Interim TDM and TSMO System Completeness Guidance

In support of the Regional Mobility Policy in the RTP

August 2024

Metro

Contents

Figures

Tables

Appendices

1 Introduction

1.1 Purpose of this Document

This document defines System Completeness for Transportation Demand Management (TDM) and Transportation System Management and operations (TSMO) and explains how the measure can support both transportation system planning and comprehensive plan amendment processes.

This document serves as a companion document to the **Regional Transportation Plan (RTP)** and Regional Transportation Functional Plan (RTFP), providing more detail to cities and counties about how to define TDM and TSMO System Completeness in their planning processes.

This document is intended for technical audiences, particularly city and county planners, and other practitioners responsible for transportation system planning and comprehensive plan amendments. The document and supporting tools may also be used by TDM and TSMO practitioners to program and implement more impactful and equitable tactics to manage roadway space efficiently and reduce single-occupancy vehicle trips.

1.2 How to Use this Document

This document includes instructions, tools, and resources to help cities and counties plan and implement complete TDM/TSMO systems.

This guidance document is organized into two chapters and is meant to serve as a handbook to facilitate implementation of the Regional Mobility Policy in the RTP.

- **Chapter 1 Introduction** presents the changes to mobility policy and the rationale for a complete TDM/TSMO system.
- **Chapter 2 System Completeness** explains the key principles, requirements, and timeline for establishing an optimized TDM/TSMO system in the region.
- **Appendix A Resources** introduces important planning and reporting tools to assist jurisdictions in meeting the requirements.
- **Appendix B Additional Support** explores areas where Metro can provide jurisdictional partners with assistance in implementing the new policy.

1.3 Policy Overview

This section provides context for the RTP System Completeness performance measure including an overview of the Regional Mobility Policy update, the new measures and their applications, and how TDM and TSMO System Completeness can support mobility in the region.

The Regional Mobility Policy, updated as part of the 2023 RTP update, establishes new measures for transportation system performance including System Completeness to apply to individual modal systems (such as transit, motor vehicle, bicycle or pedestrian networks) as well Transportation Demand Management (TDM) and Transportation System Management and Operations (TSMO), which by nature encompass a broad set of policy, programmatic and infrastructure investments.

The following section presents a summary of the changes in the mobility policy and broadly how investment in transportation demand management and transportation systems operations can help realize regional mobility goals.

1.3.1 Redefining Mobility for the Region

In 2023, the updated Regional Mobility Policy was adopted into the RTP following a multi-year joint effort of Metro and the Oregon Department of Transportation (ODOT). The updated policy aligns the RTP with new state transportation planning rule requirements[1] and advance state and regional priorities for safety, climate, equity, mobility and a thriving economy. An update to the Oregon Highway Plan is planned to begin in 2024 to implement changes to the Transportation Planning Rules in 2022 and the Oregon Transportation Plan in 2023. The update will use the RTP mobility policy as a starting point for updating the OHP mobility policy for the Portland region.

As specified in the RTP, the Regional Mobility Policy is used to identify transportation needs and solutions during updates to the RTP and local transportation system plans (TSPs) and corridor refinement planning, and to evaluate the potential impacts of local comprehensive plan amendments and zoning changes. More information about the update to the RTP regional mobility policy can be found at: **www.oregonmetro.gov/mobility**.

1.3.2 Performance Measures and their Application

The RTP Regional Mobility Policy identifies three mobility performance measures to better focus planning activities and resources to deliver these desired mobility outcomes: reduced vehicle miles traveled (VMT) per capita, system completeness for all modes (including TDM and TSMO) and throughway reliability (using travel speed). The three measures replace the interim volume-to-capacity ratio that has been in place since the 2000 RTP. This section provides a brief description of these three measures and their applications.

VMT Per Capita

The Regional Mobility Policy introduces per capita VMT as the primary measure for transportation system planning. The change is intended to increase land use and transportation efficiency and prioritize projects that increase multimodal travel options and reduce single-occupancy vehicle trips and related per capita vehicle miles traveled. Transportation System Plans and Comprehensive Plan Amendments will be required to demonstrate that, if implemented, they will not increase VMT per capita as set in the Oregon Transportation Planning Rules (TPR).[2]

System Completeness

This measure is intended to increase access to multimodal travel options and ensure connectivity in the network for all modes, including TDM and TSMO. System Completeness will be used to ensure that adequate multimodal options exist to help reduce vehicle miles travelled. The Regional Mobility Policy and Oregon Transportation Plan requires that jurisdictions define their plan for a Complete System by mode. This guidance document focuses specifically on the definition of System Completeness for TDM and TSMO.

Throughway Reliability

This measure supports safe, efficient, and reliable, travel speeds for people, goods, and services on the region's designated throughway system. This measure is intended to support identification of throughway needs and ensure reliability of throughways, which includes the Interstate System and state highways classified as Expressways in the Oregon Highway Plan.

Figure 1-1 presents the three performance measures, their rationale and the regional targets/thresholds associated with them.

---

1 OAR 660-012, adopted by the Land Conservation and Development Commission, through the Climate Friendly and Equitable Communities rulemaking, **https://www.oregon.gov/lcd/CL/Pages/CFEC.aspx** **https://www.oregon.gov/lcd/CL/Pages/CFEC.aspx**
2 **https://www.oregon.gov/lcd/op/pages/goal-12.aspx**

Figure 1-1 Performance Measures and RTP Targets and Thresholds

- **RTP Target:**
  - 20% reduction by 2035
  - 25% reduction by 2040
  - 30% reduction by 2045
  - 35% reduction by 2050 (from 2005 levels)
- **Outcome:** Land use and transportation efficiency

VMT/Capita

- **RTP Target:** Complete the "planned" network and system
- **Outcome:** Reliable travel for people, goods and services

System Completeness

- **RTP Threshold:** Average speed does not fall below 35 mph for more than 4 hours per day on region's freeways
- **Outcome:** Reliable travel speeds for goods and services

Throughway Reliability

ⓘ Secondary measures used to identify needs and inform development of planned system.

How to Apply Performance Measures

The new performance measures can be applied in two planning contexts:

Transportation System Planning: System planning defines the planned complete transportation system for the future. The per capita VMT and system completeness measures should be used to set a baseline based on what the transportation system plan is able to achieve, and to identify transportation needs; they may also be used as a planning target. The throughway reliability measure should be used as a threshold to monitor system performance and identify transportation needs.

Comprehensive Plan Amendments: Generally speaking, measures will be used to evaluate whether there is a measurable change in performance compared to the baseline (for example, does the amendment increase VMT/capita?). However, plan amendments take many shapes and sizes, each leading to a different level of review. The Plan Amendment process is discussed in Section 2.3 of this document.

TDM and TSMO System Completeness

Consistent with the Oregon Transportation Planning Rule and RTP, jurisdictions should establish a plan for System Completeness for pedestrian, bicycle, transit, motor vehicle, TDM and TSMO Systems. By defining a Complete System, jurisdictions will be prepared to identify transportation needs and the projects needed to address those needs during system planning, ensure no increases in per capita VMT above a baseline established in the jurisdiction's TSP and comply with the Regional Mobility Policy.

The Regional Mobility Policy considers TDM and TSMO an integral modal element of the transportation system despite differences in how these systems work. The following section briefly explains how Metro defines TDM and TSMO in the region and the benefits of considering network efforts in the region.

Transportation Demand Management

Transportation demand management (TDM) encompasses a broad set of strategies to provide multimodal travel options and increase use of those travel options through programs, education and outreach. TDM fosters access to the existing transportation system- and also works in conjunction with infrastructure improvements- to reduce the number of single occupant vehicle (SOV) trips and related per capita vehicle miles traveled while increasing the share of trips made by walking, bicycling, carpooling, and use of transit.

TDM strategies play an important role improving access to multimodal options and removing barriers through various incentives, education, services, and policies.

TDM activities are carried out at the state, regional, and local levels. Regional TDM activities are coordinated by **Metro's Regional Travel Options (RTO) program** which for more than 20 years has guided the region in creating safe, vibrant, and livable communities by supporting programs that increase walking, biking, ride sharing, telecommuting, and public transit use. The RTO program offers regional partners policy guidance, regional coordination, and technical assistance, as well as funding opportunities through grants and sponsorships.

By defining a Complete TDM System, jurisdictions will be prepared with a targeted set of TDM projects or programs that can work synergistically with other modal systems to increase access to travel options, manage the demand on the transportation network, and reduce VMT.

Transportation Systems Management & Operations

Like TDM, TSMO encompasses a range of different strategies aimed at maximizing the efficiency of the transportation system through management and operations. Like TDM, TSMO strategies are often lower-cost, holistic solutions to manage demand which support reductions in per capita VMT as well as improved system reliability, increased throughput of people and commodities, and improved safety, among other goals.

Metro's Regional TSMO Strategy aims to provide reliable, agile, and connected travel choices through better regional coordination, data management and sharing, safety enhancements, intelligent transportation systems (ITS), and an emphasis on eliminating disparities for underserved populations.

By defining a Complete TSMO System and working to fill in these system gaps, jurisdictions can more fully consider and deploy multimodal alternatives prior to increasing roadway capacity as required by the RTP mobility policy and congestion management process and OHP policy 1G, manage resources more efficiently, and ensure that they are integrated into regional ITS systems. This Chapter establishes a definition for System Completeness for TDM and TSMO and outlines its key principles.

2 System Completeness

2.1 Overview

This Chapter establishes a definition for System Completeness for TDM and TSMO and outlines its key principles.
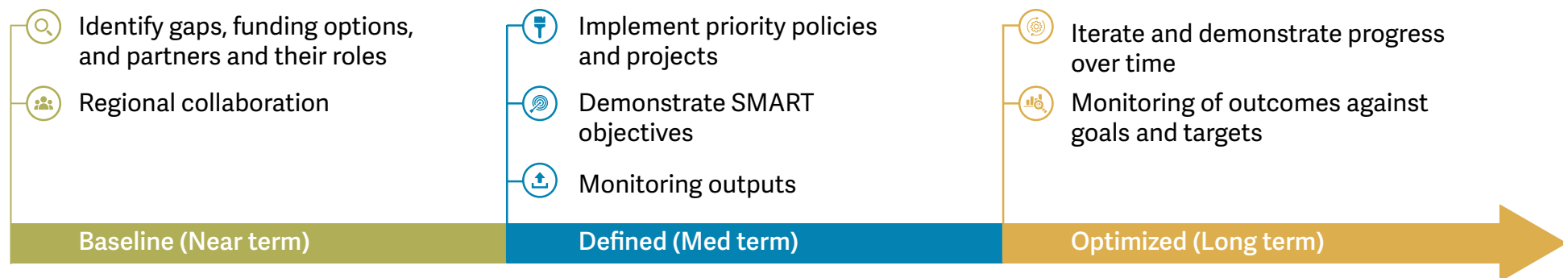
In collaboration with ODOT and regional partners, Metro has established a definition of System Completeness for TDM and TSMO in the RTP to support implementation of the updated Regional Mobility Policy. The following section defines a framework for a Complete TDM and TSMO system, the key principles used in its design, and how it addresses related policies.

The RTP's definition for TDM and TSMO System Completeness uses a competency framework to guide Transportation System Plans which includes baseline, defined, and optimized criteria for System Completeness.

- **Baseline** – jurisdictions **identify and prioritize projects** to address gaps in the TDM/TSMO network and services.
- **Defined** – jurisdictions **implement** priority projects with clear goals and objectives and monitor their progress.
- **Optimized** – jurisdictions monitor the effectiveness of projects against stated goals and objectives and **iterate** and refine their system plans over time.

Figure 2-1 provides an overview of the key aspects of these designations and visualizes how jurisdictions progress from one stage to the next over the near, medium- and long-term.

Figure 2-1 Overview of System Completeness Competency Framework

Identify gaps, funding options, and partners and their roles

Regional collaboration

Implement priority policies and projects

Demonstrate SMART objectives

Monitoring outputs

Iterate and demonstrate progress over time

Monitoring of outcomes against goals and targets

Baseline (Near term)   Defined (Med term)   Optimized (Long term)

2.1.1 Key Principles

TDM and TSMO systems work differently than modal systems, encompassing an array of policies, programs, and infrastructure investments, some of which may overlap with other systems (for example, the bicycle, transit, or pedestrian networks). A complete TDM/TSMO system will necessarily be very different between jurisdictions or even within sub-areas of a jurisdiction depending on a range of geographic, demographic, and other factors, such as:

- Availability of high-quality driving alternatives including the completeness of other modal networks (pedestrian, bike, transit)

- Density of land uses (rural, suburban, and urban areas)

- Type of land uses (commercial, industrial, residential)

- Community demographics and socio-economic characteristics

- History of infrastructure and programmatic investments
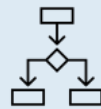
- Unique needs of various transportation users

The RTP's approach to defining System Completeness recognizes these differences and the ways that TDM/TSMO investments can complement other system planning efforts. The following key principles helped guide the development of the Competency Framework:

Responsive to Local Context	Metro adopted a process-based framework used to assess System Completeness that can be applied to many jurisdictions in different phases of TDM/TSMO planning and program development. The framework does not require specific TDM/TSMO strategies be implemented but rather identifies the planning activities to be taken by each jurisdiction to meet baseline requirements and advance to defined and optimized levels of performance.
Outcomes-Oriented	The framework also emphasizes performance monitoring and iteration over time as jurisdictions advance towards optimized System Completeness. This includes monitoring whether identified actions/projects have been completed (outputs) as well as determining the effectiveness of those actions/projects with respect to stated goals and objectives (desired outcomes).
Provides Links Related toTDM/TSMO	The framework recognizes that TDM and TSMO systems often enhance and work synergistically with policies and programs aimed at improving non-drive alone modes, managing demand on roadways, improving connections between transportation networks and land use, and providing better customer experience. The framework incorporates existing policy requirements that support a complete TDM or TSMO system.

2.1.2 Regional Mobility Policy Requirements

As described Section 1.3.2, the Regional Mobility Policy requires that the System Completeness measure be applied to both Transportation System Planning and Plan Amendment processes, shown in Table 2.1. The competency framework helps jurisdictions comply with these requirements. To achieve a Baseline level of compliance, cities and counties define their plan for TDM and TSMO which will then be used to identify gaps/missing elements of the system during the plan amendment process if needed

Table 2.1 Requirements for System Completeness

	System Planning	Plan Amendments
TDM	Establishes the plan for infrastructure and programs.	Missing TDM projects and agreement to fulfill programming per TSP (within proximity to site)
TSMO	Establishes the plan for infrastructure and programs and maintenance of system operability.	Gaps in ITS infrastructure along TSMO Key Corridors and missing projects per TSP (within ¼ mile routing of site)

2.1.3 System Completeness Competency Framework

The purpose of the System Completeness Competency Framework is to guide jurisdictions in the preparation of their Transportation System Plans (TSPs)[1] and any comprehensive plan amendments to implement the Regional Mobility Policy. Broadly speaking, it establishes three stages of System Completeness: Baseline, Defined and Optimized. Each of these stages requires that specific activities or milestones be fulfilled before progressing to the next stage. The following section introduces the Competency Framework presented in **Figures 2.2 and 2.3** including the general requirements and links to related policies.

General Requirements

General requirements apply to both TDM and TSMO system completeness and draw upon the same process-based framework: identify and prioritize, implement, and iterate. Jurisdictions should conduct a needs assessment to identify gaps in the TDM and TSMO systems and identify a set of projects, programs, or policies to address those gaps. Jurisdictions should also identify potential funding sources and partners to implement these programs. As jurisdictions progress to implementing their projects and iterating over time they advance along the Competency Framework to Defined and Optimized Levels.

---

1 The TSP guidance set forth in this document aligns with requirements identified in OAR 660-012-0145, which identifies requirements for transportation options in transportation system plans.

Transportation Demand Management

The Competency Framework does not require that jurisdictions include specific TDM/TSMO strategies. However, jurisdictions should show evidence that they have considered several factors during the Gap Analysis:

- Policy/Land Use
- Geographic (including 2040 Centers and Equity Priority Areas)
- Programmatic (local and regional programs)
- User Groups (including needs of underserved populations[1])
- Modal (walking, biking, transit, carpool/ rideshare, shared mobility)

Transportation Systems Management and Operations

Applying the Competency Framework, jurisdictions review the following factors relevant to a regional TSMO system during the Gap Analysis:

- Mobility on Demand/Emerging Mobility
- Intelligent Transportation Systems (ITS) Architecture
- System Interoperability
- ODOT Analysis Procedure Manual, Chapter 18
- Key TSMO Corridors, RTP Chapter 3 TSMO map

Supportive Policies

In addition, to meet baseline requirements, all jurisdictions demonstrate that they have considered the following supportive policies in their gap analysis. Specific requirements for these policies are found in dedicated sections of the RTP and RTFP.

- Parking
- Pricing
- Design

Specific requirements for TSP compliance with System Completeness Baseline, Defined and Optimized Levels is provided in Section 2.2.

---

1 Underserved populations are defined in the Transportation Planning Rule of Oregon Administrative Rules (OAR 660-012-0125).

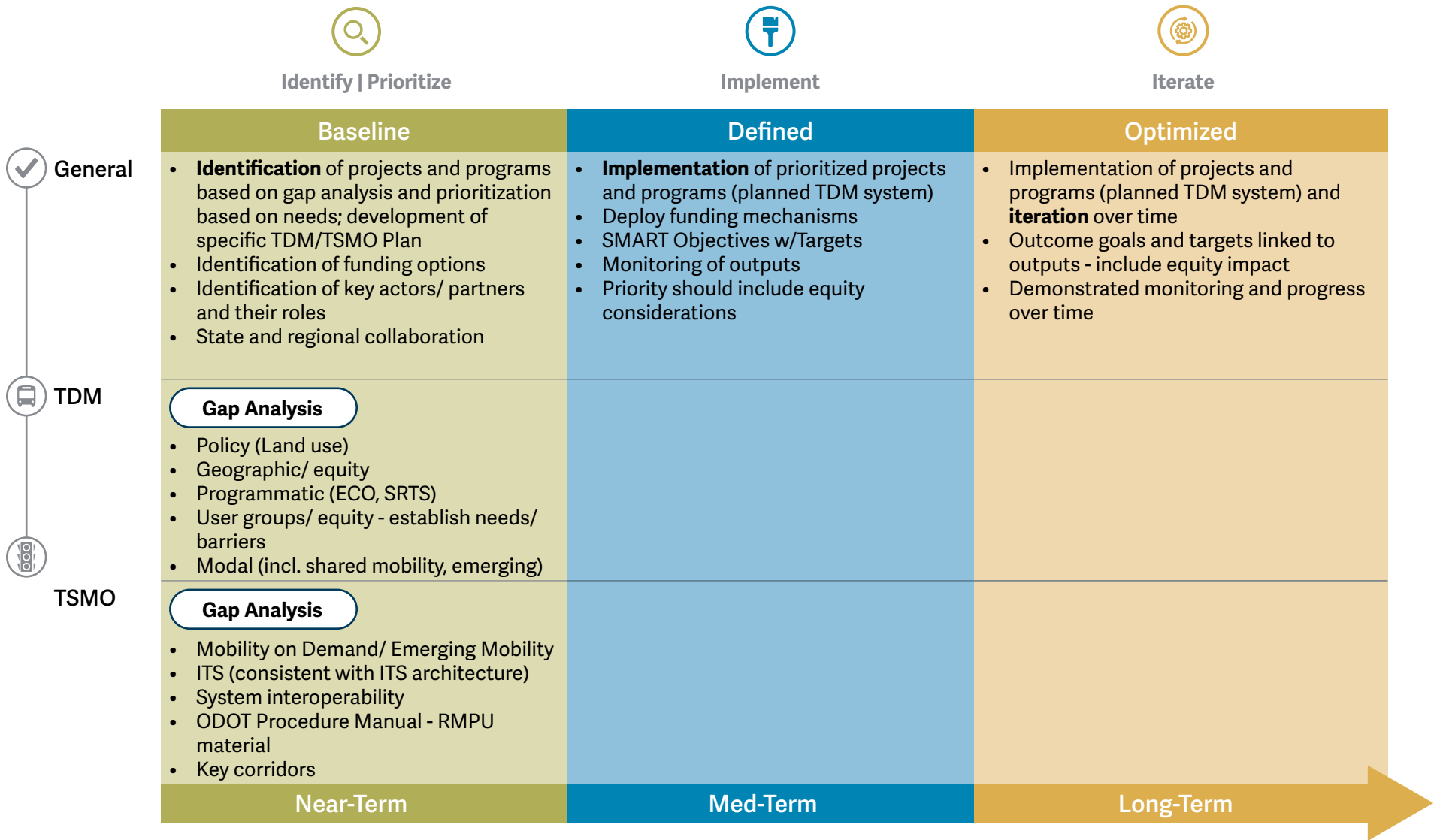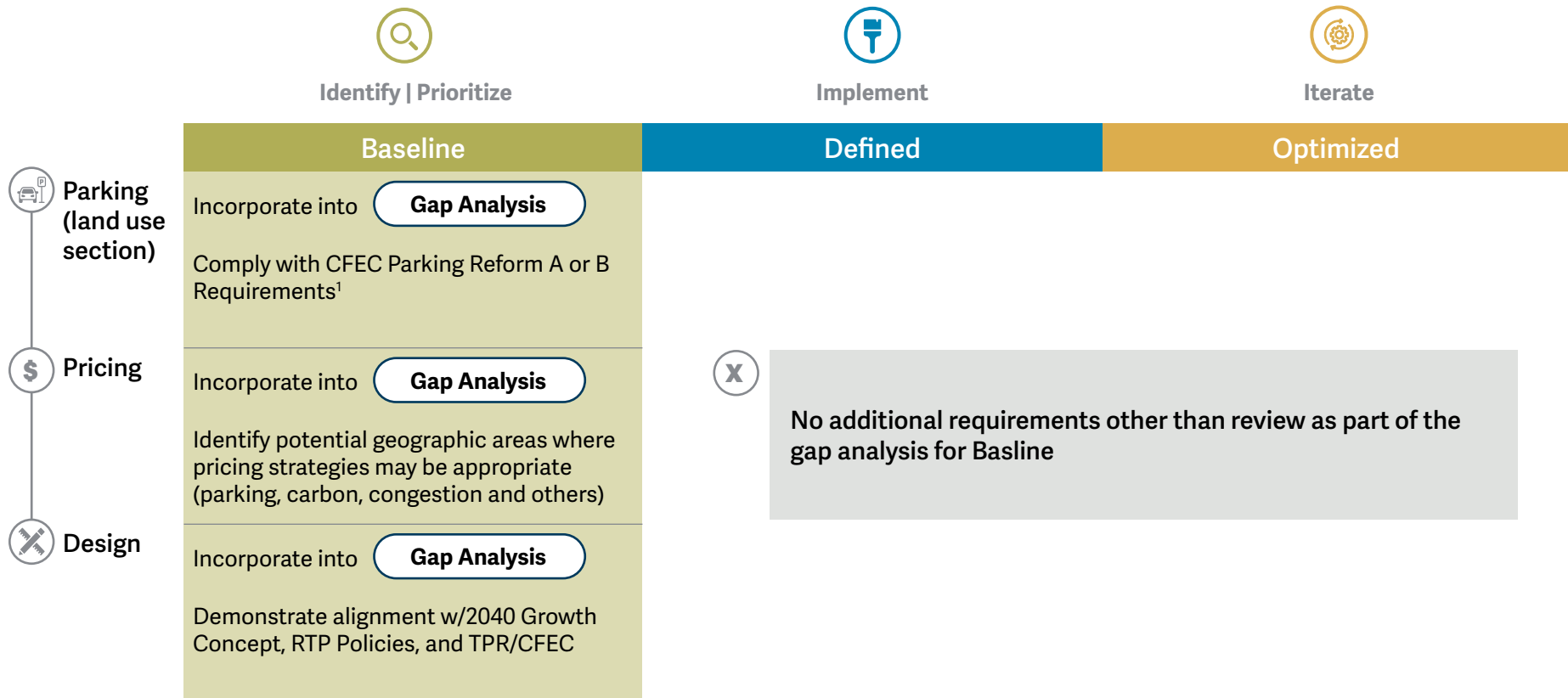**Figure 2-2 General, TDM, and TSMO System Completeness Requirements**

	Identify | Prioritize	Implement	Iterate
	Baseline	**Defined**	**Optimized**
General	• **Identification** of projects and programs based on gap analysis and prioritization based on needs; development of specific TDM/TSMO Plan • Identification of funding options • Identification of key actors/ partners and their roles • State and regional collaboration	• **Implementation** of prioritized projects and programs (planned TDM system) • Deploy funding mechanisms • SMART Objectives w/Targets • Monitoring of outputs • Priority should include equity considerations	• Implementation of projects and programs (planned TDM system) and **iteration** over time • Outcome goals and targets linked to outputs - include equity impact • Demonstrated monitoring and progress over time
TDM	**Gap Analysis** • Policy (Land use) • Geographic/ equity • Programmatic (ECO, SRTS) • User groups/ equity - establish needs/ barriers • Modal (incl. shared mobility, emerging)		
TSMO	**Gap Analysis** • Mobility on Demand/ Emerging Mobility • ITS (consistent with ITS architecture) • System interoperability • ODOT Procedure Manual - RMPU material • Key corridors		
	Near-Term	Med-Term	Long-Term

Figure 2-3 Requirements for Related Policies

Identify | Prioritize	Implement	Iterate
Baseline	**Defined**	**Optimized**

Parking (land use section)

Incorporate into [Gap Analysis]

Comply with CFEC Parking Reform A or B Requirements[1]

Pricing

Incorporate into [Gap Analysis]

Identify potential geographic areas where pricing strategies may be appropriate (parking, carbon, congestion and others)

X **No additional requirements other than review as part of the gap analysis for Basline**

Design

Incorporate into [Gap Analysis]

Demonstrate alignment w/2040 Growth Concept, RTP Policies, and TPR/CFEC

1 The CFEC Parking reform is included in the Transportation Planning Rule of Oregon Administrative Rules (OAR) Chapter 660, division 12 (OAR 660-012-0400 through 0450)

2.2 Requirements for Transportation System Plans

Metro has developed a framework for Baseline, Defined and Optimized levels of System Completeness to help cities and counties integrate TDM and TSMO strategies into their system planning and plan amendment processes.

The following section describes Baseline, Defined and Optimized levels of System Completeness and outlines how jurisdictions may advance from one level to the next over time through a five-year RTP cycle or periodic updates or amendments to a local TSP.

2.2.1 Baseline

Baseline requirements are designed to help jurisdictions identify transportation needs with respect to TDM and TSMO programs, infrastructure, and services, and develop a plan to address those needs. At the regional level, a baseline level of TDM/TSMO system completeness suggests that each jurisdiction that must develop a TSP has adopted a transportation system plan that defines TDM and TSMO strategies and priorities.

To meet Baseline expectations for TDM/TSMO system completeness, jurisdictions complete the following:

- Demonstrate that they have conducted a needs assessment or "gap analysis."
- Identify potential projects/policies to fill gaps in the system.
- Identify potential funding sources and partners to support implementation.
- Participate in regional forums to collaborate, ensure interoperability, and learn about potential funding sources.

Completion of these steps will result in a TDM/TSMO Plan presented in either the adopted TSP or other adopted Plan. In addition, evidence of the gap analysis and selection of priority projects will be documented in the Local Transportation System Plan Checklist (Section A4). The checklist allows jurisdictions to highlight areas of the adopted TSP (or other adopted plan) that fulfill these requirements to streamline the review and approval process.

Important Tips

- Identify solutions that address areas of most concern.
- Boost investments in other modal systems by pairing with complementary TDM/TMSO strategies.
- Prioritize solutions that advance equity for underserved populations and travelers with unique nneds.

The gap analysis should consider factors specific to the regional TDM and TSMO network including gaps related to geographic distribution, modes, various user needs, and types of programs.

Not all factors will be significant to every jurisdiction. Jurisdictions are not required to adopt specific solutions to identified gaps to achieve baseline, but rather demonstrate that a range of factors have been considered and that identified solutions best address the areas of most significant need.

Further, TDM and TSMO planning activities should be done in coordination with planning for other modal systems. Metro's Climate Smart Strategy and 2023 RTP both call for increased integration of TDM into planning and project development at the state, regional and local level. For example, if a jurisdiction plans to invest significant resources in the pedestrian network, investments in TDM and TSMO strategies that complement these investments would be considered more effective and advantageous.

Jurisdictions will also demonstrate that they have considered how TDM and TSMO programs and services can be delivered equitably, considering how the distribution of these programs and services varies across their jurisdiction with respect to underserved populations and ensuring that programs and services address a range of different user needs.

Table 2.2 TDM Requirements for Gap Analysis presents a summary of TDM-related factors to be considered in the gap analysis with questions to help guide the assessment and examples of project and programs.

Table 2.3 provides a summary of TSMO—related factors that should be considered in the gap analysis with questions to help guide the assessment and examples of project and programs.

Table 2.4 provides a summary of TDM and TSMO—related factors that must be considered in the gap analysis with questions to help guide the assessment and examples of projects and programs.

Table 2.2 TDM Requirements for Gap Analysis

Requirements	Key Questions	Examples
Policy/Land Use	• Are there TDM supportive policies in place, specifically for land use and comprehensive plan amendment approval processes? • Can land use policies or requirements be deployed to improve access to non-driving modes, fill gaps in infrastructure, or provide new sources of funding?	• Requirements for TDM services or infrastructure for new development. • Code changes in land use to support higher densities around transit stations.
Geography	• Are TDM programs and services distributed geographically and equitably? • Are the intensities and types of services well-matched to the types of land uses? • Is the level of service matched in underserved populations[1]?	• Funding and programming for Employee Commute Options programs for small businesses in a central business district • SRTS programs/services prioritized at schools of highest need
Programs	• What types programs are missing or need further development?	• Investments through local school district in Safe Routes to School Programs • Transportation wallets • Bike share programs
User Groups	• Do programs and services address a range of different user needs (students, commuters, caregivers, older adults, people living with a disability)? • Are there programs that provide support for underserved populations based on race, income, ability, English language proficiency, and gender?	• Wayfinding materials available in multiple languages • Travel options programming/services at affordable housing
Modal	• Do TDM programs and services offer travel options across a range of modes? • Are there specific modes that should be emphasized based on local context (walking, biking, rolling, transit, shared mobility)?	• Balance of incentives for people to walk, roll, bike and use transit • Bike focused commuter program, due to expected investment in protected bike lanes • Wayfinding investments included and paired with capital investments in bicycle network

1 Underserved populations are defined in the Transportation Planning Rule of Oregon Administrative Rules (OAR 660-012-0125).

Table 2.3 TSMO Requirements for Gap Analysis

Requirements	Key Questions	Examples
Mobility on Demand (MOD)/Emerging Mobility	• Have MOD strategies been considered to address first/last mile gaps? • Are emerging, shared mobility options available for underserved populations?	• Requirements for TDM services or infrastructure for new development. • Code changes in land use
Intelligent Transportation Systems Architecture	• Do local deployments of transportation technology align with the regional ITS Architecture for regional traffic control, traveler information, incident management, public transit, maintenance and construction management and data management?	• Investments in updated real-time traveler information and regional data sharing
System Interoperability	• Are decisions to update signalized intersections made with regional traffic signal system interoperability in mind? • Are road-side units and on-board devices deployed with consideration for regional interoperability?	• Signalized intersections use advanced traffic controllers with high-speed data communications to improve reliability on arterials
2021 TSMO Strategy Actions and ODOT Analysis Procedures Manual, Appendix 18A	• Which of the TSMO Strategy Actions and/or ODOT Analysis Procedures Manual's TSMO Strategies are needed?	• A range of projects are identified to improve local operations and coordination with regional and state operations.
Key Mobility Corridors	• Are there significant gaps along key mobility corridors identified in the RTP Chapter 3 TSMO System Map?	• Investments in active transportation management along key mobility corridors

Table 2.4 TDM Requirements for Gap Analysis

Requirements	Key Questions	Examples
Parking	• Does the TSP comply with TPR requirements[1] for Parking Reform A or B? • Does parking policy encourage or discourage SOV trips? • Does TSP identify physical improvements such as carpool parking spaces or park and ride locations?	• Selection of Parking Reform A • Remove parking requirements; implement parking cash-out program
Pricing	• Have parking management or other pricing strategies been considered in high-use areas with congestion or limited parking capacity?	• Dynamic parking pricing strategies implemented in business district with revenue used to fund TDM/TSMO projects
Design	• Are design standards consistent with RTP street design policies and guidelines?	• Link roadway design standards to land use context and regional street design policies

1 OAR 660-012-0400 through 0450

2.2.2 Defined

Defined requirements are intended to help jurisdictions implement priority projects and programs. At the regional level, a Defined level of System Completeness means that member jurisdictions have dedicated funding sources to implement their respective TDM/TSMO plans in coordination with key partners and are monitoring their progress.

To meet Defined requirements for TDM/TSMO system completeness, jurisdictions complete the following:

- Implement priority projects identified in the TDM/TSMO plan to address gaps.
- Define clear goals with SMART objectives and performance measures for projects.
- Monitor performance over time against targets (outputs).

Jurisdictions document their progress against their list of priority projects during a TSP update or a major TSP amendment. Jurisdictions also complete the **Local Transportation System Plan Checklist** (Section A4) and document the sections of the TSP or Amendment that fulfill the Defined requirements.

"SMART" Objectives

Projects and programs should demonstrate SMART objectives: specific, measurable, achievable, realistic, and time bound.

2.2.3 Optimized

Optimized requirements are designed to encourage jurisdictions to evaluate the broader impact of their TDM and TSMO investments. At the regional level, an Optimized level of System Completeness means that member jurisdictions are actively implementing a plan to address the identified gaps and are iterating to achieve stated objectives and targets.

To achieve Optimized System Completeness, jurisdictions complete the following:

- Identify target outcomes for projects in the TSP.
- Collect data and monitor project performance.
- Revise and iterate the plan to achieve progress against the TDM/TSMO plan.

Jurisdictions monitor performance of their TDM/TSMO plan, including:

- The specific actions included in the plan and their stage of implementation (**"scope"**)
- The direct measurable changes in the system as a result of those actions (**"outputs"**)
- The broader benefits or impacts of the actions (**"outcomes"**)

Figure 2-4 presents an example of a project development logic framework to illustrate how it may apply to TDM and TSMO systems planning.

- At baseline, jurisdictions are engaged in planning activities that define the specific actions or strategies to be included in the TDM/ TSMO plan (and the TSP).

- At Defined, jurisdictions begin monitoring what projects have been implemented and any observed/ measurable changes in operations or infrastructure as a result of those actions.

- At Optimized, jurisdictions evaluate how successful those projects are relative to their specified goals and objectives.

Jurisdictions monitor performance and propose adjustments to the plan in either the updated TSP or a TSP amendment. Jurisdictions also complete the **Local Transportation System Plan Checklist** (Section A4) and indicate the sections of the TSP or Amendment that fulfill the Optimized requirements.

Figure 2-4 Project Development Framework

Description	Inputs — Resources required to deliver the project	Scope — The specific actions or strategies identified in the plan	Outputs — The direct measurable change resulting from the actions in the plan	Outcomes — The broader value to be realized by the actions/ plans
Examples	• Project costs (funding sources) • Planning activities • Staffing/human resources (including partners) • Materials	• TDM/TSMO specific strategies as commuter incentives programs, wayfinding investments, investments in ITS architecture	• Number of meters installed • Number of events • Gaps filled • New wayfinding signage	• Change in travel behavior • Reduction in VMT/capita • Reductions in greenhouse gas emissions • Customer satisfaction with travel options
Performace Monitoring	**Baseline** — What needs have been identified? What potential resources are available and ready?		**Defined** — What projects have been implemented? What observed change has there been as a result? What gaps remain?	**Optimized** — What project(s) resulted in change in travel behavior and associated VMT or GHG?

2.2.4 Advancing through Framework

Jurisdictions will ultimately advance through the framework from Baseline to Optimized within a timeline specific to local context and resources. The following section presents an overview of the process of advancing through the capability framework in coordination with Regional Transportation Plan update cycles, presented in **Figure 2-5.**
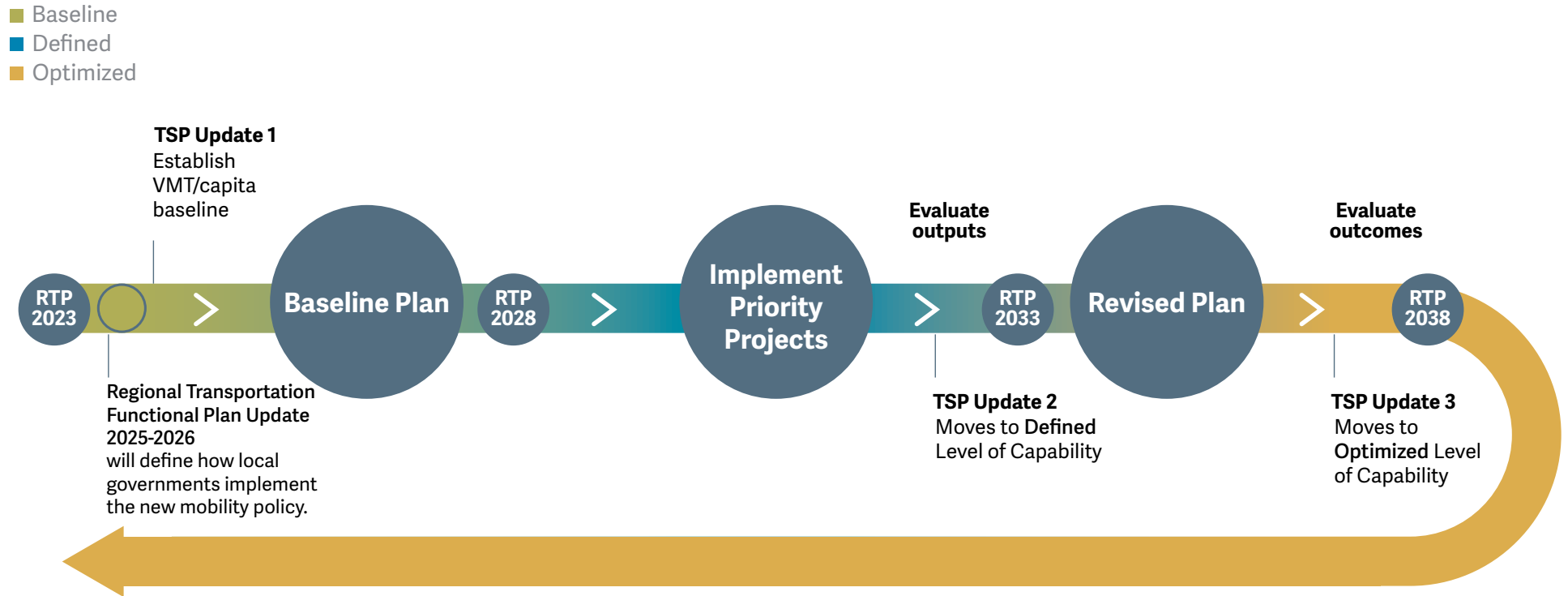
The 2023 Regional Transportation Plan was adopted November 30, 2023, and included the updated Regional Mobility Policy. Subsequently, Metro will direct local implementation of the Regional Mobility Policy through a future update to the Regional Transportation Functional Plan (RTFP). The RTFP update is planned in 2025-26. In the near-term (2 to 5 years), as local jurisdictions update/amend or make plans to update/amend their TSPs to comply with the Transportation Planning Rule and updated RTFP, they should begin addressing Baseline requirements for TDM/TSMO system completeness consistent with the RTP mobility policy and this guidance. Some jurisdictions may demonstrate that they have already achieved a Defined or Optimized level. Some jurisdictions may choose (and are encouraged) to begin implementing the RTP mobility policy prior to or concurrent with the update to the RTFP.

Jurisdictions should begin implementing priority projects in advance of the 2028 RTP and evaluate outputs (How many projects have been implemented? What is the resulting change in operations and/or infrastructure?). Jurisdictions may update their TSP with an amendment (**TSP Amendment**) indicating that they have met these requirements and moved to the Defined level of System Completeness.

As jurisdictions continue to implement their projects, they should also collect data on the performance of those projects and associated changes in travel behavior, per capita VMT reduction, greenhouse gas reduction, and equity goals. Prior to their next TSP update or the 2033 RTP, jurisdictions should report on how they have achieved Optimized level of System Completeness and any revisions to the TSP based on the evaluation **(TSP Update 2)**.

While the Framework presents three progressive phases of advancement for clarity, it is important to note that any planning process is dependent on local resources, and iterative. Changes in demographics, development/infrastructure, or new opportunities in technology and/or service provision may alter prioritized needs. Any TSP update should involve revisiting earlier phases in the process to ensure that prioritized projects still meet community needs and regional goals.

Figure 2-5 Advancing through the Framework

- Baseline
- Defined
- Optimized

TSP Update 1
Establish VMT/capita baseline

Regional Transportation Functional Plan Update 2025-2026 will define how local governments implement the new mobility policy.

RTP 2023

Baseline Plan

RTP 2028

Implement Priority Projects

Evaluate outputs

RTP 2033

TSP Update 2
Moves to **Defined** Level of Capability

Revised Plan

Evaluate outcomes

RTP 2038

TSP Update 3
Moves to **Optimized** Level of Capability

2.3 Requirements for Plan Amendments

System Completeness measures are used to help manage the Plan Amendment process and ensure that plan amendments will not result in an increase of per capita VMT above the baseline established in the TSP.

The following section describes how the TDM/TSMO system defined in the TSP should be consulted for Plan Amendments and funding expectations for small and large plan amendments.

2.3.1 Addressing Gaps within the Impact Area

Baseline requirements establish a complete TDM/TSMO system based on local needs and gap analysis. If a Comprehensive Plan Amendment is found to increase per capita VMT above the baseline established in the jurisdiction's TSP, the jurisdiction will implement measures to increase System Completeness for TDM/TSMO and other modes, including:

- Identify missing TDM projects within proximity to the site and confirm agreement to fulfill programming per TSP.

- Identify gaps in ITS infrastructure along throughways, arterials and other streets identified on the TSMO Network map (2023 RTP Chapter 3 Figure 3.38) and missing projects per TSP within one-quarter mile routing of site.
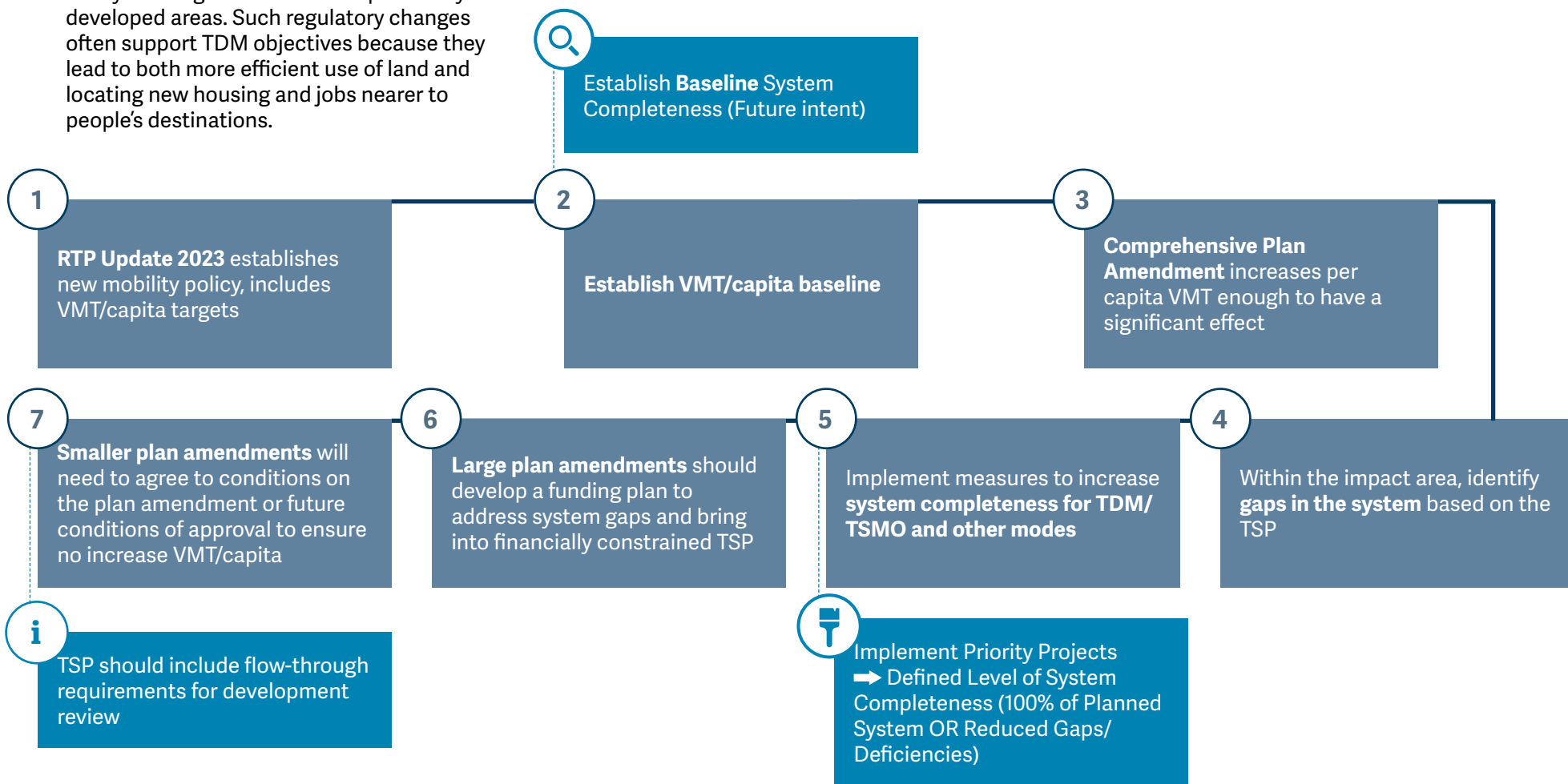
Generally speaking, measures will be used to evaluate whether there is a measurable change in performance compared to the baseline (for example, does the amendment increase VMT/capita?). However, plan amendments take many shapes and sizes, each leading to a different level of review. Examples include:

- Large areas such as UGB expansion areas: cities and counties amend their comprehensive plans to facilitate growth UGB expansions that typically involve several hundred acres. At this scale, planners, guided by the Urban Growth Management Functional Plan's Title 11, develop land use and infrastructure plans that lead to complete communities where people have both more options for how they travel, and are able to reach daily needs close to home or work. When properly employed, TDM and TSMO elements encourage mode shift and reduce drive-alone trips, helping communities leverage investments in travel options.

- Small areas: One or a small group of landowners may petition a city or county for an amendment to the comprehensive plan or zoning. These small applications may not be of scale to allow for TSMO but should utilize site specific TDM approaches. Examples include right sized and/or shared parking facilities, secure bike parking with workshop space, and transit passes for residents or employees. Additionally, small site plan amendments are usually sought within previously developed areas where demand for new housing or job space has increased. These areas are likely to have densities and mix of uses; adding more units or jobs typically lowers household based per capita VMT. While TSMO options may be limited, some building owners have successfully installed real-time transit tracking in lobbies.

- Regulatory changes: In response to changes in State law, evolving market dynamics, and the housing crisis, cities and counties often make changes to plan policies and subsequent implementing ordinances such as zoning. For example, many cities are choosing to reform parking requirements, or allow for more multi-family housing in both new and previously developed areas. Such regulatory changes often support TDM objectives because they lead to both more efficient use of land and locating new housing and jobs nearer to people's destinations.

Figure 2-6 provides an overview of the Plan Amendment process and how the System Completeness performance measure will ensure no increase in VMT/capita.

Figure 2-6 Plan Amendment Process

Establish **Baseline** System Completeness (Future intent)

1 **RTP Update 2023** establishes new mobility policy, includes VMT/capita targets

2 **Establish VMT/capita baseline**

3 **Comprehensive Plan Amendment** increases per capita VMT enough to have a significant effect

7 **Smaller plan amendments** will need to agree to conditions on the plan amendment or future conditions of approval to ensure no increase VMT/capita

6 **Large plan amendments** should develop a funding plan to address system gaps and bring into financially constrained TSP

5 Implement measures to increase **system completeness for TDM/TSMO and other modes**

4 Within the impact area, identify **gaps in the system** based on the TSP

TSP should include flow-through requirements for development review

Implement Priority Projects ➡ Defined Level of System Completeness (100% of Planned System OR Reduced Gaps/Deficiencies)
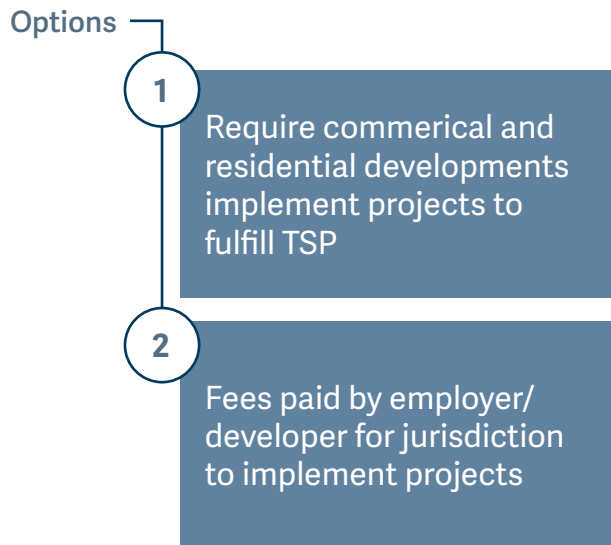
2.3.2 Funding Projects that Reduce VMT

Large Plan Amendments should be required to develop a **funding plan** to address system gaps and bring them into a financially constrained TSP. Jurisdictions that have achieved Baseline levels of System Completeness should have begun identifying potential funding mechanisms.

Small Plan Amendments do not need a funding plan but should agree to conditions that require future development to implement or fund projects that increase System Completeness for TDM/TSMO and other modes.

Section 5.5 Funding provides more information about potential funding mechanisms that can be used to implement TDM and TSMO projects.

Figure 2-7 Recommended conditions of approval for small plan amendments

Options

1 Require commerical and residential developments implement projects to fulfill TSP

2 Fees paid by employer/developer for jurisdiction to implement projects

Example Case Study
City of Hillsboro Community Development Plan

The City of Hillsboro adopted the South Hillsboro Community Plan as a legislative plan amendment, providing a framework for a new master-planned development, including the 463-acre Reed's Crossing neighborhood in South Hillsboro.

- The plan successfully addresses many Baseline requirements:
- Defines land uses in a TDM supportive way
- Identifies key corridors for TSMO projects from the Tualatin Valley Highway Corridor and South Hillsboro Focus Area Plans to increase regional connectivity.
- Incorporates priority wayfinding improvements.
- Identifies funding sources - primarily from new private development in South Hillsboro, with supplemental funding anticipated from potential "Regional Share" sources
- Includes inventory of on- and off-street parking.

Under the regional mobility policy, if a comprehensive plan amendment is found to have a significant effect on per capita VMT, then the city must implement measures to increase system completeness for other modes. This includes implementation of TDM and TSMO projects (which would be identified in the TSP and the Plan Ammendment) within the project areas.

The policy also requires that a Funding Plan be established for these projects, which would include funding identified from private development during the approval process.

Appendices

A Resources

A1 Overview of Key Planning Tools

The following chapter introduces important planning tools that can be used to assess gaps in the TDM/TSMO system and document alignment with System Completeness guidance in the Regional Mobility Policy.

A2 TDM/TSMO Toolbox

The TDM and TSMO Toolbox provides a description of specific TDM and TSMO strategies that cities and counties can utilize to design their Complete TDM and TSMO Systems. It is intended to support jurisdictions as they undertake TSP updates and amendments by helping them to move through the stages of the TDM/TSMO Competency Framework (presented in section 2.1) as described in Table A.1.

A3 Mobility Corridors

The 2023 RTP's Regional Mobility Corridor concept (Figure A.1) envisions regional travel corridors defined by a central throughway and high-capacity transit well supported by a network of arterial streets, frequent bus routes, freight and passenger rail and bicycle parkways to provide for regional, statewide, and interstate travel. This includes consideration of parallel and interconnected facilities, different travel modes, and land use when identifying needs and solutions to improve mobility within a corridor.

Table A.1 TDM/TSMO Toolbox System Completeness Support

Competency Framework Aspect	TDM/TSMO Toolbox Support
Baseline	**Undertake a Gap Analysis**: When completing their initial gap analyses, jurisdictions can utilize the toolbox to compare the strategies they are currently employing to those that may align or work well in their TSP. Jurisdictions should not consider each individual strategy not used as a 'gap' but should review the Toolbox comprehensively to understand whether there are key areas (Policy, Programming, Emerging Mobility, etc.) where they are lacking. **Prioritize appropriate projects and programs:** Based on the Gap Analysis, jurisdictions should use the toolbox to identify TDM and TSMO strategies for prioritization.
Defined	**Implement prioritized projects and programs:** The toolbox provides specific guidance to support strategy implementation, including: • Information about strategy cost • Example objectives and targets for strategy implementation • Guidance around how equity should be considered and incorporated in strategy delivery
Optimized	**Iterate and maximize impact of TDM/TSMO:** The toolbox provides guidance specific to 'aligning priorities' and helps jurisdictions set outcome-based objectives which should be tracked over time. As successes and challenges become apparent through ongoing project or program implementation, jurisdictions can utilize the toolbox to identify additional strategies that support the same priorities.

Figure A.1 Regional Mobility Corridors Concept[1]

Legend

Corridor 1 - Portland Central City to Vancouver

Corridor 2 - Portland to Tigard/Tualatin

Corridor 3 - Tualatin to Wilsonville

Corridor 4 - Portland Central City to Loop

Corridor 5 - Portland Central City to Gateway

Corridor 6 - Gateway to Troutdale/Wood Village-Fairview

Corridor 7 - Gateway to Clark County

Corridor 8 - Gateway to Oregon City

Corridor 9 - Oregon City to Willamette Valley

Corridor 10 - Oregon City to Tualatin

Corridor 11 - Tigard/Tualatin to Sherwood/Newberg

Corridor 12 - Beaverton to Tigard

Corridor 13 - Portland Central City to Beaverton

Corridor 14 - Beaverton to Hillsboro

Corridor 15 - Hillsboro to Forest Grove

Corridor 16 - Portland Central City to Columbia City

Corridor 17 - Rivergate to I-5

Corridor 18 - Columbia Corridor

Corridor 19 - Portland City Center to Lents

Corridor 20 - Lents to Gresham

Corridor 21 - Portland Central City to Oregon City/West Linn

Corridor 22 - Milwaukie to Clackamas

Corridor 23 - Clackamas to Damascus

Corridor 24 - Fairview/Wood Village/Troutdale to Damascus

1 https://www.oregonmetro.gov/regional-transportation-plan
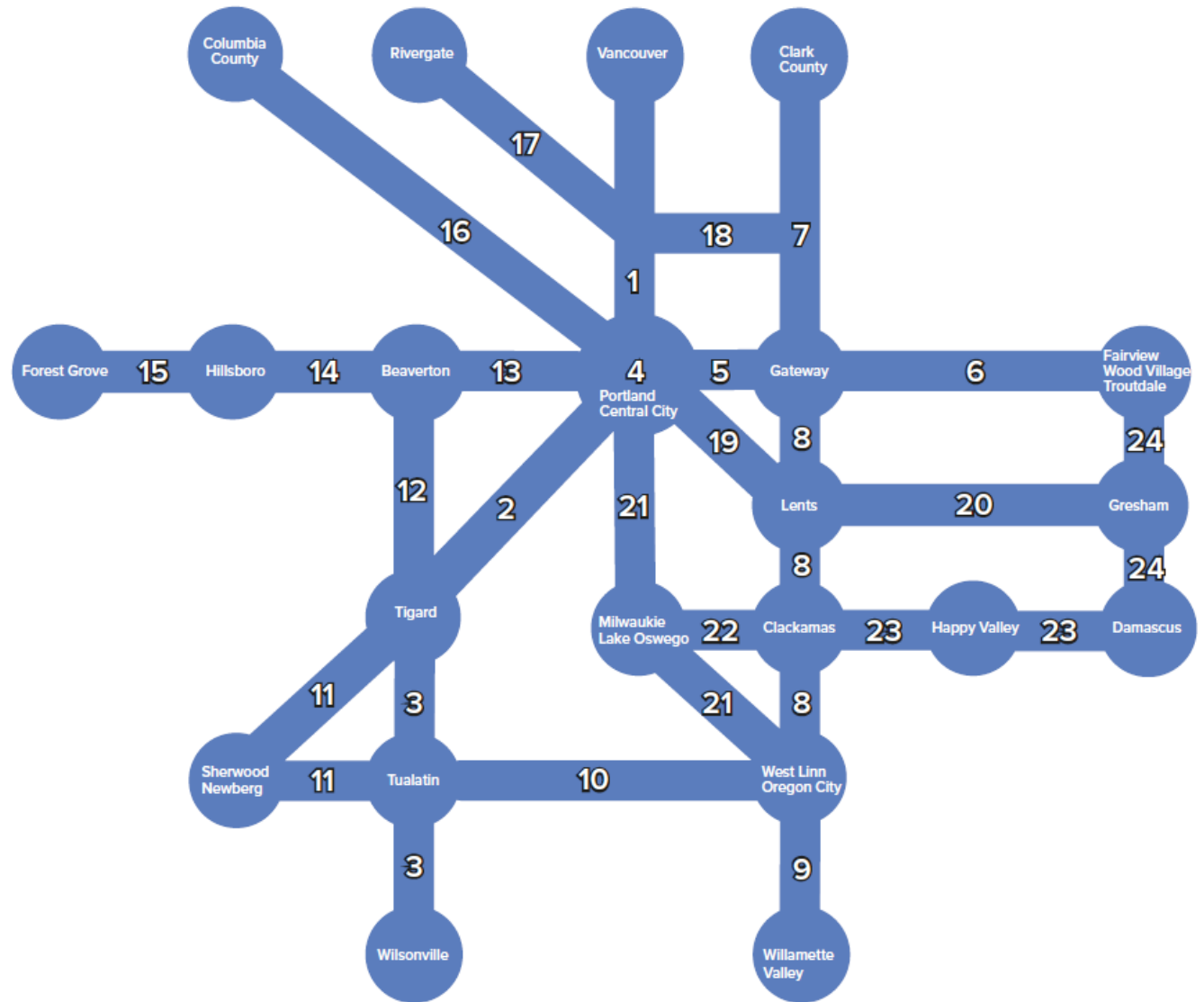
A4 **Local Transportation System Plan Checklist**

The Local Transportation System Plan Checklist is a specific form used by Metro to evaluate city and county Transportation System Plans (TSP)s during the review process for consistency with the RTP and RTFP. Metro staff can provide local planners with support to bring their TSPs into compliance should if there are inconsistencies flagged during the review process.

Metro will update the Local Transportation System Plan Checklist to include the new expectations for TDM and TSMO System completeness as described in **Requirements for Transportation System Plans.** This form will be used to demonstrate that city and county TSPs have achieved Baseline, Defined, or Optimized levels of System Completeness. Responses to the questions included in the form should document where in the TSP document specific elements can be found.

B Additional Support

B1 Overview

The following chapter presents information about ways that Metro can support local cities and counties comply with the Mobility Policy requirements and achieve a baseline, defined or optimized level of TDM/TSMO System Completeness.

These areas of support include:

- Consultation during the development of TSPs and TSP amendments on implementation of the mobility policy.
- Coordination and knowledge sharing among regional partners.
- Funding opportunities to support TDM and TSMO efforts.
- Additional tools, resources, and direct services offered by Metro that support TDM and TSMO implementation in the region.

B2 Transportation System Plan Consultation

Metro staff are available for consultation during the Transportation System Planning process to help jurisdictions undertake gap analyses, prepare TDM/TSMO plans, and document their level of System Completeness in the Local Transportation System Plan Checklist.

Figure B.1 shows a high-level view of the proposed process to develop and adopt a TDM and TSMO plan into a TSP. Metro staff are formally required to review TSPs and the Local Transportation System Plan Checklist prior to submission to the Oregon Department of Land Conservation and Development (DLCD) for approval. However, Metro staff are available for engagement from the initiation of the gaps analysis through development of the TSP to answer questions related to:

- TDM and TSMO best practices
- Equity considerations and priorities in the region
- Funding opportunities
- Performance monitoring

Figure B.1 TSP Development and Approval Process

Gap Analysis → TDM/TSMO Plan → Development of TSP → Metro Review → Adoption of TSP by local agency → Approval by Oregon LCDC

B3 Regional Coordination

Baseline System Completeness expectations include collaboration and participation in regional working groups focused on TDM and TSMO. Metro convenes multiple regular meetings with important groups for the purpose of encouraging knowledge sharing and distributing information about regional activities and funding opportunities. Table B.1 summarizes opportunities for regional collaboration around TDM and TSMO.

B4 Funding

Funding options are an important component of the Baseline and Defined levels of System Completeness. At Baseline, jurisdictions should begin identifying potential funding mechanisms to implement priority TDM and TSMO projects. At Defined, jurisdictions should have begun implementation. The following Table B.2 provides a summary of potential local, regional, and state funding to support TDM and TSMO projects and programs.

Table B.1 Opportunities for Regional Collaboration

Committee/Working Group	Description
Transportation Policy Alternatives Committee (TPAC)	Composed of technical staff from local governments, agencies and community groups, TPAC reviews area plans and advises area leaders on transportation investment areas and policies.
TransPort	Subcommittee of TPAC that implements TSMO policy and strategies, and provides forum for cooperative planning and deployment.
Regional Travel Options Collaborative Groups	Composed of regional partners and organized by topical areas, these groups share information and resources to support travel options programs throughout the region.

Table B.2 Funding Sources for TDM and TSMO Programs

Funding Source	Description
Developer Fees/ Impact Fees	Local governments may apply fees for new commercial and residential impacts to mitigate impact of increased traffic congestion and use of public infrastructure. These impact fees may also be applied to projects that involve substantial changes or additions to existing buildings (e.g., additions to the building envelope). Typically these fees are applied during the development approval process.
VMT Mitigation Banks and Exchanges	Local governments may also require that developers purchase VMT reduction credits for projects, which may be used to fund projects aimed at reducing VMT. Typically credits will be scaled to the degree of VMT impact. In some cases, this strategy may be used to fund projects outside of the immediate impact area.
Community Benefits Agreements	Community Benefits Agreements require that project sponsors (public or private) provide agreed benefits for the impacted community, which can include support a range of investments in transit, TDM programs, affordable housing, parks and more. Local governments may implement policies that require project sponsors to negotiate CBAs.
Road Pricing	Road pricing programs charge directly for road usage and are typically coordinated at the state or regional level. Road pricing can be used as a TDM strategy to manage demand by increasing the cost of driving and generate revenue for transportation investments. Fees may be applied as a flat toll or vary be level of congestion or emissions. Dynamic pricing models use real-time information about congestion levels to charge fees based on fluctuating roadway demand. Allocation of these revenue sources to fund TDM and TSMO programs will involve Metro and ODOT oversight; therefore, jurisdictions should participate in regional forums for collaboration to learn about opportunities emerging from road pricing programs.
Parking Pricing	Revenue from parking may also be used to fund TDM and TSMO projects. This can include flat rates or dynamic parking pricing particularly in an area where parking utilization is high. For example, the City of Portland works with neighborhoods and parking committees to consider surcharges that then are used to subsidize transit fares and shared-use mobility (Transportation Wallet).
Business Improvement Districts	Business improvement districts (BIDs) may be organized in commercial districts to collect fees from participating businesses and fund programs that help reduce per capita VMT. Strategies can be deployed to increase pedestrian activity and manage roadway and parking spaces in high activity centers.

Figure 2-9 Funding Sources for TDM and TSMO Programs continued

Funding Opportunities	• Transportation Growth and Management (TGM) Grants: ODOT in partnership with DLCD distributes funding to counties and cities to update their TSPs to comply with the Transportation Planning Rule and RTP regional mobility policy. • ODOT TSP Funding Program: ODOT is providing direct funding to update TSPs for CFEC compliance, primarily from 2024 to 2029.[1] • Other ODOT/DLCD CFEC Implementation Support: The agencies are working together to support implementation activities, including providing technical and financial support to update parking codes and land use requirements, conduct studies, and to develop data, tools and guidance for collecting multimodal inventory data and conducting per capita VMT analysis.[2] • Regional Travel Options Grants: Metro's RTO program distributes federal funding for TDM projects through a capability-based grant program on a regular three-year cycle. Government agencies, colleges, universities, public school districts or schools (K-12), and non-profit organizations are eligible to apply for Regional Travel Options grants. Grant projects or programs must increase access to and use of travel options, and advance the goals, objectives, and priorities for transportation and land use defined in the Regional Transportation Plan, Regional TSMO Strategy and the Regional Travel Options Strategy. RTO accepts grant applications annually for 1 to 3-year projects/programs, as well as on a rolling basis for materials and services grants under $5,000.[3] • Transportation System Management and Operations projects are often integrated into capital, transit service, new mobility or area-wide capability projects. Metro's TSMO Program includes competitive funding for projects, typically on a three-year cycle. US DOT supports TSMO-related competitive funding programs based on federal reauthorization of surface transportation funds (e.g., Bipartisan Infrastructure Law). Metro and ODOT often assist TSMO partners in pursuing these funds.

1 Information about the program is available here: **https://www.oregon.gov/odot/Planning/Pages/Climate-Transportation-Planning.aspx**
2 Information about this implementation support is provided here: **https://www.oregon.gov/lcd/CL/Pages/CFEC.aspx**. A guide will additional funding opportunities is available here: **https://www.oregon.gov/odot/Programs/Documents/EMC_Local_Funding_Handbook.pdf**
3 Information about RTO Grants is available here: **https://www.oregonmetro.gov/tools-partners/grants-and-resources/regional-travel-options-program**

B5 Additional Activities and Direct Services

Metro also provides the following activities and services to complement its role in regional coordination and support implementation of TDM and TSMO efforts:

B5.1 TDM

Regional Planning

In 2045-2025, Metro will develop the Regional Transportation Demand Management (TDM) Strategy to implement new TDM policies in the 2023 RTP (including the Regional Mobility Policy update), as well as update Metro's 2018 Regional Travel Options (RTO) program strategy to support implementation. Through the process of developing the 2023 RTP, the region identified the need for clearer direction regarding how TDM should be implemented. This direction more clearly describes the role of TDM in helping implement the region's strategies for mobility management and greenhouse gas emission reductions. This new RTP requires a greater commitment from the region's cities and counties to implement TDM activities. At the same time, it recognizes the important role played by non-profit organizations in delivering TDM services.

The Regional TDM Strategy will identify regional gaps and priorities for TDM, provide implementation guidance to state agencies, transit providers, local agency and non-profit partners, and provide direction on how the Metro RTO program can support these efforts through identified and coordinated activities that are meaningful and appropriate to the context of specific communities. This project will comprise two distinct phases: Phase I: Assessment and Phase II: Strategy Development. Phase I includes an assessment of the RTO program and existing regional TDM services. Phase II includes the Regional TDM Strategy as well as an update to the 2018 RTO Program Strategy in the form of an internally oriented RTO work plan.

Regional Employer Framework

In 2023, Metro developed the **Regional Employer Framework** in partnership with local jurisdictions, nonprofits, and educational institutions with the goal of establishing a unified and seamless approach to commuter services with the following goals and objectives:

- Increase regional collaboration and leadership around commuter programming.
- Increase awareness, breadth, and reach of regional commute programs.
- Achieve adequate resourcing for commuter programming.
- Collect regional data to demonstrate impact and refine programming.

The Framework can be a helpful resource during the gap analysis and implementation of priority TDM programs in that it:

- Provides a vision for commuter services across the region and outlines clear roles and responsibilities for Metro and other TDM implementors.
- Identifies regional priority programs (including Employer Outreach and Marketing, Commuter Outreach and Marketing, Lead Generation, Pre-Tax Commuter Benefit Assistance, among others).
- Provides detailed information to support implementation such as the target audience for each service, key outcomes, inputs, and resources needed, and implementation recommendations.

Safe Routes to School Mapping Tool

Metro's **Safe Route to School Mapping Tool** provides an interactive comparative analysis of safety and equity for all schools in the region. This tool can be used to help understand how local schools compare to others and where projects should be prioritized to address specific user and equity needs. Safe Routes to School should be included in the programmatic element of the gap analysis.

RTO Research

Overseeing the planning and implementation of regional TDM programs and services requires periodic assessments of the RTO Program, and of regional needs and opportunities. Metro undertakes these studies and publishes its findings and associated tools and resources under **RTO Research**. Examples include the TDM Needs and Opportunities Assessment, RTO Grant Program Evaluations, and Travel Options Surveys, among others.

Direct Services

Metro assists local jurisdictions and RTO partners by connecting them directly with TDM services. These include travel options marketing and communications materials and support, translation services, access to shared equipment such as educational bike/scooter fleets, technical assistance and more.

B5.2 TSMO

Regional Planning

The 2021 TSMO Strategy includes a regionally adopted set of 21 actions. Agencies can review TSMO actions as a helpful resource during gap analysis. The following list omits a few actions that are not likely to be in local system planning efforts. The remaining actions are important connections that will advance local and regional capabilities with mutual benefits. Each action is supported by sub-actions and those details are a helpful resource. Please refer to section 5 of the 2021 TSMO Strategy, posted at **oregonmetro.gov/tsmo**.

Adopted TSMO Actions

Concepts, Capabilities, and Infrastructure

2. Inventory and manage regional signal and ITS Communication infrastructure.
4. Manage transportation assets to secure the network.
7. Continue freight technology and ITS deployment.
8. Facilitate ground truthing of emerging technologies.
11. Develop an ITS travel time information data collection and distribution plan for RDPO regional emergency routes.
14. Create continuous improvement process for existing and new signal systems and related performance.
15. Deploy regional traveler information systems.
16. Implement integrated corridor management and mainstream into corridor planning.
17. Create a TSMO safety toolbox.
20. Build and use a TSMO Toolbox to [address barriers] in bicycle and pedestrian infrastructure.

Planning

3. Develop a Mobility on Demand strategy and policy.
18. Participate in regional public outreach to assist in guiding, listening and learning through TSMO-focused conversations.
21. Update the regional ITS Architecture.

Listening and Accountability

6. Track and prioritize TSMO Investments for and with Black, Indigenous, people of color, and people with low incomes.
13. Create a community listening program.
19. Improve TSMO data availability to aid in traveler decisions and behavior.

The 2021 TSMO Strategy incorporated equity during planning discussions by using a one-page diagram called the **TSMO Equity Tree**. The diagram can also be found at Metro TSMO web page on the Equity tab. Metro TSMO staff have led several subsequent efforts using the Equity Tree and will continue to use it at the start each program activity. Please reach out for lessons learned.

ODOT Summary of TSMO Strategies

ODOT's Analysis Procedures Manual includes a Summary of TSMO Strategies. These are helpful during the gap analysis and will result in concepts for projects, whether they are integrated into larger projects or an individual project. Refer to Appendix 18A for list of strategies and key benefits: **https://www.oregon.gov/odot/Planning/ Documents/APMv2_App18A.pdf**.

Systems Engineering

Making additional considerations for technologies and the systems that are needed to run them can be challenging during high-level planning processes. Fortunately, there is guidance to get started in an interactive Systems Engineering diagram, referred to as the V-diagram or Vee diagram. The early phases are familiar to planners and includes:

- Needs Assessment
- Concept Selection
- Project Planning

Early work on activities in these areas help set up the rest of the project for success. You can explore and interactive V-diagram here: **https://www.fhwa.dot.gov/cadiv/segb/views/ process/index.cfm**

ITS Architecture

The Regional Mobility Policy guidance for TSMO references the Intelligent Transportation Systems (ITS) Architecture which is a blueprint for data flows that help agencies support each other with lower-cost, interoperable systems like traffic signal control. The Metro TSMO Program funded an update in 2016 and new technology systems are recorded as they develop. Some of the future systems anticipated in 2016 are now in use. The regional ITS Architecture document can be found on Metro's TSMO webpage and the concept diagrams are handy when conducting a gap analysis. The Metro TSMO Program will update the ITS Architecture, starting late 2024 or early 2025 and will include input from agency partners.