

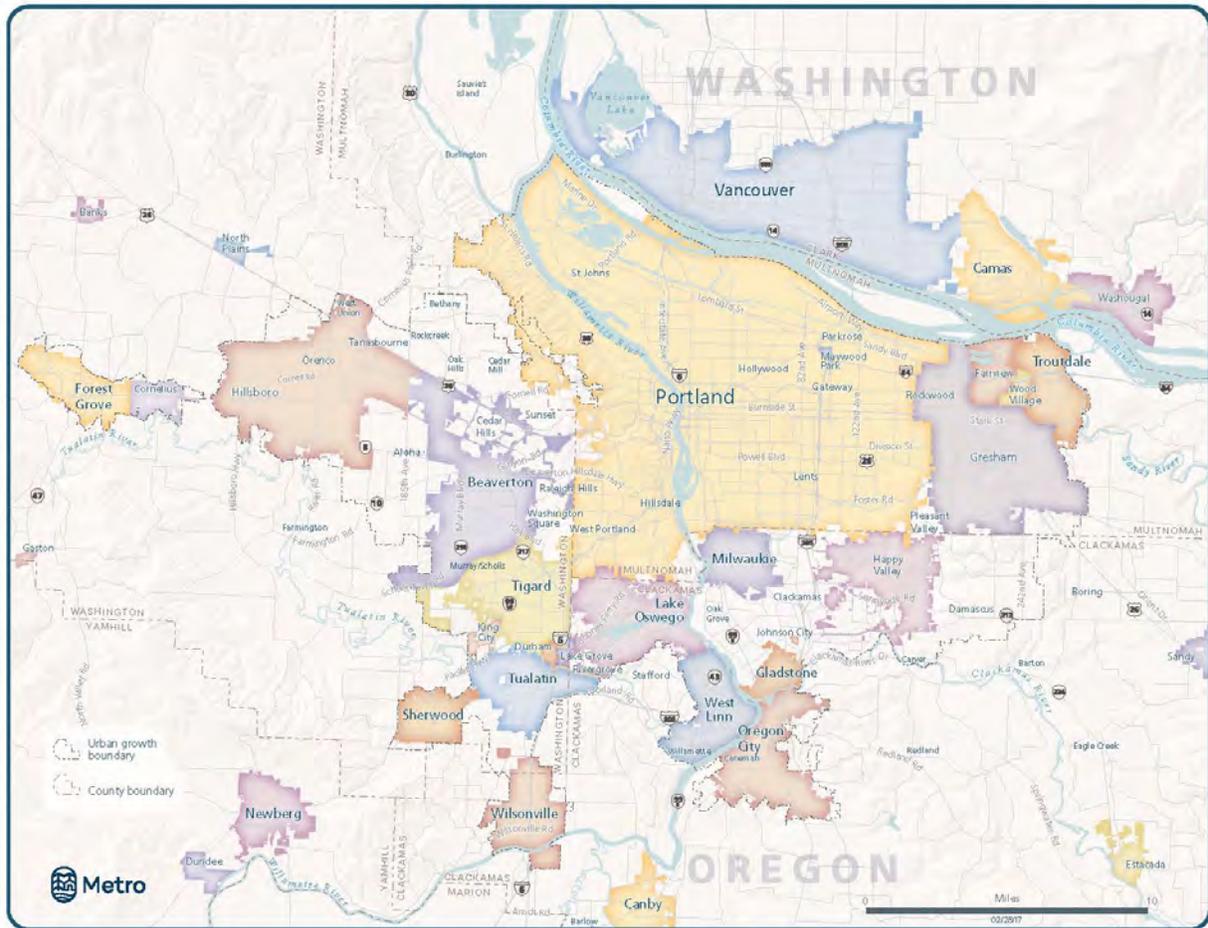
2018 Regional Transportation Plan



safe • reliable • healthy • affordable

2018 Regional Transportation Plan Chapter 6 Regional Programs and Projects to Achieve Our Vision

December 6, 2018



Metro serves more than 1.5 million people in Clackamas, Multnomah and Washington counties. The agency's boundary encompasses 24 cities – from the Columbia River in the north to the bend of the Willamette River near Wilsonville, and from the foothills of the Coast Range near Forest Grove to the banks of the Sandy River at Troutdale.

Among its other responsibilities, Metro is authorized by Congress and the State of Oregon to coordinate and plan investments in the transportation system for the three-county area. Metro uses this authority to expand transportation options, make the most of existing streets and improve public transit service. As the designated metropolitan planning organization, Metro works collaboratively with cities, counties and transportation agencies to decide how to invest federal highway and public transit funds within its service area. It creates a long-range transportation plan, leads efforts to expand the public transit system and helps make strategic use of a small subset of transportation funding that Congress sends directly to metropolitan planning organizations.

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6.1 INTRODUCTION

The programs and projects described in this chapter support the long-range vision for the region and will help achieve the six desired outcomes endorsed by the Metro Policy Advisory Committee (MPAC) and approved by the Metro Council in 2008:

- Vibrant communities
- Economic prosperity
- Safe and reliable transportation
- Leadership on climate change
- Clean air and water
- Equity



Six desired outcomes for greater Portland – Adopted by the Metro Council in 2008.

Projects and programs come from adopted local, regional or state planning efforts that provided opportunities for public input.

6.1.1 Addressing our most urgent needs through our investments

We know the transportation funding landscape is changing, and building a safe, reliable and sustainable transportation system requires steady, long-term investment. But, we don't have the resources to invest at the levels needed to address all of the challenges the region faces and achieve our shared vision and goals for the transportation system. Prioritizing where and how to invest limited transportation funding is a key part of developing and implementing this plan.

Prioritizing starts with understanding the challenges we need to address. Regional trends and challenges were identified through the Regional Transportation Plan (RTP) update engagement process. The RTP investment strategy was developed to address these challenges and achieve the investment priorities discussed in the next section. See Chapter 4 for more information on each of the challenges listed below.

- Aging infrastructure
- Climate change and air quality
- Congestion and reliability
- Fatal and life-changing crashes
- Earthquake vulnerability, security and emergency management
- Gaps in transit, biking and walking connections
- Social inequity and disparities
- Housing and transportation affordability and displacement
- Technological change

6.1.2 Chapter organization

This chapter describes how the region plans to invest in the transportation system across all modes, with expected funding, to provide a safe, reliable, healthy and affordable transportation system with travel options.

6.1 Introduction: This section introduces the chapter, including challenges the region is facing that the project lists address.

6.2 What Are the Region's Investment Priorities? This section describes the investment priorities identified through the update of the RTP. The project lists were developed in response to the identified investment priorities, with a focus on advancing near-term regional priorities for improving safety, advancing equity, implementing the Climate Smart Strategy and managing congestion.

6.3 RTP Projects and Programs: This section describes the 2040 Constrained RTP project list, which are the projects and programs that fit within the constrained budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends. The section describes how the project list was developed, and the types and cost of projects (investment categories) that are in the 2040 Constrained RTP list. These projects are referred to as the Constrained RTP list throughout this chapter.

6.4 The 2040 Strategic Project List: This section describes the 2040 Strategic list of projects and programs, which reflect the full list of projects needed to meet the region's transportation needs, but for which funding has not been identified.

6.2 WHAT ARE THE REGION'S INVESTMENT PRIORITIES?

The Regional Transportation Plan (RTP) implements the 2040 Growth Concept through an approach that views the transportation system as an integrated and interconnected system that supports planned land uses, shifting the emphasis from simply moving vehicles to moving people and goods, providing access, and helping to create and connect places. The region's adopted six desired outcomes are supported by goals of the RTP and become the focal point for identifying investment priorities.

During the update of the RTP, regional investment priorities were identified to address the challenges listed in the previous section. These regional transportation investment priorities are described below, and guided the development and refinement of the 2018 RTP investment strategy. In particular, the projects and programs in the RTP investment strategy focused on advancing near-term regional priorities for improving safety, advancing equity, implementing the Climate Smart Strategy and managing congestion.

6.2.1 Maintaining the system we have

The RTP is an important tool to help maintain the existing transportation system in a state of good repair. The RTP recognizes the importance of prioritizing maintaining the system we have before building new roadways. Maintenance of the transportation system is the largest transportation cost and it is growing. Maintaining and updating aging infrastructure, retrofitting to address earthquake vulnerability, and providing for security and routes for efficient emergency services are growing concerns across the region.

6.2.2 Implementing the 2040 Growth Concept

Implementing the 2040 Growth Concept is one of the main roles of the RTP. The RTP recognizes the importance of prioritizing transportation investments in the 2040 growth areas to support the region's economic vitality and commercial activity. These are the areas where the greatest growth is planned for and where the most trips will be occurring:

- Portland central city, regional centers and town centers
- Station communities
- Main streets and corridors
- Industrial and employment areas

Regional trends and challenges

Technological change, housing and transportation affordability and displacement, changing demographics and an aging population, and social inequities and disparities are major societal trends and shifts which impact and are impacted by investments in the regional transportation system.

Policies, projects and programs in the RTP seek to address these regional trends and challenges in ways that help achieve the region's six desired outcomes and make progress on near-term regional priorities for improving safety, advancing equity, implementing the Climate Smart Strategy and managing congestion.



Transportation investments also play an important role in placemaking, which helps achieve the 2040 Growth Concept vision for a strong economy, a healthy environment and communities that serve the needs of all. Refer to Chapter 1 for more information on the 2040 Growth Concept.

6.2.3 Implementing the Climate Smart Strategy

The 2018 Regional Transportation Plan is a key tool for implementing the adopted Climate Smart Strategy and achieving a new 2040 target adopted by the Land Conservation and Development Commission in 2017. The RTP prioritizes transportation investments that help reduce greenhouse gas emissions from cars and small trucks while making our transportation system safe, reliable, healthy and affordable.

6.2.4 Advancing transportation equity

The RTP is a key tool for implementing Metro’s adopted Strategic Plan to Advance Racial Equity, Diversity and Inclusion. The RTP prioritizes transportation investments that will reduce barriers and disparities faced by communities of color and other historically marginalized communities, while making our transportation system safe, reliable, healthy and affordable.

6.2.5 Improving safety

The RTP is a key tool for implementing the adopted Regional Transportation Safety Strategy and achieving a new Vision Zero target to eliminate traffic deaths and life changing injuries by 2035. The RTP prioritizes transportation investments that will move the region as quickly as possible towards Vision Zero, especially in communities of color and other historically marginalized communities that experience disparate impacts from traffic crashes.

6.2.6 Managing congestion

The RTP is a key tool for managing congestion. The RTP prioritizes strategic multi-modal transportation investments that will make travel more reliable on the region’s busiest roadways and regional transit routes. While the RTP acknowledges that congestion cannot be eliminated, there are projects and tools that can improve system efficiency, make travel times reliable and expand travel options. Refer to Chapter 4 for more information on congestion and regional highway bottlenecks.

6.2.7 Expanding travel options

The RTP is a key tool for expanding travel options as part of advancing the regional investment priorities identified above. The RTP prioritizes completing gaps in the walking and bicycling networks, increasing safe access to transit, and supporting travel decisions with community, neighborhood, and employment outreach programs. These types of investments are foundational to achieving other desired outcomes such as improving safety and reducing vehicle miles traveled per capita and related greenhouse gas emissions.

Figure 6.1 2018 RTP Investment Strategy



6.3 RTP PROJECTS AND PROGRAMS

The policy sections, in Chapter 2 and Chapter 3, set the vision, goals, objectives, performance targets and policies for the greater Portland region's system of throughways, arterials, bridges, bikeways, sidewalks, and transit and freight routes.

The project lists, described in this chapter and provided in **Appendices A, B and C**, are priority projects from local, regional or state planning efforts that provided opportunities for public input. Projects in the 2027 and 2040 Constrained RTP investment scenarios are eligible for federal or state transportation funding and must be part of the planned regional transportation system.

6.3.1 Developing the project lists

To develop the RTP lists of projects and programs, Metro issued a call for projects in Spring 2017 and coordinated with local, regional and state partners to begin updating the region's transportation investment priorities into three separate investment scenarios.

Table 6.1 2018 RTP Investment Scenarios

 2018–2027	The 2027 Constrained investment scenario identifies the highest priority projects and programs that the greater Portland region can reasonably expect to fund in the first 10-years of the plan.
 2018–2040	The 2040 Constrained investment scenario includes all of the projects and programs that fit within a constrained budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends. In order to be eligible for federal or state transportation funding, a project must be included on the 2040 Constrained list.
 2028–2040	The 2040 Strategic investment scenario includes additional strategic priority investments (not constrained to the budget based on current funding trends) that could be built with additional resources. This is referred to as the 2040 Strategic and are not anticipated to be completed unless new, as of yet identified funding becomes available. For analysis purposes, these projects are assumed to be implemented in the 2028 to 2040 time period.

Working with a financially constrained budget and funding targets, Clackamas, Multnomah and Washington counties and the cities within each county recommended priority projects for their jurisdictions at county coordinating committees. The Oregon Department of Transportation (ODOT), the Port of Portland, TriMet, SMART and other agencies worked with county coordinating committees and the City of Portland to recommend priority projects. The City of Portland recommended projects after reviewing priorities with its community advisory committees. These

Did you know?



Since the last update of the RTP in 2014, of the 1,256 projects listed in the RTP, 132 have been built or will be completed by 2019 – a total of \$3.15 billion invested in the regional transportation system.

projects were provided to Metro to build the draft project lists for technical evaluation and initial public review in winter 2018.

Following the first round of technical analysis, Metro engaged the public, regional policymakers and agencies responsible for developing the project lists in review and discussion of the evaluation findings. Taking into account analysis findings and subsequent public and stakeholder input, regional policymakers then recommended that the Metro Council direct agencies to refine their respective draft list of projects to better meet four near-term regional priorities identified through the fourth (and final) regional leadership forum. The near-term RTP priorities are: improving safety, advancing equity, implementing the Climate Smart Strategy and managing congestion. In Spring 2018, Metro provided a set of seven recommendations to regional partners to guide finalizing the RTP project lists for public review and technical evaluation.

Table 6.2 summarizes the seven overall recommendations identified by policymakers and leaders in the region to guide refinement of the Constrained RTP project lists.

Table 6.2 Seven key recommendations to guide refinement of RTP projects lists

<p>Make more near-term progress on key regional priorities – equity, safety, travel options, Climate Smart Strategy implementation and congestion. Advance projects that address these outcomes to the 10-year list to make travel safer, ease congestion, improve access to jobs and community places, attract jobs and businesses to the region, save households and businesses time and money, and reduce vehicle emissions.</p>	
<p>Make more near-term progress to reduce disparities and barriers that exist for historically marginalized communities. Advance projects that improve safety and expand travel options to the 10-year list to reduce disparities and barriers, especially for people of color and households of modest means.</p>	
<p>Prioritize projects that focus on safety in high injury corridors. Advance projects in high injury corridors to the 10-year list and ensure all projects in high injury corridors address safety to reduce the likelihood and severity of crashes for all modes.</p>	
<p>Accelerate transit service expansion. Increase transit service as much as possible beyond Climate Smart Strategy investment levels. Focus new and enhanced transit service to connect transit to underserved communities to jobs and community places, in congested corridors and in areas with more jobs and housing.</p>	
<p>Make more near-term progress to tackle congestion and manage travel demand. Advance lower cost projects to the 10-year list that use designs, travel information, technologies, and other strategies to support and expand travel options and maximize use of the existing system. It will be important to ensure that lower income households are not financially burdened by strategies to make road use more efficient.</p>	
<p>Prioritize completion of biking and walking network gaps in the near-term. Advance projects that fill gaps for biking and walking in high injury corridors or that provide connections to transit, schools, jobs and 2040 centers to the 10-year list.</p>	
<p>Continue to build public trust through inclusive engagement, transparency and accountability. Continue to engage the region’s diverse communities in the planning and implementation of projects to achieve desired outcomes, including equity, safety, reliability, affordability and health. Report back whether projects deliver (or don’t deliver) anticipated outcomes and adjust course as needed.</p>	

Agencies were requested to refine their respective draft project lists to better achieve the near-term regional transportation priorities. Regional partners updated their project lists accordingly.

Appendix E provides additional information on what changed. Performance of the revised projects and programs was subsequently evaluated and reported, and made available for public feedback during the final public comment period in summer 2018. In Fall 2018, additional project list refinements were recommended and adopted by JPACT and the Metro Council in response to public comments. Metro evaluated performance of the final adopted projects and programs in a third system evaluation that is reported in Chapter 7.

6.3.2 RTP Constrained projects and programs

This section describes the RTP Constrained list of projects and programs – the list of priority investments that the region can reasonably assume it will complete based on funding assumptions described in Chapter 5. **Figure 6.2** shows the general location of projects on the RTP Constrained list of projects region-wide. For an interactive map of the projects visit www.oregonmetro.gov/rtp.

Table 6.3 shows the breakdown of RTP projects in the constrained lists by investment category, and provides a quick reference for comparing the relative cost of the 2027 Constrained (investments planned for the first 10-years of the plan period) and full 2040 Constrained investment strategies. The 2040 Constrained costs shown in Table 6.3 include the 2027 Constrained RTP project costs plus estimated costs for additional projects that could be implemented from 2028 to 2040 based on the funding assumptions described in Chapter 5.

Table 6.3 Estimated costs for Constrained RTP Investment Strategy

RTP Capital Costs	 2018–2027	 2018–2040
Transit capital	\$3.2 billion	\$5.1 billion
Throughways capital	\$1.1 billion	\$4.3 billion
Roads and bridges capital	\$1.6 billion	\$3.3 billion
Freight access	\$156 million	\$254 million
Active transportation	\$790 million	\$1.8 billion
Technology – system management	\$71 million	\$189 million
Information – travel options	\$51 million	\$127 million
RTP Operations and Maintenance Costs	 2018–2027	 2018–2040
Transit operations and maintenance	\$5.7 billion	\$13.7 billion
Roads and throughways operations and maintenance	\$6 billion	\$13.3 billion
Total estimated costs (in 2016 dollars)	\$19 billion	\$42 billion

Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded.

2018 Regional Transportation Plan Financially Constrained projects 2018-2040

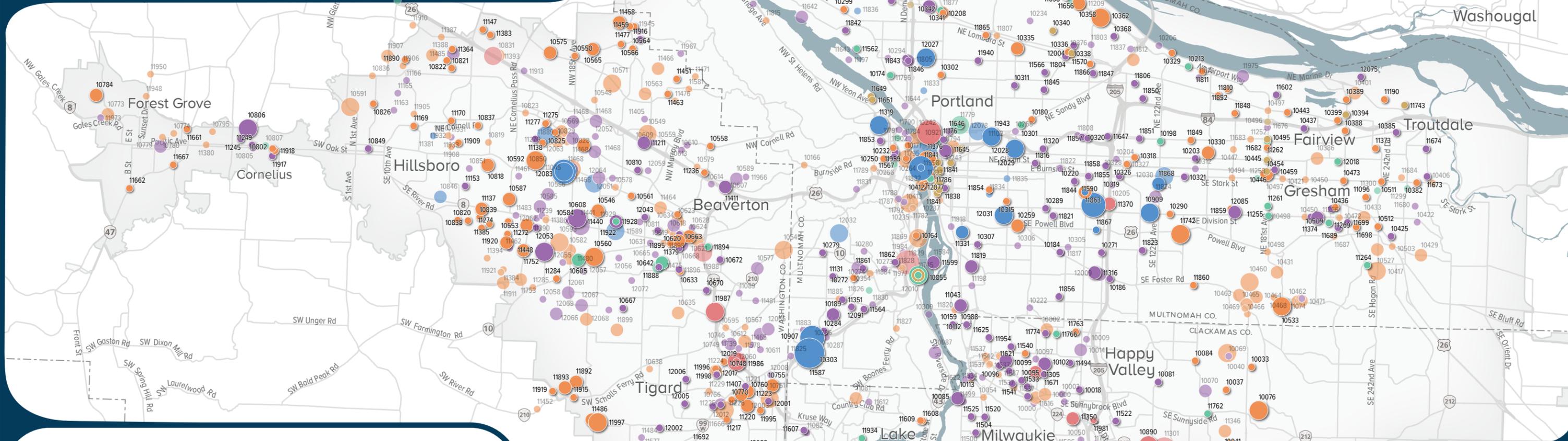
The financially constrained projects are the highest priority projects given limited transportation funding and qualify for regional, state and federal funding. This list of projects includes projects for which funding has been committed and projects that can be implemented with the funds the region currently expects to have available.

These projects have been divided into two investment time frames: 2018-2027 and 2028-2040.

For more information and to access an interactive online map, visit <https://arcg.is/11Tjw>

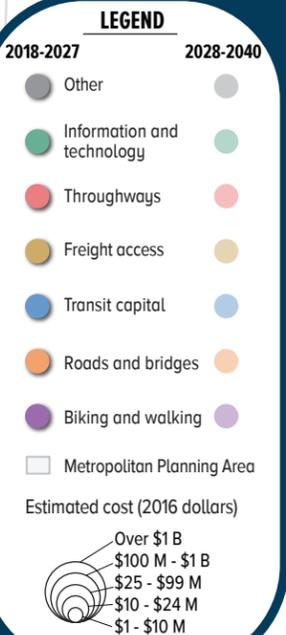
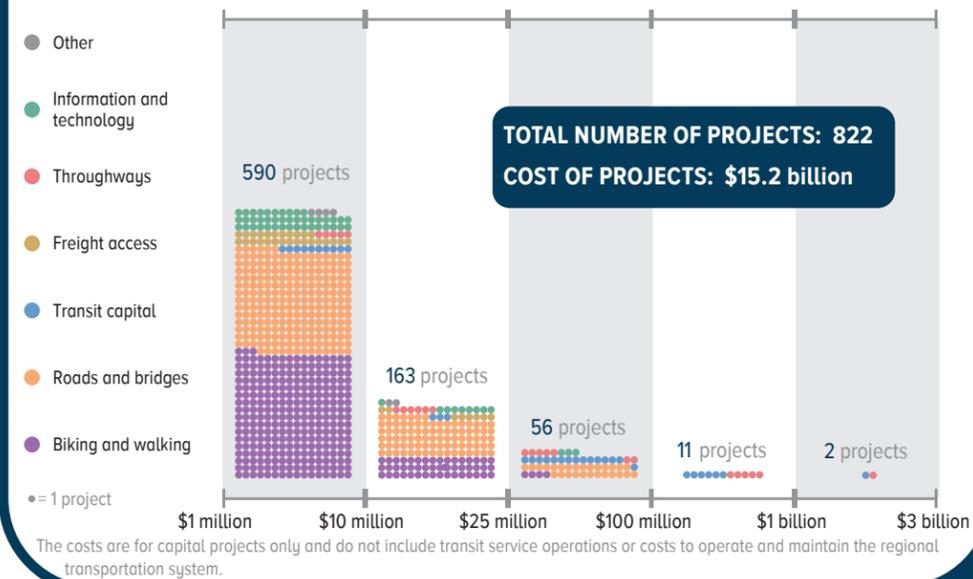


Figure 6.2 Greater Portland region: Map of Constrained RTP Projects



Financially Constrained projects in the 2018 Regional Transportation Plan range from \$1 million to nearly \$3 billion (2016\$).

Source: 2018 RTP



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Projects and programs identified in the 2040 Strategic list are not described in this section because funding has not been identified. Refer to **Section 6.4** for costs by project type associated with the strategic list. The 2040 Strategic list of projects can be viewed in **Appendix C**.

Why the Constrained project list matters

In order to be eligible for federal or state transportation funding, a project must be included on the “Constrained” list and must be part of the planned regional transportation system.

The region’s operations and maintenance commitment is significant and consumes the majority of federal, state, and local revenues identified for the greater Portland region through 2040 – an estimated \$27 billion. The RTP Constrained list of capital projects represents another \$15.2 billion in capital investment in the region’s transportation system. A well-maintained, complete and efficient transportation system must meet multiple needs and offer options for people, goods and services to get around.

Defining terms

Constrained budget

The budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends – presumes some increased funding compared to current levels

Constrained list

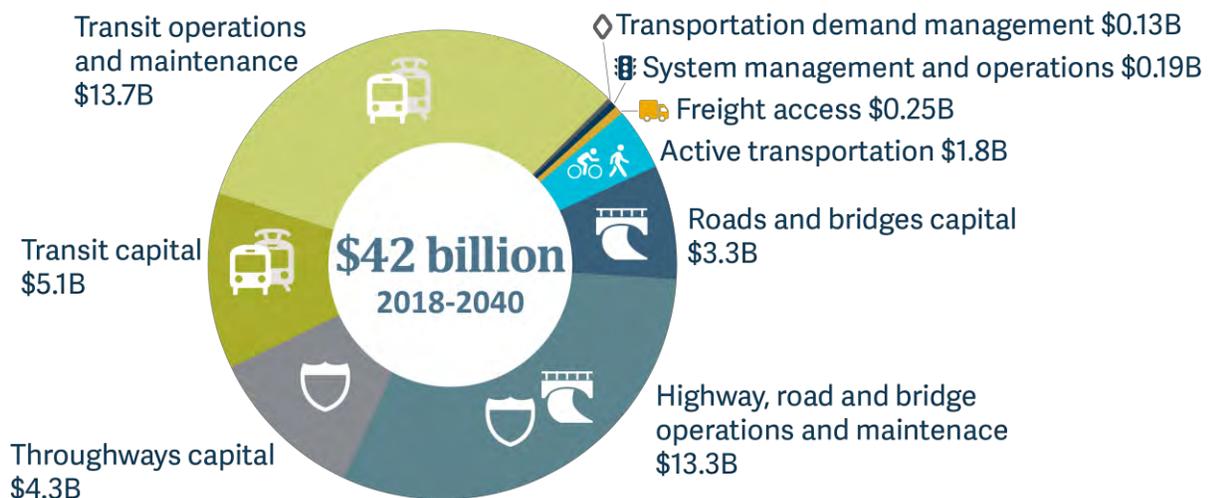
Projects that can built by 2040 within the constrained budget – makes up the federal constrained transportation plan

Strategic list

Additional priority projects that could be achieved with additional resources

Figure 6.3 shows the total estimated cost of the RTP Constrained list of capital projects and estimated operations and maintenance of the transportation system by investment category for the period 2018-2040.

Figure 6.3 Total estimated investment by 2040 (2016\$)



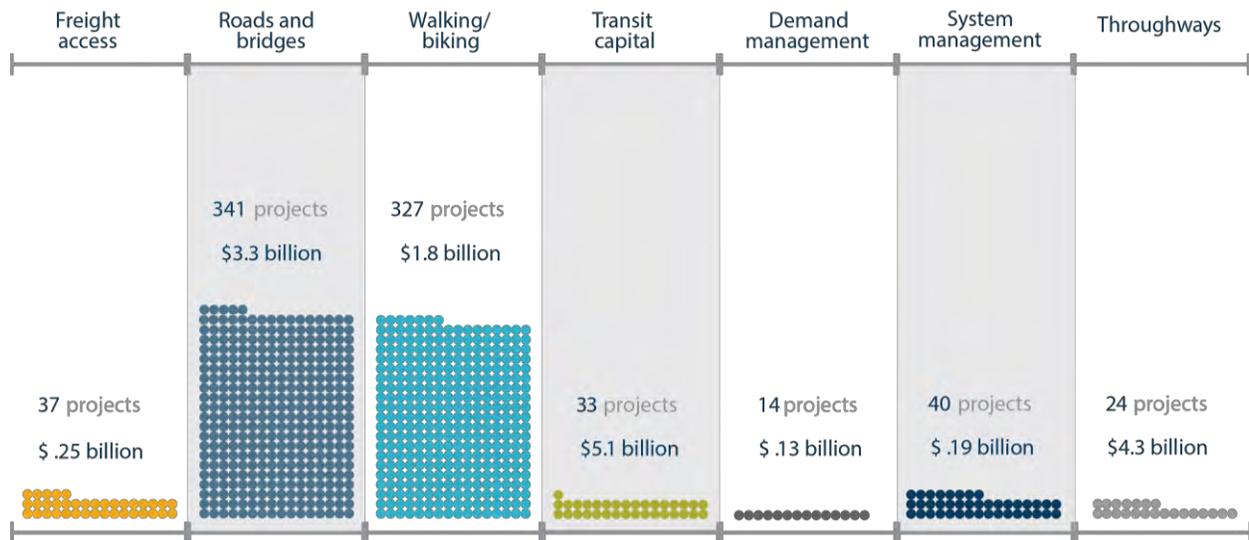
Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded.

The figures that follow show the breakdown of capital projects by cost and number for each investment category, for the region, for the City of Portland and for each of the three counties. A map of the location of all RTP constrained capital projects is also provided for the region, the City of Portland and each county.

Greater Portland region

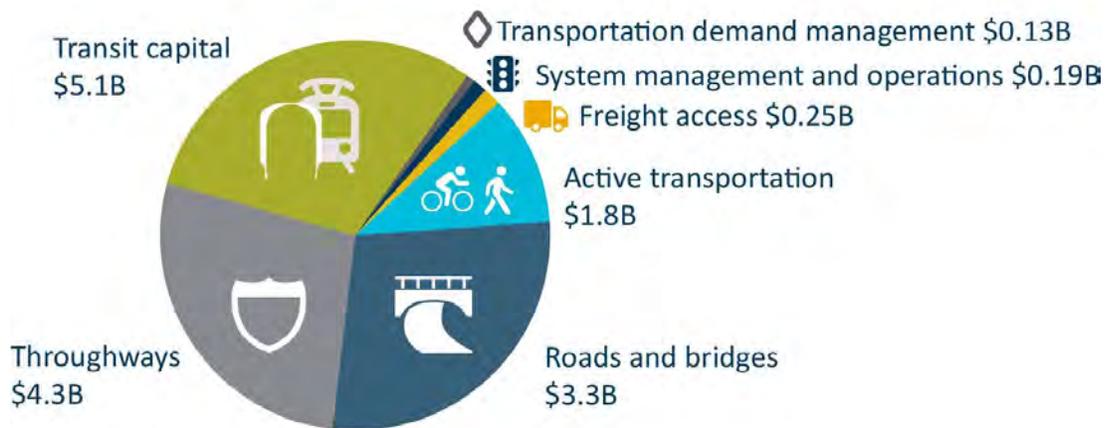
Figures 6.4 and 6.5 show RTP investments broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list, though the cost of projects vary greatly.

Figure 6.4 Greater Portland region: Cost and number of Constrained RTP projects by investment category



Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded to the nearest hundred million. Road and transit operations and maintenance costs are not included in the information presented here.

Figure 6.5 Greater Portland region: Cost of Constrained RTP capital projects by investment category

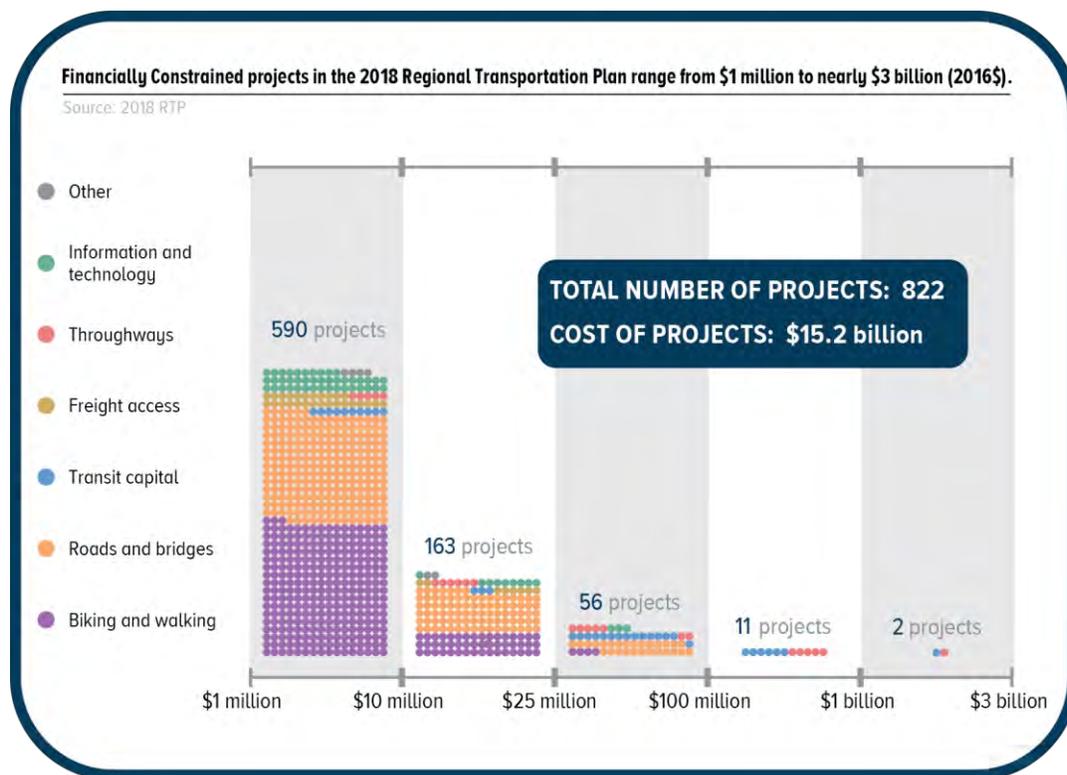


Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included in the information presented here.

Road and bridge projects include “complete street” reconstructions, arterial street connectivity and widening, and highway overcrossings provide mobility and access for all modes of travel. Some projects are also focused on improving access and mobility for national and international rail, air and marine freight to reach destinations within the region’s industrial areas and to the regional throughway system. These projects are categorized as freight access investments. Strategic throughway capacity was added to maintain statewide mobility and access to industrial areas and intermodal facilities. Transit capital projects include high capacity transit extensions and implementing regional, corridor or spot-specific projects to improve speed and reliability of bus and streetcar service. Walking and biking projects fill important gaps in sidewalks, bikeways and trails to make biking and walking safe, convenient and accessible for all ages and abilities. Technology continues to play a critical role in transportation system improvements. More projects are focused entirely around implementing new technology or maximizing existing technology to improve system efficiency in the region’s major travel corridors.

Projects in the 2018 RTP Constrained list range from \$1 million to nearly \$3 billion as shown in **Figure 6.6**.

Figure 6.6 Greater Portland region: Cost range of Constrained RTP projects by investment category



Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included in the information presented here.

Table 6.4 identifies the major throughway and transit projects in the RTP.

Table 6.4 Summary of major planned throughway and transit investments

	2027 Constrained	2040 Constrained <i>(2027 Constrained, plus)</i>	2040 Strategic <i>(2040 Constrained, plus)</i>
Throughways 	<ul style="list-style-type: none"> • I-5 Rose Quarter Improvement • OR 217 auxiliary lanes (NB and SB) • I-205 Stafford to OR 99E widening (SB) • I-205/Abernethy Bridge widening • OR 224 widening (third WB lane) • I-205 auxiliary lane (in Portland/Glen Jackson Bridge) 	<ul style="list-style-type: none"> • I-5/Columbia River Crossing (with tolling as defined in adopted LPA) • Sunrise Project, Phase 2 • US 26 widening to Brookwood Road • I-5/Boone Bridge SB auxiliary lane • I-5 NB braided ramps from I-205 to Nyberg Road • OR 217 braided ramps • I-205 auxiliary lanes 	<ul style="list-style-type: none"> • Sunrise Project, Phase 3 • I-5/OR 217 Interchange Phase 2 • OR 217 operational improvements and widening • OR 217 auxiliary lane from Denney to Scholls Ferry Road • I-5 auxiliary lanes
High Capacity Transit 	<ul style="list-style-type: none"> • Southwest Corridor Project • Division Transit Project • MAX Red Line Improvements Project • Central City Transit Capacity Analysis (combined with Steel Bridge Transit Bottleneck) 	<ul style="list-style-type: none"> • Portland to Vancouver HCT • Steel Bridge Transit Bottleneck (combined with Central City Transit Capacity Analysis) 	<ul style="list-style-type: none"> • HCT extension to Oregon City via McLoughlin Blvd. • HCT on I-205 (Clackamas to Bridgeport) • WES all-day service • WES extension to Salem • Sunset Highway HCT (Sunset Transit Center to Hillsboro Fairplex) • HCT extension to Forest Grove
Enhanced Transit Corridors (ETC) 	<ul style="list-style-type: none"> • Streetcar upgrades on Grand Avenue in Portland • Central City Portals (downtown Portland bridges) • 82nd Avenue ETC (NE Killingsworth Street to SE Clatsop Street) • Powell Boulevard ETC (SE Portland to I-205) • 122nd Avenue ETC (Lents to Parkrose transit center) • Martin Luther King Jr. Boulevard ETC (Portland) 	<ul style="list-style-type: none"> • Inner North Portland ETC (Portland Central City to N Lombard Street) • Caesar Chavez ETC (Sandy to Powell) • Lombard Street ETC (St. Johns to MLK Jr. Boulevard) • SE Hawthorne/50th Avenue ETC (Willamette River to SE Powell) • Tualatin Valley Highway multimodal project (Maple Street to 160th Avenue) • Tualatin Valley Highway ETC from Beaverton to 	<ul style="list-style-type: none"> • SE Powell Boulevard ETC • Lombard/Caesar Chavez ETC (St. Johns to Milwaukie town center) • Belmont Street ETC (Portland to Gateway transit center) • Streetcar on Martin Luther King Jr. Boulevard in NE Portland • Streetcar in AmberGlen in Hillsboro • Streetcar to Johns Landing in SW Portland

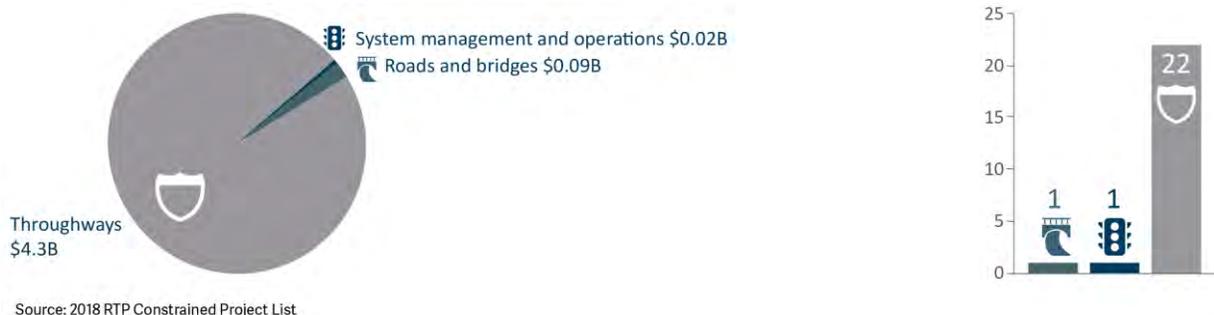
	2027 Constrained	2040 Constrained (2027 Constrained, plus)	2040 Strategic (2040 Constrained, plus)
	Central City to N Vancouver Boulevard) <ul style="list-style-type: none"> • Sandy Boulevard ETC (Portland Central City to Parkrose TC) • 82nd Avenue ETC (Swan Island to Clackamas town center) • Hawthorne Boulevard/Foster Road ETC (downtown Portland to Lents town center) • Streetcar to Montgomery Park in NW Portland 	Forest Grove <ul style="list-style-type: none"> • Beaverton-Hillsdale Highway ETC from Portland to Washington Square • Cornell/Barnes ETC (Sunset transit center to Hillsboro TC) • 185th/Farmington Road ETC (PCC Rock Creek to Beaverton transit center) • E. Burnside/SE Stark Street ETC (Portland to Gresham) • Streetcar on NE Broadway to Hollywood town center 	

*Projects marked in red have NEPA work under way or completed. See Chapter 8 (Section 8.3) for a summary of completed and current major project development activities in the region.

ODOT Projects

Figure 6.7 shows the cost of RTP investments submitted by ODOT broken down by investment category. Throughway projects comprise the majority of ODOT’s capital projects in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide road operations, maintenance and preservation costs.

Figure 6.7 ODOT: Cost and number of Constrained RTP capital projects by investment category

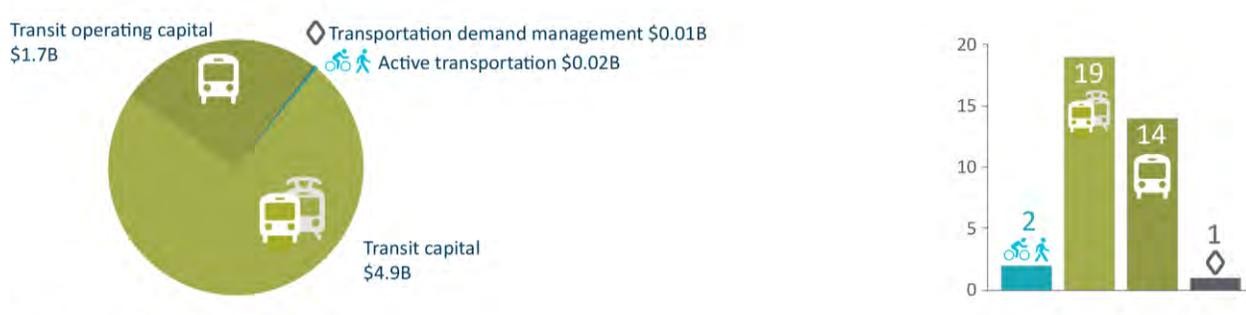


Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by ODOT. Road, bridge and throughway operations and maintenance costs are not included.

TriMet Projects

Figure 6.8 shows the cost of RTP transit capital and transit operating related capital investments submitted by the TriMet broken down by investment category. TriMet transit capital projects comprise the majority of TriMet’s capital project costs in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide transit operations and maintenance costs.

Figure 6.8 TriMet: Cost and number of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by TriMet. Transit capital projects submitted by cities and counties and transit operations and maintenance costs are not included.

SMART Projects

Figure 6.9 shows the cost of RTP investments submitted by SMART broken down by investment category. SMART transit service and operations comprise the majority of SMART’s projects in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide transit operations and maintenance costs.

Figure 6.9 SMART: Cost and number of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by SMART. Transit operations and maintenance costs are not included.

City of Portland Projects

Figures 6.10 and 6.11 show the cost and number of RTP investments submitted by the City of Portland and Port of Portland broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

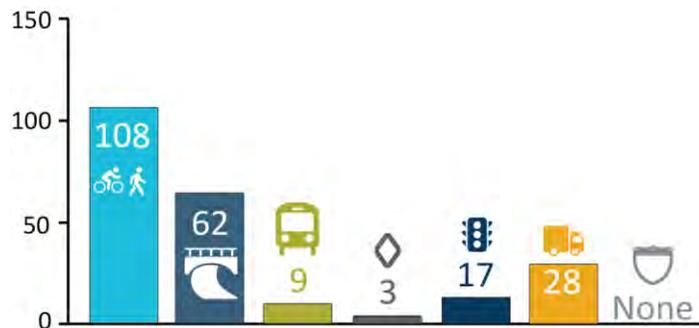
Figure 6.10 City of Portland: Cost of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by the City of Portland and the Port of Portland. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.11 City of Portland: Number of Constrained RTP capital projects by investment category



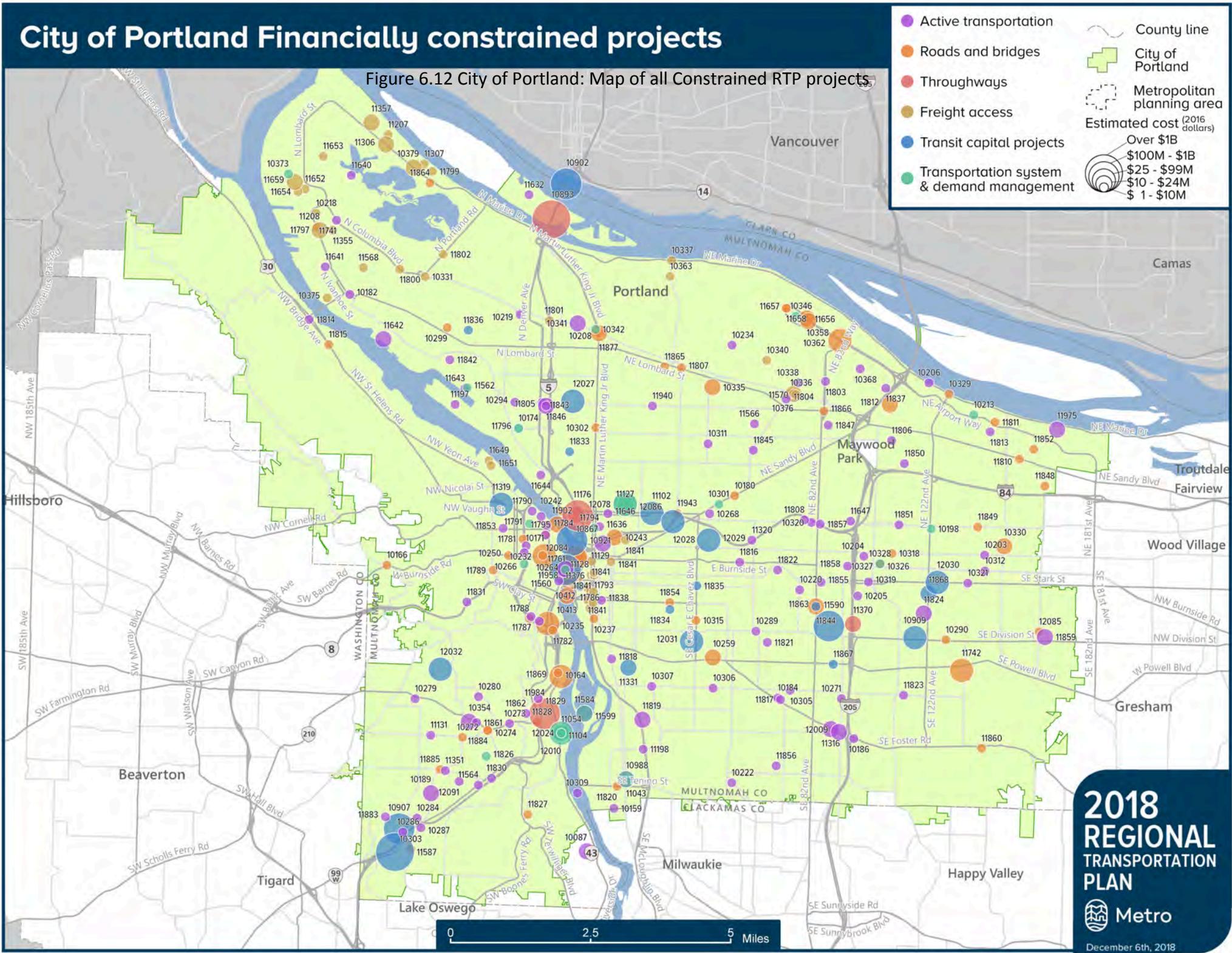
Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by the City of Portland and the Port of Portland. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.12 shows the general location of all Constrained RTP projects located in the City of Portland. The map includes all capital projects submitted.

City of Portland Financially constrained projects

Figure 6.12 City of Portland: Map of all Constrained RTP projects



Clackamas County Projects

Figures 6.13 and 6.14 show the cost and number of RTP investments submitted by Clackamas County and its cities broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

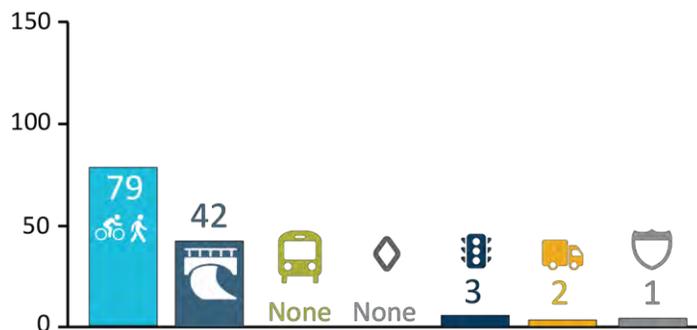
Figure 6.13 Clackamas County: Cost of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Clackamas County and cities in Clackamas County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.14 Clackamas County: Number of Constrained RTP capital projects by investment category



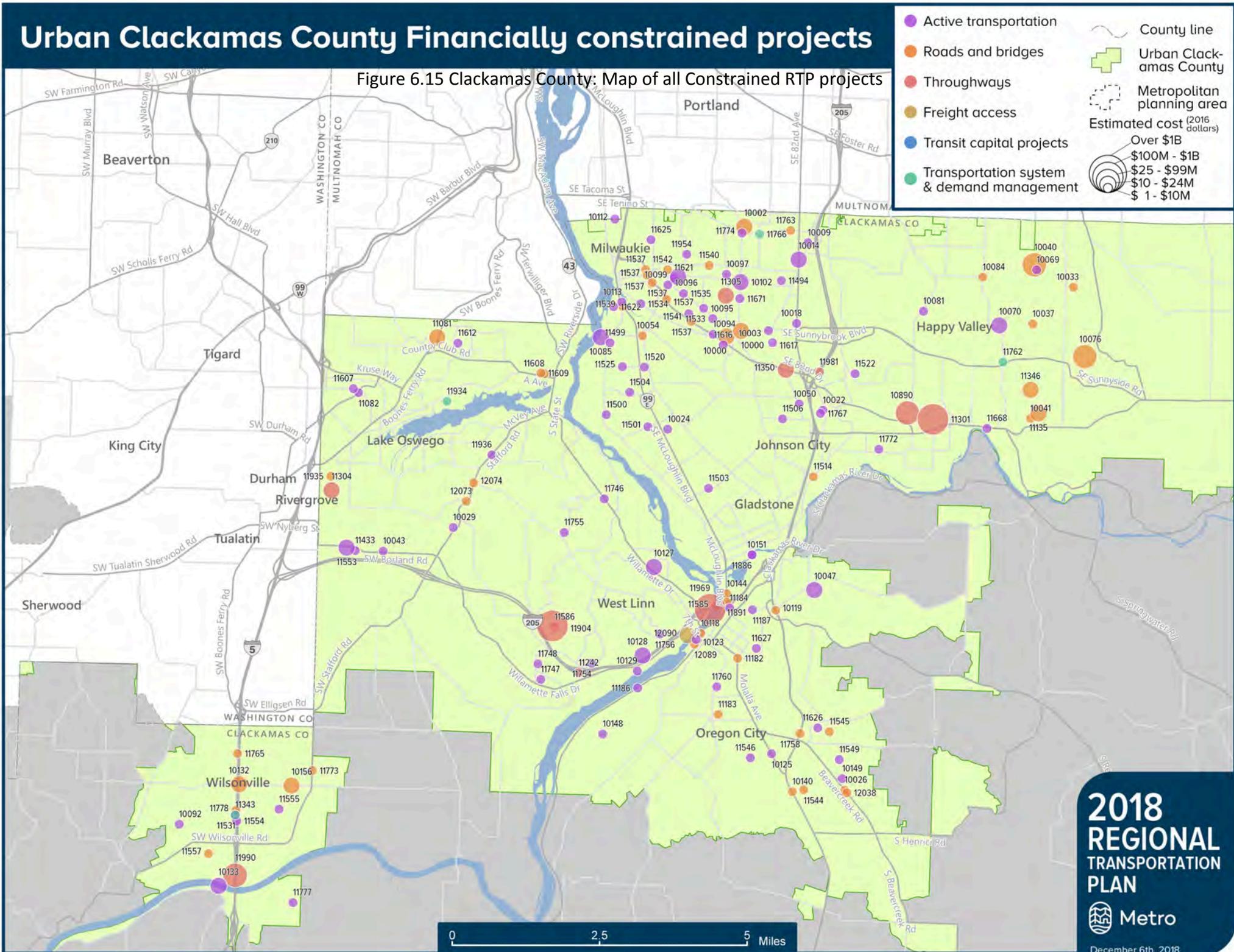
Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by Clackamas County and cities in Clackamas County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.15 shows the general location of all Constrained RTP projects located in Clackamas County. The map includes all capital projects submitted.

Urban Clackamas County Financially constrained projects

Figure 6.15 Clackamas County: Map of all Constrained RTP projects



**2018
REGIONAL
TRANSPORTATION
PLAN**



December 6th, 2018

East Multnomah County Projects

Figures 6.16 and 6.17 show the cost and number of RTP investments submitted by Multnomah County and its cities (except Portland) broken down by investment category. Roads and bridges projects comprise a majority of costs and number of projects due in large part to the County's six Willamette River bridges.

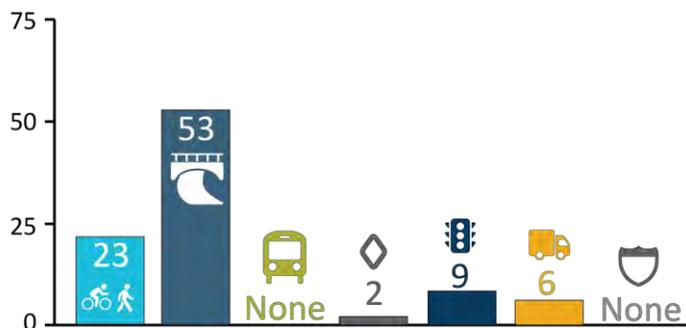
Figure 6.16 East Multnomah County: Cost of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Multnomah County and cities in Multnomah County (except for the city of Portland). Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.17 East Multnomah County: Number of Constrained RTP capital projects by investment category



Source: 2018 RTP Constrained Project List

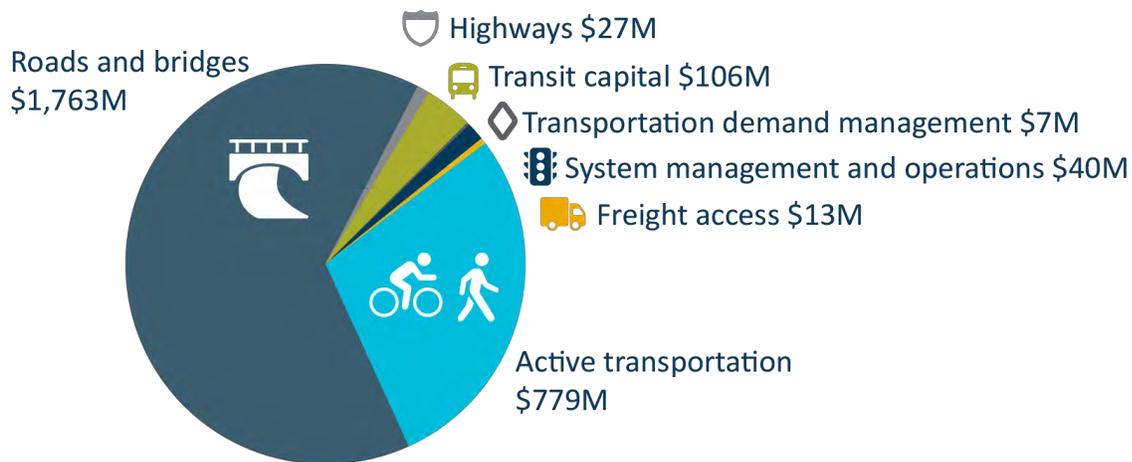
The information includes capital projects submitted by Multnomah County and cities in Multnomah County (except for the city of Portland). Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.18 shows the general location of all Constrained RTP projects located in Multnomah County. The map includes all capital projects submitted.

Washington County Projects

Figures 6.19 and 6.20 show the cost and number of RTP investments submitted by Washington County and its cities broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

Figure 6.19 Washington County: Cost of Constrained RTP capital projects by investment category



Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Washington County and cities in Washington County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.20 Washington County: Number of Constrained RTP capital projects by investment category



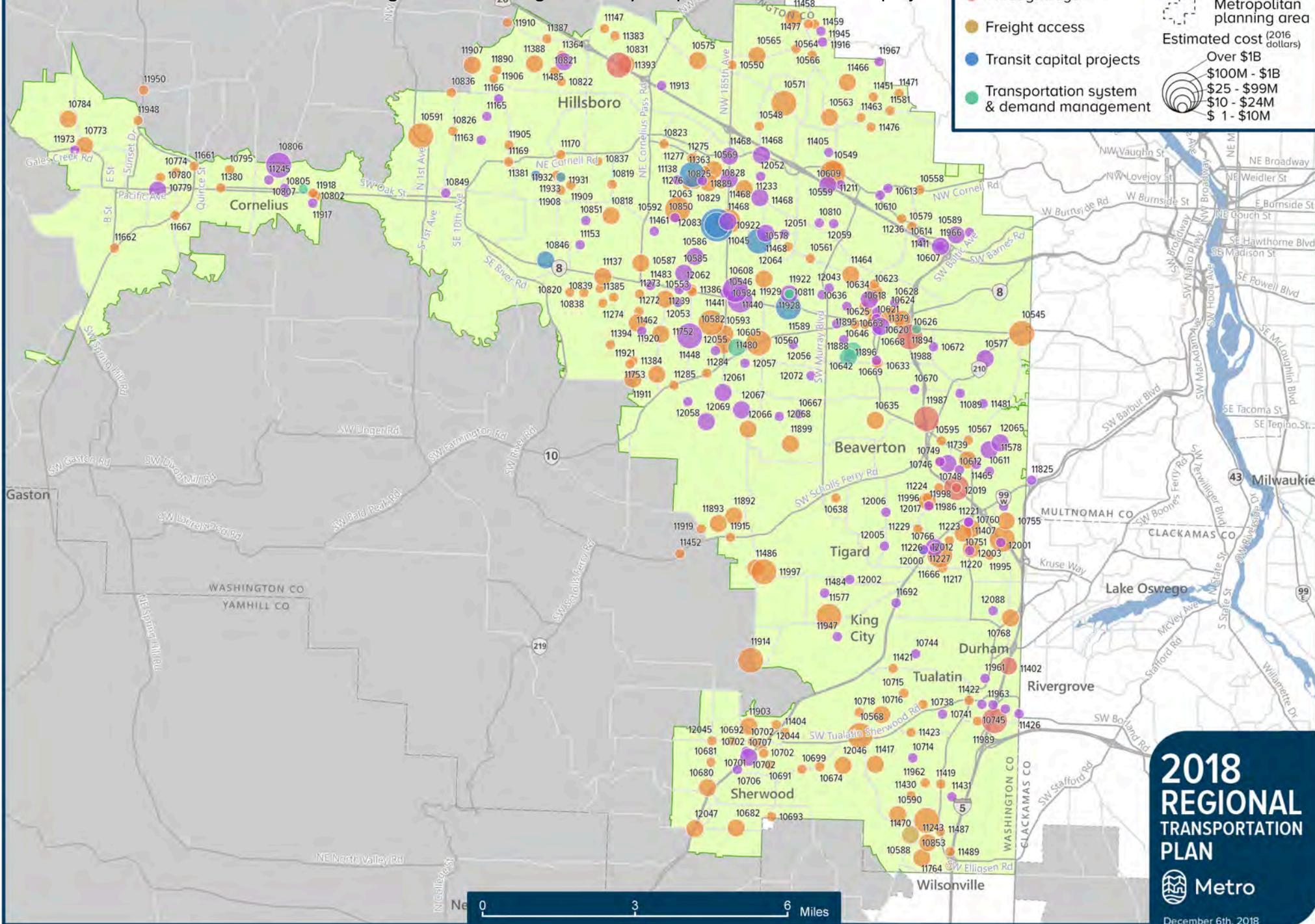
Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by Washington County and cities in Washington County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

Figure 6.21 shows the general location of all Constrained RTP projects located in Washington County. The map includes all capital projects submitted.

Urban Washington County Financially constrained projects

Figure 6.21 Washington County: Map of all Constrained RTP projects



6.3.3 Transit capital projects and planned service

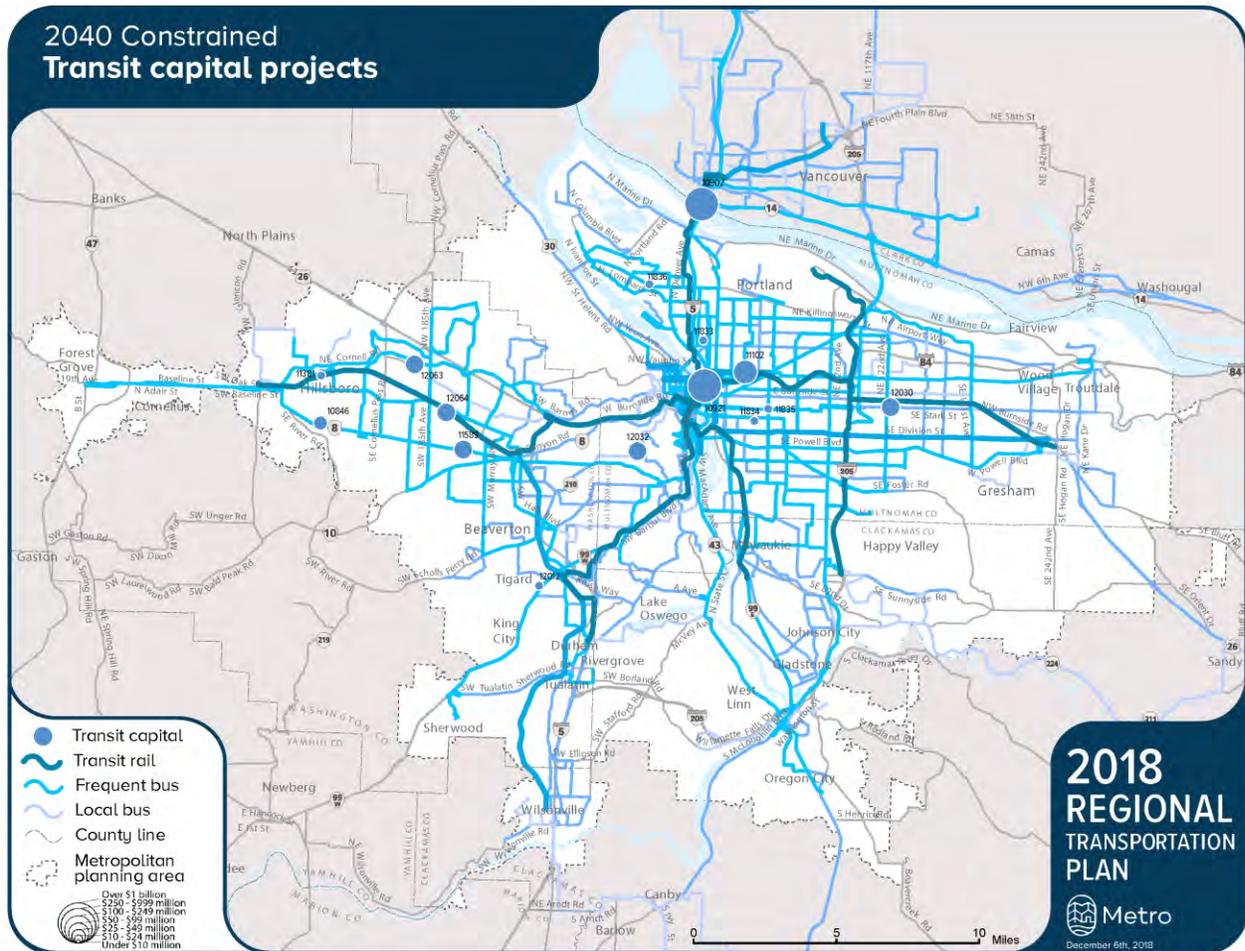
Transit investments make up about one-third of the total cost of the Constrained RTP project list \$5.1 billion out of \$15.2 billion. As shown in **Table 6.5**, transit capital projects in the 2040 Constrained project list include several enhanced transit corridors and high capacity transit projects. See **Table 6.4** for a listing of major transit capital projects in the RTP.

Table 6.5 Summary of Constrained RTP transit capital projects and planned service

Transit capital projects	 C₁₀ 2018–2027	 C 2040 2018–2040
Number of transit capital projects	18	33
Number of transit capital projects on a high injury corridor	14	26
Daily revenue hours (TriMet and SMART only; excludes C-TRAN)	8,100	9,500
Service expansion	38% increase from 2015	60% increase from 2015
New high capacity transit connections	4 HCT projects, including Division Transit, Southwest Corridor, Red Line extension and the Central City Capacity Analysis	2 additional HCT projects (from 2027 Constrained): HCT connecting Portland to Vancouver, WA, and Steel Bridge improvements
Other service enhancements	9 enhanced transit projects and 1 streetcar extension to Montgomery Park	10 additional enhanced transit projects and 1 streetcar extension to Hollywood (from 2027 Constrained)
Public and private shuttles	More major employers and some community-based organizations work with TriMet to operate shuttles	More major employers and some community-based organizations work with TriMet to operate shuttles
Fares	Reduced fares provided to youth, older adults, people with disabilities and low-income families	Reduced fares provided to youth, older adults, people with disabilities and low-income families
Estimated capital cost in 2016 dollars	\$3.2 billion	\$5.1 billion

Figure 6.22 shows the general location of Constrained RTP transit capital projects and planned service.

Figure 6.22 Greater Portland region: Map of Constrained RTP transit capital projects and planned service



6.3.4 Throughway projects

Maintenance and efficient operation of the existing throughway system is critical. Keeping throughways in good repair and using information and technology to manage travel demand and traffic flow help improve safety and boost efficiency of the existing system. With limited funding, more effort is being made to maximize system operations prior to building new capacity in the region. Building a connected roadway network will also preserve the throughway system for longer-distance, freight and transit trips.

Adding lane miles to relieve congestion is an expensive approach and will not solve congestion on its own. However, targeted widening of roads and throughways, along with connectivity and

system and demand management strategies, can help connect goods to market and support travel across the region.

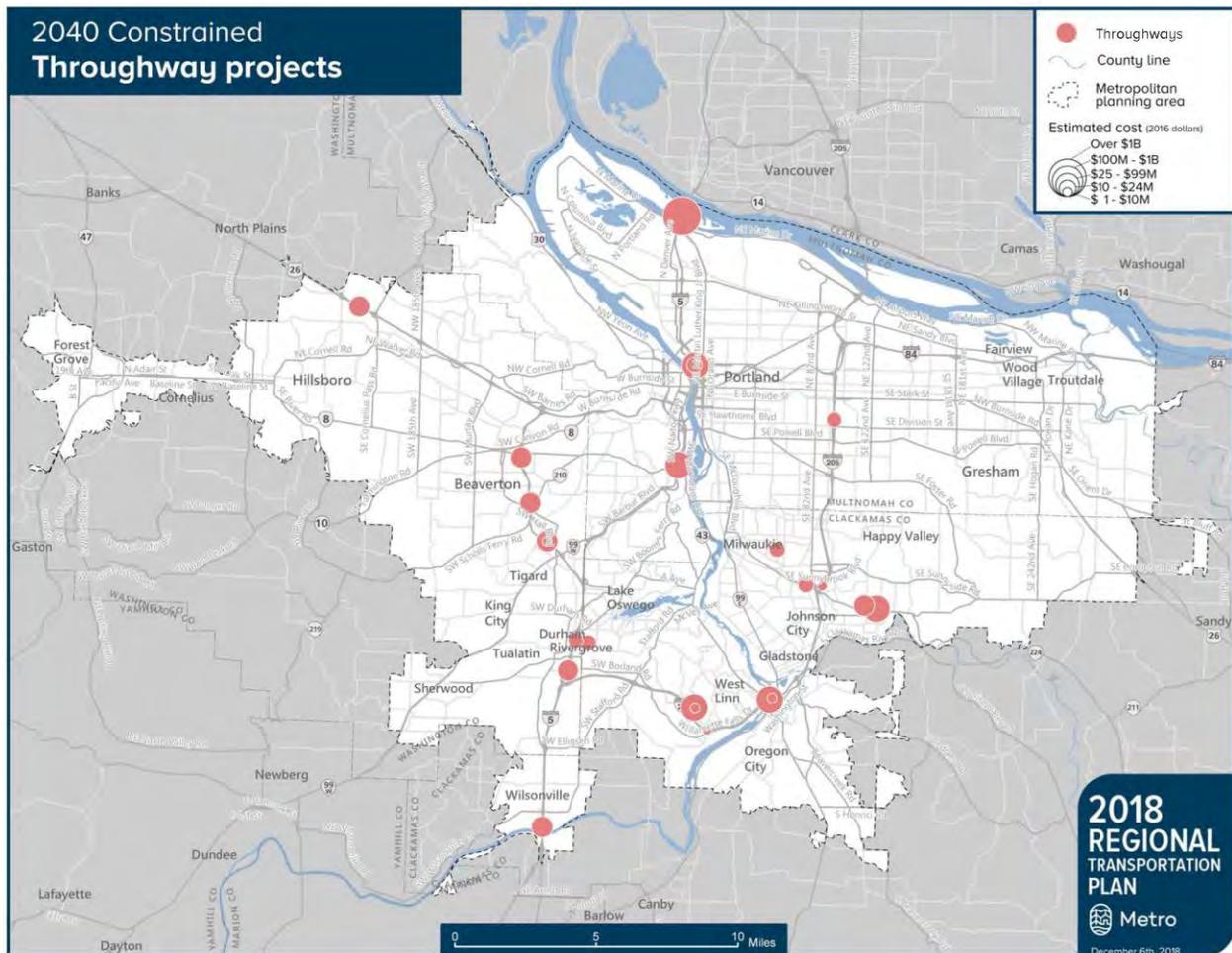
Throughway projects comprise about 3 percent of the total number of capital projects in the Constrained RTP list of projects. Strategic throughway capacity was added to maintain regional mobility and enhance access to industrial areas and intermodal facilities where goods move from one transportation mode to another. **Table 6.6** lists some of the major throughway capital projects in the 2040 constrained list. See **Table 6.4** for a listing of all major throughway projects in the RTP.

Table 6.6 Summary of Constrained RTP throughway projects

Throughway projects	 C¹⁰ 2018–2027	 C 2040 2018–2040
Number of throughway projects	16	24
Number of throughway projects with safety benefit	4	7
Number of throughway projects on high injury corridor	13	19
Throughway capacity (including auxiliary lanes)	27 new lane miles	50 new lane miles
New major throughway capacity	I-5 Rose Quarter, I-205 widening, I-205/Abernethy Bridge, OR 217 auxiliary lanes (NB and SB)	I-5 Columbia River Crossing, Sunrise Project Phase 2
Estimated capital cost in 2016 dollars	\$1.1 billion	\$4.3 billion

Figure 6.23 shows the general location of Constrained RTP throughway projects.

Figure 6.23 Greater Portland region: Map of Constrained RTP throughway projects



6.3.5 Roads and bridges projects

Nearly 45 percent of all trips in the region made by car are less than three miles, and 15 percent are less than one mile, based on the 2011 Oregon Household Activity Survey. When road networks lack multiple routes serving the same destinations, short trips must use major travel corridors designed for freight and regional traffic, adding to congestion.

There are three key ways to make roads and bridges safe, reliable and connected for people walking, driving, biking and taking transit:

1. **Maintenance and efficient operation of the existing road system.** Keeping the road system in good repair and using information and technology to manage travel demand and traffic flow help improve safety and boost efficiency of the existing system. With limited funding, more effort is being made to maximize system operations prior to building new capacity in the region.

2. **Street connectivity and complete streets.** Building a well-connected network of complete streets including new local and major street connections shortens trips, improves overall network efficiency, improves access to community and regional destinations, and helps preserve the capacity and function of highways in the region for freight and longer trips. These connections include designs that support walking and biking and, in some areas, provide critical freight access between industrial areas, intermodal facilities and the interstate highway system.
3. **Network expansion.** Adding lane miles to relieve congestion is an expensive approach and will not address growing congestion on its own. However, targeted widening of roads and throughways, along with connectivity and system and demand management strategies, can help connect goods to market and support travel in growing areas and across the region.

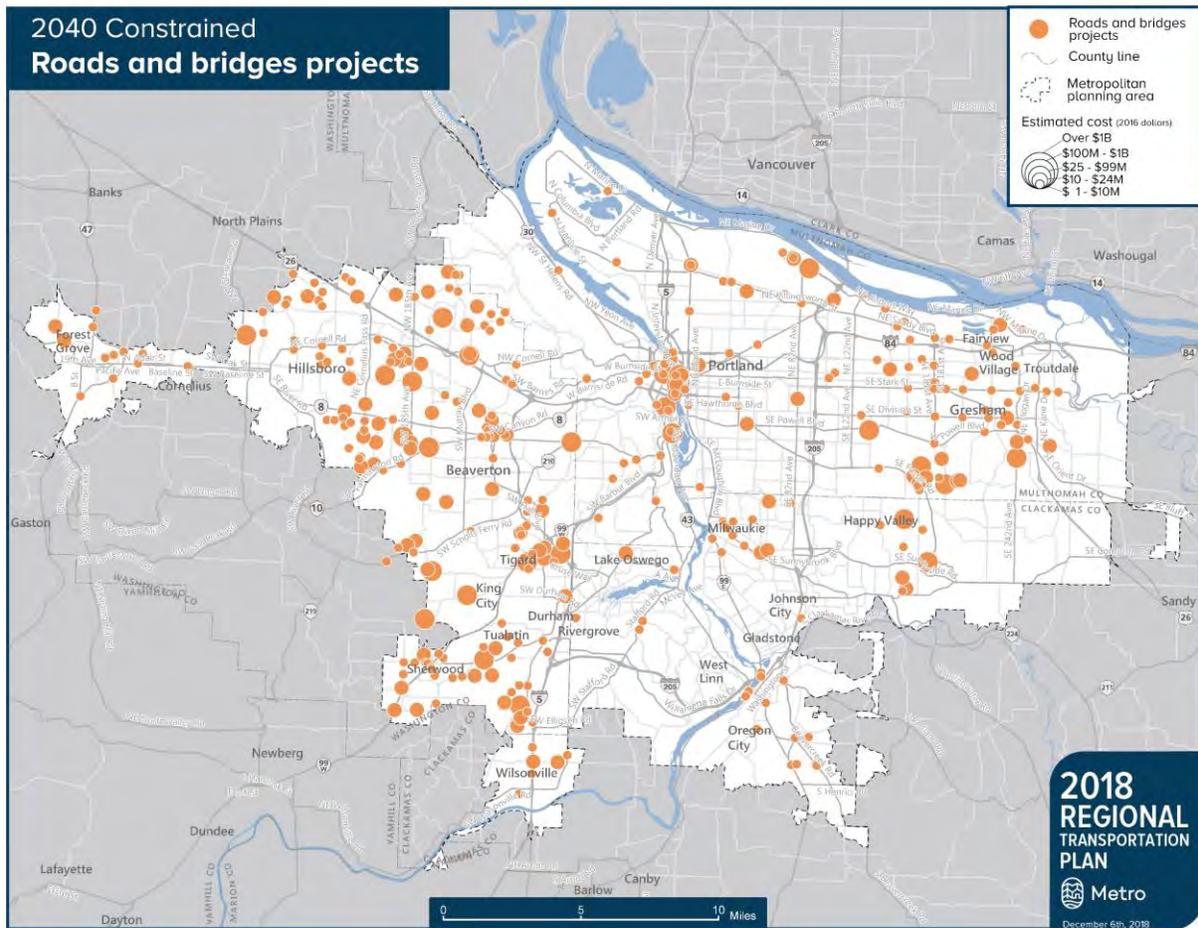
As shown in **Table 6.7**, road and bridges projects comprise about 41 percent of the total number of capital projects in the Constrained RTP list of projects. Road and bridge capital projects include arterial street expansions, “complete street” reconstructions that are complemented by new arterial connections and highway overcrossings to provide mobility and access for all modes of travel.

Table 6.7 Summary of Constrained RTP roads and bridges projects

Roads and bridges capital projects	 C10 2018–2027	 C 2040 2018–2040
Number of roads and bridges projects	177	341
Number of roads and bridges projects with a safety benefit	102	184
Number of roads and bridges projects on a high injury corridor	105	195
Arterial roadway capacity	167 new lane miles	289 new lane miles
Examples of bridge and new major arterial capacity projects	Tualatin-Sherwood Road, Farmington Road, Sunnyside Road east extension, Basalt Creek Parkway, Willamette River bridges rehabilitation	Earthquake Ready Burnside Bridge, 172 nd -190 th connector, Rock Creek Blvd., Scholls Ferry Road, Willamette River bridges rehabilitation
Estimated capital cost in 2016 dollars	\$1.6 billion	\$3.3 billion

Figure 6.24 shows the general location of Constrained RTP roads and bridges projects.

Figure 6.24 Greater Portland region: Map of Constrained RTP roads and bridges projects



6.3.6 Freight access projects

The greater Portland region is the trade and transportation gateway for Oregon and provides market access for many southwest Washington businesses. Our prosperity is directly tied to the investments we make in our transportation system, including the region’s freight infrastructure. These investments make consumer goods readily available to us; provide air, ship, rail and road systems that help our businesses efficiently reach global and domestic marketplaces; and create family-wage jobs across the region.

Freight access projects in the Constrained RTP project list are focused on:

- **Freight reliability and safety.** Facilitate the safe, reliable and efficient movement of goods by better utilizing existing road and freight rail infrastructure and capacity, separating freight traffic from other modes to increase safety and minimize conflicts, and strategically investing in the regional freight network to eliminate road and rail bottlenecks that create serious freight congestion.

- **Freight network connectivity.** Provide shippers with the ability to transfer freight seamlessly between different modes of transportation, as well as efficient access to local freight clusters and delivery points and regional, domestic and global markets.
- **Intermodal freight facilities and connectors.** Invest in intermodal facilities and freight intermodal connectors (e.g., reload facilities, marine ports, rail yards, freight access roads, etc.) that reduce highway demand for freight.
- **Smart technology.** Make use of intelligent transportation systems and emerging technologies to improve traffic flow along goods movement corridors.

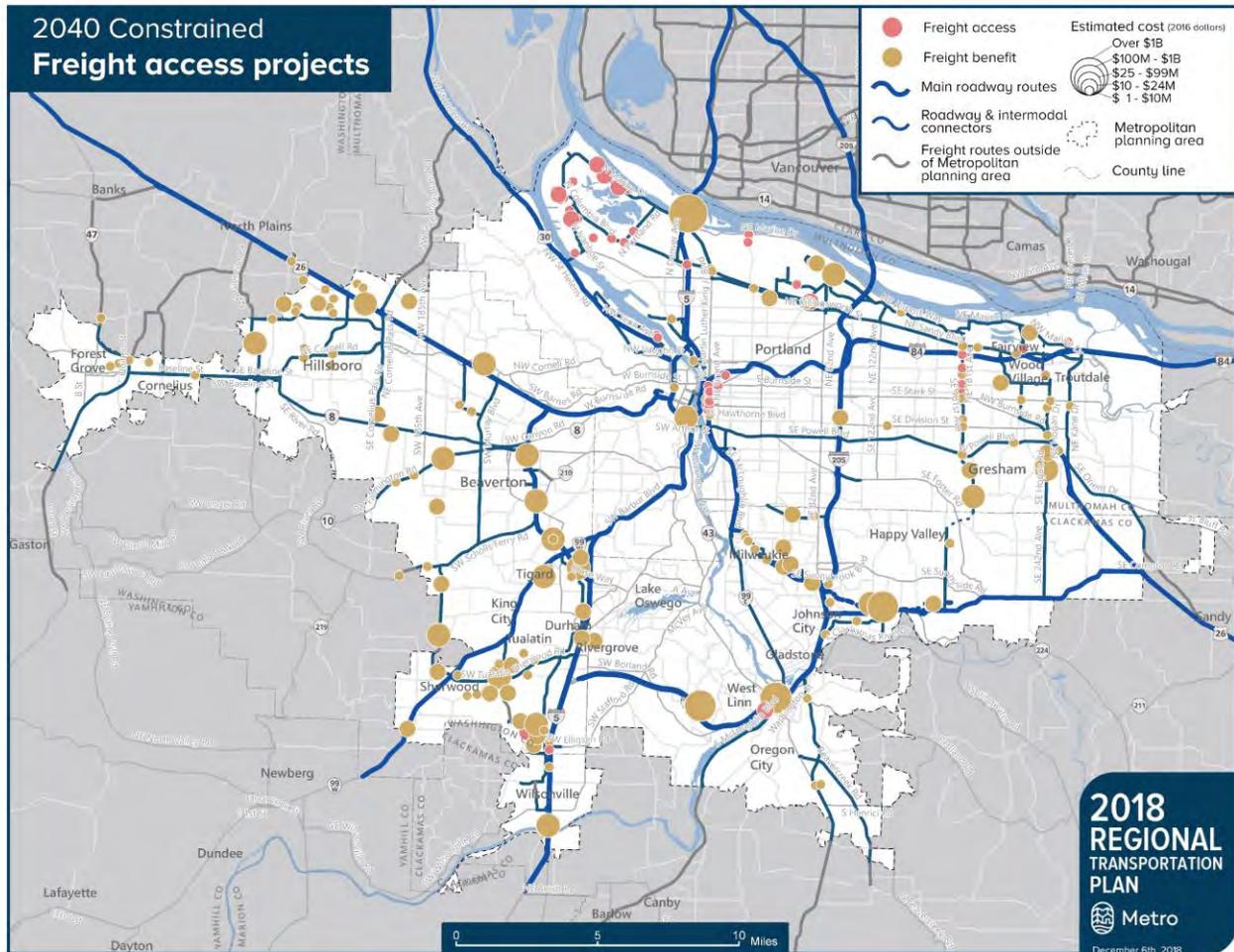
As shown in **Table 6.8**, freight access projects comprise about seven percent of the total number of capital projects in the Constrained RTP list of projects.

Table 6.8 Summary of Constrained RTP freight access projects

Freight access projects	 C¹⁰ 2018–2027	 C 2040 2018–2040
Number of freight access projects	25	37
Number of freight access projects with a safety benefit	8	12
Number of freight access projects on a high injury corridor	10	14
Freight network lane miles	61	105
New major freight access capacity projects	Airport Way and 82nd Avenue interchange, Rivergate Blvd. overcrossing, T4 modernization, Marine Drive Improvement Phase 2	Cully Blvd. Grade separation, Columbia Blvd Rail Bridge, Going/Greeley Interchange
Estimated capital cost in 2016 dollars	\$156 million	\$254 million

Figure 6.25 shows the general location of Constrained RTP freight access projects.

Figure 6.25 Greater Portland region: Map of Constrained RTP freight access projects



6.3.7 Active transportation projects

Active transportation investments have become a growing focus around the region. Active transportation is considered non-motorized forms of transportation including walking and biking. Making it safe and convenient to walk, ride a bicycle and get to public transit benefits people and the environment in multiple ways. Active transportation is good for business, household pocket books, clean air and water, public health and safe streets.

Approximately 45 percent of all trips made by car in the region are less than three miles and 15 percent are less than one mile, according to the 2011 Oregon Household Activity Survey. With complete walking and biking routes supported by education and incentives, many of the short trips made by car today could be replaced by walking and biking.

RTP active transportation projects focus on four key ways to make biking and walking safe and convenient for people of all ages and abilities in our region:

1. **Fill the gaps.** Completing missing sidewalks, pedestrian crossings, bikeways and multi-use paths creates complete streets and better connectivity; removes barriers; adds routes across highways, railroads and waterways; makes high injury locations safer; and shortens trip distances and travel time.
2. **Design for safety.** Designing bikeways and walking routes with greater separation and buffers from traffic increases safety and reduces the risk of traffic deaths. Making it safer for people walking and biking makes travel safer for all modes.
3. **Meet the demand.** Upgrading high demand bikeways and walking routes and prioritizing active travel in high demand areas provides reliable travel options in congested corridors, reduces the need to drive and increases livability.
4. **Safe Routes to School.** Providing programs and safe walking and biking routes to schools is proven to reduce driving trips and create healthy options for kids.

As shown in **Table 6.9**, active transportation investments comprise about 40 percent of the total number of capital projects in the Constrained RTP list of projects.

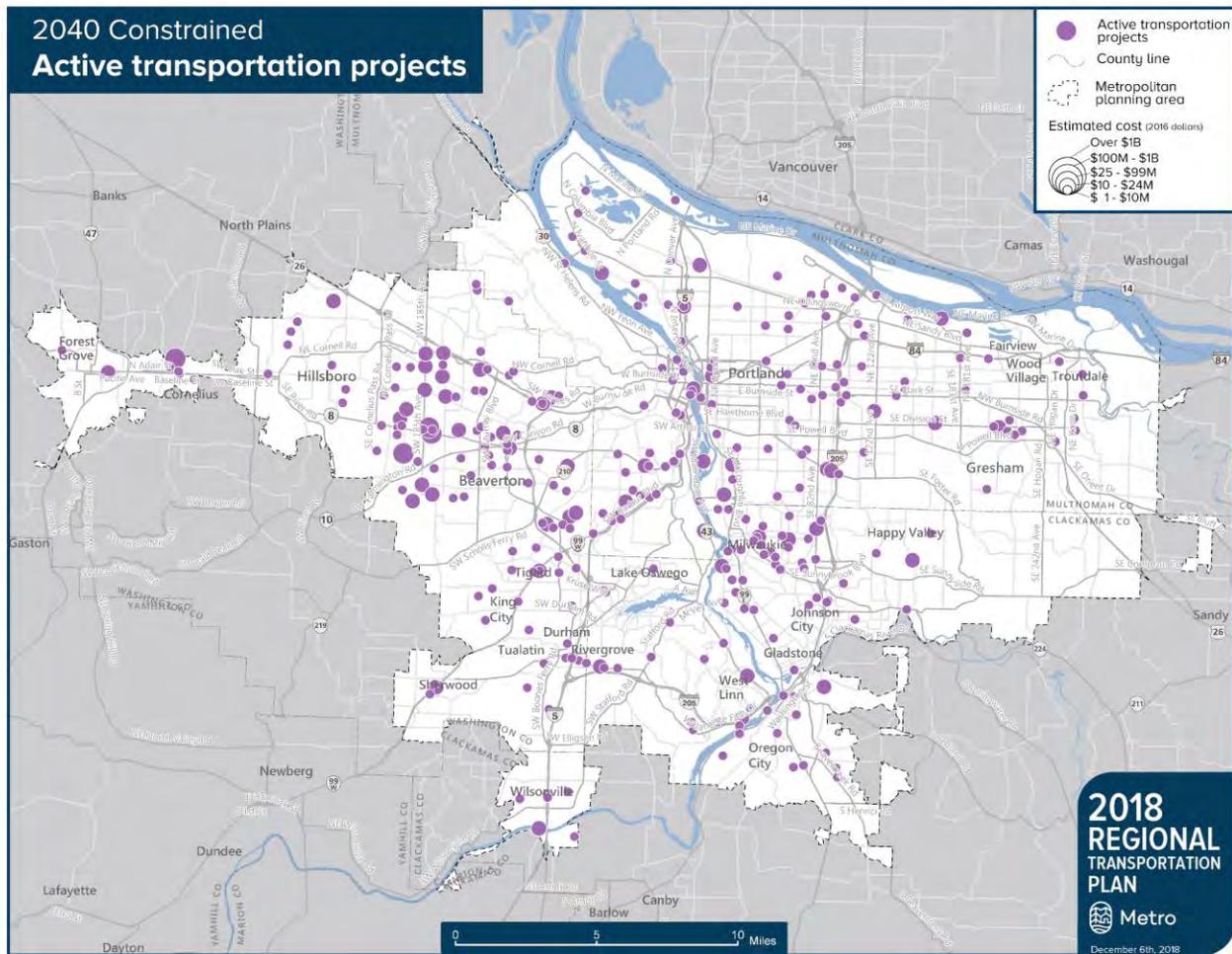
Table 6.9 Summary of Constrained RTP active transportation projects

Active transportation capital projects	 2018–2027	 2018–2040
Number of active transportation projects	157	327
Number of active transportation projects with a safety benefit	151	319
Number of active transportation projects on a high injury corridor	96	186
Sidewalk, bikeway and trail projects*	183 miles added	412 miles added
Examples of active transportation projects	Aloha-Reedville pedestrian Improvements, Council Creek Regional Trail, Division-Midway Connected Centers project, Westside Trail US 26 bridge crossing, Milwaukie Monroe Street Neighborhood Greenway	Lake Oswego to Portland Trail, Reedway bike/pedestrian overcrossing, Washington County pedestrian arterial crossings, East-Buttes Loop Trail
Estimated capital cost in 2016 dollars	\$790 million	\$1.8 billion

* This does not include miles of sidewalk and bikeways added by projects in other investment categories.

Figure 6.26 shows the general location of Constrained RTP active transportation projects.

Figure 6.26 Greater Portland region: Map of Constrained RTP active transportation projects



6.3.8 Transportation system management and operations projects

Using technology to actively manage the greater Portland region’s transportation system means using intelligent transportation systems and services to reduce vehicle idling associated with delay and help improve the speed and reliability of transit. Nearly half of all congestion is caused by incidents and other factors that can be addressed using these strategies.

Local, regional and state agencies work together to implement transportation system technologies. Agreements between agencies guide sharing of data and technology, operating procedures for managing traffic, and the ongoing maintenance and enhancement of technology, data collection and monitoring systems.

RTP transportation system management and operations projects are focused on:

- **Arterial corridor management.** Advanced technology at each intersection actively manages traffic flow. This includes coordinated or adaptive signal timing; advanced signal operations

such as cameras, flashing yellow arrows, bike signals and pedestrian count down signs; and communication to a local traffic operations center and the centralized traffic signal system.

- **Freeway corridor management.** Advanced technology manages access to the freeways, detects traffic levels and weather conditions, provides information with message signs and variable speed limit signs, and deploys incident response patrols that quickly clear breakdowns, crashes and debris. These tools connect to a regional traffic operations center.
- **Traveler information.** Variable message and speed limit signs and 511 internet and phone services provide travelers with up-to-date information regarding traffic and weather conditions, incidents, travel times, alternate routes, construction and special events.

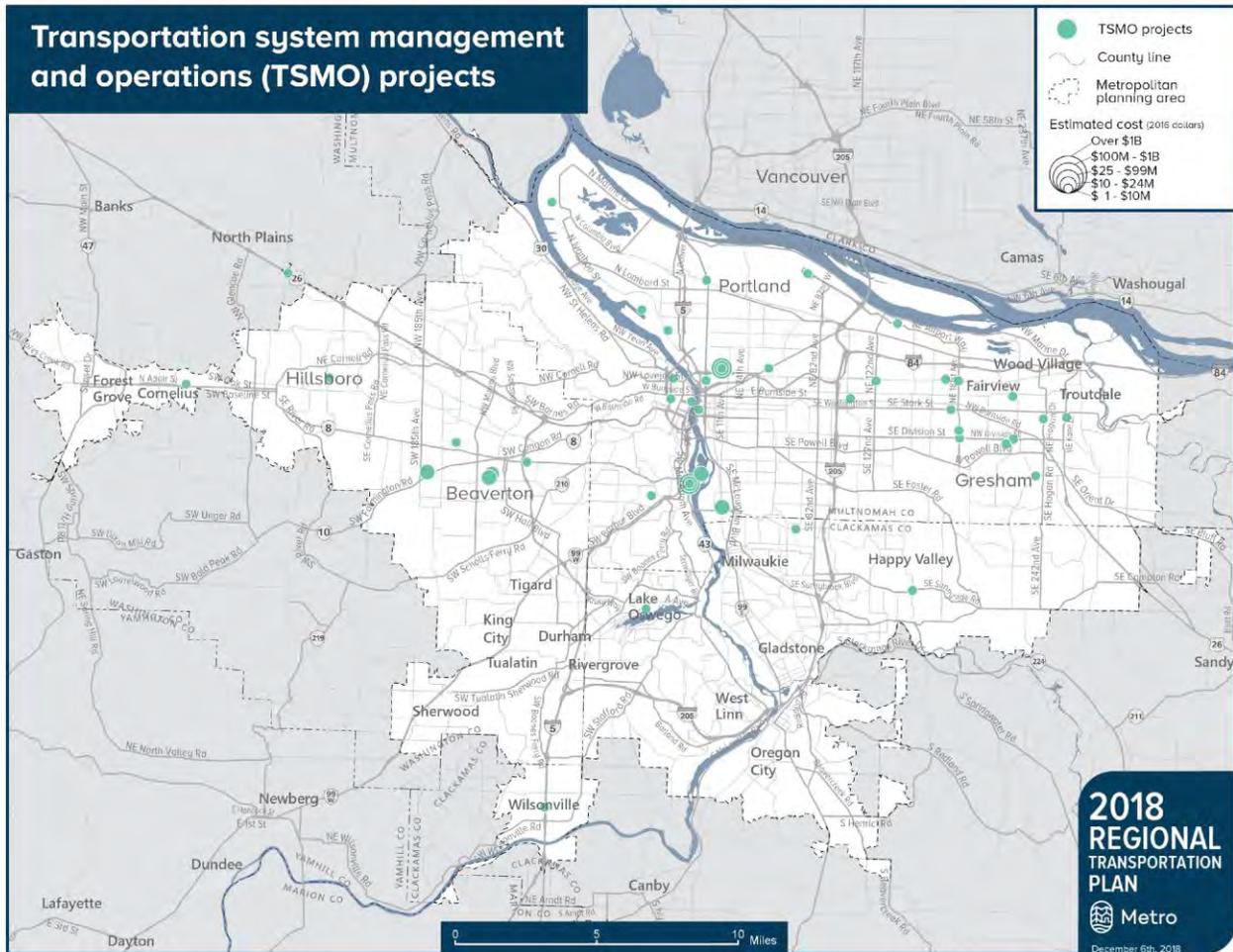
As shown in **Table 6.10**, transportation system management and operations (TSMO) represent 5 percent of the total number of capital projects in the Constrained RTP list of projects.

Table 6.10 Summary of Constrained RTP transportation system management and operations projects

Transportation system management and operations projects	 2018–2027	 2018–2040
TSMO Projects	20	40
Provide for real-time and forecasted traveler information	Information on current travel conditions and alerts are available to the public and third party developers	Current Conditions data is used by operators to forecast changing travel conditions
Multimodal integrated corridor management	Agencies integrate operations strategies in a few of the region’s major travel corridors	Agencies integrate operations strategies in some of the region’s major travel corridors
Advanced traffic signal operations	Traffic signals are interconnected in some industrial areas and major travel corridors	Traffic signals are interconnected in some industrial areas and major travel corridors
Transit signal priority	Some frequent bus routes	Most frequent bus routes
Freeway ramp meters	All urban interchanges	All urban interchanges
Freeway variable speed signs	Some high incident locations	Most freeways
Incident response vehicles	Incident response vehicles monitor some high incident locations	Incident response vehicles monitor all area freeways and major arterials adjacent to freeways
Estimated capital cost in 2016 dollars	\$71 million	\$189 million

Figure 6.27 shows the general location of Constrained RTP TSMO projects.

Figure 6.27 Greater Portland region: Map of Constrained RTP transportation system management projects



6.3.9 Transportation demand management projects

Public awareness, education and travel options support tools are cost-effective ways to improve the efficiency of the existing transportation system through increased use of travel options such as walking, biking, carsharing, carpooling and taking transit. Local, regional and state agencies work together with businesses and non-profit organizations to implement programs in coordination with other capital investments. Metro coordinates partners' efforts, sets strategic direction, evaluates outcomes and manages grant funding.

RTP Transportation demand management (TDM) projects are focused on:

- **Public awareness strategies** Events and other outreach strategies provide information about and encourage the public's use of travel options.

- **Commuter programs.** Employer-based commuter outreach efforts include: financial incentives, such as transit pass programs and offering cash instead of parking subsidies; facilities and services, such as carpooling programs, bicycle parking, emergency rides home and work-place competitions; and flexible scheduling such as working from home or compressed work weeks.
- **Individualized marketing.** Focused outreach encourages individuals, families or employees interested in making changes in their travel choices to participate in a program. A combination of information and incentives is tailored to each person’s or family’s specific travel needs. This outreach can be part of a comprehensive commuter program.
- **Travel options support tools** Reduce barriers to travel options and support continued use with tools, such as online rideshare matching, trip planning tools, wayfinding signage, bike racks and carsharing.

As shown in **Table 6.11**, Transportation demand management (TDM) projects comprise 2 percent of the total number of capital projects in the Constrained RTP list of projects.

Table 6.11 Summary of Constrained RTP transportation demand management projects

Transportation demand management projects	 C¹⁰ 2018–2027	 C 2040 2018–2040
TDM projects	8	14
Local program implementation	All cities with >30k population lead travel options efforts, covering about 80% of regional population	All cities with >20k population lead travel options efforts, covering about 90% of regional population
Individualized marketing participation	No forecast data is available Current program reaches about 3% of households	No forecast data is available
Commuter program participation	No forecast data is available Oregon Employee Commute Options Rule requires work sites with more than 100 employees to have workplace programs	No forecast data is available
Public awareness marketing campaign	Existing ongoing and short-term campaigns increase awareness of <i>DriveLess. Connect</i>	Additional resources promote new travel tools, regional efforts and safety education
Provisions of travel options support tools	2015 program funding levels allow for completion of several new wayfinding signage and bike rack projects	Additional resources allow for public-private partnerships to create new online, print and on-street travel tools
Estimated capital cost in 2016 dollars	\$51 million	\$127 million

6.3.10 Other projects and programs to leverage capital investments

The 2040 Constrained investment strategy includes \$105 million in investments to support Transit Oriented Development (\$67 million), regional planning activities and corridor investment area refinement and planning activities (\$38 million).

6.3.11 Transportation equity projects

The RTP reflects a regional commitment to plan and invest in the region's transportation system to reduce transportation-related disparities and barriers faced by communities of color and other historically marginalized communities, regardless of race, language proficiency, income, age or ability, while maintaining affordability and preventing displacement is necessary.

Out of the 822 projects in the Constrained RTP investment strategy, 588 capital projects are within an Equity Focus Area. The Constrained RTP investment strategy shows the combined investment of transit capital projects and active transportation projects in equity focus areas reaches over \$3.9 billion in 2027 and \$6.5 billion by 2040. These comprise around 44 percent of the RTP's planned investment by 2040.

Defining terms

Equity Focus Area

Census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color, English language learners, and/or people with lower income. Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities.

Refer to Chapter 7 and to **Appendix E** for information on how the investment strategies of the RTP impact historically marginalized communities in the greater Portland region.

6.3.12 Safety projects and safety benefit projects

Eliminating traffic related deaths and life-changing injuries and increasing transportation safety is a priority of the RTP. To address safety and reduce serious crashes, the RTP project list identifies projects that provide an overall safety benefit, as well as projects that have the primary purpose of reducing fatal and severe injury crashes, or minor/non-injury crashes at a documented high injury or high risk location.

Safety projects and safety benefit projects are targeted towards the Regional High Injury Corridors and Intersections and in race and income marginalized communities (equity focus areas).

As shown in **Table 6.12**, of the 822 capital projects on the 2040 Constrained list:

- **Safety Projects.** 132 projects, 16 percent, of all projects on the 2040 Constrained list in the RTP are identified as safety projects. Those projects identify reducing fatal and severe injury crashes or reducing minor/non-injury crashes as the primary purpose of the project. Nearly 80 percent of these safety projects are located on a high injury corridor, and 73 percent are in an equity focus area (see map below: Projects with Primary Purpose of Reducing Crashes).
- **Safety Benefit Projects.** 551 projects, 67 percent, of all capital projects on the 2040 Constrained list have been identified to provide a safety benefit. Sixty percent of the safety benefit projects are on a high injury corridor, and 70 percent are located in an equity focus area (see map below: Projects with a Safety Benefit).
- **All capital projects on High Injury Corridors.** 458 of all capital projects on the 2040 Constrained list in the RTP, 56 percent, intersect with a regional high injury corridor. Of these projects, 126 are not identified as a Safety Benefit project because some are roadway extensions, some are transit projects, some are information technology system projects, etc. These projects provide other benefits that are critical to the transportation system.
- **Programs that impact safety.** In addition to capital projects, the regional Safe Routes to School, Transit Oriented Development and Transportation System Management and Operations programs provide safety benefits.

Defining terms

Safety project

A project which has the primary purpose of reducing fatal and severe injury crashes or reducing minor/non-injury crashes by addressing a documented safety problem at a documented high injury or high risk location with one or more proven safety counter measures.

Safety benefit project

A project that includes design features that increase safety for one or more roadway user, but may not necessarily address an identified safety issue at an identified high injury or high risk location.

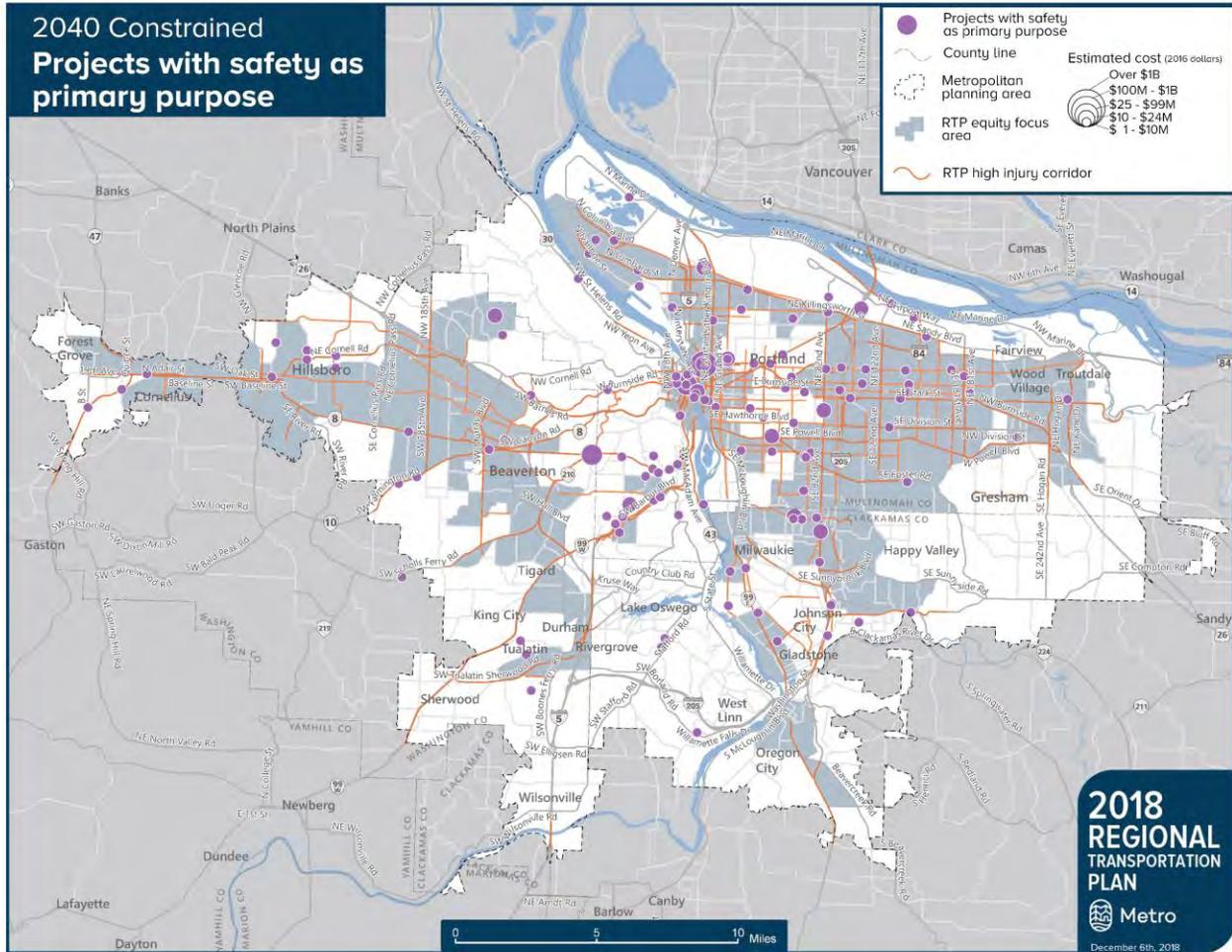
Table 6.12 Summary of Constrained RTP safety projects

Safety and safety benefit projects	 2018–2027	 2018–2040
Safety projects		
Number of safety projects with the primary purpose of reducing crashes	82	132
Number of safety projects on a High Injury Corridor*	71	104
Number of safety projects in Equity Focus Areas*	67	96
Estimated investment in safety projects in 2016 dollars <i>includes I-5 Rose Quarter Improvement project in first ten years for \$390 million</i>	\$691 million	\$ 1 billion
Safety benefit projects		
Number of safety benefit projects	281	551
Number of safety benefit projects on a High Injury Corridor*	184	333
Number of safety benefit projects in Equity Focus Areas*	211	387
Estimated investment in safety benefit projects in 2016 dollars <i>includes I-5 Rose Quarter project in first ten years, and I-5 Columbia River and OR 212/224 in 2028-2040 for a total of \$3.6 billion</i>	\$2.3 billion	\$7.6 billion

*Does not include projects that are programmatic or are not geographically specific.

Figure 6.28 shows the location of projects that identified the primary project purpose as either “reduces fatal and severe injury crashes” or “reduces crashes,” and overlaps with regional high injury corridors and RTP Equity Focus Areas.¹

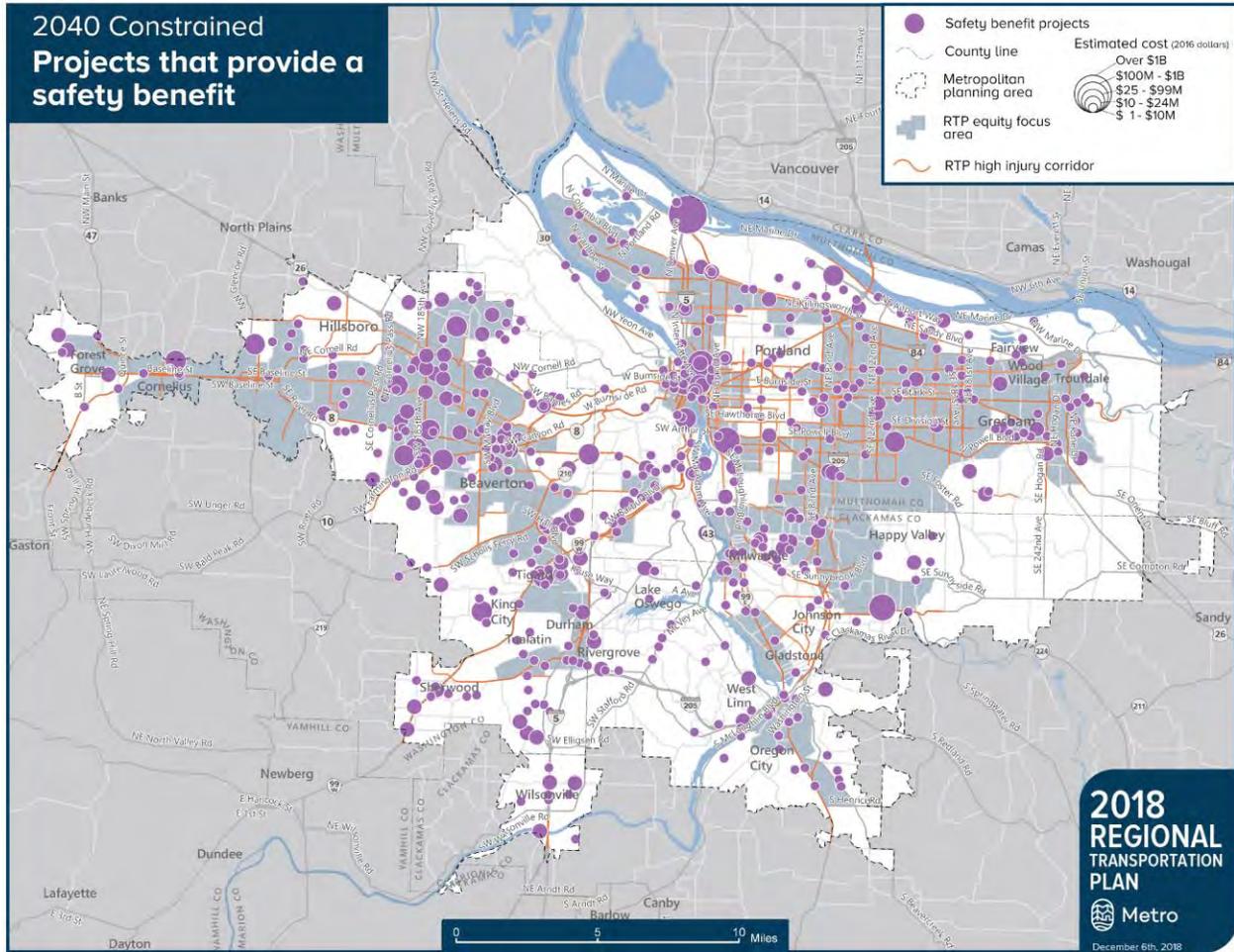
Figure 6.28 Greater Portland region: Map of Constrained RTP projects with the primary purpose of reducing crashes



¹ RTP Equity Focus Areas are census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color or English language learners, and/or people with low income.

Figure 6.29 shows the general location of Constrained RTP projects that provide a safety benefit, overlapped with regional high injury corridors and RTP equity focus areas.

Figure 6.29 Greater Portland region: Map of Constrained RTP safety benefit projects



6.3.13 Parking management

Parking management refers to various policies and programs that result in more efficient use of parking resources. Parking management is implemented through city and county development codes:

- On-street parking approaches include spaces that are timed, metered, designated for certain uses or have no restriction. Examples of these different approaches include charging long-term or short-term fees, limiting the length of time a vehicle can park, and designating on-street spaces for preferential parking for electric vehicles, carshare vehicles, carpools, vanpools, bikes, public use (events or café “Street Seats”) and freight truck loading/unloading areas.
- Off-street parking approaches include providing spaces in designated areas, unbundling parking, preferential parking (for vehicles listed above), shared parking between land uses (for example, movie theater and business center), park-and-ride lots for transit and carpools/vanpools, and parking garages in downtowns and other mixed-use areas that allow surface lots to be developed for other uses.

Managing parking works best when used in a complementary fashion with other strategies; it is less effective in areas where transit or bicycle and pedestrian infrastructure is lacking.

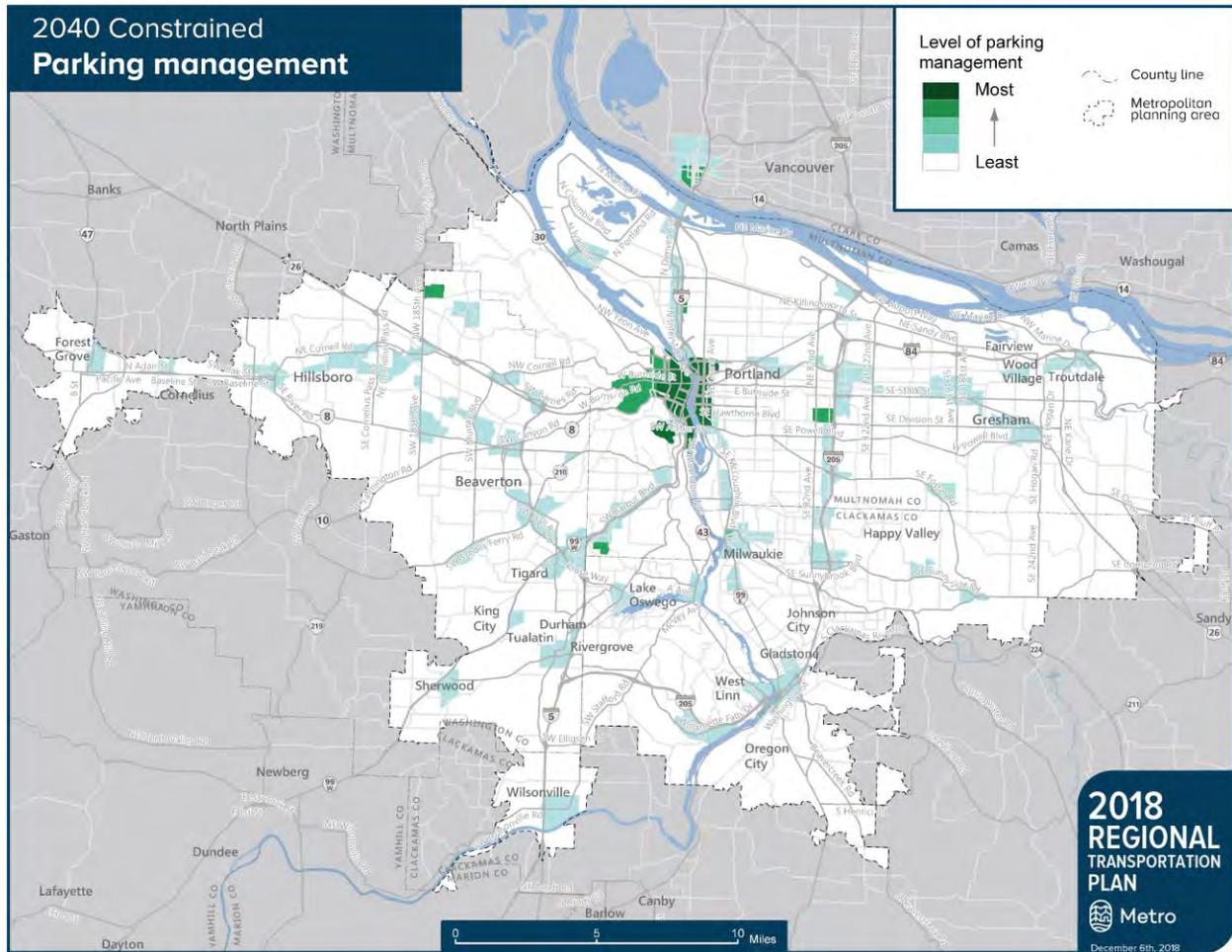
Table 6.13 describes parking management approaches in the Constrained RTP.

Table 6.13 Summary of Constrained RTP parking management

Parking management	 C ₁₀ 2018–2027	 C 2040 2018–2040
Local parking management	Existing locally-adopted development codes remain the same as 2015 Free parking is available in most areas	Communities expand the flexibility of development codes and develop parking plans for all downtowns and centers served by high capacity transit Parking facilities are sized and managed so spaces are frequently occupied, travelers have information on parking and travel options, and some businesses share parking Free and timed parking is available in many areas
Share of trips to areas with actively managed parking	33% work trips 24% other auto trips	32% work trips 23% other auto trips

Figure 6.30 shows the general location where parking management approaches are applied in the Constrained RTP.

Figure 6.30 Greater Portland region: Map of Constrained RTP parking management



6.3.14 Transit operations and maintenance costs

Table 6.14 describes examples of transit operations and maintenance projects in the Constrained RTP.

Table 6.14 Summary of Constrained RTP transit operations and maintenance projects

Transit operations and maintenance		
Examples of operating services	SMART Service to Clackamas Town Center and Oregon City	New bus service Columbia to Clackamas
Examples of maintenance projects	Preventative maintenance for fleet and vehicles, bus replacements, etc. to keep system in good repair	Preventative maintenance for fleet and vehicles, bus replacements, etc. to keep system in good repair
Estimated cost* in 2016 dollars	\$5.7 billion	\$13.7 billion

* Operating costs for TriMet service were calculated by annualizing the daily revenue hours proposed for each scenario and applying TriMet’s average operating cost per revenue hour, with cost by mode weighted by the proportion of service provided on each mode. SMART and Portland Streetcar operating costs were calculated by applying each agency’s FY17 annual operating costs.

6.3.15 Throughway, roads and bridges operations and maintenance costs

Table 6.15 describes examples of road-related operations, maintenance and preservation projects in the Constrained RTP.

Table 6.15 Summary of Constrained RTP throughway, roads and bridges operations and maintenance projects

Throughway, roads and bridges maintenance		
Level of maintenance	Some maintenance backlogs grow	Adequately meet maintenance and preservation needs
Types of maintenance projects	Bridge and road pavement resurfacing, preventative maintenance, preservation and rehabilitation that do not add motor vehicle capacity	Bridge and road pavement resurfacing, preventative maintenance, preservation and rehabilitation that do not add motor vehicle capacity
Estimated cost in 2016 dollars	\$6 billion	\$13.3 billion

See **Appendices A and B** for the list of programmatic buckets in the Constrained RTP project list.

6.4 THE 2040 STRATEGIC PROJECT LIST

The strategic list of projects reflects additional policy-driven needs and project priorities that exceed the region’s projected funding. The 2040 Strategic costs shown in **Table 6.16** include the Constrained RTP project costs plus estimated costs for additional projects that could be implemented with additional resources.

Table 6.16 Estimated costs for RTP investment strategies, including 2040 Strategic

RTP Capital Costs	 2018–2027	 2018–2040	 2018–2040
Transit capital	\$3.2 billion	\$5.1 billion	\$6.2 billion
Throughways	\$1.1 billion	\$4.3 billion	\$6.1 billion
Roads and bridges	\$1.6 billion	\$3.3 billion	\$5.6 billion
Freight access	\$156 million	\$254 million	\$467 million
Active transportation	\$790 million	\$1.8 billion	\$3 billion
Technology – system management	\$71 million	\$189 million	\$308 million
Information – travel options	\$51 million	\$127 million	\$216 million
RTP Operations and Maintenance Costs	 2018–2027	 2018–2040	 2018–2040
Transit operations and maintenance	\$5.7 billion	\$13.7 billion	\$16.7 billion
Roads and throughways operations and maintenance	\$6 billion	\$13.3 billion	\$13 billion
Total estimated cost In 2016 dollars	\$19 billion	\$42 billion	\$52 billion

Costs have been rounded and are in 2016 dollars.

See **Appendix C** for the list of projects included in the Strategic RTP project list.

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If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we’ve already crossed paths.

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