MAKING A GREAT PLACE

Metro

Climate Smart Strategy
for the Portland metropolitan region

oregonmetro.gov/climatestrategy

2014

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CLIMATE SMART STRATEGY

Metro

Climate Smart Strategy
for the Portland metropolitan region

The region's strategy for reducing
greenhouse gas emissions from
cars and small trucks

2014

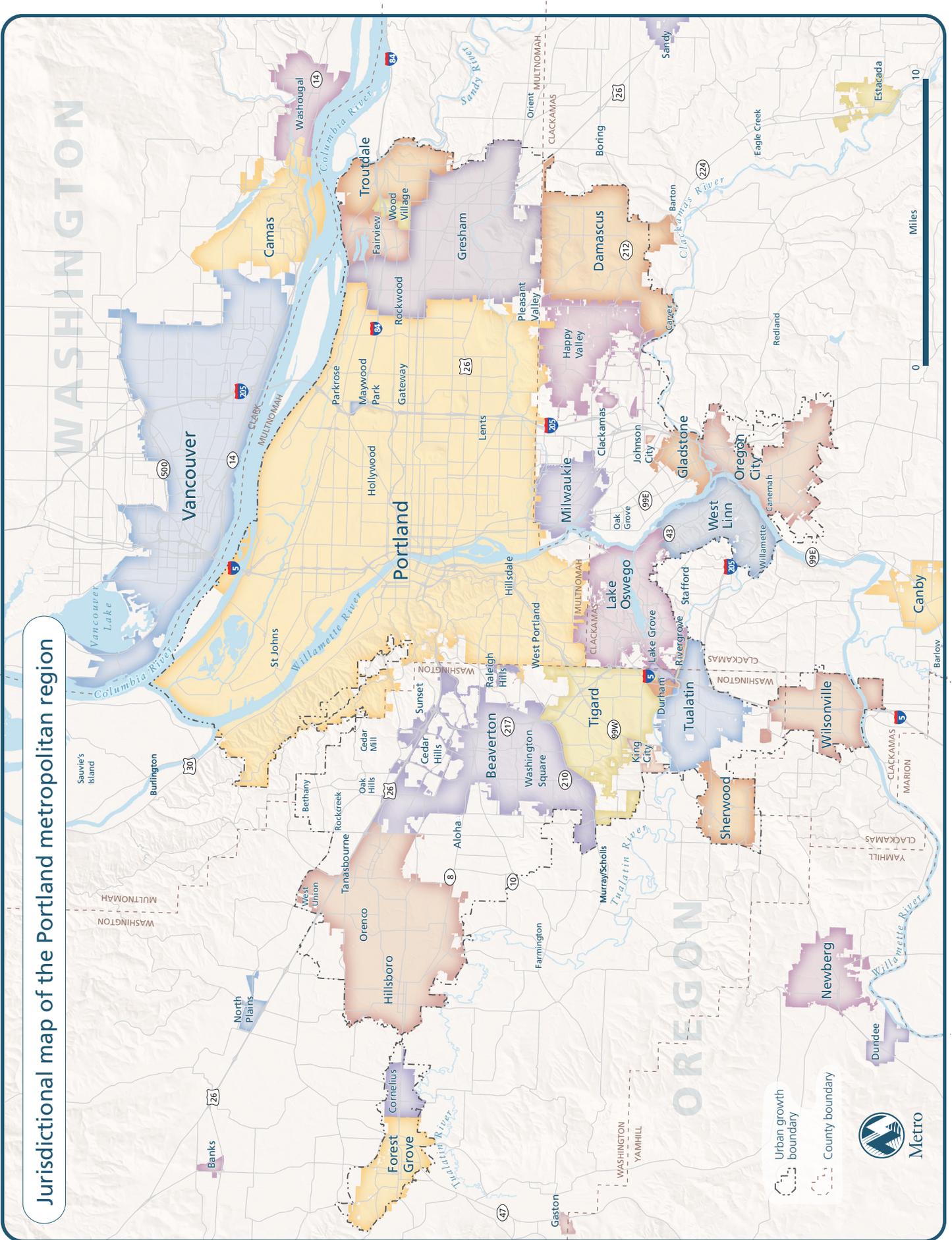# TABLE OF CONTENTS

CLIMATE SMART STRATEGY

Metro

Jurisdictional map of the Portland metropolitan region

Urban growth boundary

County boundary

Metro

INTRODUCTION

The Climate Smart Strategy responds to a state mandate to develop and implement a strategy to reduce per capita greenhouse gas emissions from cars and small trucks by 2035.

Metro engaged community, business, public health and elected leaders to shape a strategy that supports local plans for downtowns, main streets and employment areas; protects farms, forestland, and natural areas; creates healthy and equitable communities; increases travel options; and grows the economy while reducing greenhouse gas emissions.

After four years of research, analysis, community engagement and discussion, the Metro Policy Advisory Committee (MPAC) and Joint Policy Advisory Committee on Transportation (JPACT) finalized their recommendation to the Metro Council on the Climate Smart Strategy and supporting actions in December 2014. The Metro Council adopted the strategy and actions on Dec. 18, 2014.

Vibrant communities

Equity

Regional climate change leadership

Making a great place

Clean air and water

Transportation choices

Economic prosperity
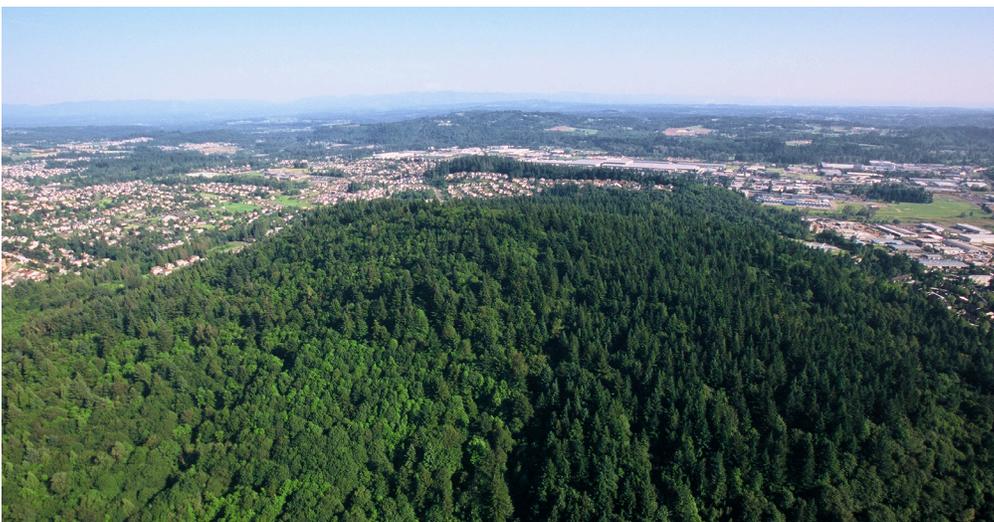
ATTRIBUTES OF GREAT COMMUNITIES
Six desired outcomes for the region were endorsed by the Metro Policy Advisory Committee and approved by the Metro Council in 2010.

The Climate Smart Strategy and implementation actions support all six of the region's desired outcomes.

ABOUT THE CLIMATE SMART STRATEGY

Analyses demonstrate significant benefits can be realized by implementing the Climate Smart Strategy.

By 2035, the strategy can help people live healthier lives and save businesses and households money.

More information on the results, expected benefits and estimated costs is available at :
oregonmetro.gov/ climatestrategy

The results are in and the news is good. After a four-year collaborative process, the region adopted a Climate Smart Strategy that achieves a 29 percent reduction in per capita greenhouse gas emissions. The strategy does more than just exceed the state mandated target. Analyses demonstrates it will also support job creation and economic development, save businesses and households money, help people live healthier lives, protect our region's clean air and water, and make the most of the investments we have already made in our transportation system.

This report is designed to help elected, business, and community leaders, and residents better understand the Climate Smart Strategy and supporting actions adopted by the Metro Council in December 2014. It consolidates Exhibits A, C, D and E of Ordinance 14-1346B, adopted by the Metro Council on Dec. 18, 2014. Some content has been edited for readability.

The Climate Smart Strategy achieves a 29 percent reduction in per capita greenhouse gas emissions and supports the plans and visions that have already been adopted by communities and the region.

WHAT IS THE CLIMATE SMART STRATEGY?

The Climate Smart Strategy is a set of policies and actions to guide how the region moves forward to integrate reducing greenhouse gas emissions with ongoing efforts to keep this region a great place. Key components of the strategy include:

CLIMATE SMART STRATEGY

- Nine key policy recommendations demonstrate the region's leadership policy in reducing greenhouse gas emissions from light-duty vehicles.

- The strategy relies on adopted local and regional land use and transportation plans and expected advancements in cleaner, low carbon fuels and more fuel-efficient vehicles.

SHORT LIST OF CLIMATE SMART ACTIONS (2015-2016)

- Three immediate actions for 2015 and 2016 demonstrate the region's commitment to work together to begin implementing the strategy.

- The actions focus on transportation funding, advancements in clean fuels and vehicle technologies and collaboration among multiple partners to seek opportunities to implement projects that combine the most effective greenhouse gas emissions reduction strategies.

TOOLBOX OF POSSIBLE ACTIONS (2015-2020)

- The toolbox provides a menu of possible near-term actions that state, regional and local governments and special districts can take in the next five years to begin implementing the strategy.

- The toolbox will be subject to further review and refinement as part of scheduled updates to the Regional Transportation Plan (RTP) to reflect new information and approaches to reducing greenhouse gas emissions.

PERFORMANCE MONITORING APPROACH

- The approach identifies measures and performance monitoring targets for tracking the region's progress on implementing the strategy.

- The monitoring and reporting system relies on existing performance monitoring requirements per ORS 197.301 and updates to the RTP and Urban Growth Report.

REGIONAL FRAMEWORK PLAN (RFP) AMENDMENTS

- The RFP amendments are refinements to existing regional policies to integrate the Climate Smart Strategy and supporting actions, including policies to guide implementation and performance measures for tracking the region's progress.

Throughout the four year development of the Climate Smart Strategy, Metro extensively engaged and collaborated with regional partners – cities, counties, transit providers, ODOT and other state agencies – and community leaders in public health, environmental protection, business, housing, environmental justice, and transportation advocacy.

The engagement activities produced more than 15,000 touch points with regional partners, community leaders and residents of the region to inform development of the Climate Smart Strategy.

RACE AND ETHNICITY IN THE PORTLAND METROPOLITAN REGION

People of color are an increasingly significant percentage of the Portland metropolitan region's population. Communities of color are located in all three of the region's counties – often in neighborhoods with limited transit access to family wage jobs and gaps in walking and bicycling networks.

Legend:
- WHITE
- HISPANIC
- BLACK
- ASIAN
- OTHER/TWO OR MORE

1980
- WHITE 80%
- BLACK 11%
- ASIAN 5%
- HISPANIC 3%
- OTHER/TWO OR MORE 1%

2010
- WHITE 52%
- BLACK 8%
- ASIAN 6%
- HISPANIC 20%
- OTHER/TWO OR MORE 14%

REGIONAL CONTEXT

OUR REGION IS CHANGING

The Portland metropolitan region is an extraordinary place to call home. Our region has unique communities with inviting neighborhoods, a diverse economy and a world-class transit system. The region is surrounded by stunning natural landscapes and criss-crossed with a network of parks, trails and wild places within a walk, bike ride or transit stop from home. Over the years, the communities of the Portland region have taken a collaborative approach to planning that has helped make our region one of the most livable in the country.

Because of our dedication to planning and working together to make local and regional plans a reality, we have set a wise course for managing growth – but times are challenging. With a growing and increasingly diverse population and an economy still in recovery, residents of the region along with the rest of the nation have reset expectations for financial and job security.

Aging infrastructure, rising energy costs, a changing climate, and global economic and political tensions demand new kinds of leadership, innovation and thoughtful deliberation and action to ensure our region remains a great place to live, work and play for everyone.

In collaboration with city, county, state, business and community leaders, Metro has researched how land use and transportation policies and investments can be leveraged to respond to these challenges and meet state targets for reducing greenhouse gas emissions from cars and small trucks.

The region expects to welcome nearly 500,000 new residents and more than 365,000 new jobs within the urban growth boundary by 2035.

1910
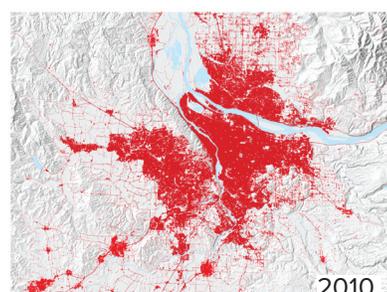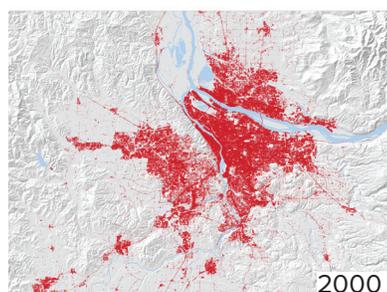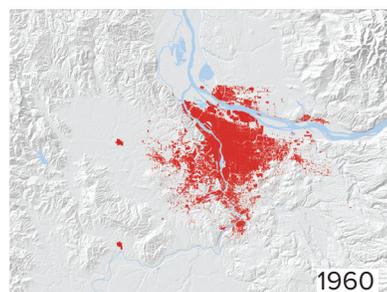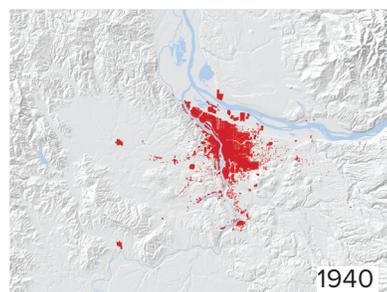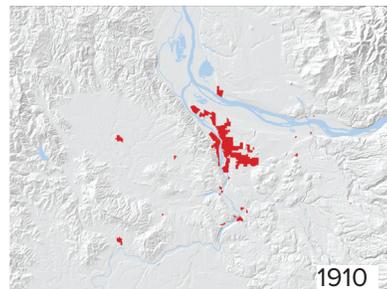
1940

1960

2000

2010

Sources: 1910, 1940, 1960 - Historic Metropolitan Planning Commission Maps, 2000, 2010 - NOAA CCAP Landcover

PROJECT BACKGROUND

The Climate Smart Strategy responds to a 2009 mandate from the Oregon Legislature for Metro to develop and implement a strategy to reduce per capita greenhouse gas emissions from cars and small trucks by 2035.

Metro is the regional government serving a population of 1.5 million people in the Portland metropolitan region. In that role, Metro worked with regional technical and policy advisory committees and community, business and elected leaders across the region to shape the Climate Smart Strategy and supporting actions.

Development and adoption of the strategy was completed in three phases.

Phase 1 began in 2011 and concluded in early 2012. This phase consisted of testing strategies on a regional level to understand which strategies can most effectively help the region meet the state greenhouse gas emissions reduction mandate.

Most of the investments and actions under consideration are already being implemented to varying degrees across the region to realize community visions and other important economic, social and environmental goals.

As part of the first phase, Metro staff researched strategies used to reduce emissions in communities across the region, nation and around the world. This work resulted in a toolbox describing the range of potential strategies, their effectiveness at reducing emissions and other benefits they could bring to the region, if implemented.
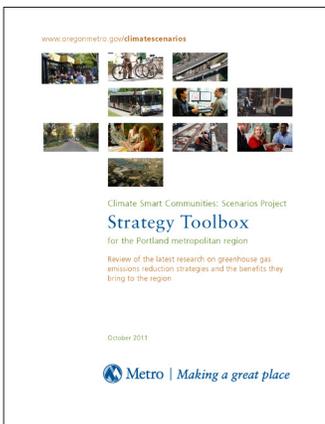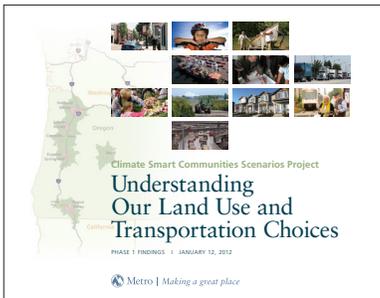
In phase 1, we found there are many ways to reduce emissions while creating healthy, equitable communities and a strong economy, but no single solution will enable the region to meet the state's target.

....

Climate Smart Communities Scenarios Project timeline

2011 Phase 1	2012 – 13 Phase 2	2013 – 14 Phase 3
Understanding choices	Shaping choices	Shaping and adoption of Climate Smart Strategy
Jan. 2012 Accept findings	June 2013 Direction on alternative scenarios	June 2014 Direction on Climate Smart Strategy · Dec. 2014 Adopt Climate Smart Strategy

We found there are many ways to reduce emissions while creating healthy, more equitable communities and a strong economy, but no single solution will enable the region to meet the state's target, including anticipated changes to fleet and technology.

The Phase 1 findings reinforced that investing in communities in ways that support local visions for the future will be key to reducing greenhouse gas emissions. Providing schools, services and shopping near where people live, improving bus and rail transit service, building new street connections, using technology to manage traffic flow, encouraging electric cars and providing safer routes for biking and walking all can help.

The second phase began in 2012 and concluded in October 2013. In this phase, Metro worked with regional technical and policy advisory committees and business and community leaders to shape three approaches – or scenarios – and the criteria used to evaluate them. In 2013, Metro analyzed the three approaches to investing in locally adopted land use and transportation plans and policies.

The purpose of the analysis was to better understand the impact of those investments to inform the development of the Climate Smart Strategy in 2014. Each scenario reflects choices about how and where the region invests to implement locally adopted plans and visions. They illustrate how different levels of leadership and investment could impact how the region grows over the next 25 years and how those investments might affect different aspects of livability for the region. The results of the analysis were released in fall 2013, and summarized in a Discussion Guide For Policymakers.

COMMUNITY CLIMATE CHOICES
Health Impact Assessment (HIA)

Flexible, safe, reliable transportation systems
PROVIDE HEALTHY CHOICES.

Health

SHAPING THE
PREFERRED APPROACH
A DISCUSSION GUIDE FOR POLICYMAKERS
PORTLAND METROPOLITAN REGION   APRIL 2014
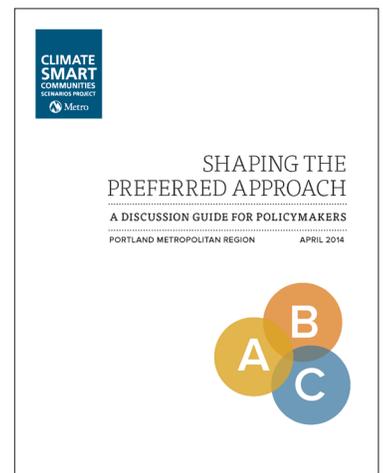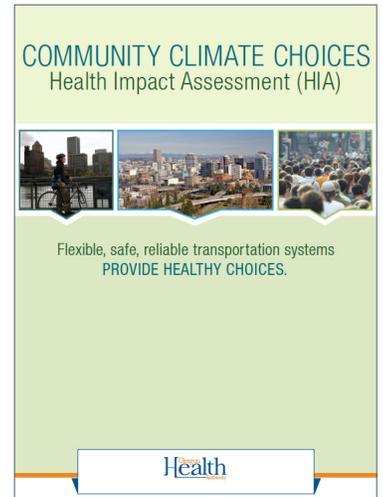
In phase 2, we found if we continue investing at our current levels we will fall short of what has been asked of our region, as well as other outcomes we are working to achieve – healthy and equitable communities, clean air and water, reliable travel options, and a strong economy.

Three approaches evaluated in 2013

SCENARIO

A

Recent Trends

This scenario shows the results of implementing adopted land use and transportation plans to the extent possible with existing revenue.

SCENARIO

B

Adopted Plans

This scenario shows the results of successfully implementing adopted plans and achieving the current Regional Transportation Plan which relies on increased revenue.

SCENARIO

C

New Plans and Policies

This scenario shows the results of pursuing new policies, more investment and new revenue sources to more fully achieve adopted and emerging plans.

In phase 3, the region agreed on a strategy that relies on policies and investments that have already been identified as local priorities in communities across the region and in the region's long-range transportation plan. The strategy also includes state assumptions for cleaner, low carbon fuels and more fuel-efficient vehicles.

The third phase began in November 2013 and concluded in December 2014. The Metro Council adopted the region's Climate Smart Strategy with broad support from local and state government partners. Building on the previous analyses and engagement, in February 2014, the Metro Council and regional policy committees approved the process for shaping and recommending a Climate Smart Strategy for the Metro Council to adopt by the end of 2014.

As recommended by policymakers, development of the key components of the Climate Smart Strategy began with the adopted 2040 Growth Concept, the 2014 Regional Transportation Plan (RTP) and the adopted plans of the region's cities and counties including local zoning, capital improvement, comprehensive and transportation system plans.

In addition, they recommended including assumptions for cleaner, low carbon fuels and more fuel-efficient vehicles as defined by state agencies during the 2011 target-setting process. A third component they recommended be included in the draft strategy is the Statewide Transportation Strategy assumption for pay-as-you-drive vehicle insurance.

From January to May 2014, the Metro Council engaged community and business leaders, local governments and the public on what mix of investments and actions best support their community's vision for healthy and equitable communities and a strong economy while reducing greenhouse gas emissions.

In May 2014, policymakers considered the results of prior engagement activities and analyses, and their February 2014 policy direction to recommend a draft strategy for testing during summer 2014. The draft strategy carried forward their February recommendations and provided further direction around the remaining policy areas.

The draft strategy and supporting actions were subject to a 45-day public comment period from Sept. 15 to Oct. 30, 2014. Metro received 90 letters and emails from local governments, community based organizations and individuals. An online survey attracted nearly 2,400 people who shared their thoughts on each of the key policy areas recommended in the overall strategy. Metro staff identified changes to the draft documents for consideration by the Metro Council and regional policy committees. The committees finalized their recommendations to the Metro Council in December 2014. The Metro Council adopted the recommended strategy and supporting actions on Dec. 18, 2014.

CLIMATE SMART STRATEGY POLICIES

The goal of the Climate Smart Strategy is to demonstrate leadership on climate change by meeting adopted targets for reducing greenhouse gas emissions from light-duty vehicles while creating healthy and equitable communities and a strong economy.

This section provides an overview of the policies and strategies recommended in the Climate Smart Strategy:

1. Implement adopted local and regional land use plans
2. Make transit convenient, frequent, accessible and affordable
3. Make biking and walking safe and convenient
4. Make streets and highways safe, reliable and connected
5. Use technology to actively manage the transportation system
6. Provide information and incentives to expand the use of travel options
7. Make efficient use of vehicle parking and land dedicated to parking
8. Support Oregon's transition to cleaner, low carbon fuels and more fuel-efficient vehicles
9. Secure adequate funding for transportation investments

Each section includes a description of the policy and strategies, the potential climate benefit, cost, implementation benefits and challenges, and a summary of the how the policy is implemented in the strategy.

Through implementing these nine policies, the Portland metropolitan region demonstrates leadership in reducing greenhouse gas emissions.

The Climate Smart Strategy is built from the land use and transportation plans and visions already adopted by cities and counties across the region, creating a diverse, yet shared vision for how we can keep this region a great place to live and work for years to come.

It includes making investments to build new sidewalks and bike connections, increase transit service and use technology and other strategies to improve safety, reduce traffic delay, and make the most of investments we have already made in our transportation system.

EXPLANATION OF THE CLIMATE BENEFIT RATINGS

In Phase 1 of the project, staff conducted a sensitivity analysis to better understand the greenhouse gas emissions reduction potential of individual policies. The information derived from the sensitivity analysis was used to develop a simplified five-star rating system for communicating the relative climate benefit of different policies. The ratings represent the relative emissions reduction effects of individual policy areas in isolation and do not capture variations that may occur from synergies between multiple policies or other benefits the policies may provide.

The ratings, in combination with fiscal, economic, equity, public health, transportation and environmental criteria and public input, informed development of the Climate Smart Strategy. All of these factors will continue to inform future implementation and investment decisions.

Estimated reductions assumed in climate benefit ratings	
less than 1%	★ ★ ★ ★ ★
1 – 2%	★ ★ ★ ★ ★
3 – 6%	★ ★ ★ ★ ★
7 – 15%	★ ★ ★ ★ ★
16 – 20%	★ ★ ★ ★ ★

Source Memo to TPAC and interested parties on Climate Smart Communities: Phase 1 Metropolitan GreenSTEP scenarios sensitivity analysis (June 21, 2012)

A NOTE ON THE STATEWIDE TRANSPORTATION STRATEGY (STS)

The Oregon Statewide Transportation Strategy (STS): A 2050 Vision for Greenhouse Gas Emissions Reduction, was accepted by the Oregon Transportation Commission in March 2013. The strategy resulted from a state-level scenario planning effort that examined all aspects of the transportation system, including the movement of people and goods, and identified a combination of strategies to reduce greenhouse gas emissions. The STS was developed as part of a larger effort known as the Oregon Sustainable Transportation Initiative (OSTI), an integrated statewide effort to reduce greenhouse gas emissions from Oregon's transportation sector. The effort responded to two bills passed by the Oregon Legislature, House Bill 2001 (2009) and Senate Bill 1059 (2010), which were crafted to help meet state GHG reduction goals set forth in Oregon Revised Statute 468a.205.

The STS was developed over the course of two years involving extensive research and technical analysis, as well as policy direction and technical input from local governments, industry representatives, metropolitan planning organizations (MPOs), state agencies and others. The STS identifies the most effective greenhouse gas emissions reduction strategies in transportation systems, vehicle and fuel technologies, and urban land use patterns. Beyond reducing GHG emissions, these strategies were found to provide other benefits, including improved health, cleaner air, and a more efficient transportation system. The most promising strategies identified in the STS informed the development of the recommended Climate Smart Strategy.

RELATIVE CLIMATE BENEFIT

★ ★ ★ ★ ★

NO COST ESTIMATE AVAILABLE

Implement adopted local and regional land use plans

In 1995, the Portland region adopted the 2040 Growth Concept, the long-range plan for managing growth that merges land use and transportation design elements to reinforce the objectives of both. The unifying theme of the 2040 Growth Concept is to preserve the region's economic health and livability and plan for growth in the region in an equitable, environmentally-sound and fiscally-responsible manner.

The 2040 Growth Concept includes land use and transportation building blocks that express the region's aspiration to incorporate population growth within existing urban areas as much as possible and expand the urban growth boundary only when necessary. It concentrates mixed-use and higher density development in urban centers (e.g., Portland central city, regional centers and town centers), station communities, corridors, and main streets that are well-served by transit and a well-connected street network that supports biking and walking for short trips. Employment lands serve as hubs for regional commerce and include industrial land and freight facilities for truck, marine, air and rail cargo sites that enable goods to be generated and moved in and out of the region. Access is centered on rail, the freeway system and other road connections.

Since 1995, cities and counties across the region have updated their comprehensive plans, development regulations and transportation system plans to implement the 2040 Growth Concept vision in locally tailored ways. The 2040 Growth Concept and adopted local plans provide the foundation for the Climate Smart Strategy.

BENEFITS

- compact urban form that uses land and public investments efficiently
- generates jobs and business opportunities
- protects air quality, farms, forestlands and natural areas
- provides a balanced transportation system to move people and goods
- supports housing for people of all income levels
- ensures safe and stable neighborhoods

CHALLENGES

- lack of sufficient funding for investments needed to make adopted plans a reality
- not all designated growth areas have developed as planned
- lack of civic amenities, such as public gathering places, parks and community centers in some urban centers
- changing demographics

OUR SHARED VISION: THE 2040 GROWTH CONCEPT

An integrated land use and transportation vision for building healthy, equitable communities and a strong economy while reducing greenhouse gas emissions.

2040 Growth Concept Map

The Metro 2040 Growth Concept defines the form of regional growth and development for the Portland metropolitan region. The Growth Concept was adopted in December 1995 through the Region 2040 planning and public involvement process. This concept is intended to provide long-term growth management of the region.

The map highlights elements of parallel planning efforts including the 2035 Regional Transportation Plan that outlines investments in multiple modes of transportation, and a commitment to local policies and investments that will help the region better accommodate growth within its centers, corridors and employment areas.

For more information on these initiatives, visit http://www.oregonmetro.gov/2040

Legend:

- Central city
- Regional center
- Town center
- Station communities
- Main streets
- Corridors

- Employment land
- Parks and natural areas
- Neighborhood
- Rural reserve
- Urban reserve
- Urban growth boundaries

- Existing high capacity transit
- Planned high capacity transit
- Proposed high capacity transit tier 1
- Mainline freight
- High speed rail
- County boundaries

- Neighboring cities
- Airports
- Intercity rail terminal

Metro — *Making a great place*

RELATIVE CLIMATE BENEFIT

★ ★ ★ ★ ★

**ESTIMATED COST
TO IMPLEMENT BY 2035
(2014$)**

Capital $4.4 billion

Operations $8 billion

Make transit convenient, frequent, accessible and affordable

There are four key ways to make transit service convenient, frequent, accessible and affordable. The effectiveness of each will vary depending on the mix of nearby land uses, the number of people living and working in the area, and the extent to which travel information, marketing and technology are used.

Frequency Increasing the frequency of transit service in combination with transit signal priority and bus lanes makes transit faster and more convenient.

System expansion Providing new community and regional transit connections improves access to jobs and community services and makes it easier to complete some trips without multiple transfers. This includes local services like GroveLink, a partnership between the City of Forest Grove, Ride Connection and TriMet to improve neighborhood access to regional transit service, jobs and other destinations in the community.

Transit access Building safe and direct biking and walking routes and crossings that connect to stops makes transit more accessible and convenient.

Fares Providing reduced fares makes transit more affordable; effectiveness depends on the design of the fare system and the cost.

Transit is provided in the region by TriMet and South Metro Area Rapid Transit (SMART) in partnership with Metro, cities, counties, employers, business associations and non-profit organizations.

BENEFITS

- improves access to jobs, the workforce, and goods and services, boosting business revenues
- creates jobs and saves consumers and employers money
- stimulates development, generating local and state revenue
- provides drivers an alternative to congested roadways and supports freight movements by taking cars off the road
- increases physical activity
- reduces air pollution and air toxics
- reduces risk of traffic fatalities and injuries

CHALLENGES

- transit demand outpacing funding
- enhancing existing service while expanding coverage and frequency to growing areas
- reduced revenue and federal funding, leading to increased fares and service cuts
- preserving affordable housing options near transit
- ensuring safe and comfortable access to transit for pedestrians, bicyclists and drivers
- transit-dependent populations locating in parts of the region that are harder to serve with transit

TRANSIT SERVICE

Rush hour
(7-9 am, 4-6 pm)

Frequency (minutes)
- 5 - 10
- 11 - 15
- 16 - 25
- 26 - 45
- Over 45

◆ Urban center
◆ Employment
◇ UGB
–·– County line

0   2   4 Miles
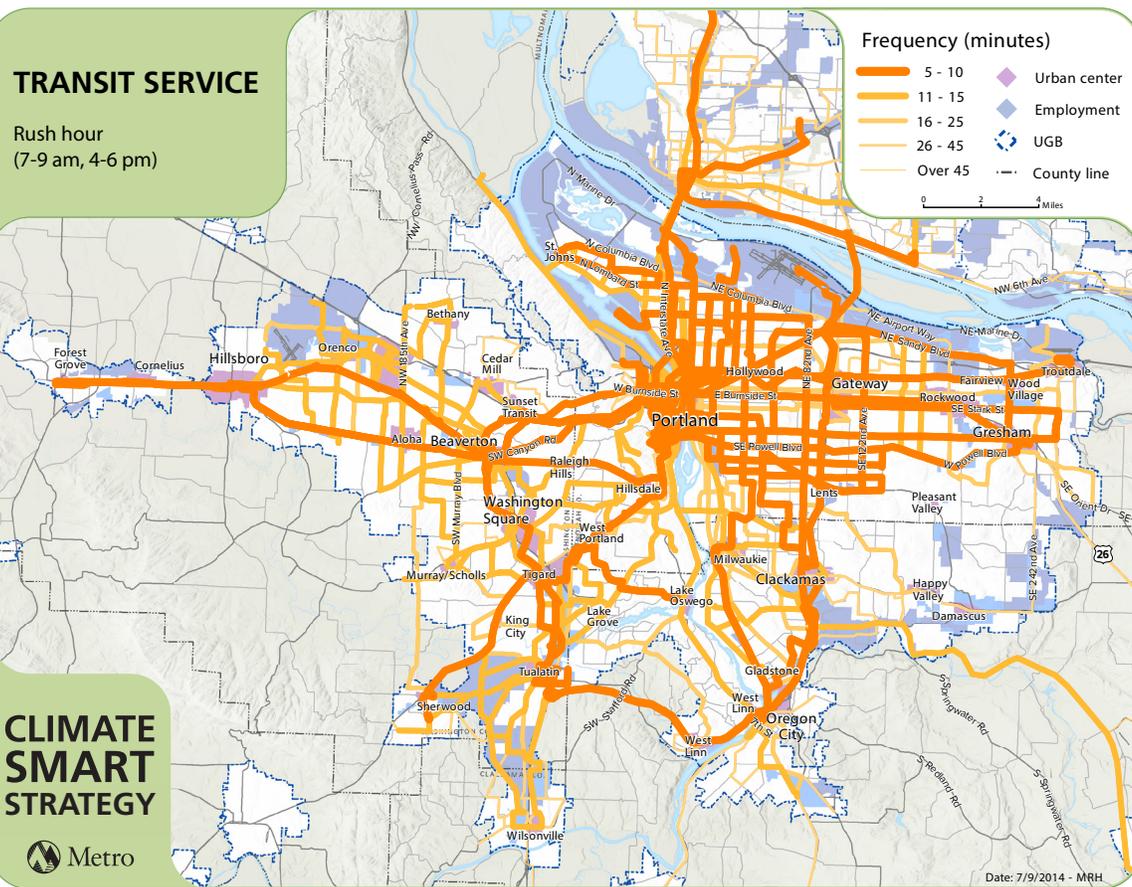
55% jobs
49% households
62% low-income households
Estimated jobs and households within ¼-mile of 15-minute or better service by 2035

CLIMATE SMART STRATEGY

◉ Metro

Date: 7/9/2014 - MRH

TRANSIT SERVICE

Daytime and evening
(9 am-4 pm, 6 pm-close)

Frequency (minutes)
- 5 - 10
- 11 - 15
- 16 - 25
- 26 - 45
- Over 45

◆ Urban center
◆ Employment
◇ UGB
–·– County line

0   2   4 Miles
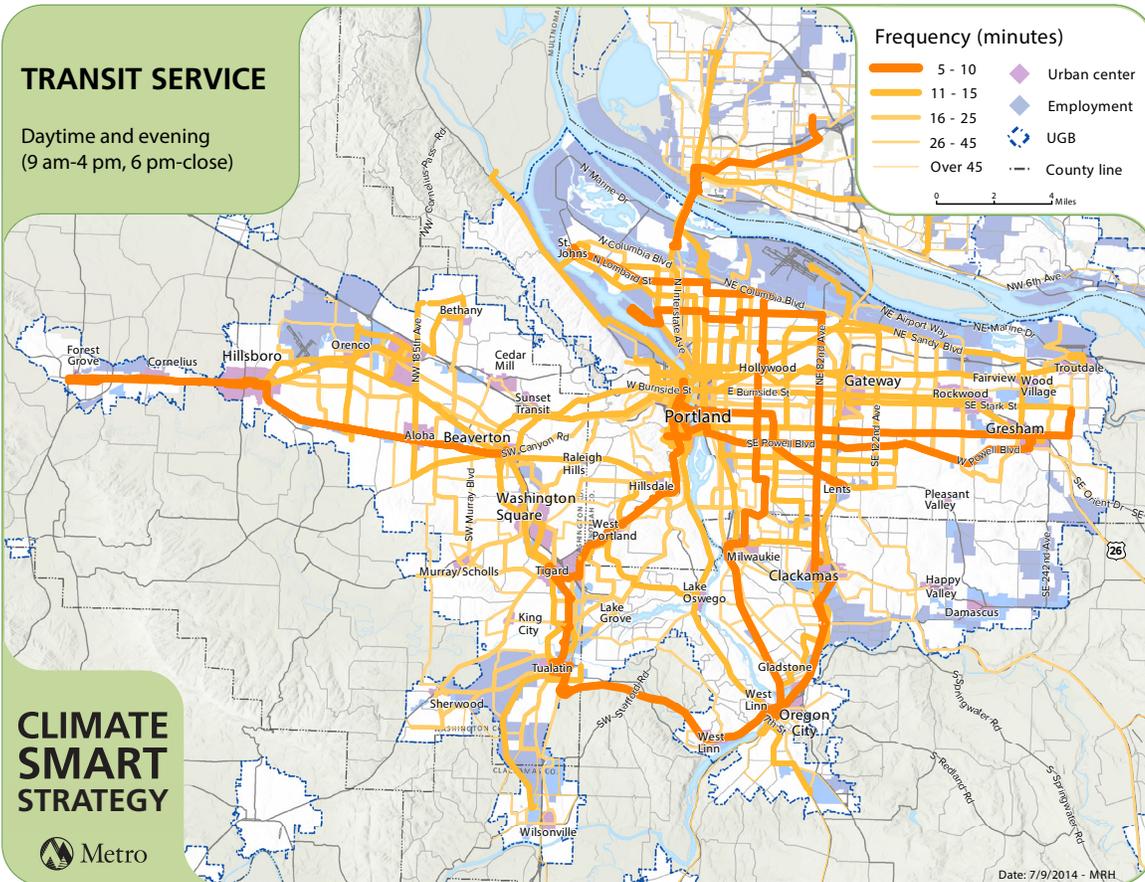
52% jobs
37% households
49% low-income households
Estimated jobs and households within ¼-mile of 15-minute or better service by 2035

Note: The maps and cost estimates reflect the transit service operations and frequencies adopted in the full 2014 RTP and transit capital investments adopted in the constrained RTP plus additional capital to support operations level.

CLIMATE SMART STRATEGY

◉ Metro

Date: 7/9/2014 - MRH

RELATIVE CLIMATE BENEFIT

★ ★ ★ ☆ ☆

**ESTIMATED COST
TO IMPLEMENT BY 2035
(2014$)**

$2 billion

Make biking and walking safe and convenient

Active transportation is human-powered travel that engages people in healthy physical activity while they go from place to place. Examples include biking, walking, pushing strollers, using wheelchairs or other mobility devices, skateboarding, and rollerblading. Active transportation is an essential component of public transportation because most of these trips begin and end with biking or walking.

Today, about 50 percent of the regional active transportation network is complete. Nearly 18 percent of all trips in the region are made by biking and walking, a higher share than many other places. 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. With a complete active transportation network supported by education and incentives, many of the short trips made by car could be replaced by biking and walking. See separate summary on providing information and incentives to expand the use of travel options on page 21.

For active travel, transitioning between modes is easy when sidewalks and bicycle routes are connected and complete, wayfinding is coordinated, and transit stops are connected by sidewalks and have shelters and places to sit. Biking to work and other places is supported when bicycles are accommodated on transit vehicles, safe and secure bicycle parking is available at transit shelters and community destinations, and adequate room is provided for biking and walking on shared pathways. Regional trails and transit function better when they are integrated with on-street biking and walking routes.

BENEFITS

- increases access to jobs and services
- provides low-cost travel options
- supports economic development, local businesses and tourism
- increases physical activity and reduces health care costs
- reduces air pollution and air toxics
- reduces risk of traffic fatalities and injuries

CHALLENGES

- major gaps exist in biking and walking routes across the region
- gaps in the active transportation network affect safety, convenience and access to transit
- many would like to bike or walk but feel unsafe
- many lack access to biking and walking routes
- dedicated funding is limited and in decline

CLIMATE SMART STRATEGY

663
Miles of bikeways, sidewalks and trails added by 2035

61
Estimated lives saved annually from increased physical activity by 2035

$500 million
Societal value of the lives saved each year by 2035 (from increased physical activity)

ACTIVE TRANSPORTATION

CLIMATE SMART STRATEGY

Metro

Note: The map and estimated cost reflect the active transportation investments adopted in the constrained 2014 Regional Transportation Plan.

Make streets and highways safe, reliable and connected

RELATIVE CLIMATE BENEFIT

★ ☆ ☆ ☆ ☆

ESTIMATED COST TO IMPLEMENT BY 2035 (2014$)

Capital $8.8 billion

Operations, maintenance, and preservation $12 billion

Today, 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. 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 streets and highways more safe, reliable and connected to serve longer trips across the region on highways, shorter trips on arterial streets, and the shortest trips on local streets.

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. See separate summaries describing the use of technology on page 19 and information on page 21.

Street connectivity Building a well connected network of complete streets including new local and major street connections shortens trips, 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 biking and walking, and, in some areas, provide critical freight access between industrial areas, intermodal facilities and the interstate highway system.

Network expansion Targeted widening of streets and highways along with other strategies helps manage congestion and connect goods to market and support travel across the region.

BENEFITS

- improves access to jobs, goods and services, boosting business revenue
- creates jobs and stimulates development, boosting the economy
- reduces delay, saving businesses time and money
- reduces risk of traffic fatalities and injuries
- reduces emergency response time

CHALLENGES

- declining purchasing power of existing funding sources, growing maintenance backlog, and rising construction costs
- may induce more traffic
- potential community impacts, such as displacement and noise
- concentration of air pollutants and air toxics in major travel corridors

52
Lane miles of
freeways added by
2035 to support
people and goods
movement

386
Lane miles of arterials
added by 2035,
nearly two-thirds
of which include
bike and pedestrian
improvements

STREETS and
HIGHWAYS

CLIMATE
SMART
STRATEGY

Metro
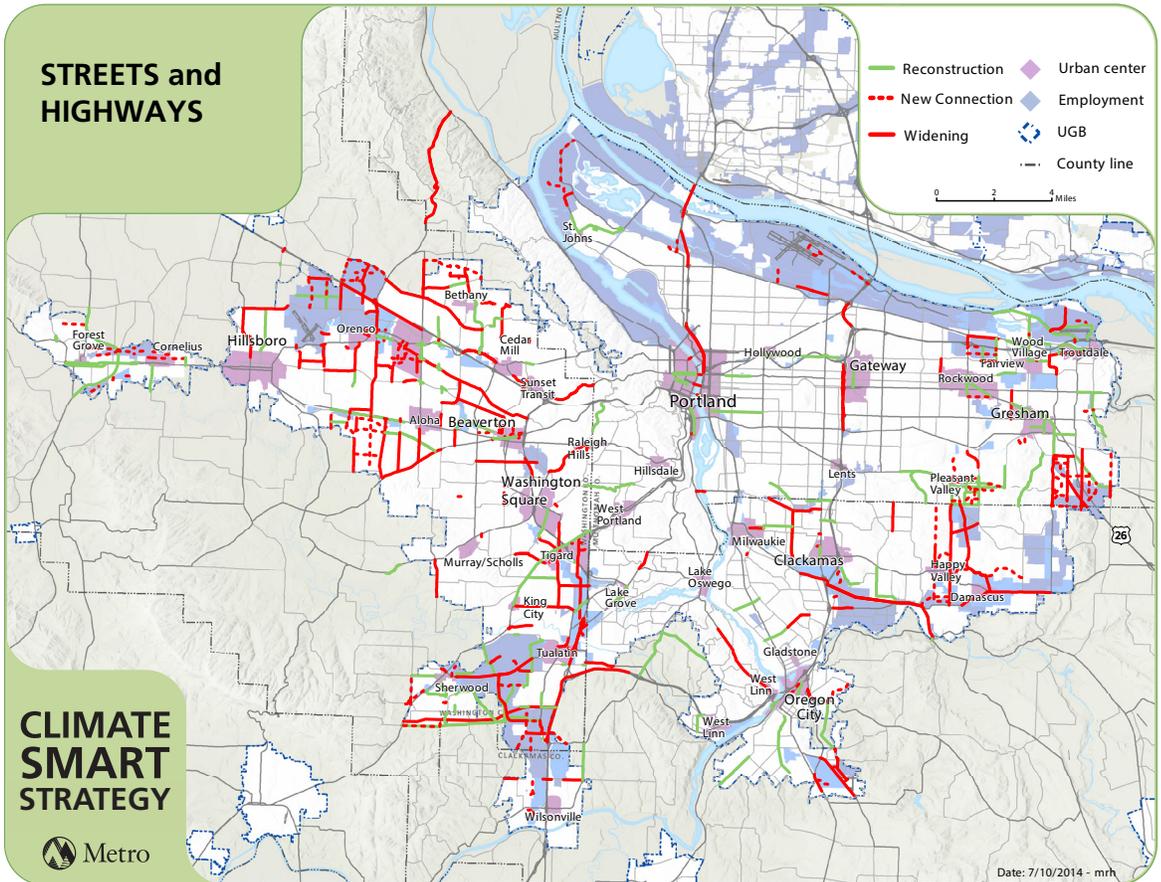
Note: The map reflects capital investments adopted in the constrained 2014 Regional
Transportation Plan for streets, highways and bridges in the region. The estimated costs
includes capital costs adopted in the constrained 2014 RTP and preliminary estimates for local
and state road-related operations, maintenance and preservation needs in the region.

Use technology to actively manage the transportation system

Using technology to actively manage the Portland metropolitan region's transportation system means using intelligent transportation systems (ITS) and services to reduce vehicle idling associated with delay, making biking and walking more safe and convenient, and helping 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.

Arterial corridor management includes advanced technology at each intersection to actively manage traffic flow. This may include 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 includes advanced technology to manage access to the freeways, detect traffic levels and weather conditions, provide information with variable message signs and variable speed limit signs, and deploy incident response patrols that quickly clear breakdowns, crashes and debris. These tools connect to a regional traffic operations center.

Traveler information includes using variable message and speed signs and 511 internet and phone services to provide travelers with up-to-date information regarding traffic and weather conditions, incidents, travel times, alternate routes, construction, or special events.

RELATIVE CLIMATE BENEFIT

★ ★ ★ ★ ★

ESTIMATED COST TO IMPLEMENT BY 2035 (2014$)

$206 million

BENEFITS

- provides near-term benefits
- reduces congestion and delay
- makes traveler experience more reliable
- saves public agencies, consumers and businesses time and money
- reduces air pollution and air toxics
- reduces risk of traffic fatalities and injuries

CHALLENGES

- requires ongoing funding to maintain operations and monitoring systems
- requires significant cross-jurisdictional coordination
- workforce training gaps

35% on arterials and freeways
Estimated delay reduction by 2035

TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS

CLIMATE SMART STRATEGY

Metro

Legend:
- Variable message sign
- Variable speed limit
- Ramp meter
- Freeway management
- Arterial management
- Transit signal priority
- Urban centers
- Employment
- Industry
- Urban Growth Boundary
- County boundary

Date: 7/17/2014 - mrh
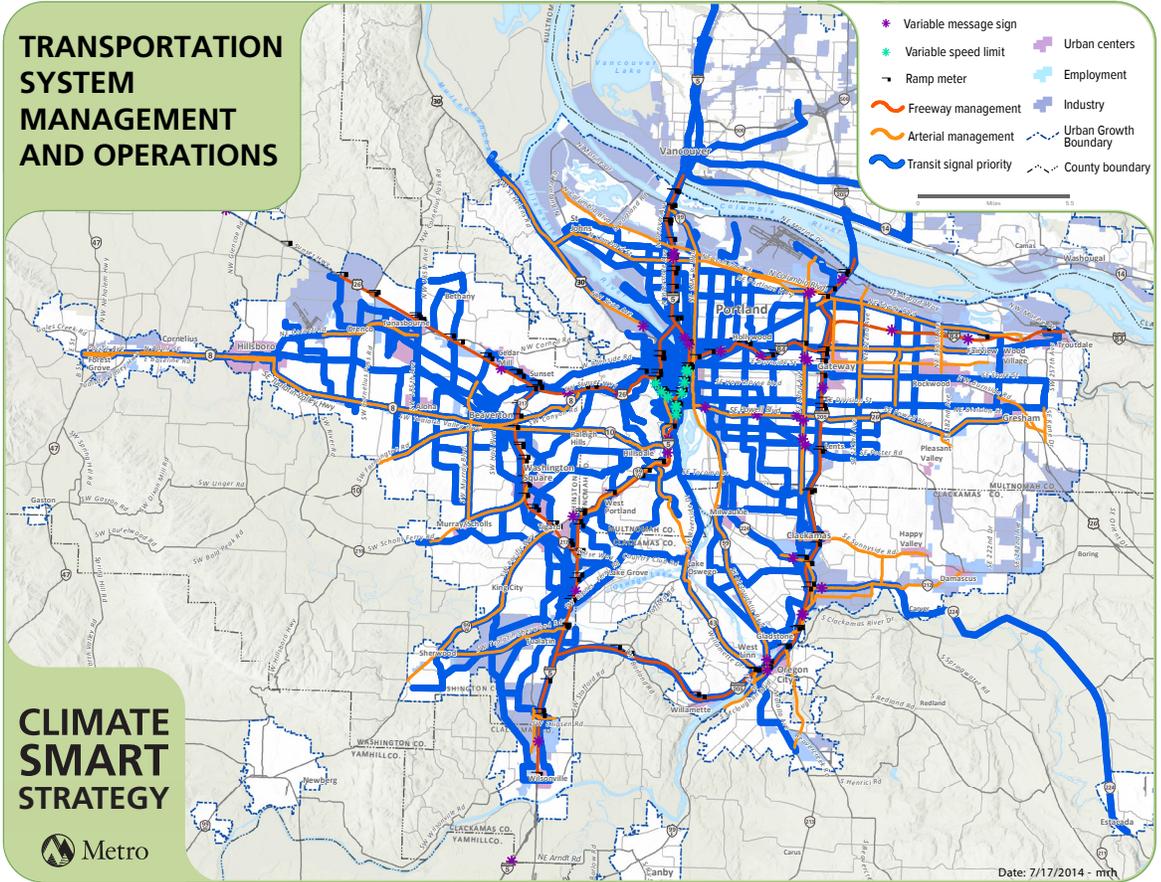
Note: The map and estimated cost reflect the full 2014 Regional Transportation Plan transportation system management and operations investments plus additional investments to support expanding incident response and transit signal priority across the region.

RELATIVE CLIMATE BENEFIT

★ ★ ★ ☆ ☆

**ESTIMATED COST
TO IMPLEMENT BY 2035
(2014$)**

$185 million

Provide information and incentives to expand the use of travel options

Public awareness, education and travel options support tools are cost-effective ways to improve the efficiency of the existing transportation system through increased walking, biking, carsharing, carpooling and transit use. 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.

Public awareness strategies include promoting information about travel choices and teaching the public about eco-driving: maintaining vehicles to operate more efficiently and practicing driving habits that can help save time and money while reducing greenhouse emissions.

Commuter programs are employer-based outreach efforts that 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 (IM) is an outreach method that 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. IM 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 the Drive Less. Connect. online carpool matching; trip planning tools; wayfinding signage; bike racks; and carsharing.

BENEFITS

- increases cost-effectiveness of capital investments in transportation
- saves public agencies, consumers and businesses time and money
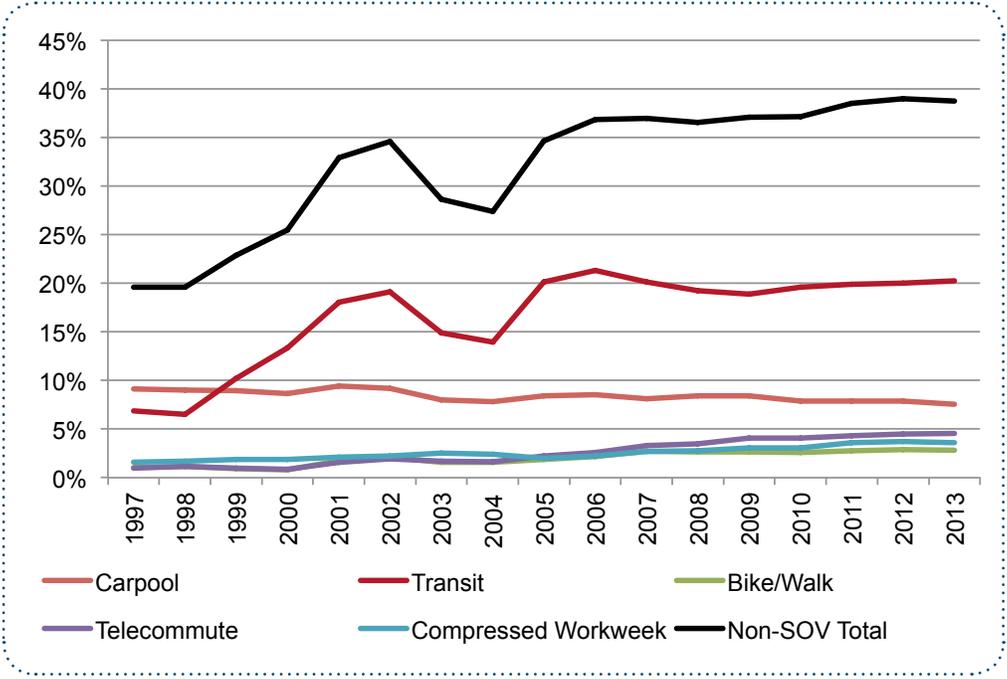- preserves road capacity
- reduces congestion and delay
- increases physical activity and reduces health care costs
- reduces air pollution and air toxics

CHALLENGES

- program partners need ongoing tools and resources to increase outcomes
- factors such as families with children, long transit times, night and weekend work shifts not served by transit
- major gaps exist in biking and walking routes across the region
- consistent data collection to support performance measurement

Chart: Effectiveness of Employer Commuter Programs (1997–2013)

Y-axis: 0% to 45%. X-axis years 1997–2013.

Legend:
- Carpool
- Transit
- Bike/Walk
- Telecommute
- Compressed Workweek
- Non-SOV Total

The TriMet, Wilsonville SMART and TMA employer outreach programs have made significant progress with reducing drive-alone trips. Since 1996, employee commute trips that used non-drive-alone modes (transit, biking, walking, carpooling/ vanpooling and telecommuting) rose from 20% to over 39% among participating employers.

EFFECTIVENESS OF COMMUNITY AND NEIGHBORHOOD PROGRAMS

Community outreach programs such as Portland Sunday Parkways and Wilsonville Sunday Streets encourage residents to use travel options by exploring their neighborhoods on foot and bike without motorized traffic. Sunday Parkways events have attracted 400,000 attendees since 2008 and the Wilsonville Sunday Streets event attracted more than 5,000 participants in 2012.

Other examples of valuable community outreach and educational programs include the Community Cycling Center's program to reduce barriers to biking and Metro's Vámonos program, both of which provide communities across the region with the skills and resources to become more active by walking, biking, and using transit for their transportation needs.

In 2004, the City of Portland launched the Interstate TravelSmart individualized marketing project in conjunction with the opening of the MAX Yellow Line. Households that received individualized marketing made nearly twice as many transit trips compared to a similar group of households that did not participate in the marketing campaign. In addition, transit use increased nearly 15 percent during the SmartTrips project along the MAX Green Line in 2010. Follow-up surveys show that household travel behavior is sustained for at least two years after a project has been completed.

Make efficient use of vehicle parking and land dedicated to parking

RELATIVE CLIMATE BENEFIT

★★★★☆

ESTIMATED COST TO IMPLEMENT BY 2035 (2014$)

No cost estimated. This policy area is primarily implemented through local development codes.

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. Managing parking works best when used in a complementary fashion with other strategies; it is less effective in areas that lack transit service or bicycle and pedestrian connections.

Planning approaches include conducting assessments of the parking supply to better understand needs. A typical urban parking space has an annualized cost of $600 to $1,200 to maintain, while structured parking construction costs averages $15,000 per space.

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.

BENEFITS

- allows more land to be available for development, generating local and state revenue
- reduces costs to governments, businesses, developers and consumers
- fosters public-private partnerships that can result in improved streetscape for retail and visitors
- generates revenues where parking is priced
- reduces air pollution and air toxics

CHALLENGES

- inadequate information for motorists on parking and availability
- inefficient use of existing parking resources
- parking spaces that are inconvenient to nearby residents and businesses
- scarce freight loading and unloading areas
- low parking turnover rate
- lack of sufficient parking
- parking oversupply, ongoing costs and the need to free up parking for customers

CLIMATE SMART STRATEGY

30% work trips
30% other trips
Estimated share of trips to areas with actively managed parking

Note: The map reflects the constrained 2014 Regional Transportation Plan parking assumptions

MANAGING PARKING

CLIMATE SMART STRATEGY

Metro

Level of parking management

- Most
- Least
- ◆ Urban center
- ◆ Employment
- ◇ UGB
- — County line

0   2   4 Miles

Date: 7/9/2014 - mrh

RELATIVE CLIMATE BENEFIT

★ ★ ★ ★ ★

NO COST ESTIMATE AVAILABLE

Support transition to cleaner, low carbon fuels and more fuel-efficient vehicles

There are a variety of strategies, vehicle technologies and fuels available to reduce greenhouse gas emissions including the development of higher fuel economy standards, lowering the carbon content of fuels, and deployment of electric vehicles and plug-in hybrids. The greenhouse gas emissions reduction potential of these strategies is directly related to the combination and pace at which these strategies are implemented over time, and the types, convenience and affordability of vehicle technologies and supporting infrastructure made available to businesses and consumers.

Much work is being done at state and federal levels to expand the number of vehicles available with higher fuel efficiency and lower emissions, and to reduce the carbon content of fuels. Oregon has made great strides in increasing the electric vehicle charging network; anxiety related to distances between charging stations is among the issues that need to be addressed.

Pilot projects and other policies can be implemented at the local and regional levels to support these efforts. Policies include developing a reliable network of public and private electric vehicle charging stations and supportive infrastructure, providing consumer and businesses incentives to make the higher initial purchasing costs of hybrid and electric vehicles more affordable, government and corporate purchases to increase visibility, supportive permitting and codes for electric vehicle charging and alternative fueling stations, and public education.

BENEFITS

- reduces fuel consumption
- reduces costs to governments, businesses and consumers
- reduces air pollution and air toxics and associated healthcare costs
- creates economic development and job opportunities

CHALLENGES

- legislative actions needed at state and federal level
- permitting and development code changes may be needed to allow for provision of charging and alternative fueling infrastructure
- more alternative fuel vehicles result in reduced fuel consumption, which reduces revenue to finance transportation investments
- concern about the potential costs associated with low carbon and alternative fuels

FLEET AND TECHNOLOGY ADVANCEMENTS ASSUMED IN THE CLIMATE SMART STRATEGY

Strategy assumptions	2010 Base Year Reflects existing conditions	2035 Climate Smart Strategy
Fleet		
Fleet mix (proportion of autos to light trucks)	auto: 57% light truck: 43%	auto: 71% light truck: 29%
Fleet turnover rate (age)	10 years	8 years
Technology		
Fuel economy (miles per gallon)	auto: 29.2 mpg light truck: 20.9 mpg	auto: 68.5 mpg light truck: 47.7 mpg
Carbon intensity of fuels	90 g CO_2e/megajoule	72 g CO_2e/megajoule
Light-duty vehicles that are electric vehicles (EV) or plug-in hybrid electric vehicles (PHEV)	EV or PHEV auto: 1% light truck: 1%	EV or PHEV auto: 8% light truck: 2%
Electric vehicle battery range (miles)	auto: 50 miles light truck: 25 miles	auto: 215 miles light truck: 144 miles

All fleet and technology assumptions reflect the values defined in the State Agencies' Technical report (3/1/11) available at arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/_tables_660/660-044-0010_5-26.pdf.

RELATIVE CLIMATE BENEFIT

N/A

RELATIVE COST

N/A

Secure adequate funding for transportation investments

Communities have long relied upon state and federal funding to help fund local transportation system needs, financed largely through through gas taxes and other user fees. However, the purchasing power of federal and state gas tax revenues is declining as individuals drive less and fuel efficiency increases. The effectiveness of this revenue source is further eroded as the gas tax is not indexed to inflation.

Diminished resources mean reduced ability to expand, improve and maintain existing transportation infrastructure. Federal and state funding is not keeping pace with infrastructure operation and maintenance needs, so a substantial share of funding for future Regional Transportation Plan investments has shifted to local revenue sources.

Local governments in Oregon have increasingly turned to tax levies, road maintenance fees, system development charges and traffic impact fees in an attempt to keep pace, although some communities have been more successful than others. Expansion and operation of the transit system has relied heavily on payroll taxes and competitive federal funding for high capacity transit capital projects. But the region's demand for frequent and reliable transit service exceeds the capacity of the payroll tax to support it.

The adopted RTP calls for stabilizing existing transportation revenue sources while securing new and innovative long-term sources of funding adequate to build, operate and maintain the regional transportation system for all modes of travel. The next update to the RTP will include updating the financial assumptions and potential funding mechanisms to advance implementation of adopted local and regional plans and the Climate Smart Strategy.

BENEFITS

- transforms community visions into reality
- improves access to jobs, goods and services, boosting business revenues
- creates jobs and stimulates development, boosting the regional economy
- reduces delay, saving businesses time and money
- reduces air pollution and air toxics
- reduces risk of traffic fatalities and injuries

CHALLENGES

- changing driving habits and declining purchasing power of existing funding sources due to inflation and improvement in fuel efficiency
- potential disproportionate impact of higher taxes and fees on drivers with limited travel options
- limited public support for higher fees and taxes
- patchwork of funding sources
- statutory or constitutional limitations on funding

FUNDING MECHANISMS ASSUMED IN 2014 REGIONAL TRANSPORTATION PLAN AND CLIMATE SMART STRATEGY

| EXISTING FUNDING MECHANISM	SOURCE		
	Federal	State	Local
Federal Highway Trust Fund[1]	●		
Federal Transit Fund	●		
Gas tax	●	●	●
Vehicle fees (e.g. registration, licensing fees)		●	●
Heavy truck weight-mile fee		●	
Local portion of State Highway Trust Fund[2]			●
Development-based fees[3]			●
Payroll tax			●
Transit passenger fares			●
Special funds and levies[4]			●
Tolls (I-5 Columbia River Crossing)		●	

[1] The Federal Highway Trust Fund includes federal gas tax receipts and other revenue.
[2] The State Highway Trust Fund includes state gas tax receipts, vehicle fees and heavy truck weight-mile fees.
[3] Development-based fees include system development charges, traffic impact fees, urban renewal districts and developer contributions.
[4] Special funds and levies include tax levies (e.g. Washington County MSTIP), local improvement districts, vehicle parking fees, transportation utility fees and maintenance districts (e.g. Washington County Urban Road Maintenance District).

LOCAL TRANSPORTATION FUNDING MECHANISMS (2013)

CLIMATE SMART STRATEGY

Metro
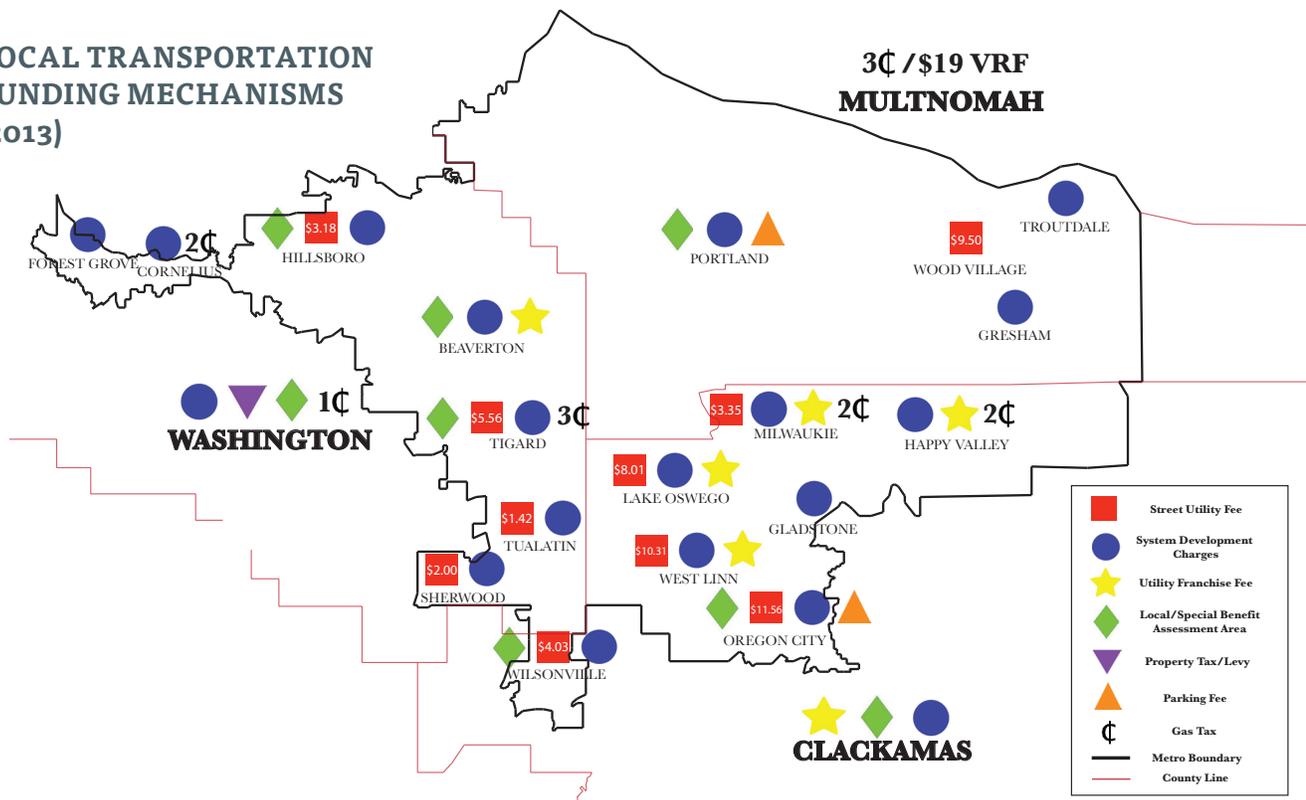
SUPPORTING ACTIONS

The Climate Smart Strategy presents an opportunity for the region to work together to demonstrate leadership on reducing greenhouse gas emissions while addressing the need to step up funding to implement our adopted local and regional plans.

Complementing the nine policies described in the previous section are supporting actions that together with the policies, comprise the Climate Smart Strategy:

- Short List of Climate Smart Actions (2015-2016)

- Toolbox of Possible Actions (2015-2020)

- Performance Monitoring Approach

Working together on these actions presents an opportunity to lay a foundation for addressing our larger shared challenges. The actions recommended in this next section are achievable, but require political will and collaboration among multiple partners to succeed.

CLIMATE SMART ACTIONS (2015 – 2016)

Action 1	**Advocate for increased federal, state, regional and local transportation funding for all transportation modes as part of a diverse coalition, with top priorities of maintaining and preserving existing infrastructure, and implementing transit service enhancement plans and transit-supportive investments.** This action will advance efforts to implement adopted local city and county plans, transit service plans, and the 2014 Regional Transportation Plan.
Action 2	**Advocate for federal and state governments to advance Oregon's transition to cleaner, low carbon fuels, and more fuel-efficient vehicle technologies.** This action will accelerate the fuel and vehicle technology trends assumed in the state target.
Action 3	**Seek opportunities to advance local and regional projects that best combine the most effective greenhouse gas emissions reduction strategies.** This action will implement adopted regional, city and county policies or plans and identify locally tailored approaches that integrate transit and active transportation investments with the use of technology, parking and transportation demand management strategies to show how these strategies, if implemented together, can achieve greater cost-effectiveness and greenhouse gas emissions reductions than if implemented individually.

The action means the region will seek seed money for demonstration projects that leverage (1) local, regional, state and federal resources and (2) state and regional technical assistance to plan for and implement community demonstration projects that combine the following elements:

☐ investments in transit facility and/or service improvements identified in TriMet Service Enhancement Plans or the South Metro Area Regional Transit (SMART) Master Plan, including community-based services that complement regional service, such as the GroveLink service in Forest Grove

☐ local bike and pedestrian safety retrofits that also improve access to transit, schools and activity centers

☐ investments in transportation system management technologies, such as traffic signal timing and transit signal priority along corridors with 15-minute or better service, to smooth traffic flow and improve on-time performance and reliability

☐ parking management approaches, such as bike parking, preferential parking for alternative fuel vehicles, and shared and unbundled parking

☐ transportation demand management incentives or requirements to increase carpooling, biking, walking and use of transit

☐ optimize built road capacity through improved geometric design and other operational improvements to address bottlenecks and improve traffic flow on existing multi-modal arterials.

Seed funding could be sought from multiple sources, such as the Regional Flexible Funding Allocation process, Metro's Community Planning and Development Grant program, Oregon's Transportation Growth Management grant program, and federal grant programs such as the Building Blocks for Sustainable Communities. |

SHORT LIST OF CLIMATE SMART ACTIONS 2015 – 2016

The Climate Smart Strategy builds on existing local, regional and statewide activities and priorities that are reflected in a comprehensive toolbox of more than 200 specific actions that the State of Oregon, Metro, cities, counties, transit providers and others can take in the next five years to begin implementing the strategy. The actions support implementation of adopted local and regional plans and, if taken, will reduce greenhouse gas emissions and minimize the region's contribution to climate change in ways that support community and economic development goals.

Adoption of the Climate Smart Strategy included broad support to pursue three actions in 2015 and 2016 to demonstrate the region's shared commitment to immediately begin implementing the strategy.

1. Advocate for increased transportation funding for all modes.

2. Advocate for federal and state actions that lead to cleaner, low carbon fuels and more fuel-efficient vehicles in Oregon.

3. Seek resources and technical assistance to advance community and regional demonstration projects that combine the most effective greenhouse gas emissions reduction strategies.

TOOLBOX OF POSSIBLE ACTIONS 2015-2020

The Climate Smart Strategy's Toolbox of Possible Actions was developed with the recognition that existing city and county plans for creating great communities are the foundation for reaching the state target and that some tools and actions may work better in some locations than others. As such, the toolbox does not mandate adoption of any particular policy or action. Instead, it emphasizes the need for many diverse partners to work together to begin implementation of the strategy while retaining the flexibility and discretion to pursue the actions most appropriate to local needs and conditions.

How to use the toolbox

Local, state and regional partners are encouraged to review the toolbox and identify actions they have already taken and any new actions they are willing to consider or commit to in the future. Updates to local comprehensive plans and development regulations, transit agency plans, port district plans and regional growth management and transportation plans present ongoing opportunities to consider implementing the actions recommended in locally tailored ways. Medium and longer-term actions will be identified during the next update to the Regional Transportation Plan (scheduled for 2016-18).

① **Implement adopted local and regional land use plans**

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16)	**Immediate (2015-16)**
☐ Reauthorize Oregon Brownfield Redevelopment Fund	☐ Continue implementing 2040 Growth Concept
☐ Support brownfield redevelopment-related legislative proposals	☐ Implement policies and investments that align with regional and community visions to focus growth in designated centers, corridors and employment areas
☐ Restore local control of housing policies and programs to ensure communities have a full range of tools available to meet the housing needs of all residents and income levels and expand opportunities for households of modest means to live closer to work, services and transit	☐ Support restoring local control of housing policies and programs to ensure communities have a full range of tools available to meet the housing needs of all residents and income levels and expand opportunities for households of modest means to live closer to work, services and transit
☐ Begin implementation of the Statewide Transportation Strategy Vision and short-term implementation plan to support regional and community visions	☐ Support reauthorization of Oregon Brownfield Redevelopment Fund
Near-term (2017-20)	☐ Facilitate regional brownfield coalition to develop legislative proposals and increase resources available in the region for brownfield redevelopment
☐ Seek opportunities to leverage local, regional, state and federal funding to achieve local visions and the region's desired outcomes	☐ Maintain a compact urban growth boundary
☐ Provide increased funding and incentives to local governments, developers and non-profits to encourage brownfield redevelopment and transit-oriented development to help keep urban areas compact	☐ Review functional plans and amend as needed to implement Climate Smart Strategy
	Near-term (2017-20)
	☐ Seek opportunities to leverage local, regional, state and federal funding to achieve local visions and the region's desired outcomes
	☐ Expand on-going technical assistance and grant funding to local governments, developers and others to advance implementation of local land use plans and incorporate travel information and incentives, transportation system management and operations strategies, parking management approaches and transit-oriented development in local plans and projects
	☐ Convene regional brownfield coalition and strengthen regional brownfields program by providing increased funding and technical assistance to local governments to leverage the investment of private and non-profit developers
	☐ Leverage Metro's public investments to maintain and create affordable housing options in areas served with frequent transit service
	☐ Support increased funding for affordable housing, particularly along corridors with frequent transit service

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Continue implementing adopted land use plans

☐ Implement policies and investments that align with community visions, focus growth in designated centers, corridors and employment areas

☐ Support restoring local control of housing policies and programs to ensure communities have a full range of tools available to meet the housing needs of all residents and income levels and expand opportunities for households of modest means to live closer to work, services and transit

☐ Support reauthorization of Oregon Brownfield Redevelopment Fund

☐ Participate in regional brownfield coalition to develop legislative proposals and increase resources available in the region for brownfield redevelopment

☐ Develop concept plans for new urban areas in ways that further the region's efforts in reducing greenhouse gas emissions, such as planning for complete communities with walking, biking and transit to reduce or eliminate vehicle trips for daily needs

Near-term (2017-20)

☐ Pursue opportunities to locate higher-density residential development near activity centers such as parks and recreational facilities, commercial areas, employment centers, and transit

☐ Locate new schools, services, shopping, and other health promoting resources and community destinations in activity centers

☐ Seek opportunities to leverage local, regional, state and federal funding to achieve local visions and the region's desired outcomes

☐ Develop brownfield redevelopment plans and leverage local funding to seek state and federal funding and create partnerships that leverage the investment of private and non-profit developers

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Implement policies and investments that align with community visions, focus growth in designated centers, corridors and employment areas

☐ Support restoring local control of housing policies and programs to ensure communities have a full range of tools available to meet the housing needs of all residents and income levels and expand opportunities for households of modest means to live closer to work, services and transit

☐ Support reauthorization of Oregon Brownfield Redevelopment Fund

Near-term (2017-20)

☐ Seek opportunities to leverage local, regional, state and federal funding to achieve local visions and the region's desired outcomes

☐ Share brownfield redevelopment expertise with local governments and expand leadership role in making brownfield sites development ready

② Make transit convenient, frequent, accessible and affordable

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16)	**Immediate (2015-16)**
☐ Begin update to Oregon Public Transportation Plan	☐ Work with elected officials and community and business leaders at local, regional and state levels to:
☐ Increase state funding for transit service	• Seek and advocate for new, dedicated funding mechanism(s)
☐ Maintain existing intercity passenger rail service and develop proposals for improvement of speed, frequency and reliability	• Seek transit funding from Oregon Legislature
☐ Provide technical assistance and funding to help establish local transit service	• Consider local funding mechanism(s) for local and regional transit service
Near-term (2017-20)	• Support state efforts to consider carbon pricing
☐ Adopt Oregon Public Transportation Plan with funding strategy to implement	• Fund reduced fare programs and service improvements for transit dependent communities, such as youth, older adults, people with disabilities and low-income families
☐ Begin implementation of incremental improvements to intercity passenger rail service	☐ Research and develop best practices that support equitable growth and development near transit without displacement, including strategies that provide for the retention and creation of businesses and affordable housing near transit
☐ Make funding for access to transit a priority	☐ Develop Regional Transit System Plan
	Near-term (2017-20)
	☐ Support reduced fares and service improvements for low-income families and individuals, youth, older adults and people with disabilities
	☐ Make funding for access to transit a priority

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Support and/or participate in efforts to build transportation funding coalition

☐ Participate in development of TriMet Service Enhancement Plans

☐ Consider local funding mechanism(s) for local and regional transit service

Near-term (2017-20)

☐ Make funding for access to transit a priority

☐ Complete gaps in pedestrian and bicycle access to transit

☐ Expand partnerships with transit agencies to implement capital improvements in frequent bus corridors (including dedicated bus lanes, stop/shelter improvements, and intersection priority treatments) to increase service performance

☐ Implement plans and zoning that focus higher density, mixed-use zoning and development near transit

☐ Partner with transit providers and school districts to seek resources to support youth pass program and expand reduced fare program to low-income families and individuals

☐ Support reduced fares and service improvements for low-income families and individuals, youth, older adults and people with disabilities

☐ Convert school bus and transit fleets to electric and/or natural gas buses

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Support efforts to build transportation funding coalition

☐ Expand transit payment options (e.g., electronic e-fare cards) to increase affordability and convenience

☐ Seek state funding sources for transit and alternative local funding mechanisms

☐ Complete development of TriMet Service Enhancement Plans

- Increase community to community transit connections

- Identify community-based public and private shuttles that link to regional transit service

- Link service enhancements to areas with transit-supportive development, communities of concern, and other locations with high ridership potential

- Use ridership demographics in service planning

Near-term (2017-20)

☐ Expand partnerships with cities, counties and ODOT to implement capital improvements in frequent bus corridors to increase service performance

☐ Partner with local governments and school districts to seek resources to support youth pass program and expanding reduced fare program to low-income families and individuals

☐ Expand transit service to serve communities of concern, transit-supportive development and other potential high ridership locations

☐ Improve the availability of transit route and schedule information

☐ Convert school bus and transit fleets to electric and/or natural gas buses

☐ Expand youth pass program, including expanding routes and frequency along school corridors

☐ Support transit partners in seeking federal and state funding for electric and other low-carbon alternative fuel buses

☐ Seek increased funding flexibility to allow for greater upfront capital spending on electric and other low carbon alternative fuel buses if those expenses are offset by operating savings.

❸ Make biking and walking safe and convenient

WHAT CAN THE STATE DO?

Immediate (2015-16)

☐ Adopt Oregon Bicycle and Pedestrian Plan with funding strategy

☐ Seek and advocate for new, dedicated funding mechanism(s) for active transportation projects

☐ Advocate for use of Connect Oregon funding for active transportation projects

☐ Review driver's education training materials and certification programs and make changes to increase awareness of bicycle and pedestrian safety

☐ Complete Region 1 Active Transportation Needs inventory

☐ Maintain commitment to funding Safe Routes to School programs statewide

☐ Fund Safe Routes to Transit programs

☐ Adopt a complete streets policy

☐ Partner with local governments to conduct site-specific evaluations from priority locations identified in the ODOT Pedestrian and Bicycle Safety Implementation Plan

☐ Improve bicycle and pedestrian crash data collection

☐ Support local and regional health impact assessments

Near-term (2017-20)

☐ Adopt a Vision Zero strategy for eliminating traffic fatalities

☐ Provide technical assistance and expand grant funding to support development and adoption of complete streets policies and designs

☐ Expand existing funding for active transportation investments

☐ Simplify and clarify policy on e-bike use of bike lanes and other infrastructure

WHAT CAN METRO DO?

Immediate (2015-16)

☐ Fund construction of active transportation projects as called for in air quality transportation control measures

☐ Advocate for use of Connect Oregon funding for active transportation projects

☐ Build a diverse coalition:

- Build local and state commitment to implement the Active Transportation Plan and programs for safe routes to schools and transit

- Seek and advocate for new, dedicated funding mechanism(s) and to maintain eligibility in federal funding programs

☐ Seek opportunities to implement Regional Transportation Safety Plan recommendations

Near-term (2017-20)

☐ Provide technical assistance and planning grants to support development and adoption of complete streets policies and designs in local planning and project development activities

☐ Make amendments needed to the regional transportation functional plan and implement the Regional Active Transportation Plan

☐ Update and fully implement the Regional Transportation Safety Plan

☐ Adopt a Vision Zero strategy for eliminating traffic fatalities

☐ Update best practices in street design and complete streets, including:

- Develop a complete streets checklist

- Provide design guidance to minimize air pollution exposure for bicyclists and pedestrians

- Use of tree plantings to support carbon sequestration

- Identify new pavement and hard surface materials to help reduce infrastructure-related heat gain

☐ Update the Regional Active Transportation Plan needs assessment in the 2018 RTP

☐ Clarify that e-bikes are part of the region's active transportation strategy

☐ Partner with Portland State University to develop a pilot project to test the efficacy of e-bikes in attracting new riders

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Continue implementing adopted transportation system plans

☐ Support in efforts to build transportation funding coalition

☐ Advocate for use of Connect Oregon funding for active transportation projects

☐ Leverage local funding with development for active transportation projects

☐ Coordinate local investments with investments by special districts, park providers and other transportation providers

☐ Seek and advocate for new, dedicated funding mechanism(s)

☐ Seek opportunities to implement Regional Transportation Safety Plan recommendations

☐ Review community sidewalk and bike lane gaps and deficiencies to prioritize limited funding

Near-term (2017-20)

☐ Develop and maintain a city/county-wide active transportation network of sidewalks, bikeways, and trails that connect community destinations

☐ Build infrastructure and urban design elements that facilitate and support bicycling and walking

☐ Invest to equitably complete active transportation network gaps for access to transit stops, schools and other community destinations

☐ Link active transportation investments to providing transit and travel information and incentives

☐ Partner with ODOT to evaluate priority locations in the ODOT Pedestrian and Bicycle Safety Implementation Plan

☐ Expand Safe Routes to Schools programs to include high schools and Safe Routes to Transit

☐ Adopt a Vision Zero strategy for eliminating traffic fatalities

☐ Adopt "complete streets" policies and designs

☐ Establish local funding pool to leverage state and federal funds

☐ Conduct needs assessments for access to schools and transit during updates to TSPs and other plans

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Support and/or participate in efforts to build transportation funding coalition

☐ Advocate for use of Connect Oregon funding for active transportation projects

☐ Complete Port of Portland 2014 Active Transportation Plan for Portland International Airport

☐ Prepare a TriMet Bicycle Plan

Near-term (2017-20)

☐ Invest in trails that increase equitable access to transit, services and community destinations

☐ Adopt a Vision Zero strategy for eliminating traffic fatalities

4 Make streets and highways safe, reliable and connected

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16)	**Immediate (2015-16)**
☐ Maintain existing highway network to improve traffic flow	☐ Build a diverse coalition that includes elected officials and community and business leaders at local, regional and state levels working together to:
☐ Increase state gas tax (indexed to inflation and fuel efficiency)	• Support state and federal efforts to increase gas tax (indexed to inflation and fuel efficiency)
☐ Update the Oregon Transportation Safety Action Plan	• Support state and federal efforts to implement mileage-based road usage charge program
☐ Review driver's education training materials and certification programs and make changes to increase awareness of safety for all system users	☐ Seek opportunities to implement Regional Transportation Safety Plan recommendations in planning, project development and development review activities
Near-term (2017-20)	**Near-term (2017-20)**
☐ Work with Metro and local governments to consider alternative performance measures	☐ Work with ODOT and local governments to consider alternative performance measures
☐ Integrate multi-modal designs in road improvement and maintenance projects to support all users	☐ Provide technical assistance and grant funding to support integrated transportation system management operations strategies in local plans, projects and project development activities
☐ Adopt a Vision Zero strategy for eliminating traffic fatalities	☐ Update and implement Regional Transportation Safety Plan
☐ Pilot new pavement and hard surface materials proven to help reduce infrastructure-related heat gain	☐ Adopt a Vision Zero strategy for eliminating traffic fatalities
☐ Use green street designs that include tree plantings to support carbon sequestration	☐ Update best practices in street design and complete streets, including:
☐ Optimize built road capacity through improved geometric design and other operational improvements to address bottlenecks and improve traffic flow on existing multi-modal arterials	• Develop a complete streets checklist
	• Provide design guidance to minimize air pollution exposure for bicyclists and pedestrians
	• Use of green street designs that include tree plantings to support carbon sequestration
	• Identify new pavement and hard surface materials proven to help reduce infrastructure-related heat gain

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Continue implementing adopted transportation system plans

☐ Maintain existing street network to improve traffic flow

☐ Support and/or participate in efforts to build transportation funding coalition

☐ Seek opportunities to implement Regional Transportation Safety Plan recommendations in planning, project development and development review activities

Near-term (2017-20)

☐ Work with ODOT and Metro to consider alternative performance measures

☐ Support railroad grade separation projects in corridors to allow for longer trains and less delay/disruption to other users of the system

☐ Invest in making new and existing streets complete and connected to support all users

☐ Integrate multi-modal designs in road improvement and maintenance projects to support all users

☐ Adopt a Vision Zero strategy for eliminating traffic fatalities

☐ Pilot new pavement and hard surface materials proven to help reduce infrastructure-related heat gain

☐ Use green street designs that include tree plantings to support carbon sequestration

☐ Optimize built road capacity through improved geometric design and other operational improvements to address bottlenecks and improve traffic flow on existing multi-modal arterials

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Support and/or participate in efforts to build transportation funding coalition

☐ Support railroad grade separation projects in corridors to allow for longer trains and less delay/disruption to other users of the system

⑤ Use technology to actively manage the transportation system

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16) ☐ Integrate transportation system management and operations strategies into project development activities ☐ Expand deployment of intelligent transportation systems (ITS), including active traffic management, incident management and traveler information programs ☐ Partner with cities, counties and TriMet to expand deployment of transit signal priority along corridors with 15-minute or better transit service ☐ Pursue opportunities and funding for pilot projects that help establish the region as a living laboratory for sustainable and multi-modal intelligent transportation systems (ITS)	**Immediate (2015-16)** ☐ Continue implementing Regional Transportation System Management and Operations Action Plan ☐ Seek Metro Council/JPACT commitment to invest more in transportation system management and operations (TSMO) projects using regional flexible funds ☐ Advocate for increased state commitment to invest more in TSMO projects using state funds ☐ Pursue opportunities and funding for pilot projects that help establish the region as a living laboratory for sustainable and multi-modal intelligent transportation systems (ITS) **Near-term (2017-20)** ☐ Build capacity and strengthen interagency coordination ☐ Provide technical assistance and grant funding to integrate transportation system management operations strategies in local plans, project development, and development review activities ☐ Update Regional TSMO Strategic Plan by 2018

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Continue implementing adopted transportation system plans

☐ Advocate for increased regional and state commitment to invest more in TSMO projects using regional and state funds

☐ Pursue opportunities and funding for pilot projects that help establish the region as a living laboratory for sustainable and multi-modal intelligent transportation systems (ITS)

Near-term (2017-20)

☐ Expand deployment of intelligent transportation systems (ITS), including active traffic management, incident management and travel information programs and coordinate with capital projects

☐ Partner with TriMet to expand deployment of transit signal priority along corridors with 15-minute or better transit service

☐ Complete an inventory of the installed intelligent transportation systems (ITS) along arterials to help prioritize areas where limited funding could best be directed to increase roadway performance

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Partner with cities, counties and ODOT to expand deployment of transit signal priority along corridors with 15-minute or better transit service

☐ Pursue opportunities and funding for pilot projects that help establish the region as a living laboratory for sustainable and multi-modal intelligent transportation systems (ITS)

6 Provide information and incentives to expand the use of travel options

WHAT CAN THE STATE DO?

Immediate (2015-16)

☐ Adopt Statewide Transportation Options Plan with funding strategy to implement

☐ Deploy statewide eco-driving educational effort, including integration of eco-driving information in driver's education training courses, Oregon Driver's education manual and certification programs

☐ Review EcoRule to identify opportunities to improve effectiveness

☐ Increase state capacity and staffing to support on-going EcoRule implementation and monitoring

☐ Deploy video conferencing, virtual meeting technologies and other communication technologies to reduce business travel needs

☐ Partner with TriMet, SMART and media partners to link the Air Quality Index to transportation system information outlets

Near-term (2017-20)

☐ Promote and provide information, recognition, funding and incentives to encourage commuter programs and individualized marketing to provide employers, employees and residents information and incentives to use travel options

☐ Integrate transportation demand management practices into planning, project development, and development review activities

☐ Establish a state vanpool strategy that addresses urban and rural transportation needs

☐ Integrate promotion of workplace charging, carsharing, and new people mover services into employer-based outreach programs that encourage transit, walking, bicycling and carpooling

☐ Integrate education about vehicle and fuel efficiency into public awareness strategies such as eco-driving promotion

☐ Integrate education about carsharing programs into public awareness strategies

WHAT CAN METRO DO?

Immediate (2015-16)

☐ Continue implementing Regional Travel Options Strategic Plan

☐ Seek Metro Council/JPACT commitment to invest more regional flexible funds to expand direct services and funding provided to local partners (e.g., local governments, transportation management associations, and other community-based organizations) to implement expanded education, recognition and outreach efforts in coordination with other capital investments

☐ Provide funding and partner with community-based organizations to develop culturally relevant information materials

☐ Develop best practices on how to integrate transportation demand management in local planning, project development, and development review activities

☐ Integrate transportation demand management practices into planning, project development and development review activities

Near-term (2017-20)

☐ Expand on-going technical assistance and grant funding to local governments, transportation management associations, business associations and others to incorporate travel information and incentives in local projects

☐ Establish an on-going individualized marketing program that targets deployment in conjunction with capital investments being made in the region

☐ Begin update to Regional Travel Options Strategic Plan in 2018

☐ Clarify that e-bikes are part of the regional toolkit of travel options

☐ Encourage regional carsharing services to increase their use of electric vehicles and other clean fuel alternatives

☐ Integrate promotion of workplace charging, carsharing, and new people mover services into employer-based outreach programs that encourage transit, walking, bicycling and carpooling

☐ Integrate education about vehicle and fuel efficiency into public awareness strategies such as eco-driving promotion

☐ Integrate education about carsharing programs into public awareness strategies

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Continue implementing adopted transportation system plans

☐ Advocate for increased state and regional funding to expand direct services provided to local partners (e.g., local governments, transportation management associations, and other non-profit organizations) to support expanded education, recognition and outreach efforts in coordination with other capital investments

☐ Host citywide and community events like Bike to Work Day and Sunday Parkways

Near-term (2017-20)

☐ Integrate transportation demand management practices into planning, project development, and development review activities

☐ Provide incentives for new development over a specific trip generation threshold to provide travel information and incentives to support achievement of EcoRule and mode share targets adopted in local and regional plans

☐ Partner with businesses and/or business associations and transportation management associations to implement demand management programs in employment areas and centers served with active transportation options, 15-minute or better transit service, and parking management

☐ Expand local travel options program delivery through new coordinator positions and partnerships with business associations, transportation management associations, and other non-profit and community-based organizations

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Expand employer program capacity and staffing to support expanded education, recognition and outreach efforts

⑦ Make efficient use of vehicle parking and land dedicated to parking

WHAT CAN THE STATE DO?

Immediate (2015-16)

☐ Provide technical assistance and grant funding to support development of parking management plans at the local and regional level

☐ Distribute "Parking Made Easy" handbook and provide technical assistance, planning grants, model code language, education and outreach

☐ Increase safe, secure and convenient bicycle parking

Near-term (2017-20)

☐ Provide preferential parking for electric vehicles, vehicles using alternative fuels and carpools

☐ Prepare inventory of state-owned public parking spaces and usage

☐ Provide monetary incentives such as parking cash-out and employer buy-back programs

☐ Develop and support pilot projects and model planning approaches to encourage highly visible charging infrastructure on-street and in the public right-of-way

☐ Join the Workplace Charging Challenge as a partner

WHAT CAN METRO DO?

Immediate (2015-16)

☐ Expand on-going technical assistance to local governments, developers and others to incorporate parking management approaches in local plans and projects

Near-term (2017-20)

☐ Pilot projects to develop model parking management plans and model ordinances for different development types

☐ Research and update regional parking policies and best practices to more comprehensively reflect the range of parking approaches available for different development types and to incorporate goals beyond customer access, such as:

- linking parking approaches to the level of transit service and active transportation options provided

- use of priced parking as a revenue source to help fund travel information and incentives programs, active transportation projects and transit service

- linking parking policies in mixed-use transit corridors and centers with maintaining and providing affordable housing

☐ Amend Title 6 of Regional Transportation Functional Plan to update regional parking map and reflect updated regional parking policies

☐ Join the Workplace Charging Challenge as a partner

☐ Develop and support "charging oases" with multiple chargers, modeled on the Electric Avenue project at Portland State University

☐ Convene regional transportation and planning officials to develop strategies for developing cost-effective charging infrastructure that also reinforces regional planning goals

WHAT CAN CITIES AND COUNTIES DO?	WHAT CAN SPECIAL DISTRICTS DO? e.g., transit providers, Port districts, parks providers, etc.
Immediate (2015-16) □ Consider charging for parking in high usage areas served by 15-minute or better transit service and active transportation options **Near-term (2017-20)** □ Prepare community inventory of public parking spaces and usage □ Adopt shared and unbundled parking policies □ Require or provide development incentives for developers to separate parking from commercial space and residential units in lease and sale agreements □ Provide preferential parking for electric vehicles, vehicles using alternative fuels and carpools □ Require or provide development incentives for large employers to offer employees a parking cash-out option where the employee can choose a parking benefit, a transit pass or the cash equivalent of the benefit □ Increase safe, secure and convenient bicycle parking □ Reduce requirements for off-street parking and establish off-street parking supply maximums, as appropriate, enacting and adjusting policies to minimize spillover impacts in adjacent areas □ Prepare parking management plans tailored to 2040 centers served by high capacity transit (existing and planned) □ Join the Workplace Charging Challenge as a partner □ Develop and support pilot projects and model planning approaches to encourage highly visible charging infrastructure on-street and in the public right-of-way □ Support efforts in new development (particularly multi-family housing and large parking lots) to install conduit for future charging of 20% or more parking spaces (see similar standards in Hawaii and California)	**Immediate (2015-16)** □ Provide preferential parking for electric vehicles, vehicles using alternative fuels and carpools □ Increase safe, secure and convenient bicycle parking □ Join the Workplace Charging Challenge as a partner □ Develop and support pilot projects and model planning approaches to encourage highly visible charging infrastructure on-street and in the public right-of-way

8 Support Oregon's transition to cleaner, low carbon fuels, and more fuel-efficient vehicles

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16)	**Immediate (2015-16)**
☐ Reauthorize Oregon Clean Fuels Program	☐ Support reauthorization of the Oregon Clean Fuels Program
☐ Implement Oregon Zero Emission Vehicle Program and Multi-State Zero Emission Vehicle Action Plan	☐ Support the Oregon Zero Emission Vehicle Program
☐ Increase the public alternative fuel vehicle (AFV) fleet	☐ Support renewal of Oregon's tax credits for charging stations and other alternative fueling infrastructure
☐ Provide funding to Drive Oregon and other efforts to advance electric mobility and alternative fuels	☐ Support legislation being promoted by Drive Oregon and the Energize Oregon Coalition to create a purchase rebate for electric vehicles
☐ Work with insurance companies to promote pay-as-you-drive insurance	☐ Join Drive Oregon an Energize Oregon Coalition as a member organization and participate as an active partner in promoting electric vehicle readiness and deployment
☐ Support renewal of Oregon's tax credits for charging stations and other alternative fueling infrastructure	**Near-term (2017-20)**
☐ Support legislation to create a rebate for electric vehicles	☐ Lead by example by increasing public AFV fleet
☐ Join Drive Oregon and Energize Oregon Coalition and promote electric vehicle readiness and deployment	☐ Support state efforts to build public acceptance of pay-as-you-drive insurance
☐ Review greenhouse gas emissions reduction targets and fleet and technology assumptions	☐ Expand communication efforts about the cost savings of driving more fuel-efficient vehicles
Near-term (2017-20)	☐ Partner with state agencies to hold regional planning workshops to educate local governments on AFV opportunities
☐ Provide consumer and business incentives to purchase, lease or rent new AFVs	☐ Develop AFV readiness strategy for region in partnership with local governments, state agencies, electric and natural gas utilities, non-profits and others
☐ Expand communications about cost savings of more fuel-efficient vehicles	☐ Increase Metro fleet use of electric vehicles, including non-passenger cars (e-bikes and utility vehicles)
☐ Provide funding and incentives for AFV infrastructure	☐ Expand availability of charging at Metro venues (Oregon Zoo, Expo Center, Convention Center, P5, etc.)
☐ Encourage private fleets to purchase, lease or rent AFVs	
☐ Develop model code for electric and CNG vehicle infrastructure and partnerships with businesses	
☐ Promote AFV infrastructure planning and investment	
☐ Provide effective signage to AFV charging and fueling stations and parking	
☐ Expand efforts to promote AFV tourism	
☐ Continue participation in the Pacific Coast Collaborative, Western Climate Initiative, and West Coast Green Highway Initiative	
☐ Track and report progress toward adopted state greenhouse gas emissions reduction and AFV deployment goals	
☐ Provide incentives and information to expand use of pay-as-you-drive insurance and report on progress	

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Support reauthorization of the Oregon Clean Fuels Program

☐ Support the Oregon Zero Emission Vehicle Program

☐ Update development codes to streamline/incent/ encourage the installation of electric vehicles charging stations, alternative fueling stations and infrastructure, particularly new buildings

☐ Support renewal of Oregon's tax credits for charging stations and other alternative fueling infrastructure

☐ Support legislation being promoted by Drive Oregon and the Energize Oregon Coalition to create a purchase rebate for electric vehicles

☐ Join Drive Oregon an Energize Oregon Coalition as a member organization and participate as an active partner in promoting electric vehicle readiness and deployment

Near-term (2017-20)

☐ Lead by example by increasing public AFV fleet

☐ Expand communication efforts about the cost savings of driving more fuel-efficient vehicles

☐ Pursue grant funding and partners to expand the growing network of electric vehicle fast charging stations and publicly accessible CNG stations

☐ Partner with local dealerships, Department of Energy (DOE) Clean Cities programs, non-profit organizations, businesses and others to incorporate AFV outreach and education events for consumers in conjunction with such events as Earth Day celebrations, National Plug-In Day and the DOE/ Drive Oregon Workplace Charging Challenge

☐ Update development codes and encourage new construction to include necessary infrastructure to support use of AFVs

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Support reauthorization of the Oregon Clean Fuels Program

☐ Support the Oregon Zero Emission Vehicle Program

Near-term (2017-20)

☐ Provide electric vehicle charging and CNG stations in public places (e.g., park-and-rides, parking garages)

☐ Provide preferential parking for AFVs

9 Secure adequate funding for transportation investments

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16) ☐ Preserve local options for raising revenue to ensure local communities have a full range of financing tools available to adequately fund current and future transportation needs ☐ Seek and advocate for new, dedicated funding mechanism(s) for active transportation and transit ☐ Research and consider carbon pricing models to generate new funding for clean energy, transit and active transportation, alleviating regressive impacts to businesses and communities of concern ☐ Increase state gas tax (indexed to inflation and fuel efficiency) ☐ Implement a mileage-based road usage charge program as called for in Senate Bill 810 **Near-term (2017-20)** ☐ Expand funding available for active transportation and transit investments ☐ Broaden implementation of the mileage-based road usage charge	**Immediate (2015-16)** ☐ Update research on regional infrastructure gaps and potential funding mechanisms to inform communication materials that support engagement activities and development of a funding strategy to meet current and future transportation needs ☐ Build a diverse coalition that includes elected officials and community and business leaders at local, regional and state levels working together to: • Seek and advocate for funding the adopted RTP • Advocate for local revenue raising options • Seek and advocate for new, dedicated funding mechanism(s) for transit and active transportation • Seek transit and active transportation funding from Oregon Legislature • Seek funding for road connections/improvements that will support multi-modal transportation • Consider local funding mechanism(s) for local and regional transit service • Support state efforts to research and consider carbon pricing models • Build local and state commitment to implement Active Transportation Plan, and Safe Routes to Schools (including high schools) and Safe Routes to Transit programs • Support state and federal efforts to increase gas tax (indexed to inflation and fuel efficiency) • Support state and federal efforts to implement road usage charge program

WHAT CAN CITIES AND COUNTIES DO?	WHAT CAN SPECIAL DISTRICTS DO? e.g., transit providers, Port districts, parks providers, etc.
Immediate (2015-16)	**Immediate (2015-16)**
☐ Support and/or participate in efforts to build transportation funding coalition	☐ Support and/or participate in efforts to build transportation funding coalition
☐ Advocate for local revenue raising options	☐ Advocate for local revenue raising options
☐ Support state efforts to implement a mileage-based road usage charge program	☐ Seek and advocate for new, dedicated funding mechanism(s) for active transportation and transit
☐ Support state efforts to research and consider carbon pricing models	☐ Support state efforts to research and consider carbon pricing models
☐ Consider local funding mechanism(s) for local and regional transportation needs, including transit service and active transportation	**Near-term (2017-20)**
Near-term (2017-20)	☐ Work with local, regional and state partners, including elected officials and business and community leaders, to develop a funding strategy to meet current and future transportation needs
☐ Work with local, regional and state partners, including elected officials and business and community leaders, to develop a funding strategy to meet current and future transportation needs	

10 Demonstrate leadership on reducing greenhouse gas emissions

WHAT CAN THE STATE DO?	WHAT CAN METRO DO?
Immediate (2015-16)	**Immediate (2015-16)**
☐ Update the 2017-20 Statewide Transportation Improvement Program (STIP) allocation process to address the Statewide Transportation Strategy (STS) Vision and STS Short-Term Implementation Plan actions	☐ Participate in local, regional and national panels and presentations to share the outcomes and recommendations of the Climate Smart Strategy
☐ Support local government and regional planning for climate change mitigation	☐ Seek Metro Council/JPACT commitment to address the Climate Smart Strategy in the policy update for the 2018-21 Metropolitan Transportation Improvement Program (MTIP) and the 2019-21 Regional Flexible Fund Allocation (RFFA) process
Near-term (2017-20)	☐ Continue participating In the Oregon Modeling Steering Committee Health and Transportation subcommittee to make recommendations to ODOT on tools and methods to support future health assessments by local, regional and state partners
☐ Amend the Oregon Transportation Plan to address the Statewide Transportation Strategy Vision	**Near-term (2017-20)**
☐ Update statewide greenhouse gas emissions inventory and track progress toward adopted greenhouse gas emissions reduction goals	☐ Review and evaluate Climate Smart Strategy investments and actions for adoption in the 2018 RTP
☐ Through the Oregon Modeling Steering Committee, collaborate on appropriate tools to support greenhouse gas reduction planning	☐ Evaluate Metro's major land use and RTP policy and investment decisions to determine whether they help the region meet adopted targets for reducing greenhouse gas emissions
☐ Report on the potential greenhouse gas emissions impacts of policy, program and investment decisions	☐ Assess potential risks and identify strategies to address potential climate impacts to transportation infrastructure and operations as part of 2018 RTP update
	☐ Update regional greenhouse gas emissions inventory and track progress toward adopted greenhouse gas emissions reduction target
	☐ Through the Oregon Modeling Steering Committee, collaborate on appropriate tools and methods to support greenhouse gas reduction planning and monitoring
	☐ Report on the potential greenhouse gas emissions impacts of policy, program and investment decisions
	☐ Encourage development and implementation of local climate action plans

WHAT CAN CITIES AND COUNTIES DO?

Immediate (2015-16)

☐ Review the Toolbox of Possible Actions to identify actions that are already being implemented and new actions public officials are willing to implement

Near-term (2017-20)

☐ Sign U.S. Conference of Mayors Climate Protection Agreement

☐ Prepare and periodically update community-wide greenhouse gas emissions inventory

☐ Report on the potential greenhouse gas emissions impacts of policy, program and investment decisions

☐ Adopt greenhouse gas emissions reduction policies and performance targets

☐ Develop and implement local climate action plans

WHAT CAN SPECIAL DISTRICTS DO?
e.g., transit providers, Port districts, parks providers, etc.

Immediate (2015-16)

☐ Prepare and periodically update greenhouse gas emissions inventory of transportation operations

☐ Report on the potential greenhouse gas emissions impacts of policy, program and investment decisions

☐ Adopt greenhouse gas emissions reduction policies and performance targets

PERFORMANCE MONITORING APPROACH

The last component of the Climate Smart Strategy is a set of performance measures and performance monitoring targets for tracking progress. The purpose of performance measures and targets is to monitor and assess whether key elements or actions that make up the strategy are being implemented, and whether the strategy is achieving expected outcomes.

About the performance measures

The performance measures identified for monitoring are a combination of existing and new measures, most of which are drawn from the Regional Transportation Plan and the Urban Growth Report, that track existing land use and transportation policies.

About the performance monitoring targets

The performance monitoring targets are not policy targets, but instead reflect a combination of the planning assumptions used to evaluate the Climate Smart Strategy and outputs from the evaluation. The measures and performance monitoring targets will be reviewed before being incorporated into the Regional Transportation Plan as part of the next scheduled update. They may be further refined at that time to address new information, such as MAP-21 performance-based planning provisions and recommendations from Metro's Equity Strategy.

About the process for performance monitoring

To monitor and assess implementation of the strategy, Metro will use observed data sources and existing regional performance monitoring and reporting processes to the extent possible. These processes include regularly scheduled updates to the Regional Transportation Plan and Urban Growth Report and reporting in response to Oregon Revised Statutes ORS 197.301 and ORS 197.296. When observed data is not available, data from regional models may be reported.

If the assessment finds the region is deviating significantly from the Climate Smart Strategy performance monitoring target, then Metro will work with local, regional and state partners to consider the revision or replacement of policies and actions to ensure the region remains on track with meeting adopted targets for reducing greenhouse gas emissions.

HOW WILL PROGRESS BE MONITORED?

POLICY AREA	MEASURE	BASELINE 2010 unless otherwise noted	2035 PERFORMANCE MONITORING TARGET
1. Implement the 2040 Growth Concept and local adopted land use and transportation plans	Share of households living in walkable, mixed-use areas[1] (new)	26%	37% A methodology for tracking progress will be developed in 2018 RTP update.
	New residential units built through infill and redevelopment in the urban growth boundary (UGB)[2] (existing)	58% *(average for 2007-12)*	65%
	New residential units built on vacant land in the UGB[3] (existing)	42% *(average for 2007-12)*	35%
	Acres of urban reserves added to the UGB[4] (existing)	0	12,000
	Daily vehicle miles traveled per capita[5] (existing)	19	17
2. Make transit convenient, frequent, accessible and affordable	Daily transit service revenue hours (new)	4,900	9,400
	Share of households within ¼-mile all day frequent transit (new)	30%	37%
	Share of low-income households within ¼-mile of all day frequent transit (new)	39%	49%
	Share of employment within ¼-mile of all day frequent transit (new)	41%	52%
	Transit fares (new)	A baseline for tracking transit affordability relative to inflation and other transportation costs will be developed in the 2018 RTP update.	A baseline for tracking transit affordability relative to inflation and other transportation costs will be developed in the 2018 RTP update.

HOW WILL PROGRESS BE MONITORED?

POLICY AREA	MEASURE	BASELINE 2010 unless otherwise noted	2035 PERFORMANCE MONITORING TARGET
3. Make biking and walking safe and convenient	Daily trips made by biking and walking[6] (existing)	179,000 bike trips 505,000 walk trips	280,000 bike trips 768,000 walk trips
	Per capita miles of bike and pedestrian travel per week[7] (new)	2.1 miles biked 1.3 miles walked	3.4 miles biked 1.8 miles walked
	Bike and pedestrian fatal and severe injury crashes[8] (existing)	35 bike crashes 63 pedestrian crashes	17 bike crashes 32 pedestrian crashes
	New miles of bikeways, sidewalks and trails in UGB[9] (existing)	Bikeways (on-street) = 623 miles Sidewalks (on at least one side of the street) = 5,072 miles Trails = 229 miles	663 new miles Bikeways (on-street) = 1,044 miles Sidewalks (data not available but will be developed in the 2018 RTP update. Trails = 369 miles
4. Make streets and highways safe, reliable and connected	Motor vehicle, bike and pedestrian fatal and severe injury crashes[10] (existing)	398 motor vehicle crashes 35 bike crashes 63 pedestrian crashes	199 motor vehicle crashes 17 bike crashes 32 pedestrian crashes
	Change in travel time and reliability in regional mobility corridors (existing)	A baseline for this measure will be developed in the 2018 RTP update.	A performance monitoring target and methodology for tracking progress will be developed in the 2018 RTP update.
	Share of freeway lane blocking crashes cleared within 90 minutes (new)	Data under development with ODOT staff. A baseline for this measure will be developed in the 2018 RTP update.	100%[11]
5. Use technology to actively manage the transportation system	Share of arterial and freeway delay reduced by traffic management strategies (new)	10%	35% A methodology for tracking progress will be developed in 2018 RTP update.
	Share of regional transportation system covered with transportation system management and operations (TSMO) strategies (new)	A baseline for tracking progress will be developed in 2018 RTP update.	A performance monitoring target and methodology for tracking progress will be developed in 2018 RTP update.

HOW WILL PROGRESS BE MONITORED?

POLICY AREA	MEASURE	BASELINE 2010 unless otherwise noted	2035 PERFORMANCE MONITORING TARGET
6. Provide information and incentives to expand the use of travel options	Share of households participating in individualized marketing programs (existing)	9%	45%
	Share of the workforce participating in commuter programs (existing)	20%	30%
7. Manage parking to make efficient use of vehicle parking and land dedicated to parking	Share of work trips occurring to areas with actively managed parking[12] (new)	13%	30% A methodology for tracking progress will be developed in 2018 RTP update.
	Share of non-work trips occurring to areas with actively managed parking[12] (new)	8%	30% A methodology for tracking progress will be developed in 2018 RTP update.
8. Support Oregon's transition to cleaner, low carbon fuels, more fuel-efficient vehicles and pay-as-you-drive private vehicle insurance	Share of registered light duty vehicles in Oregon that are electric vehicles (EV) or plug-in hybrid electric vehicles (PHEV)[13] (new)	1% auto 1% light truck	8% auto 2% light truck
	Share of households using pay-as-you-drive private vehicle insurance[14] (new)	>1%	40%
9. Secure adequate funding for transportation investments	Address local, regional and state transportation funding gap (new)	A baseline and methodology for tracking progress will be developed in 2018 RTP update.	
10. Demonstrate leadership on reducing greenhouse gas emissions	Region-wide per capita roadway greenhouse gas emissions from light vehicles (new)	4.05 $MTCO_2e$[15]	1.2 $MTCO_2e$[16]

PERFORMANCE MONITORING TABLE NOTES

[1] Data is an estimate from the metropolitan GreenSTEP model based on the land use assumptions described below in Table Notes 2–4.

[2] Data is compiled and reported by Metro every two years in response to Oregon Revised Statutes ORS 197.301 and ORS 197.296. The Climate Smart Strategy assumed the regionally-coordinated 2035 Growth Distribution adopted by the Metro Council on Nov. 29, 2012 as the basis for the population, housing, and employment growth assumptions used in the analysis. The adopted 2035 growth distribution was developed using MetroScope and reflects locally adopted comprehensive plans and zoning as of 2010. The performance monitoring target reflects the adopted growth distribution assumption that 65% of new residential units would be built through infill and redevelopment by 2035.

[3] See Table Note 2. The performance monitoring target reflects the adopted growth distribution assumption that 35% of new residential units would be built on vacant land inside the urban growth boundary by 2035.

[4] See Table Note 2. The performance monitoring target reflects the adopted growth distribution assumption that 12,000 acres of urban reserves would be added to the urban growth boundary by 2035.

[5] Data is from the ODOT Oregon Highway Performance Monitoring System (HPMS) and was the official state submittal to the Federal Highway Administration for tracking nationally. The 2014 Regional Transportation Plan (RTP) target calls for reducing daily vehicle miles traveled per person by 10 percent compared to 2010.

[6] Data is an estimate from the regional travel demand model and does not include walk trips to transit. The 2014 Regional Transportation Plan calls for tripling the share of daily trips made by biking and walking compared to 2010.

[7] Data from Oregon Health Authority Climate Smart Strategy Health Impact Assessment.

[8] Data is for the period 2007-2011 and comes from the ODOT Oregon Highway Performance Monitoring System (HPMS). The data was reported in the 2014 RTP adopted by the Metro Council on July 17, 2014. The 2014 RTP target calls for reducing fatal and severe injury crashes for all modes by 50 percent compared to the 2007-2011 period.

[9] The 2014 RTP financially constrained system includes completing 663 miles of bikeways, sidewalks and trails; progress toward completion of the system of investments will be tracked.

[10] See note 8.

[11] The measure and target reflect an ODOT performance goal.

[12] The measure and performance monitoring target reflect a planning assumption from in 2014 Regional Transportation Plan that was used in the Climate Smart Strategy analysis.

[13] The Oregon Department of Motor Vehicles will track this data through vehicle registration records.

[14] The performance monitoring target is less aggressive than the Statewide Transportation Strategy, which assumed nearly all Oregon households would have pay-as-you-drive insurance by 2035.

[15] Data is a model estimate for the year 2005, using the Metropolitan GreenSTEP model.

[16] The performance monitoring target reflects the state mandated 20 percent reduction per person in roadway greenhouse gas emissions, after accounting for state assumptions for anticipated advancements in cleaner, low carbon fuels and more fuel-efficient vehicles. A transition to the Motor Vehicle Emission Simulator (MOVES) model for tracking progress will be made as part of the 2018 Regional Transportation Plan update. The MOVES model is the federally-sanctioned model for demonstrating compliance with federal and state air quality requirements.

SUPPLEMENTAL INFORMATION

EXPECTED BENEFITS OF THE STRATEGY

By 2035, the Climate Smart Strategy can help people live healthier lives and save businesses and households money through benefits like:

- Reduced air pollution and increased physical activity can help reduce illness and save lives. This helps save money that can be spent on other priorities.

- Less air pollution also means fewer environmental costs. This helps save money that can be spent on other priorities.

- Spending less time in traffic and reduced delay on the system saves businesses money, supports job creation, and promotes the efficient movement of goods.

- Households save money by driving more fuel-efficient vehicles fewer miles and walking, biking and using transit more. This allows people to spend money on other priorities, of particular importance to households of modest means.

Reduced greenhouse gas emissions

PERCENT BELOW 2005 LEVELS

RECENT TRENDS　　**ADOPTED PLANS**　　**NEW PLANS & POLICIES**　　**CLIMATE SMART STRATEGY**

12%

STATE MANDATED TARGET

20% REDUCTION BY 2035
The reduction target is from 2005 emissions levels after reductions expected from cleaner fuels and more fuel-efficient vehicles.

24%

29%

36%
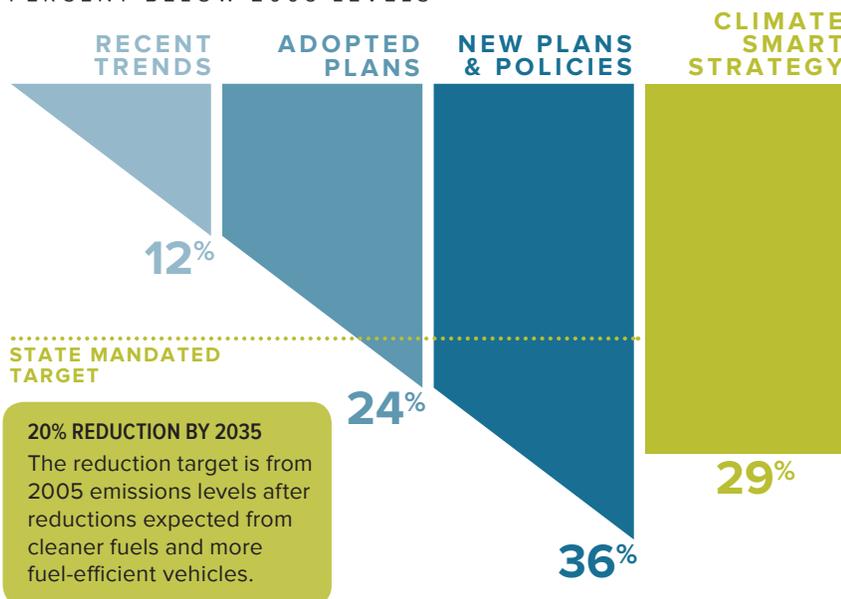
WHAT WE LEARNED ABOUT PUBLIC HEALTH AND SAFETY

Our economy benefits from improved public health

ANNUAL HEALTHCARE COST SAVINGS FROM REDUCED ILLNESS BY 2035 (MILLIONS, 2010$)

In 2010, our region spent $5-6 billion on healthcare costs related to illness alone. By 2035, the region can save $100 million per year by implementing the Climate Smart Strategy.

$52 MILLION
RECENT TRENDS

$89 MILLION
ADOPTED PLANS

$117 MILLION
NEW PLANS & POLICIES

$100 MILLION
CLIMATE SMART STRATEGY

More physical activity and less air pollution

LIVES SAVED EACH YEAR BY 2035

By 2035, the societal value of lives saved is more than $1 billion per year by implementing the Climate Smart Strategy.

AIR POLLUTION
59 LIVES SAVED

PHYSICAL ACTIVITY
61 LIVES SAVED

126 LIVES SAVED

TRAFFIC SAFETY
6 LIVES SAVED
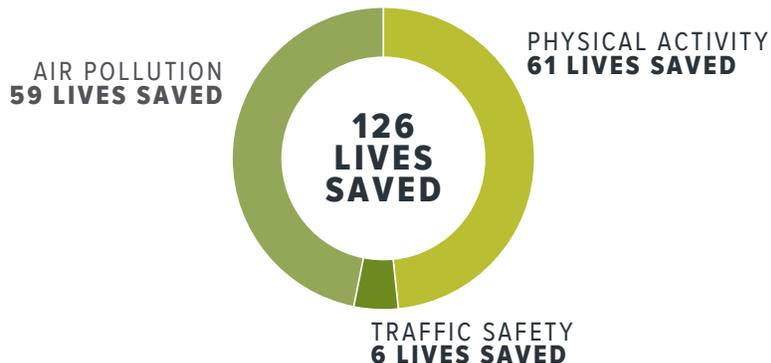
WHAT WE LEARNED ABOUT THE ECONOMY

$ Our economy benefits from reduced emissions and delay

ANNUAL ENVIRONMENTAL AND FREIGHT TRUCK TRAVEL
COSTS BY 2035 (MILLIONS, 2005$)

$1.5 B	**$1.5 B**	**$1.3 B**	**$1.3 B**
$567 M	$503 M	$434 M	$467 M
$975 M	$970 M	$885 M	$882 M
RECENT TRENDS	**ADOPTED PLANS**	**NEW PLANS & POLICIES**	**CLIMATE SMART STRATEGY**

– Environmental costs due to pollution

– Freight truck travel costs due to delay
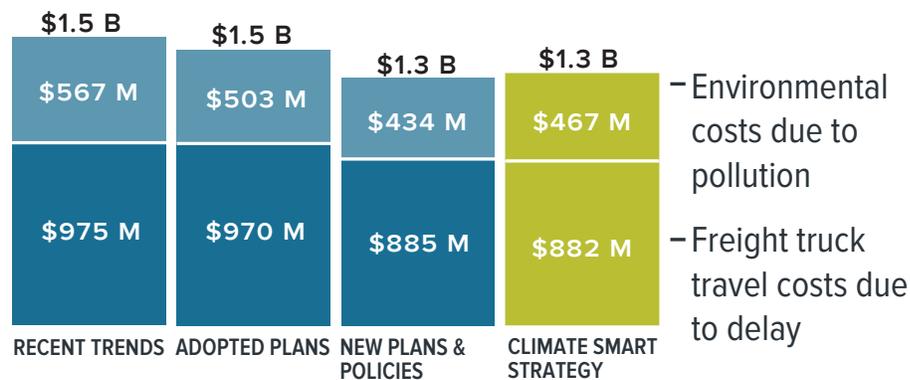
Cumulative savings calculated on an annual basis. The region can expect to save $2.5 billion by 2035, compared to recent trends, by implementing the Climate Smart Strategy.

Overall vehicle-related travel costs decrease due to lower ownership costs

AVERAGE ANNUAL HOUSEHOLD VEHICLE OWNERSHIP &
OPERATING COSTS BY 2035 IN 2005$

$8,200	**$8,100**	**$7,400**	**$7,700**
$2,700	$3,000	$3,200	$2,800
$5,500	$5,100	$4,200	$4,900
RECENT TRENDS	**ADOPTED PLANS**	**NEW PLANS & POLICIES**	**CLIMATE SMART STRATEGY**

– Vehicle operating costs

– Vehicle ownership costs

By 2035, households in the region can expect to save more than $400 million per year, compared to recent trends, by implementing the Climate Smart Stragegy.

WHAT WE LEARNED ABOUT COSTS

$** **Total estimated investment by 2035 (2014$)
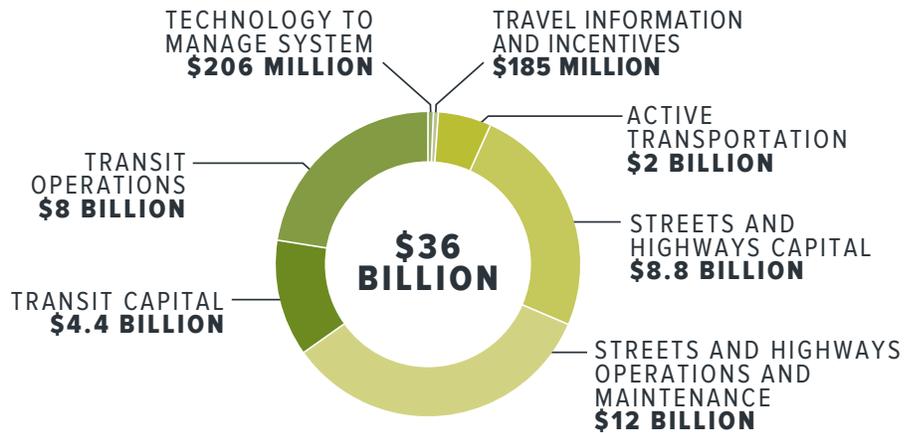
The Climate Smart Strategy reflects local and regional investment priorities adopted in the 2014 Regional Transportation Plan (RTP) to maintain our existing transportation system and address other transportation needs in the region. At $36 billion over 25 years, the overall cost of the strategy is less than the full 2014 RTP ($41 billion), but about $5 billion more than the financially constrained 2014 RTP ($31 billion)

TECHNOLOGY TO MANAGE SYSTEM
$206 MILLION

TRAVEL INFORMATION AND INCENTIVES
$185 MILLION

ACTIVE TRANSPORTATION
$2 BILLION

TRANSIT OPERATIONS
$8 BILLION

STREETS AND HIGHWAYS CAPITAL
$8.8 BILLION

$36 BILLION

TRANSIT CAPITAL
$4.4 BILLION

STREETS AND HIGHWAYS OPERATIONS AND MAINTENANCE
$12 BILLION

$** **Annual cost of implementation through 2035 (millions, 2014$)
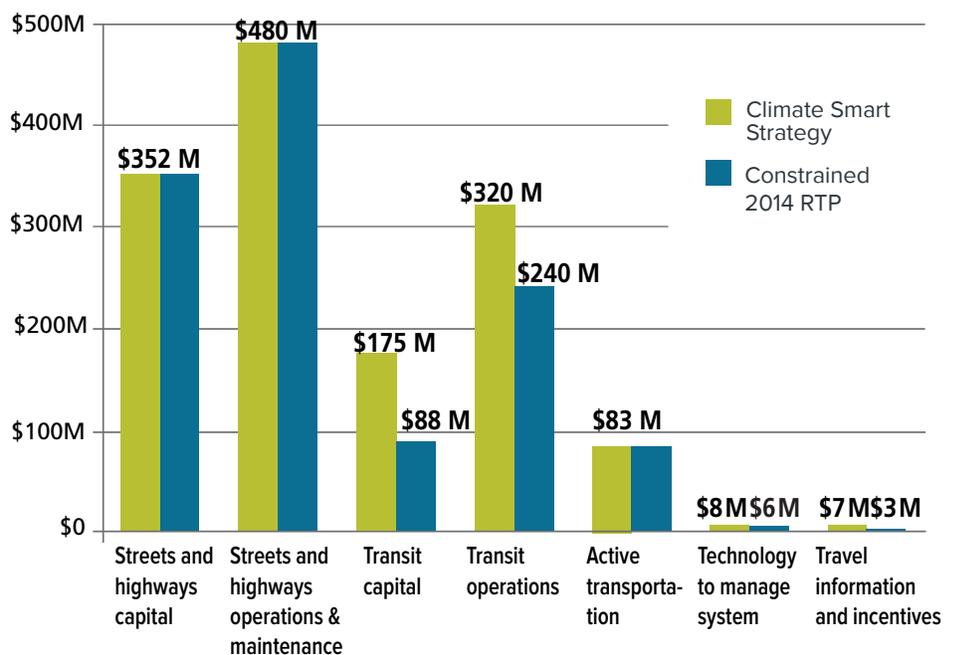
The investment levels assumed in the Climate Smart Strategy are similar to those in the adopted financially constrained 2014 RTP, with the exception of increased investment in transit capital and operations region-wide. Analysis shows the high potential of these investments to reduce greenhouse gas emissions, while improving access to jobs and services and supporting other community goals.

Legend:
- Climate Smart Strategy
- Constrained 2014 RTP

Category	Climate Smart Strategy	Constrained 2014 RTP
Streets and highways capital	$352 M	$352 M
Streets and highways operations & maintenance	$480 M	$480 M
Transit capital	$175 M	$88 M
Transit operations	$320 M	$240 M
Active transportation	$83 M	$83 M
Technology to manage system	$8 M	$6 M
Travel information and incentives	$7 M	$3 M

CLIMATE SMART COMMUNITIES SCENARIOS PROJECT

Metro

December 2014

Summary of Key GreenSTEP Inputs & Outputs

Model **Inputs** in ITALICS; Model **Outputs** in REGULAR type.

Input/Output Factor	2010 Baseline	2035 SCENARIO A Recent Trends	2035 SCENARIO B Adopted Plans (as of 2010)	2035 SCENARIO C New Plans and Policies	2035 CLIMATE SMART STRATEGY
Air and energy consumption					
Total roadway CO2e emissions from light duty vehicles (metric tons per year)	5,400,000	2,700,000	2,300,000	1,900,000	2,000,000
Light duty vehicle GHG emissions per capita (metric tons per year)	3.7	1.3	1.1	0.9	1.0
CO2e reduction percent in addition to reduction from fleet and technology (below 2005 levels)	n/a	12%	24%	36%	29%
Criteria pollutant emissions (metric tons per day)	360	150	140	120	135
Petroleum fuel consumption per capita (gallons per year)	760	310	270	220	250
Community design and land use					
Percent of households living in walkable, mixed use areas	26%	36%	37%	37%	37%
Urban growth boundary expansion (acres)	--	28,000 acres	12,000 acres	12,000 acres	12,000 acres
Transit and active transportation					
Ratio of daily transit revenue miles to population growth	1	0.8X	0.9X	1.6X	1.4X
Daily transit revenue hours	4,900	5,600	6,200	11,200	9,400
Percent of drive alone trips that shift to bicycle travel (<10 miles one way)	9%	10%	15%	20%	17%
Walk trips per capita per year	150	180	190	200	196
Bike miles per capita per year	110	110	160	190	174
Streets and highways					
Freeway and arterial expansion (freeway lane miles/arterial lane miles added)	n/a	12/31	15/336	46/409	52/386
Percent of delay reduced by traffic management strategies	10%	10%	20%	35%	35%
Household vehicle miles traveled per capita per day	20	17	16	14	16
Percent change in daily VMT per capita from 2010	--	-15%	-19%	-30%	-20%

Summary of Key GreenSTEP Inputs & Outputs

Input/Output Factor Model Inputs in ITALICS; Model Outputs in REGULAR type.	2010 Baseline	2035 SCENARIO A Recent Trends	2035 SCENARIO B Adopted Plans (as of 2010)	2035 SCENARIO C New Plans and Policies	2035 CLIMATE SMART STRATEGY
Percent of vehicle travel time spent in congestion	15%	21%	17%	13%	14%
Vehicle minutes of delay per capita per day	7	10	7	4	5
Travel options and incentives					
Percent of workers participating in employer commuter programs	20%	20%	20%	40%	30%
Percent of households participating in targeted marketing	9%	30%	30%	60%	45%
Car sharing [percent of vehicles]	1%	1%	2%	2%	2%
Household costs					
Annual driving cost per household (2005$)	$6,370	$6,140	$5,670	$4,690	$5,440
Annual vehicle operating cost per household	$2,600	$2,700	$3,000	$3,200	$2,790
Annual vehicle ownership cost per household	$5,400	$5,500	$5,100	$4,200	$4,910
Fuel costs per household per year (2005$)	$1,850	$1,900	$1,650	$1,350	$1,390
Percent of household income spent on driving (median-income)	18%	18%	18%	16%	17%
Percent of household income spent on driving (low-income)	24%	23%	23%	20%	22%
Freight truck travel time costs per household per year (2005$)	$950	$1,100	$1,100	$1,000	$1,000
External social costs per household per year (2005$)	$970	$640	$570	$490	$530
Pricing, marketing and fleet					
Petroleum fuel price per gallon (2005$)	2.43***	$6.43**	$6.43**	$6.43**	$5.53***
State gas tax per gallon (2005$)	$0.42	$0.48	$0.73	$0.48	$0.48
Average parking costs per day (2005$)	$5.00	$5.00	$4.00	$2.00	$4.00
Percent of employees paying to park	13%	13%	30%	50%	30%
Percent of non-work trips paying to park	8%	8%	30%	50%	30%
Percent of households with pay-as-you-drive insurance	0%	20% ($0.06/mile)	40% ($0.06/mile)	100%	40% ($0.05/mile)
*Percent of fleet that are light trucks**	43%	29%	29%	29%	29%
*Fleet turnover rate**	10 years	8 years	8 years	8 years	8 years
*Fuel efficiency of new autos & light trucks by model year average (miles per gallon)**	29.2 autos 20.9 light trucks	68.5 autos 47.7 light trucks	68.5 autos 47.7 light trucks	68.5 autos 47.7 light trucks	68.5 autos 47.7 light trucks
*Carbon intensity of fuels (grams of CO2e per megajoule)**	90 g	72 g	72 g	72 g	72 g
*Electric/plug-In hybrid vehicles market share**	1% autos 1% light trucks	8% autos 2% light trucks	8% autos 2% light trucks	8% autos 2% light trucks	8% autos 2% light trucks

Sources:

* Metropolitan Greenhouse Gas Reduction Target Rule OAR 660-044-0010 (Table 1).

** Oregon Statewide Strategy High Fuel Price Scenario Analysis

*** Oregon Statewide Transportation Strategy Final Analysis

GLOSSARY

Adaptation Adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects. "Climate adaptation" typically references efforts to respond to and minimize the impacts of a changing climate.

Brownfield A property for which the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or containment. Cleaning up and reinvesting in these properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment.

Carsharing A membership-based system of short term automobile rental. Such programs are attractive to customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type than they use day-to-day. The organization renting the cars may be a commercial business or the users may be organized as a company, public agency, cooperative, or peer-to-peer. Zipcar and car2go are local examples.

Climate change Any change in climate over time, whether due to natural variability or as a result of human activity that persists for an extended period.

Complete streets A transportation policy and design approach where streets are designed, operated and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities, regardless of their mode of transportation.

Concept planning A planning process to create a blueprint for the future of land brought inside the urban growth boundary for urbanization. The process is required to address the provisions listed in Title 11 of the Urban Growth Management Functional Plan. These provisions include a minimum level of residential units per acre, a diversity of housing stock, an adequate transportation system, protection of natural resource areas and needed school facilities.

Drive Oregon A nonprofit 501(c)(6) trade association dedicated to growing the electric mobility industry in Oregon. Members include innovators, entrepreneurs, and established industry leaders throughout the entire supply chain. Drive Oregon is funded in part with Oregon State Lottery Funds administered by Business Oregon.

Eco-driving A combination of public education, in-vehicle technology and driving practices that result in more efficient vehicle operation and reduced fuel consumption and emissions. Examples of eco-driving techniques include avoiding rapid starts and stops, matching driving speeds to synchronized traffic signals, avoiding excessive idling, and keeping tires properly inflated.

ECO Rule An Oregon Department of Environmental Quality administrative rule (OAR 340-242) that is also called the Employee Commute Options Program. Under the DEQ ECO program, employers with more than 100 employees must provide commute options and incentives to employees designed to reduce the number of cars driven to work in the Portland metropolitan region. The employers must provide incentives for employee use of commute options like biking, walking, use of transit, carpooling, guaranteed ride home, and financial incentives. The incentives must have the potential to reduce drive alone commute trips to the work site by 10 percent from an established baseline. The ECO program is one of several strategies included in the Ozone Maintenance Plan for the Portland Air Quality Maintenance Area. The Ozone Maintenance Plan will keep the area in compliance with the federal ozone standard.

Employer-based commute programs Work-based travel demand management programs that can include transportation coordinators, employer-subsidized transit pass programs, ride-matching, carpool and vanpool programs, telecommuting, compressed or flexible work weeks and bicycle parking and showers for bicycle commuters.

Energize Oregon A coalition of public and private partners working to expand electric vehicle sales and use in Oregon. The voluntary partnership was created in 2013 through a memorandum of understanding (MOU) between Governor Kitzhaber's office, the Oregon Department of Transportation, and Drive Oregon. The coalition has received state funding and includes Nissan, Honda, Ford, and General Motors as members.

Fleet mix The percentage of vehicles classified as automobiles compared to the percentage classified as light trucks (weighing less than 10,000 lbs.); light trucks make up 43 percent of the light-duty fleet today.

Fleet turnover The rate of vehicle replacement or the turnover of older vehicles to newer vehicles; the current turnover rate in Oregon is 10 years.

Geometric changes to add capacity Road design and engineering strategies to help alleviate bottlenecks, such as the addition or reconfiguration of turning lanes, strategic lane widening, realignment of intersecting streets, improved acceleration or deceleration lanes at interchange ramps, removal of a physical constriction that delays travel, such as widening an underpass, providing lane continuity (i.e., replacing a two-lane bridge that connects pieces of four-lane roadway), or eliminating a sight barrier. Such strategies may be applied to highways, arterials, or local streets.

Greenhouse gas emissions The six gases identified in the Kyoto Protocol and by the Oregon Greenhouse Gas Mandatory Reporting Advisory Committee as contributing to global climate change: carbon dioxide (CO_2), nitrous oxide (N2), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFC s), and sulfur hexafluoride (SF_6). More information is available at www.epa.gov/climatechange

GreenSTEP A modeling tool developed by the Oregon Department of Transportation to estimate GHG emissions at the individual household level. It estimates greenhouse gas emissions associated with vehicle ownership, vehicle travel, and fuel consumption, and is designed to operate in a way that allows it to show the potential effects of different policies and other factors on vehicle travel and emissions. GreenSTEP travel behavior estimates are made irrespective of housing choice or supply; the model only considers the demand forecast components – household size, income and age – and the policy areas considered in this analysis.

Guaranteed Ride Home Program Through a Guaranteed Ride Home program, commuters who use modes such as carpool/vanpool, bicycle, walk, or public transportation, receive a subsidized ride home from work when an unexpected emergency arises.

House Bill 2001 (Oregon Jobs and Transportation Act) Passed by the Legislature in 2009, this legislation provided specific directions to the Portland metropolitan region to undertake scenario planning and develop two or more land use and transportation scenarios that accommodate planned population and employment growth, while achieving the GHG emissions reduction targets approved by LCDC in May 2011. Metro, after public review and consultation with local governments, is to adopt a preferred scenario, called the Climate Smart Strategy. Following adoption of the Climate Smart Strategy, local governments within the Metro jurisdiction are to amend their comprehensive plans and land use regulations as necessary to be consistent with the preferred scenario. More information can be found at www.oregonlegislature.gov/bills_laws/lawsstatutes/2009orLaw0865.html

Health A condition of complete physical, mental and emotional well-being, not merely the absence of disease.

Health Impact Assessment A combination of procedures, methods, and tools by which a policy, program or project may be evaluated as to its potential effects on the health of a population, and the distribution of these effects within the population.

Individualized marketing Travel demand management programs focused on individual households. IM programs involve individualized outreach to households that identify household travel needs and ways to meet those needs with less vehicle travel.

Induced demand Refers to the process whereby improvements in the transportation system intended to alleviate congestion and delay result in additional demand for the transportation segment, offsetting some of the improvement's potential benefits. For instance, when a congested roadway is expanded from 2 to 3 lanes, some drivers will recognize the increased capacity and take this roadway though they had not done so previously.

Infill development Refers to the development or redevelopment of vacant, bypassed or under-utilized lands in an area that is largely developed. An alternative to development that occurs outside existing urban areas.

Intelligent transportation systems Refers to advanced communications technologies that are integrated with transportation infrastructure and vehicles to address transportation problems and enhance the movement of people and goods. ITS can include both vehicle-to-vehicle communication (which allows cars to communicate with one another to avoid accidents) and vehicle-to-infrastructure communication (which allows cars to communicate with the roadway to identify congestion, crashes or unsafe driving conditions).

Light-duty vehicles Vehicles weighing 10,000 pounds or less, including passenger cars, light trucks, sport utility vehicles, motorcycles and small delivery trucks.

Low Carbon Fuel Standard In 2009, the Oregon legislature authorized the Environmental Quality Commission to develop low carbon fuel standards (LCFS) for Oregon. The program has since been renamed the Clean Fuels Program. Each type of transportation fuel (gasoline, diesel, natural gas, etc.) contains carbon in various amounts. When the fuel is burned, that carbon turns into carbon dioxide (CO_2), which is a greenhouse gas. The goal is to reduce the average carbon intensity of Oregon's transportation fuels by 10 percent below 2010 levels by 2022 and applies to the entire mix of fuel available in Oregon. Carbon intensity refers to the emissions per unit of fuel; it is not a cap on total emissions or a limit on the amount of fuel that can be burned. The lower the carbon content of a fuel, the fewer greenhouse gas emissions it produces.

Mitigation To moderate a quality or condition in force or intensity. "Climate mitigation" typically references efforts taken to eliminate or reduce greenhouse gas emissions to reduce the long-term risk and hazards of climate change.

Mixed-use development Refers to portions of urban areas where commercial (e.g., retail, office, entertainment) and non-commercial uses (such as residential space), are located near one another. Different uses may be mixed vertically (e.g., housing above retail) or horizontally (e.g., housing within walking distance of retail). Mixed-use development reduces demand for motorized transportation by locating common destinations near residences where transit, pedestrian and bicycle access is convenient.

Mobility corridor Mobility corridors represent sub-areas of the region and include all regional transportation facilities within the sub-area as well as the land uses served by the regional transportation system. This includes freeways and highways and parallel networks of arterial streets, regional bicycle parkways, high capacity transit, and frequent bus routes. The function of this network of integrated transportation corridors is metropolitan mobility – moving people and goods between different parts of the region and, in some corridors, connecting the region with the rest of the state and beyond. This framework emphasizes the integration of land use and transportation in determining regional system needs, functions, desired outcomes, performance measures, and investment strategies.

Oregon Sustainable Transportation Initiative (OSTI) An integrated statewide effort to reduce GHG emissions from the transportation sector by integrating land use and transportation. OSTI is the result of several bills passed by the Oregon Legislature designed to help Oregon meet its 2050 goal of reducing greenhouse gas emissions by 75 percent below 1990 levels. Guided by stakeholder input, the initiative has built collaborative partnerships among local governments and the state's six Metropolitan Planning Organizations to help meet Oregon's goals to reduce GHG emissions. The effort includes five main areas: Statewide Transportation Strategy development, GHG emission reduction targets for metropolitan areas, land use and transportation scenario planning guidelines, tools that support MPOs and local governments and public outreach. More information can be found at www.oregon.gov/odot/td/osti

Oregon Zero Emission Vehicles (ZEV) Program A program administered by the Oregon Department of Environmental Quality to advance the state's transition to zero emission vehicles. The program adopted California ZEV requirements to stimulate development of emission-free vehicles and bring them to commercial-scale production beginning with the 2018 model year. It is difficult to predict how many zero emission vehicles the rules will bring to Oregon. However, some estimates suggest that electric vehicles and plug-in hybrid electric vehicles could make up 5 percent of new vehicle sales in 2018, growing to 13 percent of sales in 2025. More information can be found at http://www.deq.state.or.us/aq/orlev

Parking cash-out program A transportation demand management strategy where the market value of a parking space is offered to an employee by the employer. The employee can either spend the money on a parking space, or pocket it and use an alternative mode to travel to work. The program is intended to reduce vehicle trips and increase the use of alternative travel modes. Also referred to as an employer buy-back program.

Parking management Strategies that encourage more efficient use of existing parking facilities, improve the quality of service provided to parking facility users, and improve parking facility design. Examples include developing an inventory of parking supply and usage, reduced parking requirements, shared and unbundled parking, parking-cash-out, priced parking, bicycle parking and providing information on parking space availability. More information can be found at www.vtpi.org/park_man.pdf

Pay-as-you-drive insurance (PAYD) A method of insuring vehicles in which premiums are based in large part on the vehicle miles traveled within a given period of time. PAYD is also sometimes referred to as distance-based, usage-based, or mileage-based insurance. This pricing strategy converts a portion of liability and collision insurance from dollars-per-year to cents-per-mile to charge insurance premiums based on the total amount of miles driven per vehicle on an annual basis and other important rating factors, such as the driver's safety record. If a vehicle is driven more, the crash risk consequently increases. PAYD insurance charges policyholders according to their crash risk.

Peer-to-peer carsharing A car sharing program where the vehicle fleet is composed of privately owned vehicles that are available to rent to others at rates set by the car owners.

Policy areas Categories of land use and transportation strategies used in GreenSTEP to show how the application of different policies may impact GHG emissions.

Preparation Assessing the risks and vulnerabilities and identifying actions to protect residents and businesses from the most significant impacts of climate change. Many agencies have used the term "adaptation" to refer to similar efforts.

Ramp meter A traffic signal used to regulate the flow of vehicles entering the freeway. Ramp meters smooth the merging process resulting in increased freeway speeds and reduced crashes. Ramp meters are automatically adjusted based on traffic conditions.

Reliability Refers to consistency or dependability in travel times, as measured from day to day and/or across different times of day. Variability in travel times means travelers must plan extra time for a trip.

Resilience An ability to anticipate, prepare for, respond to and recover from significant multi-hazard threats with minimum damage to social well-being, the economy and the environment.

Rideshare A transportation demand management strategy where two or more people share a trip in a vehicle to a common destination or along a common corridor. Private passenger vehicles are used for carpools, and some vanpools receive public/private support to help commuters. Carpooling and vanpooling provide travel choices for areas underserved by transit or at times when transit service is not available.

Scenario A term used to describe a possible future, representing a hypothetcal set of policies and strategies or sequence of events.

Scenario planning A process that tests different actions and policies to see their affect on GHG emissions reduction and other quality of life indicators.

Social costs In the context of the Climate Smart Communities Strategy, social costs refer to the unintended consequences of transportation, such as carbon emissions that contribute to climate change, air pollution that causes health and environmental problems, energy security costs associated with importing fossil fuels from foreign nations, and other such impacts.

Statewide Transportation Strategy The strategy, as part of OSTI, defines a vision for Oregon to reduce its GHG emissions from transportation systems, vehicle and fuel technologies and urban form by 2050. The strategy was accepted by the Oregon Transportation Commission in March 2013. More information can be found at www.oregon.gov/ODOT/TD/OSTI/STS.shtml.

System efficiency Strategies that optimize the use of the existing transportation system, including traffic management, employer-based commute programs, individualized marketing and carsharing.

Traffic incident management Planned and coordinated processes followed by state and local agencies to detect, respond to, and remove traffic incidents quickly and safely in order to keep highways flowing efficiently.

Traffic management Strategies that improve transportation system operations and efficiency, including ramp metering, active traffic management, traffic signal coordination and real-time traveler information regarding traffic conditions, incidents, delays, travel times, alternate routes, weather conditions, construction, or special events.

Transportation management associations (TMA) Non-profit coalitions of local businesses and/or public agencies, and residences such as condo Home Owner Associations all dedicated to reducing traffic congestion and pollution while improving commuting options for employees, residents and visitors.

Transportation system management A set of strategies for increasing travel flow on existing facilities through improvements such as ramp metering, traffic signal synchronization and access management.

Travel (or transportation) demand management (TDM) The application of techniques that affect when, how, where, and how much people travel, done in a purposeful manner by government or other organizations. TDM techniques include education, policies, regulations, and other combinations of incentives and disincentives, and are intended to reduce drive alone vehicle trips on the transportation network.

Travel time reliability Refers to consistency or dependability in travel times, as measured from day to day and/or across different times of day. Variability in travel times means travelers must plan extra time for a trip.

TripCheck An Oregon Department of Transportation website that displays real-time data regarding road conditions, weather conditions, camera images, delays due to congestion and construction, and other advisories. Additionally, TripCheck provides travelers with information about travel services such as food, lodging, attractions, public transportation options, scenic byways, weather forecasts, etc. This information is also available through the 511 travel information phone line.

Unbundled parking A policy tool to encourage or require that residential or commercial parking be rented or sold separately, rather than automatically included with building space. Separate pricing can help reduce demand for parking as well as the combined housing/transportation costs for residents or business owners since occupants only pay for the parking they need. Unbundling can be done in several ways:
- Parking can be bought or rented separately when the apartment, condo, or office space is bought or leased.
- Renters can be offered a discount on their rent for not using parking spaces.
- Parking costs can be listed as a separate line item in lease agreements to show tenants the cost and enable them to negotiate reductions.

- Unbundling can be encouraged informally by creating a market for available parking spaces; building managers can keep a list of tenants or owners with excess spaces available for rent.

U.S. Conference of Mayors Climate Protection Agreement An agreement where supporting mayors pledge to reduce greenhouse gas emissions by 7 percent below 1990 levels by 2012. On February 16, 2005, the Kyoto Protocol, the international agreement to address climate change, became law for the countries that have ratified it. On that day, Seattle Mayor Greg Nickels launched this initiative to advance the goals of the Kyoto Protocol through leadership and action by U.S. cities. By the 2005 U.S. Conference of Mayors Annual Meeting in June, 141 mayors had signed the Agreement – the same number of nations that ratified the Kyoto Protocol.

Since 2005, more than 1,000 mayors across all 50 states and Puerto Rico had signed on. Under the Agreement, participating cities commit to take following three actions:
- Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from land-use and transportation policies to urban forest restoration projects to public information campaigns;
- Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol 7 percent reduction from 1990 levels by 2012; and
- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading.

More information can be found at www.usmayors.org/climateprotection

Vehicle-to-vehicle communication technology Wireless technology that allows for the transfer of information between vehicles. One major goal behind this research is to improve roadway safety. The Research and Innovative Technology Administration of the U.S. Department of Transportation (DOT) is currently investigating many potential benefits of this new technology.

Vision Zero Strategy An action plan for eliminating traffic fatalities and serious injury crashes for all modes of travel. The action plan typically includes a combination of enforcement, improved engineering, operations, design and emergency response, public education campaigns that identify dangerous or unsafe behavior on roads and streets to improve safety, and performance monitoring to track progress. Examples of adopted strategies can be found at: www.nyc.gov/html/visionzero/pdf/nyc-vision-zero-action-plan.pdf and www.mdt.mt.gov/homepage/articles/vision-zero.shtml.

Wayfinding Signage, maps, street markings, and other graphic or audible methods used to convey location and directions to help travelers orient themselves and reach destinations easily.

West Coast Green Highway An initiative to advance the adoption and use of electric and alternative-fuel vehicles along the I-5 corridor in Washington, Oregon, and California. More information can be found at www.westcoastgreenhighway.com

Workplace charging challenge Part of the U.S. Department of Energy's (DOE's) EV Everywhere Grand Challenge, the Workplace Charging Challenge aims to achieve a tenfold increase in the number of U.S. employers offering workplace charging by 2018. More information can be found at http://energy.gov/eere/vehicles/ev-everywhere-workplace-charging-challenge

A NOTE ON CLIMATE CHANGE ADAPTATION AND RESILIENCY

House Bill 2001 directed the region to develop and implement a strategy to reduce greenhouse gas emissions from light-duty vehicles by 2035 to help meet state greenhouse gas emissions reduction goals for 2050. The goal of the Climate Smart Strategy is to meet the state target for reducing greenhouse gas emissions and support other local, regional and state goals including clean air and water, transportation choices, healthy and equitable communities, and a strong economy. Most of the investments and actions proposed in the Climate Smart Strategy to reduce – or mitigate – greenhouse gases going into the atmosphere are already being implemented to varying degrees across the region to realize community visions and other important economic, social and environmental goals. It is also important to recognize that scientists believe Oregon is already being impacted by physical changes in temperatures and precipitation patterns due to climate change, and that more changes are coming.

While specific strategies to help the region adapt to a changing climate are not called out in the Climate Smart Strategy, it is important to acknowledge that this work will be highly important to mitigating risks and developing resilient communities.

Recent studies[1] for the state of Oregon say there is a greater than 90 percent chance that in coming decades, our state will face increases in average annual air temperatures and the likelihood of extreme heat events. Additionally, changes in hydrology and water supply are likely to occur, including reduced snowpack and water availability in some basins, changes in water quality, and the timing of water availability. These changes are expected to impact the region's economy, infrastructure, natural systems, and human health in a variety of ways.

To prepare for these changes, a short list of regional actions is suggested:
- Apply the insights from the Oregon Climate Assessment Report and the Oregon Climate Change Adaptation Framework to understand the scientists' expected changes for our state and potential low- and no-cost first steps in preparing for and responding to these changes.
- Consider physical climate risks as potential natural hazards. With this in mind, continue to implement the policies identified in Chapter 5 of the Regional Framework Plan (Regional Natural Hazards). The policies were developed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards.
- Engage with public health officials, universities, and state agencies to identify strategies to address the potential impact of climate change on human health, such as developing public health adaptation resources, integrating planning at various government levels, and creating programs to monitor and respond to public health issues.

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[1] 2013 Oregon Climate Assessment Report, Oregon Climate Change Research Institute, available at www.oc-cri.net/wp-content/uploads/2013/11/ClimateChangeInTheNorthwest.pdf.
2010 Oregon Climate Change Adaptation Framework, Department of Land Conservation and Development, available at www.oregon.gov/LCD/docs/ClimateChange/Framework_Final.pdf

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Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

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