Appendix B: Congestion Management Process

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BACKGROUND AND INTRODUCTION

The Central Lane Metropolitan Planning Organization (Central Lane MPO) is the designated Metropolitan Planning Organization (MPO) for the Eugene-Springfield urban area and is responsible for carrying out cooperative, continuous, and comprehensive planning processes for making transportation investment decisions; preparing and maintaining a long-range multimodal transportation plan; and preparing a transportation improvement program to provide for transportation investments meeting metropolitan transportation needs. The Central Lane MPO was established in 1974 and covers the urban growth boundaries of the cities of Eugene, Springfield, Coburg, and a small area of Lane County adjacent to these urban areas. The Congestion Management Process (CMP) is a combined effort of the Central Lane MPO partner agencies: the Cities of Eugene, Springfield, and Coburg, Lane County, Lane Transit District, and ODOT.

This document lays out the process used by Central Lane MPO to manage congestion. Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of vehicular congestion on the movement of people and goods. A CMP is a systematic and regionally accepted approach for managing vehicular congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies that meet state and local needs. The CMP is reflective of regional congestion issues as well as regional goals and objectives that are specific to the Central Lane MPO area.

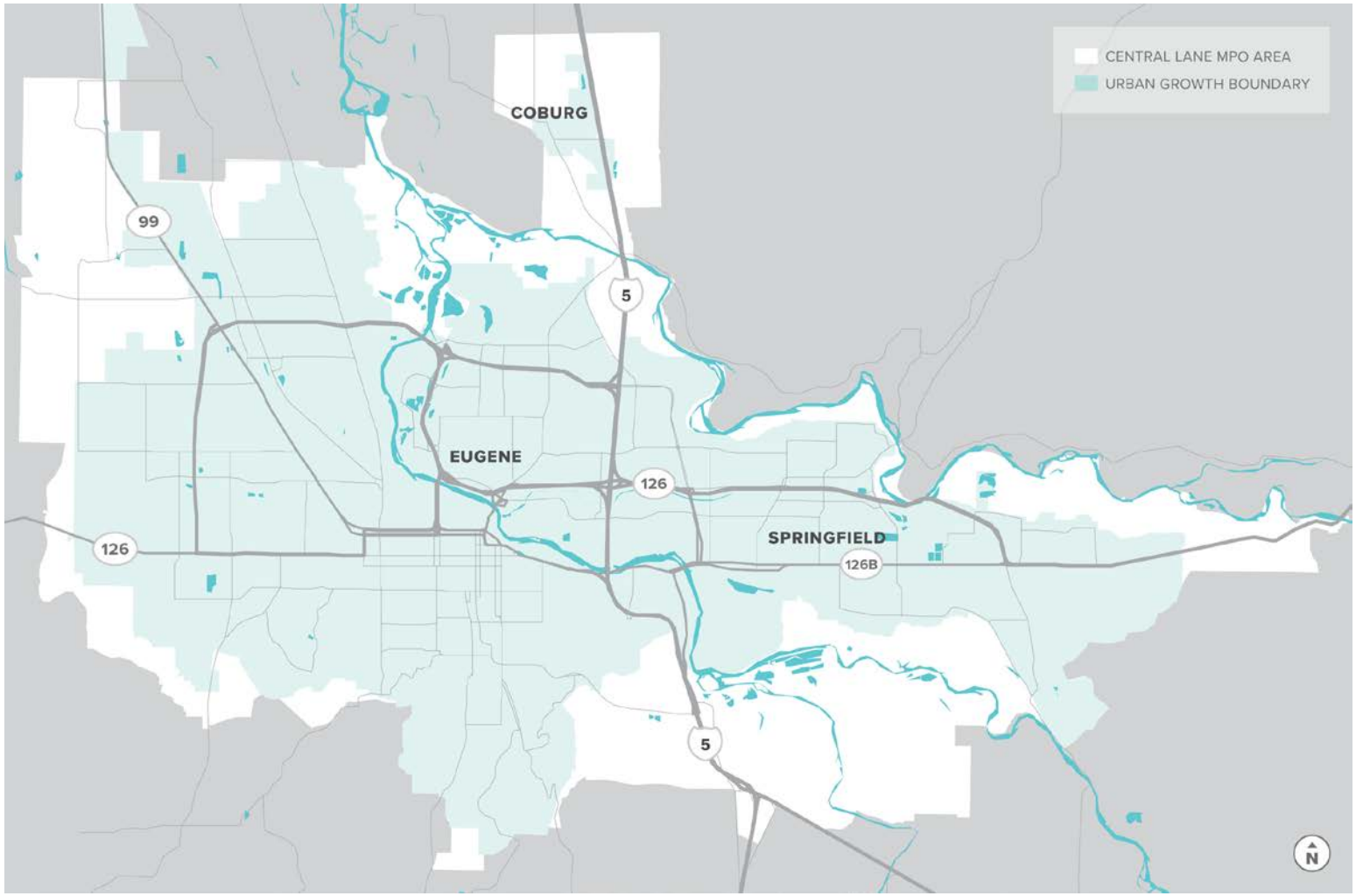
The Federal Highway Administration (FHWA) requires all MPOs that have urban areas with a population of over 200,000, designated as Transportation Management Areas (TMAs), to have a CMP.

According to Code of Federal Regulation (CFR), 23CFR450.320(a) and (b), TMAs shall cooperatively address congestion management through a process that provides for a safe and effective integrated management and operation of the multimodal transportation system…through the use of travel demand reduction and operational management strategies.

PLANNING AREA

The Central Lane MPO is governed by a policy board composed of elected representatives from member jurisdictions, referred to as the Metropolitan Policy Committee (MPC). Member jurisdictions of the MPC include Eugene, Springfield, Coburg, Lane County, Lane Transit District, and the Oregon Department of Transportation. Staffing for the MPO is provided through the Lane Council of Governments. Figure 1 below illustrates the Central Lane MPO Planning Area and the cities' urban growth boundaries.

FIGURE 1: CENTRAL LANE MPO AREA



OVERVIEW OF CENTRAL LANE MPO CMP

Federal guidelines provide MPO agencies with discretion on how to develop the CMP. Central Lane MPO's approach reflects the RTP goals and includes policies that influence the types of solutions and investments to manage vehicular congestion consistent with the regional goals.

The CMP reports on performance trends and regional strategies and uses this to address the transportation system's congested corridors with a list of high-priority strategies, projects, and studies.

This CMP document is organized around the eight actions that are described by the FHWA and illustrated in Figure 2. The Figure shows a progression of planning activities, or steps, and the iterative nature of the ongoing MPO regional planning process. Subsequent sections of this CMP are organized by these eight steps. Central Lane MPO has the freedom to vary the level of effort for each of the action areas, depending on the available funding for data collection, and the extent and depth of analysis that might be required to inform key strategy decisions.

FIGURE 2: CONGESTION MANAGEMENT PROCESS STEPS

Source: Congestion Management Process Guidebook, Figure 2, FHWA, April 2011.

HOW THE CMP FITS INTO THE REGIONAL PLANNING PROCESS

The CMP is intended as a core part of the metropolitan transportation planning process. This process spans from the goal-making stages to implementation. The regional planning process is documented in the Regional Transportation Plan (RTP), with support from the Intelligent Transportation System (ITS) Plan and CMP, among others. These three plans are all established at

the MPO level and are intended to support local planning efforts reflected in Transportation System Plan (TSPs).

The goals and objectives of the RTP inform and update the CMP purpose and goals (Step 1), which in turn govern the underlying performance measures (Step 3). In Step 6, Identify and Assess Strategies, new CMP strategy outcomes could require subsequent focused transportation studies and special plans, such as a regional Transportation System Management and Operations (TSMO) Plan, Corridor Studies, or an ITS Plan to further evaluate and refine possible solutions and priorities. Finally, key recommendations of those special studies feed back into the implementation process (Step 7) and are considered during the monitoring action step (Step 4).

LATEST CHANGES TO CENTRAL LANE MPO CMP

The latest FHWA Transportation Planning Certification Review,[1] from October 2019, noted areas to be addressed by the Central Lane MPO CMP in future reporting cycles. This CMP incorporates these corrective actions and recommended changes which are summarized below in Tables 1 and 2. The applicable section of the federal code is 23 CFR 450.322.

[1] Transportation Management Area Planning Certification Review for Eugene-Springfield, OR Transportation Management Area, FHWA, October 2019.

TABLE 1: CORRECTIVE ACTIONS FOR THE CMP

CORRECTIVE ACTION	SUMMARY	CENTRAL LANE MPO RESPONSE
CMP OBJECTIVES	Develop "SMART" regional objectives for congestion management that clearly define and support the region's goals for congestion management.	Objectives are defined in "Step 1 - Develop Regional Objectives". SMART characteristics are a part of the "Central Lane MPO Performance Measures" section.
CMP DATA COLLECTION, SYSTEM MONITORING, AND ANALYSIS (A)	Develop CMP data collection and system monitoring program/plan to ensure data are available to support performance measures	See "Step 4 – Collect Data and Monitor System Performance"
CMP DATA COLLECTION, SYSTEM MONITORING, AND ANALYSIS (B)	Develop a process to identify congested areas using CMP performance measures, to identify underlying causes of congestion, and document analysis and results to be used in the strategy evaluation and identification process.	See "Step 5 - Analyze Congestion Problems and Needs"
CMP STRATEGIES (A)	Develop and use a process for identifying, evaluating, and selecting strategies for congested CMP corridors to help the region meet congestion objectives.	See "Step 6 - Identify and Assess Strategies"
CMP STRATEGIES (B)	Document an implementation schedule for selected CMP strategies on congested corridors and link to RTP and TIP project prioritization process	See "Step 7 - Program and Implement Strategies"
CMP STRATEGIES (C)	Develop a process to evaluate system-level and strategy effectiveness to ensure implemented strategies are addressing congestion.	See "Step 8 - Evaluate Strategy Effectiveness"

TABLE 2: RECOMMENDATIONS FOR THE CMP

RECOMMENDATION	SUMMARY	CENTRAL LANE MPO RESPONSE
CMP NETWORK EVALUATION	Evaluate the identified CMP corridors with current data and information to ensure CMP network is still appropriate and consider an interconnected multimodal network.	See "Step 2 -Define CMP Network" section. More details provided in RTP.
CMP MULTIMODAL PERFORMANCE MEASURES AND DATA DEVELOPMENT PLAN	Consider a wider array of PMs to include bicycle, pedestrian, freight, accessibility, land use, or non-recurring congestion PMs, and ensure the four existing PMs are still relevant. Consider regional and/or corridor, segment, or intersection level performance measures. Consider PM data that can be used to identify and assess congestion, location, effectiveness, and progress of the congestion.	See "Central Lane MPO Performance Measures" section and RTP.
CMP STRATEGIES	Include a comprehensive list of strategies that fall under each of the existing broad groups of strategies	See "CMP Strategy Toolbox" section
ITS PLAN	Review and update the ITS Architecture and Plan to complement the RTP planning and Transportation Improvement Program (TIP) and programming	ITS Plan has been updated concurrently with the RTP update

GROWTH TRENDS

The pace of growth in land development and population influences the demand for travel of all types. Central Lane MPO tracks development trends on a regular basis to provide a context for understanding how the intensity of development and its proximity to major corridors might impact vehicular congestion over time. Oregon land use planning regulations require each city to have an urban growth boundary (UGB) to foster compact urban growth and preservation of agricultural and forest lands. The growth in the RTP is developed to be consistent with land uses and growth allocations from the UGBs of the cities of Eugene, Springfield, Coburg, and a small area of Lane County adjacent to these urban areas. Significant growth in the region poses a challenge to providing adequate mobility, with an additional 45,000 residents and almost 40,000 new jobs by 2045 placing greater travel demands on the system. Further details are provided in the RTP.

RELEVANT DOCUMENTS

Relevant Central Lane MPO CMP resources, reports, and documents include the following:

- Central Lane MPO RTP, previous and current versions
- Central Lane MPO ITS Plan
- City of Coburg's Transportation System Plan
- City of Eugene's Transportation System Plan
- City of Springfield's Transportation System Plan
- Lane County's Transportation System Plan
- Lane Transit District's Long-Range Transit Plan, Transit Tomorrow, and Coordinated Plan
- Oregon Department of Transportation's Oregon Transportation Plan and Oregon Highway Plan

STEP 1 - DEVELOP REGIONAL OBJECTIVES

The first step of the CMP is to develop regional planning objectives for congestion management. Since the CMP is meant to be an integral part of the regional transportation planning process, the RTP goals were incorporated into the CMP to ensure consistency in regional strategies working towards ensuring efficient use of resources and fulfilling regional transportation goals.

REGIONAL TRANSPORTATION PLAN GOALS AND OBJECTIVES

The RTP goals and objectives provide a foundation for transportation plans, projects, and programs completed within the region. Goals describe desired outcomes, while objectives are focused and measurable outcomes of goals. For each goal area, the RTP identifies a series of regional objectives, performance measures, and targets that are applied to track progress toward achieving the goal over time. Each goal and objective were developed in concert with public and stakeholder involvement and local plans, TSPs in particular. The goals are as follows:

1. **Transportation Choices:** People throughout the region have access to affordable, healthy, active, and shared transportation options that safely and conveniently connect them with their destinations while reducing reliance on driving alone and minimizing transportation related pollution.

2. **Safety, Security and Resiliency:** The transportation system is resilient, safe, and secure for people and goods.

3. **Healthy People and Environment:** The regional transportation system provides safe and comfortable travel options that support active and healthy living and protect and preserve biological, water, cultural and historic resources. Lower-polluting transportation options are encouraged, and transportation greenhouse gas emissions are reduced.

4. **Equity:** The regional transportation system eliminates transportation related disparities and barriers and ensures equitable access to destinations.

5. **Economic Vitality:** The transportation system is reliable, affordable, and efficient. It supports the prosperity of people and businesses by connecting them to destinations throughout the region and beyond.

6. **Reliability and Efficiency:** The region prioritizes a range of travel options to manage and optimize the transportation system and ease congestion so people and goods can reliably and efficiently reach their destinations.

7. **System Asset Preservation:** Strategically preserve, maintain, operate, and plan for current and future system assets to maximize transportation investments.

The objectives pertinent to the CMP are summarized in Table 3. See the 2045 RTP for the complete list of objectives.

TABLE 3: GOALS AND OBJECTIVES

OBJECTIVES	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7
Increase percentage of active and low-carbon transportation mode trips while reducing VMTs	✓		✓	✓		✓	✓
Complete gaps in regional bicycle and pedestrian networks	✓		✓	✓		✓	
Eliminate all modes' fatal and serious injury crashes	✓	✓		✓			
Leverage ITS solutions to increase efficiency of travel	✓			✓		✓	
Strive to reduce vehicle-related greenhouse gas emissions and congestion through more sustainable infrastructure		✓	✓		✓	✓	
Reduce the impact of roadway incidents on arterial roadway network and frequent transit routes		✓				✓	
Develop a transportation system that is adaptable and flexible to changing needs and conditions		✓					✓
Increase access to industry and freight intermodal facilities to facilitate efficient goods movement					✓	✓	
Build an integrated and connected system of regional arterial roadways, freight routes and intermodal facilities, transit, bicycling and walking facilities					✓	✓	

The RTP objectives are periodically monitored by Central Lane MPO to report to member agencies on their collective progress towards regional plan goals. Objectives are monitored by using performance measures as described in Step 3: Develop Multimodal Performance Measures. Data and tools available to measure on-going progress include travel time data, crash data, transit data, and Geographic Information System (GIS) layers that describe existing and planned walking and bicycling infrastructure and a collection of bike trip counters on key regional pathways.

ADDITIONAL OBJECTIVES FOR FEDERAL REPORTING PURPOSES

Federal regulations require that data collection support key performance measures to better understand other dimensions of congestion. Measures that specifically address the extent and

duration of vehicular congestion are important per federal regulations. These additional objectives are to be included in the Congestion Management System reports. In addition to the objectives noted above in Table 3, the following new objectives are recommended to respond to federal CMP requirements more completely, as outlined in the Fixing America's Surface Transportation (FAST) Act:

- Reduce total hours of system congestion
- Reduce single-occupant vehicle (SOV) demand

STEP 2 - DEFINE CMP NETWORK

As mentioned in the introduction section, the Central Lane MPO planning area includes the UGBs of Eugene, Springfield, and Coburg, and a small area of Lane County adjacent to these urban areas. The transportation facilities within the region include the major motor vehicle system of freeways, highways, arterials, and other regionally significant roadways. The corridors defined below as part of the CMP network are used to assess regional transportation congestion. The subsequent steps are built off this network.

CMP CORRIDORS

The corridors of interest for the CMP are shown in Figure 3 and the detailed extents are provided in Table 4. These corridors are split into two tiers. The intent of this is to include the critical regional routes where data is readily available in Tier 1 and to include the remainder of the corridors analyzed in the RTP in Tier 2. Tier 1 includes critical regional routes with the most need for congestion relief and includes most of the National Highway System (NHS) routes. For assessing which corridors were congested enough to be in Tier 1, travel time reliability and v/c ratio performance measure maps were used. Tier 2 includes the remainder of the RTP corridors. Tier 2 corridors will be evaluated when resources are available and congestion management strategies may be applied as needed.

FIGURE 3: CORRIDORS OF INTEREST

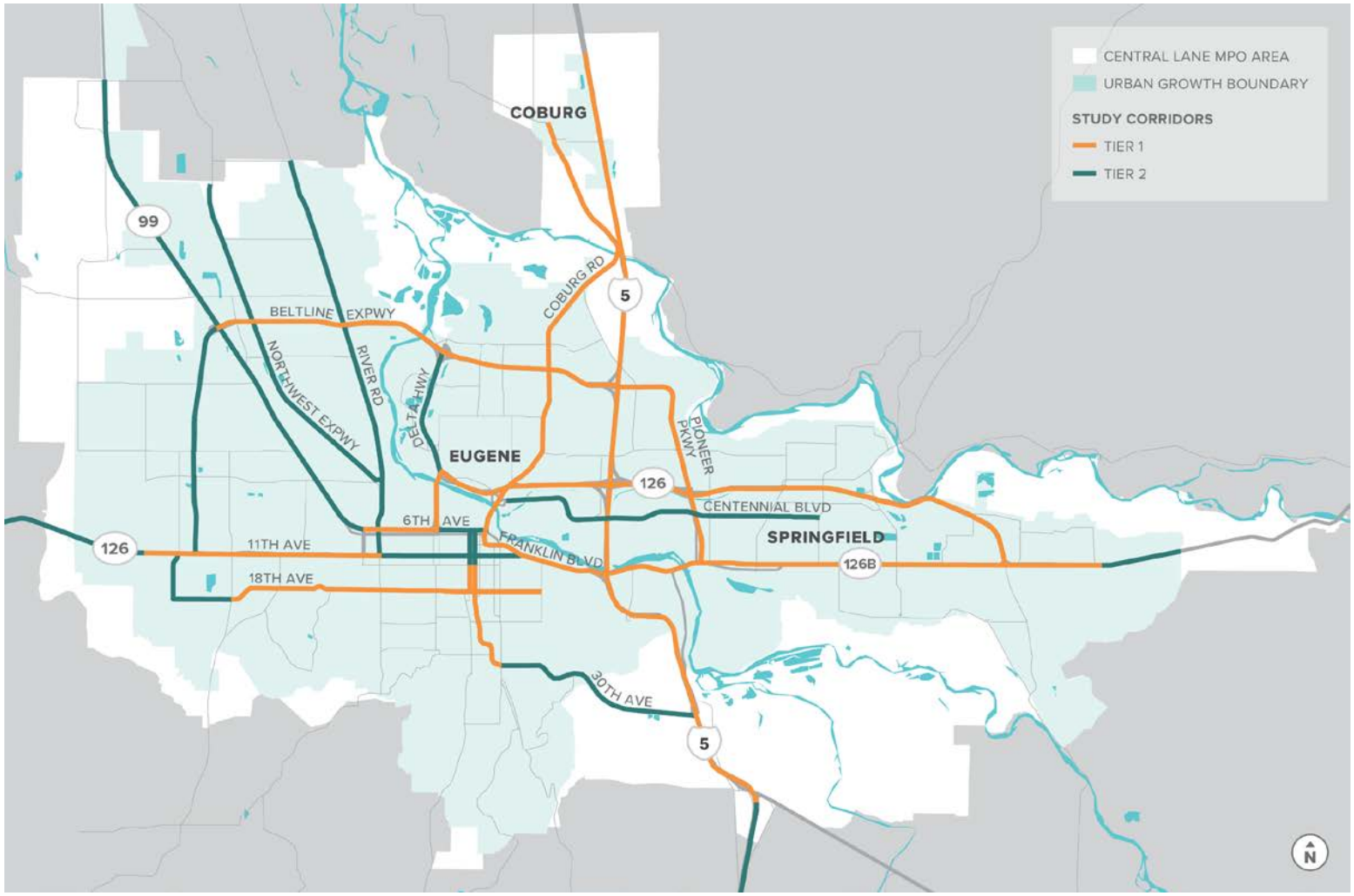


TABLE 4: CORRIDORS OF INTEREST EXTENTS

CORRIDOR	TIER 1	TIER 2
I-5	Goshen Ave to north boundary of Coburg	Dillard Rd to Goshen Ave
OR-99 & W 6TH AVE/W 7TH AVE COUPLET & FRANKLIN BLVD	Garfield St to Jefferson St & Mill St in Eugene to OR-225	Meadowview Rd to Garfield St & Jefferson St to Mill St in Eugene
BELTLINE EXPRESSWAY	OR-99 to I-5	W 11th Ave to OR-99
DELTA HWY & I-105	7th Ave to I-5	Beltline to I-105
OR-126	I-5 to Main St	N/A
W 11TH AVE	Terry St to Chambers St	Fisher Rd to Terry St & Chambers St to Franklin Blvd
MAIN ST/A ST COUPLET & OR 126	Franklin Blvd in Springfield to 70th St	70th St to east boundary of Springfield
COBURG RD	E 6th Ave to W Van Duyn St	N/A
18TH AVE	Bertelsen Rd to Agate St	Willow Creek Rd/ W 11th Ave to Bertelsen Rd
AMAZON PKWY & PEARL ST/OAK ST COUPLET & 30TH AVE	13th Ave to 30th Ave	E 6th Ave to 13th Ave & 30th Ave to I-5
CENTENNIAL BLVD & MARTIN LUTHER KING, JR BLVD	N/A	Club Rd to N 28th St
RIVER RD	N/A	Chamber St/ W 11th Ave to Beacon Dr
NORTHWEST EXPRESSWAY	N/A	River Rd to Awbrey Ln
PIONEER PKWY & MARTIN LUTHER KING, JR PKWY	S A St to Beltline/ Gateway St	N/A

STEP 3 - DEVELOP MULTIMODAL PERFORMANCE MEASURES

This step introduces the methods and metrics that are used to assess regional transportation congestion. This includes how each of the Central Lane MPO regional planning objectives are assigned specific performance measures and targets which are then used to inform system management decisions over time.

HOW THE CENTRAL LANE MPO DEFINES CONGESTION

For system management, it is important to apply a consistent methodology for measuring travel congestion. This CMP process uses objective measures of congestion to provide consistent results to decision-makers who are responsible for managing the transportation system. Vehicular congestion can be described using four general dimensions that provides insights on how best to manage and mitigate it. The four congestion dimensions are defined as follows[2]:

- **Intensity** – The relative severity of congestion that affects travel. Intensity has traditionally been measured through indicators such as volume-to-capacity ratio (v/c) or level of service (LOS) measures that consistently relate the different levels of congestion experienced on roadways.
- **Duration** – The amount of time the congested conditions persist before returning to an uncongested state.
- **Extent** – The number of system users or components (e.g., vehicles, pedestrians, transit routes, lane miles) affected by congestion, for example the proportion of system network components (roads, bus lines, etc.) that exceed a defined performance measure target.
- **Variability** – The changes in congestion that occur on different days or at different times of day. When congestion is highly variable due to non-recurring conditions, such as a roadway with a high number of traffic crashes causing delays, this impacts the system reliability.

Central Lane MPO has selected several quantitative performance measures that address congestion using each of these dimensions either separately or in combination. In addition to the vehicular congestion measures, several metrics that more fully define the system users' experience across all travel modes are further defined in the following sections.

[2] *Congestion Management Process: A Guidebook*, FHWA, 2011.

KEY PERFORMANCE MEASURE DEFINITIONS

Multimodal performance measures were developed for the Central Lane MPO planning objectives, to measure the progress addressing the various dimensions of congestion. These selected measures, defined in Table 5, will be used to track changing conditions, identify problem areas, and help communicate system performance to the public and decision makers.

TABLE 5: PERFORMANCE MEASURE DEFINITIONS

PERFORMANCE MEASURES	MEASURES
MILES TRAVELED	• Vehicle miles traveled (VMT) (total, per capita, per employee) • Freight miles traveled (total, per capita, per employee) • Transit miles traveled (total, per capita, per employee)
MODE SHARE*	• Walking, bicycling, transit and shared ride usage (total and share) • Person trips (total and share) • Transit trips on congested corridors
SYSTEM COMPLETENESS	• Total miles and percentage of regional pedestrian and bicycle networks completed • Total miles and percentage of regional pedestrian and bicycle facilities completed within ¼ mile of transit stops (by all stops and high frequency stops)
ACCESS TO TRANSIT	• Number and percent of households within ¼ mile of transit stops
SAFETY*	• Vehicle, pedestrian, and bicyclist fatal and serious injury crashes (total, per capita, and per VMT) • Vehicle, pedestrian, and cyclist fatalities where alcohol is a factor (total) • Vehicle fatalities where a passenger is unrestrained (total) • Motorcyclist fatalities, helmeted and un-helmeted (total) • Fatalities where a driver's age is 20 or under (total)
TRAVEL TIME*	• Motor vehicle travel time between key regional origin-destination pairs • Freight travel time between key freight origin-destination pairs • Transit travel time between key origin-destination pairs
VEHICLE HOURS OF DELAY*	• Passenger vehicle hours of delay (time accrued where v/c > = 0.90) • Truck hours of delay (time accrued where v/c > = 0.90)
CONGESTION	• Locations on the regional roadway network that operate with v/c ratios from 0.90 to less than 1.00
CONGESTED MILES OF TRAVEL	• Total and percent of VMT along congested regional corridors (0.90 <= v/c < 1.0) • Total and percent of VMT along severely congested regional corridors (v/c > 1.0)

* Federal performance measure

CENTRAL LANE MPO PERFORMANCE MEASURES

The list of selected congestion related performance measures as they relate to goals and data sources is shown in Table 6. The agencies who own and maintain the listed data sources are detailed in Table 7 in the next section.

TABLE 6: GOALS AND PERFORMANCE MEASURES

GOALS	PERFORMANCE MEASURE(S)	DATA SOURCE
TRANSPORTATION CHOICES	Miles Traveled, Mode Share, System Completeness, Access to Transit	Travel demand model, American Community Survey (ACS) data, GIS
SAFETY, SECURITY, AND RESILIENCY	Safety	Oregon Department of Transportation (ODOT) crash data
HEALTHY PEOPLE AND ENVIRONMENT	Miles Traveled, Mode Share, System Completeness	Travel demand model, ACS data, GIS
EQUITY	System Completeness, Access to Transit	Travel demand model, ACS data, GIS
RELIABILITY AND EFFICIENCY	Miles Traveled, Travel Time, Congested Miles of Travel	Travel demand model, RITIS
SYSTEM ASSET PRESERVATION	Travel Time, Congested Miles of Travel, Vehicle Hours of Delay, Congestion	Travel demand model, RITIS
ECONOMIC VITALITY	Miles Traveled, Travel Time, Vehicle Hours of Delay, Congestion	Travel demand model, RITIS, GIS

The scope of application of these measures ranges from corridor to region wide. The following sections call out which measure are regional, corridor, or for federal reporting.

REGIONAL MEASURES

The broader performance measures are representative of system-wide travel activity and general transportation performance. By comparing these measures over time, the trends can provide a useful context for understanding the overall state of the region. System-wide performance measures include the following:

- Miles Traveled
- Safety
- Mode Share
- System Completeness
- Access to Transit
- Vehicle Hours of Delay

- Congested Miles of Travel

CORRIDOR MEASURES

Going beyond the regional trends, several of the measures also can be applied to travel corridors within the urban areas to provide insights as to the underlying elements that may be contributing to the observed congestion. For example, when recurring vehicular congestion is identified based on peak period speed and delay data, the next level of evaluation within the affected segment of the corridor could consider the completeness of the multimodal system, and the compliance with current roadway design standards. Corridor-level safety analysis would focus on specific high-crash segments or intersections. This second level of performance review can assist in selecting the appropriate management strategy to address subpar conditions. Corridor-level measures include the following:

- Safety
- System Completeness
- Travel Time
- Vehicle Hours of Delay
- Congestion
- Congested Miles of Travel

FEDERAL REPORTING MEASURES

At this time, Central Lane MPO supports the state targets for each of the Federal performance measures. As such, the state collects and analysis the data necessary to report on the target status. However, the results should be submitted as part of the Congestion Management System Reports. This includes the following performance measures, which are a subset of the full list provided above. Note that the FHWA CMP Guidebook does not require specific performance measures, rather this list includes required measures from the FAST Act:

- Safety
- Mode Share
- Vehicle Hours of Delay
- Travel Time

STEP 4 – COLLECT DATA AND MONITOR SYSTEM PERFORMANCE

An important part of CMP is developing a data collection plan to support performance measures. Table 7 describes the data requirements for reporting performance measures for the CMP Corridors of Interest, as previously shown in Figure 3. The table indicates the data that is collected, who is responsible for collecting the data, and the frequency the data should be collected.

TABLE 7: DATA SOURCES FOR REGIONAL REPORTING

TRANSPORTATION SYSTEM DATA DESCRIPTION	RESPONSIBILITY	COLLECTION FREQUENCY
AVERAGE ANNUAL DAILY TRAFFIC (AADT)	LCOG/ODOT	1-3 years
AVERAGE DAILY TRUCK PERCENTAGE AT SELECT LOCATIONS	LCOG/ODOT	1-3 years
PEAK PERIOD MAXIMUM LOAD FACTOR ON BUS	Lane Transit District (LTD)	Annual
PEAK PERIOD LOAD FACTOR ON CORRIDOR	LTD	Annual
NUMBER OF BUSES PER PEAK HOUR	LTD	Annual
NUMBER OF PARK & RIDES / PERCENT USAGE	LTD	Annual
AVERAGE COLLISION RATE/MILLION VMT	ODOT	Annual
AVERAGE TRAVEL TIME INDEX AM/PM (PEAK)	RITIS/ODOT	Annual
LEVEL OF TRAVEL TIME RELIABILITY (PEAK)	RITIS/ODOT	Annual
FREIGHT TRAVEL TIME RELIABILITY (PEAK)	RITIS/ODOT	Annual
PRIORITY BIKE NETWORK COMPLETED	LCOG/Cities of Eugene, Springfield, and Coburg	Annual
PRIORITY WALKING NETWORK COMPLETED	LCOG/Cities of Eugene, Springfield, and Coburg	Annual

Note that Central Lane MPO is working on a strategy to have a central location for the storage of count data for the region, including information from partner agencies. This will help strengthen the count program. The MPO already has a Data Portal on its website that summarizes many of the other data sources in the above table. A screenshot of the Motorized Traffic Counts page in the Data Portal is shown in Figure 4. Table 8 further defines additional data needs and sources that are required for evaluating system performance based on federal requirements.

FIGURE 4: MOTORIZED TRAFFIC COUNTS IN THE DATA PORTAL

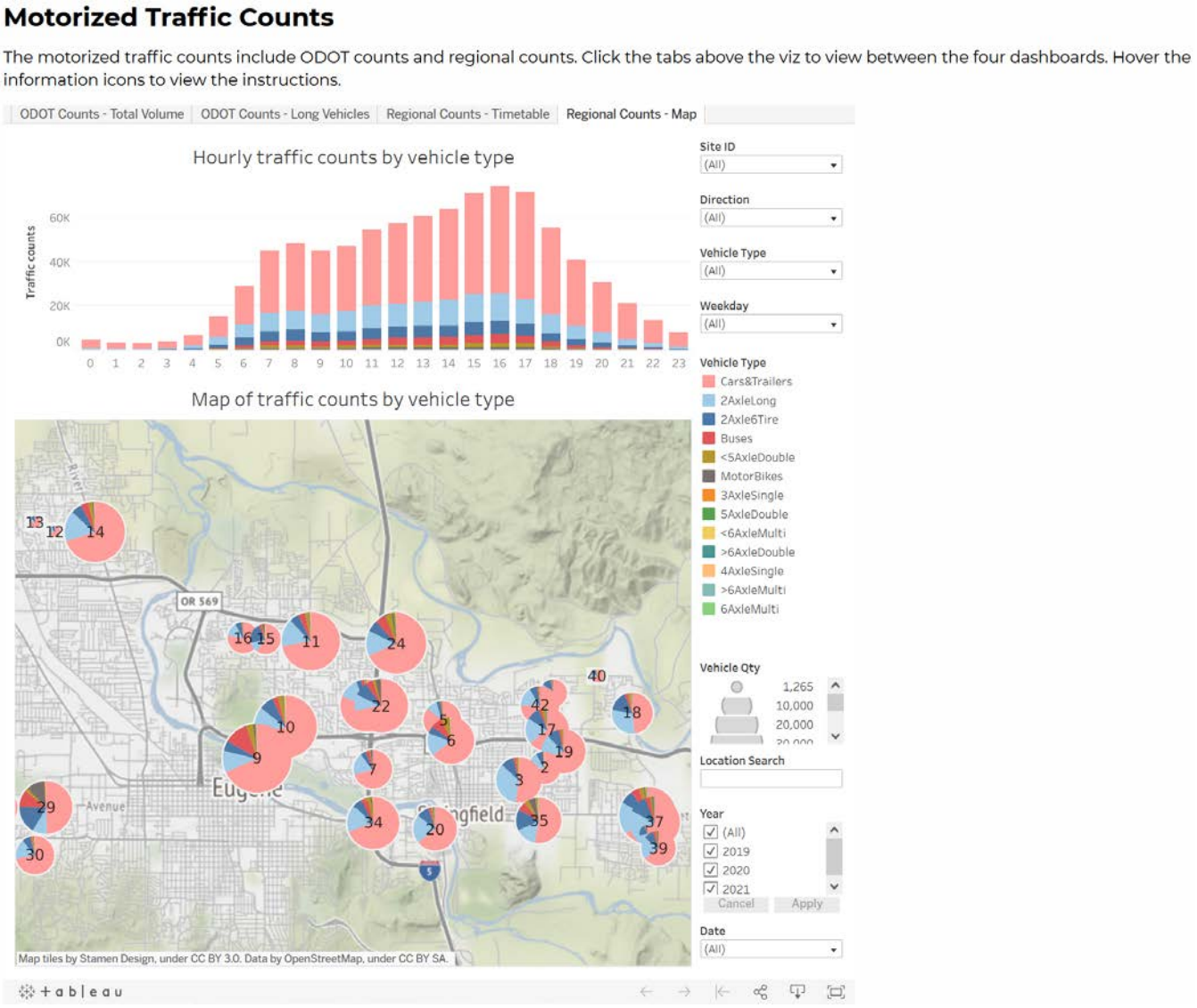


TABLE 8: DATA SOURCES FOR FEDERAL PERFORMANCE MEASURES

MEASURE	DATA SOURCES
DAILY VEHICLE MILES TRAVELED	Regional Travel Demand Model
SYSTEM RELIABILITY *	National Performance Management Research Data Set (NPMRDS)
FREIGHT RELIABILITY *	NPMRDS
PEAK HOURS OF EXCESSIVE DELAY	NPMRDS
NON-SINGLE OCCUPANCY VEHICLE MODE SHARE *	ACS Data on Journey to Work
PAVEMENT AND BRIDGE CONDITION *	ODOT bridge and pavement programs
TRANSIT ASSETS STATE OF GOOD REPAIR *	LTD Asset Management Plans

* FAST Act required performance measure

Some data sources are commonly available for MPOs and state transportation departments. For others, such as volume data, consistent data collection plans are in progress. Future improvements in this process may include getting count data from other new sources, such as passive data collection. One data source from Table 7 that may not be well-known is the RITIS platform. ODOT has a multi-year intergovernmental agreement[3] with the University of Maryland's CATT lab which produces the RITIS platform as a place to store and analyze INRIX speed data along with other ODOT provided information. This is the tool that will be used to provided travel time reliability and other speed-related measures for the regional network. Other passively collected probe data sources could be used in place of RITIS data, but it would require an additional data purchase. Probe data from NPMRDS is only available on NHS routes. ACS data estimates are provided on a yearly basis. Mode share data from the Travel Barriers and Benefits Survey, completed in July 2020, could also be used to supplement mode data from ACS. This survey asked participants how much they used each mode, which provides more nuance than the ACS data.

The regional travel demand model is updated with the RTP update. It uses data inputs from the household travel survey, census data, land use data, mode share, and traffic count data. Performance measures that can be pulled from the travel demand model include vehicle miles traveled, vehicle hours of delay, travel times, congested roadways, and roadway volumes. The travel demand model also provides forecasts of future conditions in the region.

[3] The current ODOT contract for RITIS data is for five years, starting January 2020.

STEP 5 - ANALYZE CONGESTION PROBLEMS AND NEEDS

Step 5, Analyze Congestion Problems and Needs, processes the collected data and produces the selected metrics that are identified in the performance measures section. Once collected, raw data must be translated into meaningful measures of performance. The purpose is to identify specific locations with vehicular congestion problems, and to identify the sources of these problems, then, interpret the results.

IDENTIFYING CONGESTED CORRIDORS

Once data has been transformed to allow comparisons between the various levels of congestion in the region, the definitions of unacceptable vehicular congestion must be applied to individual roadway segments. The result may be any of the following:

- A set of areas or corridors defined as congested based on the performance measures; these congested corridors may be used to denote areas where activities to address congestion are necessary and appropriate.
- A ranking of corridors throughout the region (sometimes ranked separately in categories based on the function/scale of the facility) to determine which corridors rank the highest in terms of congestion relief needs.
- An analysis of how well the region is meeting established congestion management objectives.

Often, specific benchmarks or targets are used to analyze data on either a corridor or regional level, to determine how close the system is to meeting the desired conditions.

There are several sources that Central Lane MPO can account for when analyzing data for the purpose of locating vehicular congestion problems, including:

- **Locations of major trip generators** – to understand congestion issues related to specific locations, it is often beneficial to have a knowledge of major trip generators (such as freight/intermodal facilities, major tourist attractions, stadiums/arenas, universities, hospitals, major employers, airports, and major shopping centers) and the typical traffic patterns, users, and times of high demand at these locations. For Central Lane MPO, these include special generators at the University of Oregon and associated stadiums.
- **Seasonal traffic variations** – traffic patterns can vary greatly due to seasonal changes in school-related trips, tourist activity, farming and farm equipment activity, weather conditions, and daylight conditions. When possible, data should be collected at times that will account for these variations, but data manipulation may be necessary to account for these in some cases.
- **Time-of-day traffic variations** – not all locations experience their highest demand during typical peak periods, especially in areas with heavy school traffic (which often coincides with the morning peak but has an earlier afternoon peak) or in areas with large employers with shift change times outside the typical peak period.
- **Work trips vs. non-work trips** – to the extent possible, it is helpful to understand the balance between work-related trips and non-work trips within an area, as the strategies to address these different trip types may differ.

INITIAL INVESTIGATION OF UNDERLYING CAUSES OF CRITICAL CORRIDORS

To understand which congestion mitigation strategies are appropriate within the context of a specific congested corridor (or within a subarea or region), it is also necessary to understand the causes of congestion. This investigation of the symptoms of vehicular congestion may require additional technical studies, however, an initial examination can be developed using readily available data and analysis conducted as part of the RTP. It may be appropriate to conduct formal technical analysis to complete this step.

Initial investigation techniques include the following types of analysis:

- Prepare candidate corridor condition mapping of speeds, reliability, and other congestion related measures
- Overlay multimodal system data related to high priority walking and biking system completeness
- Identify local major trip generators
- Overlay readily available facility data, such as access management quality, number of travel lanes, and the type of intersection traffic controls.
- Overlay previously calculated crash rates by corridor segment

These analyses are typically performed as part of the local TSP updates for the partner cities. The local agencies lead this process and then coordinate with Central Lane MPO. This process feeds into the Central Lane MPO RTP and CMP.

Once these data overlays are applied, the team reviews the composite information and prepares initial findings regarding the potential sources or critical factors associated with the congested corridors. It is also appropriate to distinguish between recurring and non-recurring congestion issues. This investigation phase serves as an essential bridge between the collection of system performance data and the potential solutions to address the identified deficiencies.

LOCAL AGENCY COORDINATION AND COLLABORATION

Coordination with local agencies is key to the initial investigation step discussed above. In addition to gathering input from individual partner agencies, Central Lane MPO also has existing committees that could provide input, including the MPC, with the associated Transportation Planning Committee (TPC) and Technical Advisory Sub-Committee (TASC). In addition, the Lane Area Commission on Transportation (ACT) could be involved as the pipeline for programming ODOT funds and projects.

STEP 6 - IDENTIFY AND ASSESS STRATEGIES

After completion of the data collection and system monitoring step, a range of alternative and innovative congestion management strategies are developed for Step 6: Identify and Assess Strategies. Effective congestion management strategies include the following characteristics:

- Supportive of plan objectives
- Appropriate for local context
- Clearly defined roles, responsibilities, and timing for implementation.

For the Central Lane MPO CMP, the master list of strategies chosen for further analysis is known as the CMP Toolkit of Strategies.

CMP STRATEGY TOOLBOX

To assist in the development of strategies, a Toolbox of Strategies was developed. Central Lane MPO evaluated ongoing congestion management strategies already employed throughout the region, researched the best examples from other model CMPs, and compiled a list of strategies that can be realistically applied to this region. The general CMP strategy categories include the following:

- Transportation Options (TO) & Travel Demand Management (TDM)
- ITS & TSMO
- Transit Operational Improvements
- Freight & Goods Movements
- Roadway Capacity Improvements

The results of the strategy compilation are summarized in Table 9 which includes a rough estimate of the level of staff time or capital resources required to implement, along with a listing of example strategies that could be applied. The specific recommendations for the study corridors are subject to further review by Central Lane MPO and their partner agencies.

TO strategies are informed by Central Lane MPO's 2014 Regional Transportation Options Plan (RTOP). This plan is no longer being updated so the strategies have been incorporated into this CMP. Central Lane MPO strives to put a focus on active transportation options, TSMO strategies, and TDM approaches to reduce the number of single-occupancy vehicles and to reduce vehicular congestion instead of increasing capacity on roadway facilities. Roadway capacity improvements are a last resort in the strategy toolbox and would only be applied under rare circumstances. The MPO coordinates how the TO program - which includes Safe Routes to School (SRTS) - is implemented, working closely with partner agencies like the City of Eugene, City of Springfield, and Lane Transit District to support their local projects.

Examples of Toolkit Strategies include promoting a regional commuter benefit program, parking management, turning movement enhancements, ramp metering, incident management, transit signal priority, new and improved park & ride facilities, freight capacity investments, and grade-separated railroad crossings. Strategies consisting of large capital projects that are meant to increase roadway capacity are also included in the strategies list, but generally are a last resort as these require significantly more capital investment, do not produce the same long-term results as alternative transportation options, and can lead to induced demand that eliminates the initial congestion relief benefit. Some of the strategies can be applied at the regional scale, but most are applied to individual corridors based on the existing facility deficiencies.

As a part of this process the evaluation of these strategies should be incorporated into local planning efforts and corridor studies. Should strategy analysis at the corridor-level determine that a particular strategy does not have a useful benefit, it should be removed from the corridor

strategy listing. Strategies will also be updated based on emerging technologies that bring new options, as needed.

TABLE 9: CMP TOOLKIT STRATEGIES FOR STUDY CORRIDORS

STRATEGY CATEGORY	GENERAL EFFORT AND RESOURCES REQUIRED	STRATEGIES[4]
Transportation Options (TO)/ Travel Demand Management (TDM)	Low	• Ridesharing Services/Ride Matching • Active Travel Modes Outreach Events and Programs • Shift Peak Travel • Carpool/Walking/Biking Matching Services for Schoolchildren (including Safe Routes to School) • Parking Management • Parking Facility Management Informational Signs • Improvements for Walking and Bicycling • Bike Share Expansion • E-scooter Share
Operational Improvements/ Intelligent Transportation Systems (ITS)/ Transportation System Management and Operations (TSMO)	Medium/High	• Turning Movement Enhancements • Circulation Improvements • Limited Intersection Improvements • Signal Improvements • Ramp Metering • New or Converted HOV lanes • Access Management • Communication Networks • Traveler Information Services • Maintenance Management • Incident Management and Incident Response
Transit Operational Improvements	Medium/High	• Transit Service Expansion • General Transit Infrastructure Improvements • Transit Signal Priority • Park and Ride/Bike/Scoot Facilities - New or Improved
Freight/Goods Movement	Low/Medium/High	• Freight Operations Improvements • Freight Capacity Investments

[4] Strategies listed in this Toolkit are not intended to be inclusive of all potential strategies; additional opportunities may be identified.

STRATEGY CATEGORY	GENERAL EFFORT AND RESOURCES REQUIRED	STRATEGIES[4]
Roadway Capacity Improvements[5]	High	• Grade-separated Intersections or Railroad Crossings • Adding Capacity/Widening • New or Extended Roadways

STEP 7 - PROGRAM AND IMPLEMENT STRATEGIES

Another requirement of the CMP is to develop an implementation strategy that will move strategies forward and ensure that the five-year Metropolitan Transportation Improvement Program (MTIP) and RTP follow the CMP. Step 7 does just that and all CMP strategies that are recommended for implementation on the CMP Corridors should have the following elements:

- Priority
- Timeframe for Implementation
- Lead Agency
- Expected Funding Source

In general, there are three types of strategies within the CMP process: system or regional, corridor and project.

- System or regional level implementation of congestion management strategies occur through inclusion of strategies in the fiscally constrained RTP and the MTIP.
- At the corridor-level, more specific strategies such as bicycle and pedestrian improvements and operational improvements can be assessed in studies and implemented using a variety of funding sources.
- For larger projects, particularly capacity-adding projects, demand management and operational strategies should also be analyzed for incorporation into the project as part of the project development process.

This tiered approach to strategy implementation integrates the CMP into all aspects of MPO planning and allows a flexible and robust incorporation of congestion management. It also introduces the consideration of scale. Some MPOs are actively engaged in efforts to integrate transportation planning into the National Environmental Policy Act (NEPA) decision-making process, and one of the notable barriers is the difference in scale between regional analysis and project analysis. The CMP offers one way to bridge that gap by translating system-level understanding to inform project-level decisions.

[5] As previously stated, roadway capacity projects are last priority strategies as they are high cost and provide limited long-term benefits. They are not heavily featured in the Central Lane MPO long-range plans.

REGIONAL PRIORITIZATION OF STRATEGIES

Central Lane MPO is required to develop a process for allocating Surface Transportation Block Grant (STBG) federal funding as well as Congestion Mitigation and Air Quality (CMAQ) and Transportation Alternatives (TA) funds. These funds are allocated and programmed for eligible projects at the discretion of the MPO following federal guidelines. The MPO Policy Board has approved a process for the use of a set of screening or eligibility criteria and a set of evaluation criteria and guidelines to be applied to applications for federal funding. TDM and TO programs receive a minimum of ten percent of the annual federal funds to support TDM and TO efforts to address congestion management. Planning program activities receive 25 percent of the annual federal funds to address regional planning priorities including:

- Priorities established in the Unified Planning Work Program
- Compliance with federal transportation funding legislation including under the CMP
- Planning for Public Outreach and Participation
- State system regional project planning and NEPA activities
- Coordinated public transit and human services planning
- RTP implementation
- Local transportation planning and coordination as part of the regional system

The remaining 65 percent of federal funding allocations are programmed for preservation, project development, and modernization activities. Applications for funding of these activities are assessed and prioritized based on a set of eligibility factors and prioritization criteria approved by the MPO Policy Board. The four primary Regional Priority Factors include whether the proposed project does the following:

- Preserves or enhances transit services
- Reduces greenhouse gas emissions by reducing vehicular congestion, increasing operational efficiency, supporting active modes, and managing transportation demand
- Preserves existing transportation assets
- Improves safety

In addition, the federal application and prioritization process requires each jurisdiction to specifically describe how proposed projects address the following:

- Congestion reduction
- Connectivity
- Benefits to multiple modes
- Benefits to the freight system and freight movement
- Public health

CORRIDOR AND PROJECT STUDIES

In many cases, specific congestion management strategies may be identified through more detailed corridor studies and project development efforts. Because projects are most often implemented by agencies other than Central Lane MPO, this requires oversight by the MPO staff or a system to relay information on the effectiveness of associated strategies. Such information is crucial to achieving the full realization of the CMP as a continuous process. This step also represents the point at which consistency between planned/programmed projects and the CMP should be ensured, particularly for projects that will add capacity to roadways. Collaboration with partners at implementing agencies is a critical element of this step.

As projects are advanced to project development and environmental review, the CMP offers an opportunity to link planning and the NEPA process. This process can sometimes break down if project developers and designers are not aware of the CMP's congestion management objectives or the range of performance measures that are being used regionally to monitor performance.

STEP 8 - EVALUATE STRATEGY EFFECTIVENESS

Evaluation of strategy effectiveness is recommended to monitor outcomes of the CMP process. These can be either before and after studies or they can be conducted system-wide as an ongoing process once major new projects or programs have been implemented. The primary goal of this monitoring process is to ensure that implemented strategies are effective at addressing vehicular congestion as intended, and to make changes based on the findings, as necessary.

Two general approaches are used for this type of analysis:

- System-level performance evaluation — Regional analysis of historical trends to identify improvement or degradation in system performance, in relation to objectives; and
- Strategy effectiveness evaluation — Project-level or program-level analysis of conditions before and after the implementation of a congestion mitigation effort.

Study findings that show improvement in congested conditions due to specific implemented strategies can be used to encourage further implementation of these strategies, while negative findings may be useful for discouraging or downplaying the effectiveness of similar strategies in similar situations. The information learned from evaluation should inform the MTIP and RTP, as well as other steps within the CMP, notably Step 6, the identification and assessment of strategies.

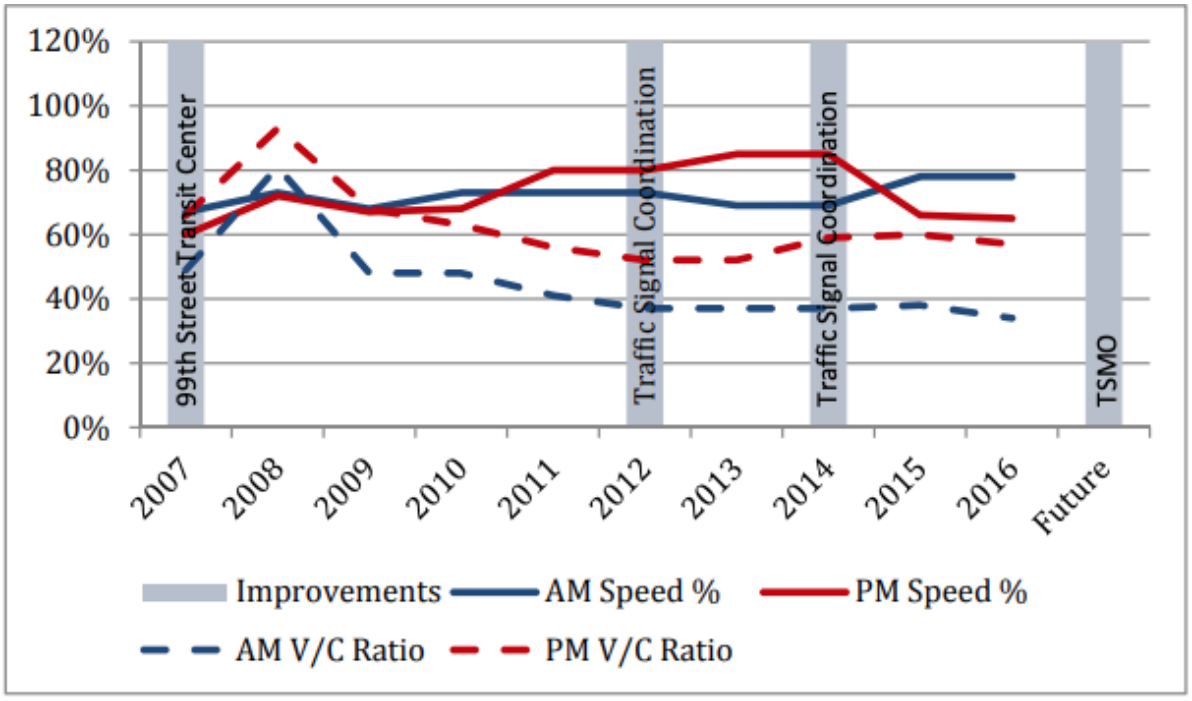
- **System-Level Evaluation**. Central Lane MPO could fund system-level studies to measure the effectiveness of congestion strategies or projects by examining conditions before and after, or with and without, a strategy of interest. For instance, a study could be conducted to quantify mode shifts of a TDM program, to quantify the speed improvements associated with traffic flow improvement projects, to examine the reduction in vehicle delay associated with operational strategies, or other similar types of impacts. These types of large-scale evaluations could be incorporated into the Unified Planning Work Program to follow significant changes in new policy implementation.
- **Project-Level Evaluation**. Central Lane MPO could develop guidance for evaluating strategies and require local project sponsors to conduct evaluations of their projects and programs.

Guidance can be provided on when an assessment should be done, what measures should be used, how data should be gathered, what methods should be used to analyze the data, and other aspects of evaluation studies.

Central Lane MPO could develop selection criteria to help partner agencies choose which CMP strategies are best candidates for post implementation evaluations and to provide guidance on how to conduct these studies. It will be important to design the studies to isolate, to the extent possible, the project benefits of a capital investment that are being assessed from other external influences. For example, changes in traffic demands on arterial corridors associated with seasonal traffic or major special generators may adversely influence the expected benefits of more efficient and responsive traffic signal control operations.

As an example of Project-Level Evaluation, Southwest Regional Transportation Commission (RTC) in Vancouver, Washington developed a time series of corridor performance conditions along 99th Street to illustrate the trends in speeds and system capacity following major CMP strategy implementation. As shown in Figure 5 below, the results show a mix of performance outcomes that show limited improvements for peak hour travel performance. These types of post-project findings could be incorporated into the Central Lane MPO Congestion Management System Reports to illustrate the benefits of major investments.

FIGURE 5: EXAMPLE OF SYSTEM MONITORING DIAGRAM AT PROJECT-LEVEL



Source: Southwest Washington RTC Congestion Management Plan, 2016.

CONCLUSION

This CMP includes a systematic process for determining acceptable mobility levels in the region, measuring the effectiveness of the transportation strategies on the transportation system, and prioritizing changes to strategies and project development standards as needed. Central Lane MPO will continue to establish and implement the most relevant and feasible CMP performance measures and congestion management strategies, which should be considered and refined iteratively in conjunction with other transportation planning processes.