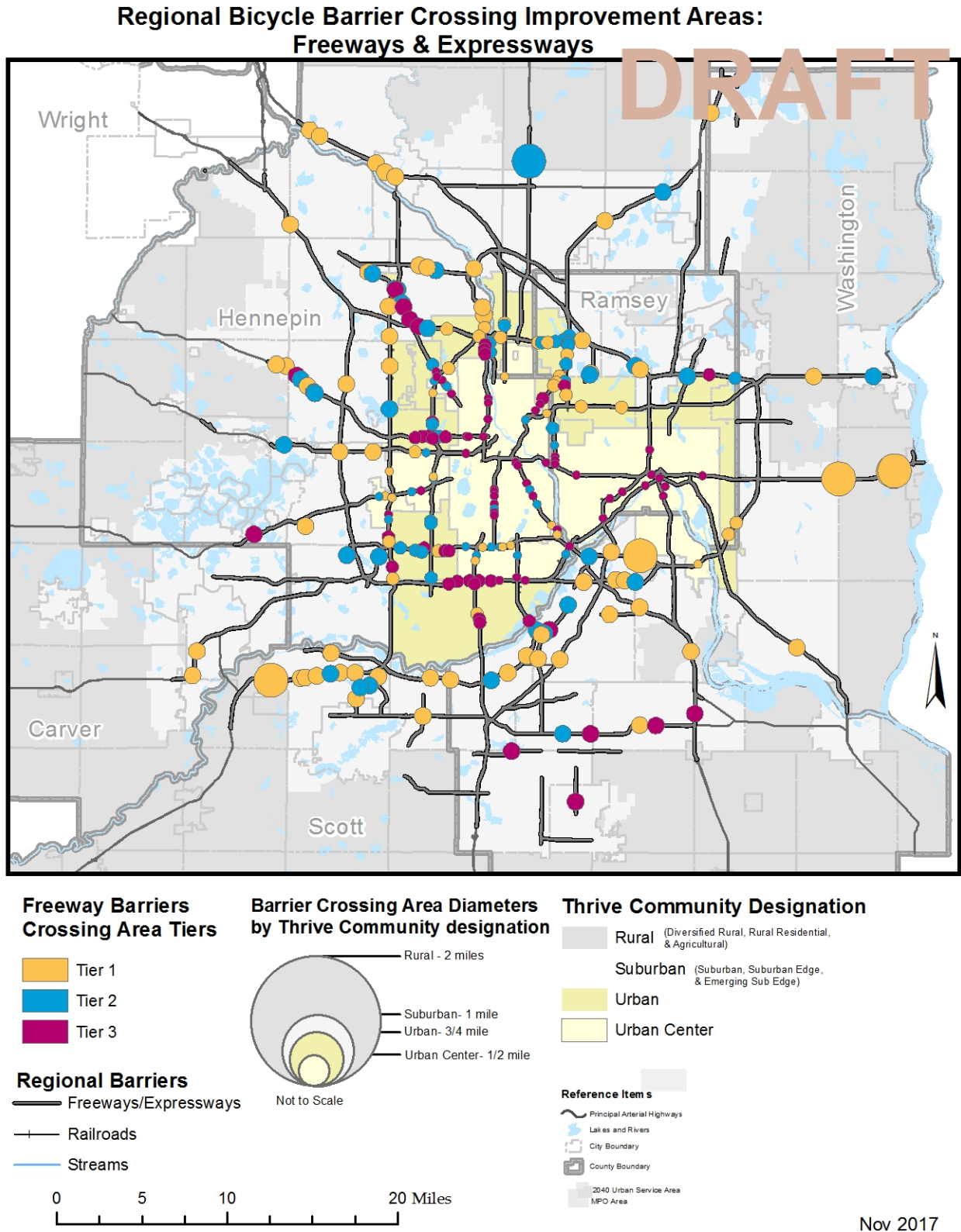
<u>Diversified Rural, Rural Residential, Agricultural</u>	<u>2 miles</u>	<u>Grant, Afton, Ham Lake, Lake Elmo, Independence</u>
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Analysis factors included safety and existing conditions, bicycle trip demand, bike network connectivity, and social equity. -More information on the detailed analysis process for the study can be found here: (insert live link to Reg. Bike Barriers Study tech memos and final report prior to release for public comment)

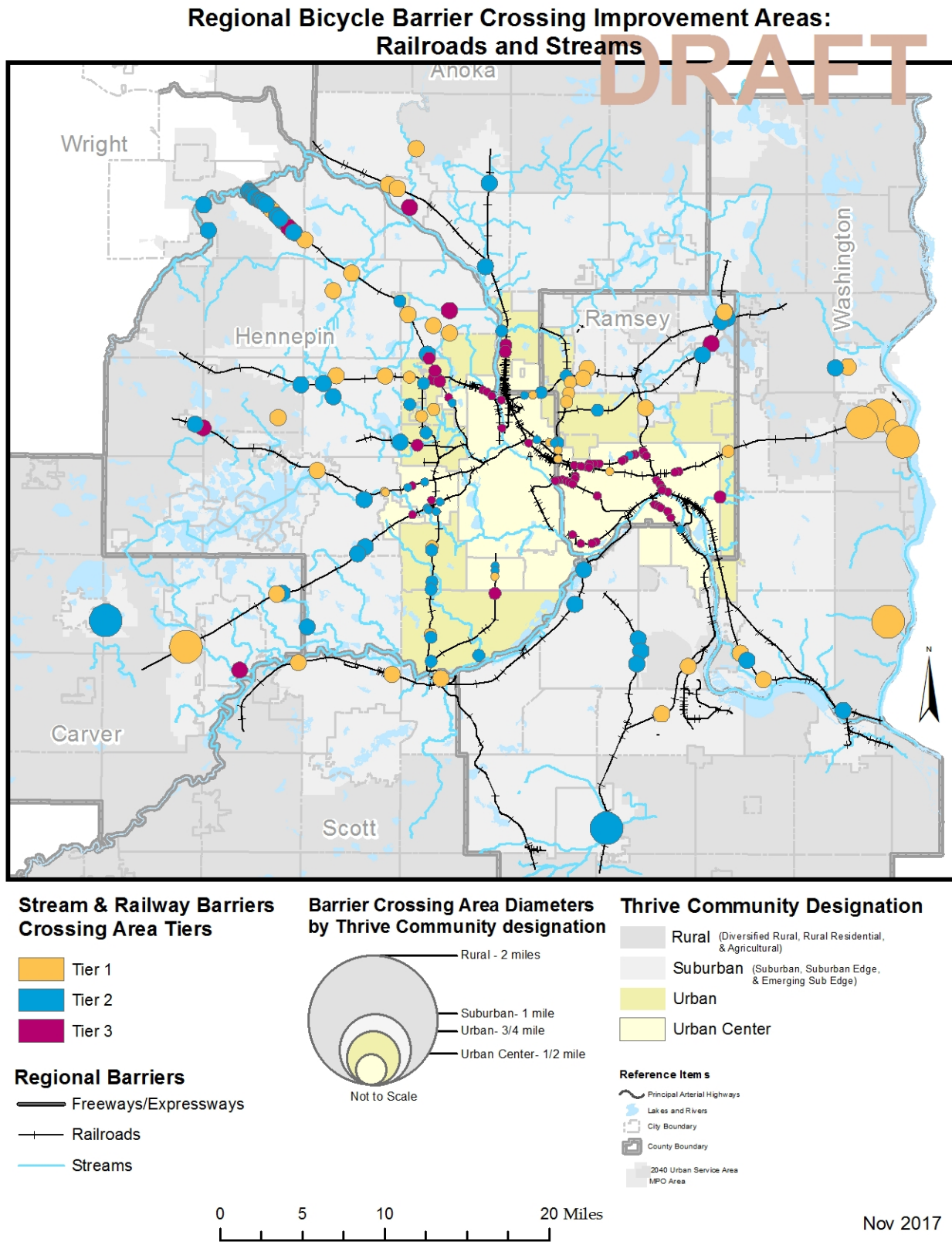
Ultimately, the study determined a series of bicycle barrier crossing improvement areas along identified regional bicycle barriers; these areas are displayed as circles and grouped into three priority tiers in Figures xx and xx below for freeways/expressways and railroads/streams, respectively. The area circle diameters vary by aggregated Thrive planning area and correspond to the preferred barrier crossing spacing distances described previously in Table X.



**Figure xx: Regional Barrier Crossing Improvement Areas: Freeways and Expressways**



**Figure xx: Regional Barrier Crossing Improvement Areas: Streams and Railroads**



In the region’s suburban and rural areas there are fewer opportunities to incorporate improved bikeway crossings in roadway projects compared to more urban areas, and less certainty about where new or improved barrier crossings should be ideally located.- To help mitigate this reality, the mapping scheme in Figures X and XX affords cities and counties more flexibility in siting specific barrier crossing projects by applying larger circles. In more densely developed urban areas where there is an abundance of planned barrier crossings and a dense road grid with many opportunities to develop barrier crossing projects, the mapping scheme applies smaller improvement area circles. Guidelines for applying the tiered barrier crossing improvement areas shown in these maps are further discussed in the “Investment Direction” section provided later in this chapter.

## Implementing the Regional Bicycle Transportation Network

### Local Planning for ~~the~~ Regional Bicycle Transportation Network Corridors and Alignments

The broad ~~regional priority~~ RBTN corridors shown in Figure 7-1 (one-mile wide in suburban/rural areas, one half-mile wide in the core cities) are intended to allow flexibility among local government agencies to tailor specific alignments for bikeway facilities through the local planning process. When specific alignments are designated through the local planning process, the regional corridor will be replaced on the ~~Regional Bicycle Transportation Network~~ RBTN map with the preferred alignment. These ~~revisions~~ new alignment designations to the ~~Regional Bicycle Transportation Network map will be~~ are ~~periodically added to the RBTN map~~ as an administrative task and will not require a TPP amendment.

In planning for specific ~~Regional Bicycle Transportation Network~~ RBTN alignments and developing bikeway improvement projects, agencies should consider all the guiding principles for regional bicycle corridors described previously but with special attention to the following subset of principles that are most effectively planned at the local level:

- **Overcome physical barriers and eliminate critical system gaps.** More attention and planning will be needed at the local level to identify existing gaps in the Regional Bicycle Transportation Network and opportunities to eliminate or divert from physical barriers. The Metropolitan Council will assist locals in planning for this critical element in developing the ~~Regional Bicycle Transportation Network~~ RBTN.
- **Facilitate safe and continuous trips to regional destinations.** Planning for the development of bicycle facilities along the ~~Regional Bicycle Transportation Network~~ RBTN, as well as for connections between the ~~Regional Bicycle Transportation Network~~ RBTN and local bikeway systems, should be coordinated with Metropolitan Council staff.
- **Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.** Local roadway conditions and geometry, along with the available off-

road trails network will largely determine what alignments and facility treatments may be feasible within an established regional bicycle corridor. Local agencies should try to accommodate cyclists of all ages and for the full range in abilities from novice to avid cyclist by providing a range of off-street and on-street bicycle facilities. In some urban, high demand corridors, it may be desirable to provide both an on-street bike facility (like a bike lane) and a parallel off-road trail. In most corridors with space for only an on-road facility, a buffered or protected bike lane may be the optimal solution to attract the widest range of cyclists.

- **Integrate and/or supplement existing and planned infrastructure.** Wherever possible, it is desirable to construct bicycle facilities along existing roadways or implement trails on corridors with minimal requirements for new land acquisition. This is important to ensure that scarce dollars for bicycle infrastructure can be efficiently invested to complete the regional network in a shorter timeframe.
- **Consider opportunities to enhance economic development.** When planning specific alignments within the regional bicycle corridors, local bicycle planners should work closely with their economic development and land use planners to identify opportunities for the bikeway project to enhance and/or serve as a catalyst to community development programs and projects. Connecting residential neighborhoods with shopping, entertainment, and work centers should be a major consideration when developing bicycle facility improvement projects.

## Placement of Regional Bicycle Transportation Network Alignments on Roadways

When identifying roadways and highway corridors appropriate for implementing specific alignments for regional bikeways, it is imperative that transportation agencies coordinate and collaborate in their planning activities. This will help to ensure that trade-offs between opportunities for implementing a bikeway and the physical constraints of the roadway corridor are fully considered. To that purpose, for major corridor studies and projects, meetings and other opportunities for engaging the public will be critical to inform the project development process.

The provision of safe and comfortable bicycle facilities in the roadway corridor should be the goal in order to achieve continuity for regional bicycle corridors and to facilitate direct access to corridor destinations. Planning for cyclist bikeability and convenience over a range of experience levels and abilities is an important focus for any major roadway project. Other competing priorities, including safety for all users and mobility for all transportation modes, will also need to be considered. This balancing of priorities is especially needed on highways, including A-minor arterials without sufficient right of way to provide an off-road facility ~~[insert link to “Strategy C2”]~~.

Some highways serve as the only practical and effective crossing over a major barrier (such as, rivers, freeways, multi-lane highways, and railroad corridors). In these cases, safe bicycle and

pedestrian accommodations should be provided on the highway segment that crosses over (or under) the barrier. On some highways with high traffic volumes, an intensive mix of trucks and buses, and limited right-of-way to provide designated on-street ~~bicycle~~-bike facilities, it may be appropriate to route the ~~bicycle~~ facility away from the highway when a nearby, parallel local street is available. This condition occurs more frequently on A-minor arterials in highly-developed, urban corridors than on A-minors in less developed, suburban or rural corridors; however, this will not always be the case and each corridor should be planned to address its unique issues and needs from both a local and regional perspective. As an alternative to locating regional bikeways along major highways, regional transportation partners could work together to plan and build new, continuous bicycle facilities that cross barriers via the local street system; with their lower traffic volumes and slower speeds, local streets can be improved to accommodate a broader range of cyclist abilities.

## ~~Bicycle~~ Facility Types that Meet Regional Bicycle Corridor Functionality

There is a range of bicycle facility treatments, both off road and on street, which may be applied in different parts of the region to accomplish the function of regional bicycle corridors and to maximize their attractiveness to potential bicyclists. Local planners will need to consider their community's local corridor context (for example, urban, suburban, rural) to determine the feasibility of an off-road trail facility, or to identify which on street bikeway type would be most appropriate for the specific corridor at hand. For the bicycle facility types described below, the following resources may be useful for more information about practical applications and design guidelines:

- Minnesota's Best Practices for Pedestrian/Bicycle Safety, MnDOT
- NACTO Urban Bikeway Design Guide, Second Edition, National Association of City Transportation Officials
- Bikeway Facility Design Manual, MnDOT
- Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO)
- Small Town and Rural Multimodal Networks, Federal Highway Administration (FHWA)
- Pursuing Equity in Pedestrian and Bicycle Planning, FHWA
- Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrians with Vision Disabilities, FHWA

In addition to off-road trails, the following list of on-street bicycle facility types provides a few suggested examples for implementing the Regional Bicycle Transportation Network and are listed in ~~ascending~~-descending order of complexity:

- **Protected bikeways** ~~or (previously known as "cycle tracks" cycle tracks)~~: Protected bikeways ~~or cycle tracks~~ are on-road or off-road facilities that are physically separated from lanes of moving traffic. ~~Cycle tracks~~They can be designed as on- or off-road facilities and are often times separated from general traffic lanes with a vertical element such as a bollard or an elevated curb. There are one-way and two-way cycle track

designs and in areas where on-street parking is allowed, they can be placed between the parking lane and sidewalk. ~~Cycle tracks~~ Protected bikeways have been developed mostly in densely developed urban locations like commercial downtown districts in large cities.

- **Buffered bicycle lanes:** Buffered bike lanes are conventional lanes that are combined with a buffer space designated with pavement markings that separate vehicle traffic from bike lane traffic. This treatment type may be appropriate for urban and suburban areas on streets with high traffic volumes, high speeds, and or high volumes of trucks or buses. Buffered bike lanes may also be appropriate along medium-to-high volume roads with lower speeds to help meet the needs of younger or less-experienced cyclists.
- **Conventional bicycle lanes:** Bike lanes can facilitate a safer and more comfortable trip for cyclists by providing a dedicated space for on-street bicycle travel. These facilities are most often placed on the right-hand sides of the street (so they flow with traffic) between the general traffic lane and the curb or parking lane and are designated through pavement striping and markings and/or signage. These facilities are one of the more common treatment types in urban areas and are also suitable in suburban areas along medium or high-volume streets.
- **Bicycle Boulevards:** In urban and some suburban areas, bicycle boulevards may be an appropriate treatment to improve a designated regional bicycle corridor. Bike boulevards are low volume, lower speed roads that are designed to give cyclists priority over motorized vehicles. These facilities typically apply relatively low-cost treatments, such as signs and pavement markings, along with traffic speed and/or traffic volume management devices such as speed “bumps” or traffic “islands” at intersections. Bicycle boulevards can be especially effective in providing a more bicycle-friendly alternative to a parallel running, high volume, arterial street or highway.
- **Wide paved shoulders:** On some roadways, especially in the rural areas of the region, this may be the most feasible treatment. To make these facilities more prominent to cyclists and motorists, “Bike Route” or “Share the Road” signs and/or pavement markings may be added appropriately along the route.

## **Future Spacing of new RBTN Corridor/Alignment Additions**

In addition to reviewing any proposed new RBTN corridors and alignments for consistency and compatibility with the guiding principles, the Council will apply the spacing criteria identified as the maximum preferred distance between regional bicycle barrier crossings as the *minimum distance between RBTN corridor centerlines and/or alignments*. These criteria will be applied based on the Thrive Community Designation groupings as follows:

**Table X. Preferred Minimum Spacing for Regional Bicycle Transportation Network Facility Additions**

<u>Thrive Planning Areas</u>	<u>Preferred Minimum Spacing</u> (between RBTN facilities)	<u>Example Cities</u>
<u>Urban Center</u>	<u>½-Mile</u>	<u>Minneapolis, St Paul, Richfield, Hopkins, W St Paul</u>
<u>Urban</u>	<u>¾-Mile</u>	<u>Golden Valley, Roseville, Maplewood, Crystal, Edina</u>
<u>Suburban, Suburban Edge, Emerging Suburban Edge</u>	<u>1 Mile</u>	<u>Blaine, Woodbury, Maple Grove, Eagan, Lakeville</u>
<u>Rural Residential, Diversified Rural, Agriculture</u>	<u>2 Miles</u>	<u>Grant, Afton, Ham Lake, Lake Elmo, Independence</u>

## Investment Direction

### Potential Funding Sources

#### Federal Funding Sources

The 2012 federal transportation act Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) established a new program, Transportation Alternatives Program (TAP), to provide for a variety of non-motorized transportation projects that were previously eligible activities under separately funded programs including Transportation Enhancements, Safe Routes to School, and the Recreational Trails program.

Under MAP-21, approximately \$7 million will be available to the region annually through the TAP. With the 2015 federal transportation legislation Fixing America’s Surface Transportation (FAST) Act, two of the federal transportation funding programs available to the region changed. The Surface Transportation Program is now the Surface Transportation Block Grant Program (STBGP). The previous Transportation Alternatives Program, which was a core source of funding for bicycle and pedestrian facilities in the region, is now the Surface Transportation Block Grant Set-aside Program. Bicycle and pedestrian facilities ~~are~~ remain also eligible for funding under the federal Surface Transportation Block Grant Program (STBGP) and the region has a history of funding larger bicycle facility projects using ~~STP~~ STBG funds. Congestion Mitigation Air Quality (CMAQ) funds are also eligible for bicycle and pedestrian projects that can demonstrate an air quality benefit, though the region has not traditionally used CMAQ funds for these purposes.

In the Twin Cities region, the Transportation Advisory Board (TAB) is responsible for allocating the federal ~~TAP, STP and CMAQ~~ transportation funds available to the region through a biennial Regional Solicitation. As described in the Transportation Finance section [[insert link](#)], the solicitation was evaluated and revised to ensure it is consistent with the outcomes and principles of *Thrive MSP 2040*, the Transportation Policy Plan, and the requirements of ~~MAP-21~~ the FAST Act. The ~~revised~~ solicitation process ~~will~~ allocates federal funds through three modal categories: roadways (including multimodal elements), transit and travel demand management projects, and bicycle and pedestrian ~~projects~~ facilities. Within the bicycle and pedestrian facilities category, there are three main project types: multiuse trails and bicycle facilities; pedestrian facilities; and Safe Routes to School infrastructure projects. Each solicitation will determine the amount of federal funds spent within each modal category; however, it is assumed that at a minimum the full amount of available ~~TAP-STBG Set-aside Program~~ Program funds will be allocated to bicycle and pedestrian ~~projects~~ facilities.

### State and Local Funding Sources

MnDOT uses state highway funds to improve the trunk highway system with accommodations for bicyclists and pedestrians. These investments are often made as part of larger highway pavement and bridge projects and may include trails and sidewalks parallel to the roadway or as part of a reconstructed bridge structure, as well as bike lanes in some urban corridors or wide paved shoulders in rural areas. See the Highways Investment Plan section for more on anticipated future highway funding levels for bicycle and pedestrian improvements on the trunk highway system [[insert Link to discussion of bike/ped facilities in “Highway Investment Direction and Plan”](#)].

Regional trails identified by the Council in its Regional Parks Policy Plan are eligible for funding through the Council’s regional parks capital improvement program (CIP). The Parks CIP is funded with state bonds, Metropolitan Council bonds and Parks and Trails Legacy Fund appropriations. The state’s Parks and Trails Legacy Fund represents a dedicated funding source for outdoor recreation, to be used for parks and trails of state or regional significance. Regionally significant trails in the metro area are those defined in the Regional Parks Policy Plan. The Metropolitan Council disburses state funds to partially finance the costs of operating and maintaining the regional parks system. Regional park implementing agencies also use their local funds for constructing, maintaining, and operating regional trails.

City, county, and park agency funds have been integral to supporting the development, maintenance, and preservation of local multi-use trail and bikeway systems. These funds typically derive from local property taxes for trail system improvements and from property assessments in the case of city street improvements. Like MnDOT, counties and cities may also use their roadway state aid revenues from the state gas tax to invest in bicycle and pedestrian facilities as part of roadway and bridge reconstruction projects on county and municipal state aid roads.



## Regional Funding Needs

The local funds identified above make up the bulk of revenue supporting bicycle and pedestrian networks and will continue to be critical to the provision of pedestrian and bicycle infrastructure so that these local investments can effectively complement and round out the regional system. However, as a result of diminishing tax revenues and the increasing costs of ongoing maintenance (including winter snow removal to accommodate year-round use), preservation, and rehabilitation needs for bicycle and pedestrian facilities, there is a large shortfall of dollars available to fund existing system needs. Current revenues are also inadequate to fund new infrastructure needs including the vision for the Regional Bicycle Transportation Network and the local bikeways systems needed to supplement the regional network.

The Council recognizes that, as with other modes, there are significantly more needs for bicycle and pedestrian infrastructure than there are available funds. As shown in Table X, B between 1993 and 2011 and 2016, there were about \$204.90 million in stand-alone bicycle, pedestrian and safe routes to school and pedestrian projects constructed funded with federal Regional Solicitation transportation funds through the Regional Solicitation directed by the Transportation Advisory Board. (including Transportation Enhancements and Surface Transportation Program funds). However, only about 37.40% of total project requests were funded with this level of funding available over the three, 2-year cycles over that this time period. On average, about 15.2% of the total regional funds available were allocated to bicycle and pedestrian funding categories per two-year regional solicitation cycle. This does not include, however, funds that were allocated to roadway and bridge projects that included bicycle and pedestrian facilities.

**Table X. Regional Solicitation Project Funding Summary, 2011 – 2016**

<u>Year</u>	<u>Funded (in \$M)</u>	<u>Funds Requested (in \$M)</u>	<u>% of Requests Funded</u>	<u>Total Fed. \$\$ to Region (\$M)</u>	<u>% of Total to Bike/Ped</u>
<u>2011</u>	<u>\$ 26.23</u>	<u>\$ 74.95</u>	<u>35.0%</u>	<u>\$ 177.89</u>	<u>14.7%</u>
<u>2014</u>	<u>\$ 27.70</u>	<u>\$ 63.33</u>	<u>43.7%</u>	<u>\$ 189.50</u>	<u>14.6%</u>
<u>2016</u>	<u>\$ 36.22</u>	<u>\$ 86.43</u>	<u>41.9%</u>	<u>\$ 221.17</u>	<u>16.4%</u>
<u>Total</u>	<u>\$ 90.15</u>	<u>\$ 224.70</u>	<u>40.1%</u>	<u>\$ 588.56</u>	<u>15.3%</u>

As a result of this a general scarcity shortage of funds to support biking and walking meet bicycle and pedestrian facility needs, any new state transportation funding package should include additional funding for bicycle and pedestrian infrastructure, with priority for implementing the Regional Bicycle Transportation Network RBTN to support bicycling for transportation.

## Regional Solicitation

The Council, through its Transportation Advisory Board's Regional Solicitation process, makes specific categories of federal transportation funds available to local governments on a competitive basis ~~for pedestrian and bicycle facilities and safety programs.~~ Local governments may apply for stand-alone bicycle and/or pedestrian facilities, or these facilities may be included as part of related roadway projects.

The Transportation Advisory Board solicits applications for federal funding for these improvements through three project categories: roadways including multimodal elements, transit and travel demand management projects, and bicycle and pedestrian facilities. Bicycle and pedestrian projects are generally funded from the Surface Transportation Block Grant Set-aside Program, but funds from the Surface Transportation Block Grant Program or the Congestion Mitigation and Air Quality program are also eligible to be used for bicycle and pedestrian facilities. ~~Transportation Alternatives Program (TAP) and Surface Transportation Program (STP) and can provide funds from the Congestion Mitigation/Air Quality program, if it chooses.~~

The sections that follow list and describe the basis for the region's priorities for investment in bicycle and pedestrian infrastructure through the Regional Solicitation for federal transportation funds. Additional funding for bicycle and accessible pedestrian highway infrastructure through MnDOT is described in the Highways Investment Direction and Plan ~~under current revenue (insert link to Chapter 5) and increased revenue scenarios.~~

## **Regional Bicycle Transportation Network**

Projects proposed to enhance existing or complete new segments or connections of the Regional Bicycle Transportation Network will be given priority for federal transportation funding, provided that operations and maintenance commitments are made by the project applicant for the entire segment of proposed bikeway and any adjoining segments within the applicant's jurisdiction. The network is subdivided into two tiers for regional planning and investment prioritization:

- **Tier 1, ~~Priority~~ Regional Bicycle Transportation Corridors and Alignments** (as previously shown in Figure ~~7-1X~~) should be given the highest priority for transportation funding; these are the corridors and alignments determined through the *Regional Bicycle System Study* (2014) to provide the highest transportation function by connecting the most regional activity centers through the developed urban and suburban areas of the region.
- **Tier 2, Regional Bicycle Transportation Network Corridors and Alignments** (also shown in Figure ~~7-1X~~) should be given the second highest priority for transportation investment. These corridors and alignments provide transportation connectivity to outlying regional destinations within and beyond the urban/suburban areas and serve to connect ~~priority~~ Tier 1 regional bicycle transportation corridors ~~and~~ and alignments.

## **Critical Bicycle Transportation Links**

Potential bicycle facility improvement projects can be defined as critical bicycle transportation links if the planned improvement performs one or more of the following functions:

1. Serves to close a gap in the Regional Bicycle Transportation Network; this includes improving bikeability and convenience for all age/experience levels within urban, high demand corridors that may already have a continuous bikeway facility (for example, adding an off-road trail where there is only an on-street bike lane in an urban high-demand corridor, or adding a bike lane where only a trail exists).
2. Improves continuity and/or connections between jurisdictions (whether it is on or off the regional network); this includes extending a specific bikeway facility treatment across jurisdictions to improve consistency and inherent bikeability and convenience for all cyclists.
3. Provides an alternative that crosses or gets around a physical barrier including a river or stream, railroad corridor, freeway, or multi-lane highway.

Bicycle facility improvements meeting any of the above criteria for critical bicycle transportation links will be considered a regional priority for planning and regional investment.

## **Major River Bicycle Barrier Crossings and Regional Barrier Crossing Improvement Areas**

This TPP Update establishes new regional designations for major river bicycle barrier crossings and regional bicycle barrier crossing improvement areas and recommends these new designations be incorporated into the Regional Solicitation of federal transportation funds, and also in local and state funding programs, where relevant.

### **Major River Bicycle Barrier Crossings**

Because roadway and stand-alone bicycle/pedestrian bridges crossing the Mississippi, Minnesota and Saint Croix Rivers are relatively infrequent outside of the Minneapolis and Saint Paul downtowns and the University of Minnesota campus, and thereby provide limited access and great inconvenience for the much shorter bicycle trips compared to vehicles, all of the region's existing roadway bridges and existing or planned bike/ped bridges are designated as major river bicycle barrier crossings. Given this designation, projects that add new or upgrade existing bicycle facilities to current standards on roadway bridges crossing the region's major rivers should be given additional points in the regional scoring process for federal transportation funding. Projects applying for regional funds in the "Multi-Use Trails and Bicycle Facilities" category that construct new, or upgrade existing, stand-alone bicycle-pedestrian bridges crossing these major rivers should be given the highest priority for federal transportation funds within this category.

## **Regional Barrier Crossing Improvement Areas**

A series of tiered regional barrier crossing improvement areas were identified along the region's freeways/expressways, rail lines, and secondary rivers and streams through the Regional Bicycle Barriers Study described previously. The areas are designated in Figures X and XX with buffered circles of varying diameters (based on Thrive community designation) and grouped into three prioritized tiers for regional investment based on the study analysis. The circle areas represent barrier segments along which future barrier crossing improvement projects may receive additional points in the regional solicitation project selection for TAB-directed federal transportation funding. Roadway bridge projects that add new or upgrade existing bicycle facilities to current standards rivers should be given additional points in the regional scoring process for federal transportation funding. Projects applying for regional funds in the "Multi-Use Trails and Bicycle Facilities" category that construct new, or upgrade existing, stand-alone bicycle-pedestrian bridges crossing these major rivers should be given a high priority for federal transportation funds within this category and scored relative to the Tier 1, Tier 2, or Tier 3 barrier crossing improvement circle designations defined in the Regional Bicycle Barriers Study.

## **Other Key Investment ~~Prioritization~~ Factors for Pedestrian and Bicycle Projects**

### **Qualifying Requirement for Americans with Disabilities Act Compliance**

A new qualifying requirement for the 2018 Regional Solicitation specifies that public agencies must either have, or be substantially working toward, completing a current ADA self-evaluation or transition plan that covers public rights of way, as required under Title II of the Americans with Disabilities Act. While all individual transportation projects must comply with ADA requirements, this new self-evaluation or transition plan requirement ensures that public agencies are also addressing the requirement to identify their facilities and services that must be modified to ensure they are fully complying with ADA requirements.

### **Prioritization Factors**

***Opportunities for Pedestrian Improvements.*** Regional funding priority will be geared toward stand-alone pedestrian projects that are connected to transit service or regional job concentrations. These include:

- Along existing or potential high-frequency arterial bus routes in the urban core and suburban communities.
- Transit-oriented developments around existing or programmed transitway stations.
- Existing transit stations, transit centers, or frequent-service park-and-ride locations that are within a reasonable walking distance to residential development or activity centers,

or metropolitan job concentrations like the downtowns and the University of Minnesota.

- Projects that are included as part of a community’s Americans with Disabilities Act (ADA) transition plan and/or demonstrations of best practices in design for use by people of all ages and levels of mobility.
- Metropolitan, regional, and sub-regional job concentrations defined in *Thrive MSP 2040*

**Safety.** Regional evaluation criteria will favor infrastructure projects that significantly improve safety for bicyclists and pedestrians while maintaining or enhancing the ease of bicycling or walking. Funding can also be provided to projects that do not improve network connectivity but significantly improve the safety of bicycling or walking (including users of all ages and levels of mobility) or that address an identified safety problem. An example of this type of project would be improvements to intersections that receive a high level of bicycle and/or pedestrian traffic but which were not originally designed with bicycle/pedestrian safety in mind.

**Cost Effectiveness.** Bicycle and pedestrian projects should be cost-effective to construct and to maintain. When determining the right solution for a safety or connectivity problem, local agencies should first consider methods that use existing right-of-way and infrastructure to improve the desirability of biking or walking before considering the construction of entirely new facilities that would require new right-of-way and/or increase operations and maintenance costs.

**Continuity and Connections between Jurisdictions.** Regional evaluation criteria should favor projects that improve continuity and/or connections between jurisdictions. This would include extending a specific bikeway facility treatment across jurisdictions to improve consistency and inherent bikeability and convenience for all cyclists. Creating more consistent, continuous and connected bikeways improves access between local and regional bicycle networks, as well as improving the overall bicycling experience.

**Multimodal Projects.** Roadway projects submitted for federal funding should include features that benefit all users of the transportation system including pedestrians and bicyclists (including users of all ages and levels of mobility) in addition to vehicular modes. Regional evaluation criteria should favor roadway projects that meet the needs of pedestrians and bicyclists with an emphasis on safety and barrier removal. In addition, evaluation criteria for stand-alone bicycle and pedestrian improvements should favor projects that support compact mixed-use transit-oriented development within employment centers and those that provide direct connections to high-service transit facilities.

**Bicycle Connections to Transit.** Regional evaluation criteria should favor local bicycle projects that connect to an existing or planned regional transitway or a bus transit stop or station location. These potential connections should be emphasized in the project development process in order that local opportunities to facilitate multimodal trips via bicycles and transit can be maximized.

***Reconstruction of Existing Facilities.*** In addition to building new facilities for bicyclists and pedestrians, local jurisdictions are encouraged to apply for Regional Solicitation funds for reconstructing existing facilities where the project would improve the bikeway or pedestrian path to a quality level superior to that of the existing facility and where facilities have been properly maintained. Projects considered for federal funding should also have an approved plan for maintenance or a maintenance agreement to ensure that the facility remains in good repair and is passable.

# Congestion Management Process (CMP)

## Introduction

The Congestion Management Process (CMP) is a systematic, data-driven, and regionally accepted approach that aims to improve the performance of the transportation network by mitigating congestion and ensuring the reliable movement of people and goods. The CMP evaluates congestion at a system-level and includes the identification, application, and evaluation of a number of strategies used to achieve regional congestion management objectives. The strategies and objectives addressed by the CMP are based upon a data-driven approach, which is shared and communicated throughout the region. It serves as a valuable tool to address the region's transportation system performance in a manner that prioritizes cost-effective and easy-to-implement solutions. The solutions and strategies identified as part of the CMP are ultimately implemented by the Council, MnDOT, transit providers and local governments as they select projects for funding and implementation and as they operate their systems.

A CMP is required for all Transportation Management Areas (TMAs) i.e. metropolitan areas with a population exceeding 200,000. It is an on-going, continuous process that includes coordination and the sharing of data and information between regional stakeholders and partners. This defined process provides a framework for guiding the various activities of the Council, MnDOT, transit providers, and metro-area cities and counties to collectively make decisions aimed at increasing efficiency of the multimodal transportation system and reducing vehicle use by providing alternatives to driving alone. The CMP ensures that the key objective of mitigating congestion impacts is achieved and that congestion mitigation investments are properly monitored and evaluated. This interactive and on-going process of monitoring and evaluation of the impacts allows for the chosen strategies to be adjusted or eliminated over time should they not have the intended effect or another strategy proves to provide a better solution to mitigating congestion.

Given limited transportation resources, the existing transportation system must be managed and optimized to the greatest extent possible. Thus, the CMP prioritizes strategies that manage system demand, improve the operation of the existing system, and provide for multi-modal travel options. This vision is consistent with the overall goals of the 2040 Transportation Policy Plan of allocating limited resources to projects that provide the most system-wide benefit.

This chapter of the Transportation Policy Plan provides an overview of the region's Congestion Management Process and how it links to the investment decision-making within the region. The Council will produce an independent document in 2019 that will more fully detail the regional Congestion Management Process and identify work tasks to be accomplished to improve the process. The stand-alone document, the Congestion Management Process Plan, will be developed in cooperation with the Council's recently-formed Congestion Management Process

Advisory Committee and will reflect recent efforts to ensure the CMP more fully addresses the defined CMP network.

## Overview of the Congestion Management Process

The CMP is an ongoing process consisting of the following eight action steps:

1. Develop Regional Objectives for Congestion Management
2. Define the CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data and Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness

This chapter is not intended to provide a detailed summary of the Council's approach and current status in regard to each of these actions. Rather, those will be refined and expanded upon in the forthcoming CMP Plan. Instead, what follows is an overview of the linkages between the TPP and CMP, a summary of recent CMP-related activities, and an outline of future activities and areas that need further refinement.

## TPP Framework for the Congestion Management Process

The Transportation System Vision and Performance-Based Planning chapter of the Transportation Policy Plan outlines a number of regional transportation goals and objectives that define the overall vision for the future of transportation within the metro area. While all of the goals relate in some manner to congestion management, the Access to Destinations goal (goal C) in particular provides a framework that tangibly connects the TPP with the Congestion Management Process. As described in the Transportation Policy Plan Strategies chapter, this goal strives to ensure that people and businesses prosper by using a reliable, affordable, and efficient multimodal transportation system that connects them to destinations throughout the region and beyond. The Congestion Management Process goes hand-in-hand with this goal, as the CMP is squarely aimed at ensuring the transportation system provides reliable, efficient, and multimodal connections throughout the region. Such connections greatly affect every resident of the region as they commute to work, travel to shopping centers, and perform all other daily tasks.

The Transportation Policy Plan Strategies chapter of the TPP includes strategies or actions that the region and its transportation partners will use to work towards achieving the regional transportation goals and objectives. Many of the TPP strategies are linked to congestion reduction related actions and will also be reflected in the strategies outlined in the CMP Plan. In



essence, the existing TPP strategies can serve as the framework for defining the direction of the overall CMP and will become the basis for the implementation of a coordinated regional approach to mitigating congestion.

As noted, at the time of this publication a separate document is being developed that will better define the objectives identified by the newly-formed CMP Advisory Committee in more detail, and specifically structure these objectives using SMART (specific, measurable, agreed, realistic, and time-bound) performance-based planning approaches. However, a number of goals, objectives, and strategies outlined within the Transportation Policy Plan Strategies chapter of the Transportation Policy Plan reflect the overall vision and priorities of the region in regard to the Congestion Management Process. The following TPP objectives and strategies provide the basis for potential Congestion Management Process objectives and strategies that will be further refined and reported upon in the CMP Plan:

1. Goal C, Objective A: Increase the availability of multimodal travel options, especially in congested highway corridors;
2. Goal C, Objective B: Increase travel time reliability and predictability for travel on highway and transit systems;
3. Goal C, Objective D: Mode share: increase transit ridership and the share of trips taken using transit, bicycling, and walking;
4. Strategy C5: Initiate travel demand alternatives that reduce the number of single-occupancy vehicles travelling in the region, specifically by supporting the adoption and implementation of MnPASS lanes and transit advantages that support fast, reliable alternatives along congested highway corridors;
5. Strategy C7: Manage and optimize the performance of the principal arterial system as measured by person throughput.
6. Strategy C9: support investments in A-minor arterials that build, manage, or improve the system's ability to supplement the capacity of the principal arterial system and support access to the region's job, activity, and industrial and manufacturing concentrations.
7. Strategy C10: Manage access to principal and A-minor arterials to preserve and enhance their safety and capacity;
8. Strategy C12: Invest in an expanded network of transitways, including bus-rapid transit, light rail, and commuter rail;
9. Strategy C15: Focus investments on completing priority Regional Bicycle Transportation Network alignments and eliminating system gaps; and
10. Strategy D5: Identify the impacts of highway congestion on freight movement and identify cost-effective mitigation.

## Recent Council Activities that Support the Process

Based upon guidance from the Federal Highway Administration (FHWA) and the Council's ongoing mission to improve the congestion management process, the Council has performed

the following activities that support the CMP. The following pages highlight some of the recent and on-going efforts undertaken by the Council that directly benefit the Congestion Management Process.

## **Peer Review of the Council's Congestion Management Process**

As part of the 2016 TMA Planning Certification Review, the USDOT proposed a work plan to assist the Council in improving the Congestion Management Process. The work plan included a peer exchange, hosted by the FHWA and the Council in May of 2017. This peer exchange included Congestion Management Process experts from MPOs in St. Louis, Portland, Salt Lake City, and Wilmington (Delaware). The peer exchange provided a number of representative “best practices” from across the country and allowed Council staff to better understand how other TMAs are approaching the Congestion Management Process. In particular, the peer exchange addressed the following items:

- performance measures used by peer regions to both identify congested corridors and measure whether the implemented projects led to congestion improvement;
- investment strategies that peer regions have used to help alleviate congestion on key corridors;
- data collection processes and potential sources for key datasets;
- congestion management strategies and the process in which they were developed; and
- methods for implementing congestion management strategies to prioritize projects for funding.

This peer exchange was particularly useful in providing a number of specific methods for developing a fully-realized CMP for the Twin Cities metro area. A clear message from the exchange is that there are a number of ways in which a region may successfully implement a CMP; that is, it must be specific to the region and developed with extensive input from regional stakeholders. In particular, Council staff and stakeholders were introduced to examples of visualization techniques that graphically depict congestion in a manner which is easily digested and understood by policy-makers and the public. Over time, these techniques may develop into a “dashboard,” which could be produced annually and used to track the performance of key congestion indicators from year-to-year. Other key take-aways from the peer exchange include an understanding of how peer regions are incorporating CMP strategies into the project programming process; key data sets that can be utilized to define, measure, and track congestion; and a number of examples of multimodal performance measures that have been utilized by other regions.

## **Establishment of the Congestion Management Process Advisory Committee**

Based in part on the peer exchange and in order to comply with federal requirements, the Council established a Congestion Management Process Advisory Committee in 2017. This Committee is comprised of technical experts and other stakeholders representing the entire

metropolitan planning area. The Committee will ensure the Council is developing CMP objectives that represent the goals and priorities of the region and serve as a critical resource for:

- identifying corridors of concern;
- defining the regional CMP network;
- steering the direction of regional performance measures;
- developing a regional data collection and sharing program; and
- developing specific CMP strategies.

The CMP Advisory Committee will be instrumental in the development of the upcoming Congestion Management Plan with regular updates to provide feedback on the Plan. In addition, and consistent to the Council's vision and federal requirements, the CMP Advisory Committee will serve as the body that guides the region's Congestion Management Process long-term. While the Committee's short-term priority will be to develop the CMP Plan, it will continue to meet at least quarterly after the Plan is developed. The Committee will direct the CMP and carry out various roles relative to implementing the strategies as well as recalibrating and adjusting existing strategies to meet the region's CMP objectives.

## **Defining the Congestion Management Process Network**

As the MPO for the Twin Cities metropolitan area, the Council evaluates the transportation network within the Metropolitan (MPO) Planning Area Boundary. This boundary includes the seven metropolitan area counties as well as parts of Sherburne and Wright counties. Per guidance from the CMP Advisory Committee, the Council will include all principal arterials and A-minor arterial augmenters, relievers, and expanders in the region. The Council's model network extends beyond this boundary to include several counties outside of the 7-county region. An expanded model network allows for a more accurate analysis of the metro area's transportation system. This network provides the base foundation from which further analyses of transportation facilities are performed in order to identify corridors that comprise the CMP network.

The Council, in cooperation with MnDOT, has performed several analyses on the region's principal arterial system. This system is covered by the Regional Traffic Management Center, which utilizes a number of traffic control and intelligent transportation system devices. While the principal arterial system is well-defined, the minor arterial system has not been examined in as great of detail. This is a significant gap in the Council's efforts to define the conditions of the regional CMP network. In order to address this gap, the Council has committed to a number of initiatives to identify the existing conditions and congestion on the A-minor arterial system, including the following:

- The use of a pilot StreetLight InSight subscription to measure peak-hour and free-flow speeds on the non-MnDOT A-minor network. This effort will utilize the same methodology developed by MnDOT Metro District to define congestion on the MnDOT-

owned minor arterial system. The analysis will provide a much more thorough understanding of the entire metro area network and provide the Council the ability to allocate resources to address the identified problem areas. This analysis is also being used as a scoring measure to help select projects in the Regional Solicitation to receive federal flexible funding.

- The Council has programmed 2018 federal planning funds for a CMP-related study and listed this effort in the approved Unified Planning Work Program. While the specifics of the study will be determined by the CMP Advisory Committee, it will include analyses to identify problem areas and congested corridors along the local-owned system.
- In cooperation with the newly-formed CMP Advisory Committee, the Council will work with regional experts to establish a metro-wide subset of high-priority roadway corridors. These corridors will be evaluated in greater detail and identified as CMP corridors.

## Performance-Based Planning Program Efforts

The strategic vision of the Council, as outlined in this Transportation Policy Plan, includes a number of strategies aimed at reducing vehicle miles travelled during peak periods and improving accessibility to areas with a high concentration of jobs. A specific work plan for implementing these strategies, however, has not yet been developed. In order to provide greater clarity to how the strategies are articulated through the planning and programming processes, the Metropolitan Council's upcoming Congestion Management Plan will accomplish the following:

- develop performance measures to define the four major dimensions of congestion; that is the intensity, duration, extent, and variability of congestion;
- further refine regional strategies to reduce vehicle miles traveled during peak commuting hours, and improve connections between areas with high concentrations of jobs and low-income households;
- identify programs and services that support access to jobs within the region; and
- identify projects and programs that reduce congestion and increase accessibility to jobs.

These efforts will be formalized in the development of a series of multimodal performance measures and targets, as well as a formal data collection and sharing plan. These performance measures will be used to:

- track progress towards meeting regional congestion-related objectives;
- identify specific corridors which require additional data collection and analytical efforts;
- assess congestion mitigation strategies, programs, and projects; and
- better communicate system performance using visualization techniques that are understandable to policy makers, the public, and the Council's partner agencies.

All of the performance measures under development will meet federal requirements, local priorities, and utilize a "SMART" approach to performance-based planning. These measures, in

turn, will be used to evaluate the performance of the Council's investment strategies towards meeting regional goals. These strategies will be integrated into the CMP Plan and the connection between these strategies and the planning and programming processes will be made more transparent.

The Council has historically tracked a number of performance measures that are related to system congestion and reliability. These were reported, in part, in previous iterations of the TPP and in the Council's Transportation System Performance Evaluation, the latest version completed in 2016. While the Council intends to continue to track many of these measures, all previous performance measures will be evaluated and vetted through the CMP Advisory Committee, and, if selected, evolved into CMP objectives using a SMART approach. The upcoming CMP Plan will outline these new performance measures, which will continue to be tracked, monitored, and reported upon on a regular basis.

Pursuant to the performance-based planning legislation established in the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) and Fixing America's Surface Transportation (FAST) acts, the Council has been working with MnDOT and regional stakeholders to establish short-term regional performance targets for the federally-mandated congestion-related performance measures. State-wide targets must be established by MnDOT by May 20, 2018. The Council has 180 days after the adoption of the MnDOT targets to either support the targets to establish different targets for the metro area. The following performance measure require 2 and/or 4-year targets:

- Travel time reliability on the Interstate and non-Interstate National Highway System (NHS). Defined as the ratio of longer travel times (80<sup>th</sup> percentile) to a "normal" travel time (50<sup>th</sup> percentile). This is measured as the percent of person-miles travelled that are reliable.
- The percent of interstate system mileage providing for reliable truck travel time.
- Peak hour excessive delay. This will be measured by the annual hour of peak hour excessive delay per capita on the NHS. Per federal rules, the threshold for excessive delay will be travel time which is 20 miles per hour or 60 percent of the posted speed limit, whichever is greater, during peak travel times.
- Non-single occupancy vehicle (SOV) travel. This measure will be used to set a target for the percent of travel within the region which does not utilize single-occupancy vehicles.

## **Recent Studies and On-Going Strategies that Support the Congestion Management Process**

### **CMSP IV Study**

The Congestion Management Safety Plan 4 (CMSP IV), completed in 2017, is a funding program that addresses congestion and safety concerns through a process and criteria which identifies and prioritizes lower-cost/high-benefit highway construction projects on the MnDOT Metro District highway system. The CMSP IV is the fourth iteration of CMSP process, and includes a

number of refinements based upon an extensive before and after analysis of the effectiveness of previously-implemented solutions. The solutions identified in the CMSP are typically lower in cost and smaller in scope than traditional highway investments, and can be delivered quickly, simply, and with less disruption to traffic along the corridor.

Phase 4 of the CMSP reflects the changes to the MnDOT Metro District highway system over recent years. It includes travel time reliability, the variability of travel time for system users, as a key performance measure for evaluating projects. The CMSP IV recommended, in particular, that the Council focus more attention on potential projects on non-freeway routes to take pressure off the principal arterial system. This coincides with continuing efforts to gain more rigorous data and better understand congestion patterns on the A-minor arterial system.

### **Principal Arterial Intersection Conversion Study**

This study, completed in February of 2017, examined over 370 intersections along the region's non-freeway principal arterial network in order to determine those that are the highest priority for grade-separation projects. Of all the intersections, a selection of 91 at-grade intersections were identified and subsequently classified into three tiers – high, medium, and low – for investment prioritization. The identified intersections, and in particular the 34 high-priority intersections, will be incorporated into the Council's transportation planning and programming efforts.

The results of this study directly support the CMP by providing a region-wide analysis of interchange conversions that would have the greatest positive impact on relieving system congestion. The intersection priorities have been incorporated as a scoring criterion for the Regional Solicitation and will support other MnDOT and Council funding programs.

### **MnPASS System Study Phase 3**

The MnPASS System Study Phase 3 is a study which outlines the region's MnPASS system vision and determines a prioritized list of corridors for which to incorporate MnPASS lanes. It examines person throughput, travel-time reliability, vehicle speed, VMT, and the cost/benefit analysis of potential MnPASS lane incorporation, in order to identify the corridors that would benefit the region most.

The MnPASS System Study directly supports the Council's CMP efforts by promoting high-occupancy vehicle travel; reducing congestion during peak travel periods; and incorporating greater reliability into the regional transportation network. MnPASS provides a reliable alternative to congested travel for transit, high-occupancy vehicles, and those willing to pay.

### **Travel Behavior Inventory**

The Travel Behavior Inventory is a program of travel behavior research and transportation model improvement. The program includes a biennial regional household travel survey, which will enable tracking of person-based performance measures, including mode share. Future

improvements to the regional model will be targeted to improve the ability to forecast key CMP performance measures.

## **Highway Systems Management**

Highway systems management (freeway management system) is a broad term used to describe the infrastructure and traffic operation technologies that are used to improve mobility and reduce congestion within the metro area. A freeway management system and arterial traffic management system are important to achieving the most safety and mobility benefits for users from the large capital investments agencies have made in highways.

A freeway management system can include monitoring traffic conditions, relaying real-time information to travelers and more direct action on the efficiency of highways. Monitoring of traffic is often done through cameras and various types of automated measurement tools. Providing real time information to travelers can be done through dynamic signs, websites and in-vehicle alerts. Directly acting to improve the efficiency of highways can be accomplished through tools such as ramp meters, emergency response capabilities, coordinating information and activities with various first responders, and through planning work zone activities with traffic demands in mind.

An arterial traffic management system might use similar monitoring of traffic conditions and relaying of real-time information to travelers however the direct actions that can aid efficiency differ in some ways. Similarly work zone planning, emergency response and coordinating with first responders can be effective but coordinating traffic signals on arterials is fundamental on arterials. The newest technologies support constant monitoring and almost constant updates to signal timing for maximum efficiency at all times.

## **2018 Regional Solicitation**

Specific changes were made to the 2018 Regional Solicitation that further the existing CMP include the following:

- Integrated the results of regional prioritization efforts into the project scoring including the following:
  - Principal Arterial Intersection Conversion Study
  - Congestion Management and Safety Plan IV
  - Highway Truck Corridor Study
- Increased the maximum federal award for Travel Demand Management (TDM) projects to enhance the potential impact of these investments.
- Required applicants to optimize their signal systems as part of the no-build to ensure that the corridor has been retimed prior to spending federal funds on large roadway expansion projects.
- Evaluated projects using Streetlight InSight's speed data to measure congestion levels on the non-freeway principal arterial and A-minor arterial networks.

All of the aforementioned studies and strategies illustrate a regional, systematic, and data-driven approach in cooperatively assessing the region's needs and identifying higher-priority areas of the transportation system. In short, these studies and strategies directly support the Congestion Management Process, and their outcomes and recommendations will be incorporated into the CMP Plan by assisting in defining the CMP network, developing regional objectives, and ultimately will be utilized in programming and implementing projects which support the region's CMP strategies.

## Next Steps and Future Council-Led Activities

As previously noted, this chapter of the Transportation Policy Plan provides a broad overview of some of the CMP-related activities the Council performs, while simultaneously outlining the current short-comings and how these will be addressed over the next year. While much of this will be determined cooperatively with regional partners through the CMP Advisory Committee, other improvements will be developed internally and communicated in greater transparency and detail in both the upcoming Congestion Management Plan and other future documents. Outlined below are the specific steps the Council will take over the course of 2018 to develop a more comprehensive and robust Congestion Management Process.

### Develop a Regional Definition of Congestion

Presently, there is no universally agreed-upon definition for congestion within the metro area. Both the Council and MnDOT have typically defined congestion as peak travel time speeds that are either less than 45 miles-per-hour or 60% or less than the posted speed limit. However, other congestion measures have been used in various reports and studies performed by the Council and by MnDOT. While all of these measures are appropriate and valid mechanisms for measuring congestion, it is essential that the region mutually agree to and define a universal methodology for defining congestion within the entire Twin Cities metro area. While no one measure is perfect, the Council and its stakeholders must agree to a congestion measure that is appropriate for the unique context of the region.

By jointly agreeing to a regional definition of congestion, the Council and its regional partners will be able to evaluate the entire roadway system in a universal manner and gain a true understanding of priority corridors. This will allow the region to agree upon what is "unacceptable congestion" and set appropriate objectives to mitigate congestion in key corridors.

### Develop Regional Congestion Performance Measures

Previous iterations of the TPP have outlined a number of performance measures the Council proposed using in order to identify congested corridors and monitor system performance. Many of these were developed prior to MAP-21 guidance, which provides specific congestion performance measures. Due to the release of the final rule regarding congestion performance measures and the inconsistent use of proposed congestion-related performance measures, the



Council will work in conjunction with the CMP Advisory Committee to develop regional multimodal CMP performance measures for the CMP Plan.

The performance measures will:

- be based on SMART objectives;
- address the four dimensions of congestion (as described in the Performance-Based Planning Program Efforts section of this chapter);
- focus on the movement of persons and goods instead of vehicles; and
- be selected based on their ability to effectively communicate system performance to the Council's stakeholders and the public.

The performance measures will be included within the CMP Plan.

## **Assess Congestion Management Process Strategies**

In order to more effectively manage congestion and optimize solutions, the Council needs to more thoroughly evaluate whether the region's CMP strategies have had the intended positive impact on congestion. This includes an analysis of not only project-level impacts of strategies, but also an evaluation of whether alternative strategies could have had a greater impact and/or a better benefit-to-cost ratio. The Council will, via the Congestion Management Plan, develop a data-driven mechanism to quantify and better assess strategy effectiveness. The Council also recognizes that the CMP strategies need to be more effectively communicated with regional stakeholders and the public, which will be accomplished via the CMP Advisory Committee and the Congestion Management Plan.

In 2018, the Council will also start a project to assess the effectiveness of past funded Regional Solicitation projects. The results of this effort will help the region better track the performance of these investments over time. It will also allow the region to adjust prioritization measures used to select projects. Finally, the study will provide insights as to the project types that lead to the outcomes through performance targets that are desired by the region.

## **Integrating Congestion Management Process Activities into the Project Prioritization and Selection Processes**

While the Council has traditionally integrated congestion into the project selection process, more transparency is needed to show how the CMP factors into project selection. The Council recently included a number of criteria that will specifically prioritize projects with CMP-elements within the 2018 Regional Solicitation update. The specific linkage between projects that directly support congestion and how these are integrated into the overall programming process is not expressly defined at present. This will be a key topic to be addressed in detail in the forthcoming Congestion Management Plan and will be a priority issue that to be discussed with the CMP Advisory Committee.

## Work Program

The Metropolitan Council will carry out or participate in many studies and plans over the next three years. This is not an exhaustive list of all work to be completed by the Council, but rather a list of projects that will contribute to the work of the Council and will likely require coordination among agencies. Several ongoing work items that are regularly conducted by the Council are not included here. The studies listed here will be used to gather additional information and perform further analysis to inform future revisions to this policy plan. The next scheduled update of the Transportation Policy Plan, as required by state and federal law, is due in 2023.

## Highway Related Studies

### Congestion Management Process (CMP) Study

The Congestion Management Process (CMP) is a cooperative, cohesive, data-driven, and regionally-agreed upon process to identify and mitigate congestion along the transportation network. To assist in strengthening the regional congestion management process, the Council has added an item to the work program specifically addressing CMP-related items.

The scope of this study will be determined through a cooperative process involving the recently-established CMP Advisory Committee. At minimum, the study will be used to determine the extent of the CMP network, develop methodologies for analyzing and measuring congestion, establish a comprehensive data collection program for regional coordination and monitoring, and assess the effectiveness of previous CMP strategies in mitigating congestion within the region. The end result of this effort will be a report that satisfies all of the federal CMP requirements and can be submitted to the Federal Highway Administration.

### System Interchange Study

System to system interchanges serve as the connection of two freeways and are critical links in the region's highway system. Over the past 15 years the congestion and crash problems at these locations have increased significantly. Major investments have recently been made at system interchanges such as TH 169/I-494, I-35W/TH 62 and I-35E/I-694. Other system interchanges are often cited for needing improvements including I-35W/I-494, I-94/I-494/I-694 and I-35W/I-694, as examples. The level of problem and cost of solutions at these locations overshadow most other mobility and crash problem areas in the region.

The Increased Revenue Scenario of the 2040 Transportation Policy Plan lists system interchanges as a Strategic Capacity Expansion project type. However, the analysis of the individual interchange problems, identification of solutions, and funding have proceeded independently. As such, there is currently not any prioritization of these projects if more

money would become available to the region. This work program item prioritizes these interchanges, so that the region can have the best information available on where to invest limited resources. Similar regional prioritization efforts have been completed for other investment types such as MnPASS.

This task would be a joint effort between MnDOT and the Council.

## **Prioritize Bridge Replacement**

MnDOT has compiled a list of major bridges, (over \$5 million) statewide that need repair or replacement by 2030, but are not planned to receive funding in MnDOT's 10-year Capital Highway Investment Plan (CHIP). Over 50% of the 60 plus statewide bridges that meet this threshold are in the Twin Cities Metropolitan Area.

The order in which these bridges are repaired or replaced, and level of investment received will be determined in large part due to each bridge's condition. While the bridge's condition and sufficiency ratings are important criteria to use in these decisions, there are other factors that should also be considered given our multiple needs and limited resources. If multiple objectives such as mobility, safety, bicycle, pedestrian, and transit can be met with bridge construction or reconstruction, the region can benefit. These other factors should also be considered when investment decisions are made.

This project would be a joint effort between MnDOT and the Council.

## **Highways Performance Measures and Funding Decisions**

As highway assets degrade, more and more of the transportation revenues are needed to preserve the existing system. This effort will look at existing pavement and bridge performance targets. It will also analyze the assumptions used in the pavement and bridge models to allocate resources to see if they adequately account for the high the amount of traffic and freight in the region. The study will also examine other performance measures such as mobility to see how they might play a role in MnDOT funding decisions.

This task would be a joint effort between MnDOT and the Council.

## **Connected and Autonomous Vehicles**

The advent of more connected vehicles, the rapid development of autonomous vehicles, and the evolution off new models of new transportation ownership/provision models will have profound impacts on the region's transportation usage, economics, and infrastructure. The Council is well positioned to convene regional stakeholders to formulate policy responses to technology change and to study impacts to all transportation modes and systems.

Collaboration among state, regional, local, and corporate stakeholders will be necessary to address the myriad issues in how legislation, regulation, policy, and planning tools address issues across all transportation modes resulting from connected and autonomous vehicle adoption. The Council with MnDOT will work together on developing regional collaboration among all transportation stakeholders on connected and autonomous vehicle technology, deployment, policy, and planning. The collaboration may take the form of a new committee, a set of workshops, and dedication of staff resources.

Council staff will continue to participate in national conversations regarding connected and autonomous vehicles and will become local experts on planning efforts, integrating work being done by USDOT, the Association of Metropolitan Planning Organizations, the Transportation Research Board, researchers, other peer regions and states into regional planning work.

The field of vehicle automation continues to evolve rapidly. It is expected that any specific work-plan will become out-of-date rapidly, and this item in particular will be revisited and potentially amended annually.

## **Connection to TPP Goals and Objectives, Issue Analysis**

A matrix of connected and autonomous vehicle attributes, development and implementation status and positive/negative benefits relative to Transportation Policy Plan goals and objectives and to Thrive MSP 2040 outcomes will be continuously updated with links to relevant materials. A key objective of this matrix will be to give access to Council Members and other policymakers to structured information on multiple sides of emerging issues.

## **Scenario Development and Performance Measurement**

Integrate connected and autonomous vehicle development will be integrated into a performance based planning framework. Measures will be developed to track the trajectory for various potential scenarios that region or parts of it may be experiencing. Scenarios may include adoption rate of autonomous and/or connected technology, public acceptance of particular technology, and the degree to which public and private shared mobility technologies exist and affect travel behavior. How and at what rate connected and autonomous vehicles will exist in the market in the planning horizon is uncertain, and planners and policymakers need to begin to plan for the possibility of multiple futures.

## **Integration to CMP**

Connected and autonomous vehicles scenarios will be integrated into potential Transportation System Management and Operations planning.

## **Emerging Truck Technologies**

A review will be conducted of new and emerging technologies related to freight transportation. Among other issues, this review will include a planning and implementation assessment of automation technology for the commercial trucking industry. This effort will document current and planned deployment of autonomous trucks, the implications for street/highway planning, and the potential impacts to the freight transportation workforce.

## **Forecasting and Investment Assessment**

Work will continue on quantifying the outcomes of multiple potential future scenarios on key transportation metrics. Transportation models will be developed and enhanced to respond to the types of change that experts anticipate under these scenarios. This work will ultimately provide a risk-assessment of Transportation Policy Plan investments in light of connected and autonomous vehicle adoption.

## **Regional Transportation Research and Modeling**

The Council has historically, in coordination with MnDOT and regional partners, conducted a battery of data collection to learn about where, how, when, how often, and why people in the region travel. The TBI is used to provide policymakers and researchers current data about travel in the region and to develop updates to the region's travel demand forecasting models. During the last four years, the region has transitioned the TBI program from a decennial project to a continuing program of data collection and travel model improvement activities.

## **Travel Behavior Inventory Program**

The centerpiece of the TBI program will be a biennial household travel survey, beginning in 2018. A transit on-board survey will be conducted every five years, with the next occurring in 2021. Other data collection activities may be done as custom surveys or as third-party data purchases.

## **Regional Travel Demand Model**

Work will continue on implementing and enhancing the Activity Based Model which has been released over the past couple of years. Several projects to add analytical components to the model in coordination with planning needs and to update the model in light of new survey data will occur over the next five years.

## **Transit Related Studies**

### **Comprehensive Transit Financial Report**

Minnesota Statute requires the Council to work with regional transit providers and funders to prepare a comprehensive report on metropolitan area transit finance every two years, starting with the first report in 2018. The report will provide a catalog of all funding sources and expenditures related to transit in the metropolitan area. The report will include a section summarizing the status of “guideway” and “busway” projects (referred to as transitways in this Plan) in the metropolitan area, including past and projected expenditures for each project and updates on project status. The report will also include an analysis of the performance of the transit network at the route and line level, an analysis that is largely already prepared every year. A new requirement for this analysis will require the development of performance standards for farebox recovery and the identification of routes not meeting those standards, which may impact Appendix G: Regional Transit Design Guidelines and Performance Standards.

### **Bus Service Allocation Study**

The Plan stresses the importance of transit investments in making progress toward the transportation goals for the region. However, there are different roles for transit that require different types of service with conflicting priorities with limited resources. One role transit can play is serving a limited number of the highest demand corridors, where land use and development can support strong ridership. Another role transit can play is providing access to a large number of people and jobs across the region to provide an alternative to driving, regardless of the ridership potential. The transit system can be designed to address these two roles on opposing ends of a spectrum, maximizing efficiency or maximizing coverage. The Council will work with regional transit providers to conduct a study that will analyze how current transit service is allocated between service meant to maximize efficiency and service meant to increase transit coverage. The study will explore the trade-offs of the different approaches, identify a target balance of investment, and identify possible transit solutions to serve areas of the region that can't be effectively served with fixed-route service.

### **Employment Last Mile Transit Connection Study**

One of the major challenges facing the Twin Cities is improving accessibility to suburban employment opportunities; these areas are difficult to serve cost effectively with fixed route transit. The Plan states that new advances in mobility technology should be used to complement the fixed-route transit network. Emerging transportation technology has created new forms of “shared mobility”, modes of transportation characterized by dynamic routing and the integration of improved user interaction with services. Examples of shared mobility modes include transportation network companies, bikeshare, and microtransit. The Council will work with regional transit providers, local governments, and regional employers to explore and analyze options for completing last mile gaps in the regional transit system that could connect

riders to suburban employment opportunities. The study will evaluate potential market areas and service delivery models that could lead to the launch of a pilot project providing last-mile transit connections.

## **Local Bus Reliability and Travel Time Study**

The Plan’s strategies address the need to work collaboratively as a region to build transit advantages that provide fast and reliability transit as an alternative to single-occupant vehicles. The “Transit Investment Direction and Plan” describes the extensive network of highway transitway advantages and transitways, but there is not a significant discussion of transit advantages benefitting the local bus network, where reliability is an issue. This study would evaluate the local bus network (excluding corridors already examined, such as the arterial bus rapid transit corridors) for reliability and speed issues and develop treatment types that could be implemented to address the issues. The study would need to consider how to improve collaborations with local municipalities and other stakeholders for implementation, since many options may involve changes to roadway design or operations. As the region’s transit network continues to grow, the Council can use this information to help local governments plan for effective transit service in their community.

## **Setting Regional Transitway Priorities – Data Coordination**

During the development of this 2040 Transportation Policy Plan, data was collected on transitways to provide a table of basic facts about projects in the Plan (Current and Increased Revenue Scenarios). It was discovered that the methodology behind the data was not consistent across projects to allow for a reasonable comparison, particularly for estimated costs impacted by inflation. The Council intends to work with transitway project sponsors to develop consistent information for all projects to include in a future TPP update.

## **Downtown Transit Capacity and Transit Advantages Study**

One of the goals in the “Transit Investment Direction and Plan” is to improve access to destinations. Consequently, the strategies to do so include expanding the transitway and bus network that connects in downtown Minneapolis and downtown Saint Paul. There are 16 local bus routes that travel through downtown Minneapolis or Saint Paul and 16 local bus routes that terminate in either downtown along with the substantial number of peak period express bus routes. The Blue Line and Green Line will travel through downtown Minneapolis when the light rail extensions open. There are also several other transitways planned to serve downtown Minneapolis or downtown Saint Paul. The Marquette and 2<sup>nd</sup> Avenue express bus lanes provide a good example of adding transit advantages in downtown to address capacity, reliability, or travel time concerns. This study will consider strategies for maximizing transit capacity in downtown Minneapolis and potentially downtown Saint Paul, as well as strategies to increase reliability and speed of transit in or passing through the downtowns.

## **Public Transit and Human Services Transportation Coordinated Action Plan Update**

This plan is required by federal transportation legislation. The current plan was adopted in 2013 and needs to be updated. This plan update will assess currently available services from public, private, and non-profit providers; assess current transportation needs for people with disabilities, older adults, and people with low incomes; and identify and prioritize strategies, activities, or projects to address identified gaps between current services and needs.

## **Bicycle and Pedestrian Related Studies**

### **Regional Bicycle Transportation Network (RBTN) Refinement and Concept Progression**

To further refine the physical RBTN and to advance the overall RBTN concept, several ongoing and new efforts will need to be undertaken. The following items and issues will be addressed in collaboration with local and state agency stakeholders:

- Identify specific bikeway alignments within the broad RBTN corridors
- Review RBTN corridors and alignments to develop regional expectations for bicycle facility treatments that vary across regional sub-areas.
- Investigate a range of RBTN on-road facility treatments within the context of roadway functional classification. This effort will evaluate and compare potential synergies and conflicts between bicycling and vehicular traffic.
- Conduct a regional study to identify and evaluate a set of transportation corridors to determine opportunity corridor locations to implement protected or separated bikeways along RBTN corridors & alignments and local bicycle corridors. Protected bikeways can provide a high-quality facility for safe and high-capacity bicycle travel for a broader range of cyclist ages and abilities.

### **Bicycle Parking: Review of Land Use and Urban Design Best Practices**

Many popular urban and neighborhood commercial districts have very limited bicycle parking facilities available to serve the growing numbers of people using bicycles for transportation to access jobs, school, parks, and entertainment centers. Met Council will conduct a review of cities in peer regions with respect to the application of zoning mechanisms, evaluation of bike parking demand, and urban design principles and best practices relating to the placement, orientation and design of bike parking stands, bike lockers, and large bicycle storage facilities to serve multiple businesses and employers. These reviews will offer suggestions for how each “best practice” could be applied in the Twin Cities region.



## **Pedestrian Crash Data Analysis**

The Twin Cities area has almost 55 percent of Minnesota’s pedestrian fatalities from 2013-2015 compared to 26 percent of all traffic fatalities in the state. While walking trips are 6 percent of all trips made within the region, almost 17 percent of all traffic fatalities are pedestrians. This analysis would look at pedestrian crash data for the Twin Cities region to identify common contributing factors for high-severity pedestrian crashes in the region and potential countermeasures. This analysis would also include looking at crashes in areas with higher percentages of people of color or people with low incomes; other studies done throughout the nation show disproportionate numbers of high-severity crashes in neighborhoods with environmental justice populations.

## **Bicycle and Pedestrian Count Program**

Council staff will procure automated counters for pedestrians and bicyclists to use with local partners to collect standard count data and develop a regional count program for use in regional pedestrian and bicycle planning. MnDOT’s Bicycle and Pedestrian Counting Initiative started to institutionalize bicycle and pedestrian counts by providing annual training for local partners in how to conduct counts; the installation of permanent monitoring stations throughout the state, including the Twin Cities region; and a MnDOT district-based portable counting equipment loan program to support local partners in conducting bicycle and pedestrian counts. Council procurement of similar equipment would enable a focus on locations of interest to regional planning.

## **Review of Best Practices for Walkable Neighborhoods and Connections to Transit**

Council staff will review best practices for infrastructure treatments supporting walkable neighborhoods and enabling better pedestrian connections to transit in different types of communities. For the majority of transit trips, riders reach their stops by walking. Identifying best practices can help to address gaps in the pedestrian system and its connection to transit.

## **Freight Related Studies**

### **Regional Truck Data Collection Framework**

In collaboration with MnDOT, the Council will develop a framework for collecting truck classification data on regional truck freight corridors that responds to short-term and long-term data needs. Development of the framework will include:

- Coordination with MnDOT and County highway departments to review existing and planned data collection efforts for the Twin Cities metro area relevant to truck volumes and regional trip patterns on principal and minor arterials.

- Contacting staff from peer state DOTs and regional MPOs to determine the most promising truck data collection methods and technologies to employ in this region.

## Aviation Related Studies

### Regional Aviation System Plan

The 2009 aviation system technical report, (Regional Aviation System Plan) should be updated before the adoption of the next Transportation Policy Plan. The update will include an analysis of the system changes and improvements since 2009, system performance evaluation, and local and national system forecasts and trends. This study will also look at the impacts of the recent Long-Term Comprehensive Plans that will have been adopted by the Council for the regional aviation system. This study will also look at the impacts of the Unmanned Aerial Systems (UAS) on the regional system as well as the effects of the evolution of Light Sport Aircraft. This study could be financed in part through a planning grant from the Federal Aviation Administration.

## Performance Measures and Data-Related Studies

### Safety Planning and Priorities in the Region

Significant safety planning has been done in the region through MnDOT's *Toward Zero Deaths* initiative and development of an updated statewide *Strategic Highway Safety Plan 2014-2019* that is was finalized in 2014. MnDOT also partnered with each county in the state to develop County Road Safety Plans and has piloted plans for cities. To assist with the goal of improving safety for all users of the system in the region, the Council will review statewide and local safety plans, crash data, and other safety planning efforts to identify safety needs and priorities for all modes within the region, in coordination with other local partners.

### CMAQ Performance Plan

MAP-21 established requirements for a Congestion Management/Air Quality performance plan (CMAQ), which applies to metropolitan planning organizations with a population of over one million in air-quality nonattainment or maintenance areas. The Council will work with MnDOT on this plan as well as their annual CMAQ report to the USDOT. Performance measures and target setting for emissions and traffic congestion reduction for the CMAQ program will be established through rulemaking, which is tentatively scheduled for late 2015. Results from rulemaking are expected to include the following:

- Completion and updates expected biennially
- Baseline levels for traffic congestion and on-road mobile source emissions
- A progress report on achievements in reaching performance targets described in 23 U.S.C. 150(d)

- A description of the projects identified for CMAQ funding and a projection of how these projects will contribute to achieving the emission and traffic congestion reduction targets pursuant to 23 U.S.C. 150(d)
- A separate report assessing the progress of the projects under the previous plan in achieving the air quality and congestion targets of the previous plan
- Submission of this plan with the CMAQ annual report for that year, which is submitted by MnDOT

## Equity

### Equity Analysis for Transportation

The Council's *Choice, Place and Opportunity: An Equity Assessment of the Twin Cities Region* (2014) analyzed the region and its investments to understand patterns of need and opportunities. To fully integrate equity into the transportation planning process, the Council will conduct additional analysis on transportation-related issues. Two potential areas for study are safety outcomes by race and income and spending on preservation and maintenance and condition of transportation facilities by race and income. Operationalizing the use of the Thrive Lens throughout transportation planning decision making is another step in ensuring that transportation policies, practices, and procedures advance equity rather than create barriers to equity. The use of this lens should be done in combination with using disaggregated data when possible and leveraging existing assets to make any necessary changes to transportation policies, practices, and procedures.