Oregon
John A. Kitzhaber, M.D., Governor

Department of Land Conservation and Development
635 Capitol Street NE, Suite 150
Salem, Oregon 97301-2540
Phone: (503) 373-0050
Fax: (503) 378-5518
www.oregon.gov/LCD

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TO: Land Conservation and Development Commission

FROM: Ali Turiel, Land Use and Transportation Planner

SUBJECT: **Agenda Item 7, January 22-23, 2015, LCDC Meeting**

CENTRAL LANE SCENARIO PLANNING PRESENTATION

I. AGENDA ITEM SUMMARY

The Land Conservation and Development Commission (LCDC and/or commission) will receive an update from Department of Land Conservation and Development (DLCD and/or department) staff with the Central Lane Metropolitan Planning Organization (MPO) on the final phase developing a land use and transportation scenario for reducing greenhouse gas (GHG) emissions from light vehicle travel. This update was requested by LCDC at the May 2014 meeting and will provide an opportunity for the commission to learn about the Central Lane Scenario Planning project as it moves toward conclusion.

If you have questions about this report please contact Ali Turiel, Land Use and Transportation Planner at 503.934.0064 or by email at ali.turiel@state.or.us.

II. RECOMMENDED ACTION

No formal action by the commission is recommended or required. The commission is not responsible for reviewing or approving the Central Lane scenario planning work; rather this is an informational briefing.

III. BACKGROUND

At the May 23, 2014, commission briefing on modeling used to support scenario planning efforts, the commission asked department staff to contact the Central Lane Scenario Planning (CLSP) team to request a presentation. The commission was interested in learning more about how scenario planning is playing out in the two metropolitan areas required to conduct scenario planning under House Bill 2001, the Jobs and Transportation Act, enacted in 2009.

Because the CLSP process had not yet reached a decision point on a preferred GHG reduction scenario, the CLSP project manager asked that the briefing on the project be scheduled for the January 22-23, 2015, commission meeting.

A. Legislation and Rules

The state of Oregon has established a statewide goal to reduce greenhouse gas emissions to 75 percent below 1990 levels by 2050. GHG reduction scenario planning by the Central Lane metropolitan area is part of a broader effort by the state to evaluate ways land use and transportation plans can result in reduced GHG emissions from light vehicle travel.

House Bill 2001 (HB 2001), adopted by the 2009 Legislature, directs the Portland Metro and the Eugene-Springfield (Central Lane) metropolitan areas to prepare and cooperatively identify a preferred land use and transportation scenario for achieving greenhouse gas emission reductions. Requirements for the two areas differ. Metro is required to adopt a preferred scenario and implement it. The Eugene-Springfield area is required only to "identify" a preferred scenario and report its findings and recommendations to the 2015 Legislature.

While Metro is directed to adopt a scenario that meets the GHG reduction target adopted by the commission, HB 2001 does not require that the preferred scenario selected by the Eugene-Springfield area meet the region's 20 percent per capita GHG reduction target for light duty vehicles. Rather, the region has chosen to undertake the scenario planning process to provide additional information for decision-making about the future of the metropolitan area. As described on the project website:

> *Scenario planning is a method for exploring our communities' long-term future – in other words, "where are we headed?", and "is that where we want to go?*"

B. Commission's Role

House Bill 2001and Senate Bill 1059 (2010 Legislature) directed the commission to set greenhouse gas reduction targets to guide metropolitan areas as they conduct scenario planning. In 2011, the commission adopted GHG reduction targets for the state's metropolitan areas, including the Eugene-Springfield metropolitan area. (OAR 660-044). Targets represent the reduction in GHG emissions from light vehicle travel that each metropolitan area is to achieve through scenario planning efforts. The target for the Eugene-Springfield metropolitan area identifies, but does not mandate, a reduction of 20 percent per capita below 2005 levels.

The commission does not have a role in reviewing or approving Central Lane's preferred scenario.

The results of scenario planning are one of the factors that the commission will consider as it decides whether to revise the GHG reduction targets. The commission will complete this review and determine whether revisions are needed by June 2015.

C. Status of Central Lane's Work

Sponsored by a grant from the Housing & Urban Development Office of Sustainable Housing and Communities, the Lane Livability Consortium was created in 2010 to bring together regional leaders in economic development, higher education, transportation, affordable housing, utilities, and social equity for the purpose of better integrating livability strategies into metropolitan area plans. Local jurisdictions and special districts joined the effort, working together to identify

regional needs and issues. Public outreach as part of the Central Lane Scenario Planning (CLSP) effort was included in 2012. More information is available online:

http://www.livabilitylane.org/projects/index.htm
http://www.clscenarioplanning.org/resources/

The bulk of the Central Lane GHG reduction scenario planning work was funded by the Oregon Department of Transportation (ODOT) in compliance with Section 38 of HB 2001.

Over the past two years the CLSP project has proceeded in stages. Early GHG reduction scenario planning work included preparation of a Greenhouse Gas Toolkit to assist in the scenario evaluation and decision making process (Greenhouse Gas Toolkit). Evaluation of a "2035 reference case" scenario was completed in 2013 using ODOT's modelling tool known as GreenSTEP or RSPM (Regional Strategic Planning Model). This established a baseline for comparison of alternative scenarios. The 2035 reference case approximates the future if current policy direction continues without significant changes. In early 2014 the Project Management Team (PMT) selected a set of five "policy bundles" to advance for development into scenarios. Each scenario included a different mix of policies designed to approximate those necessary to achieve reductions that meet or approach the 20% goal set by the Target Rule. (Attachment A)

By late-2014 the PMT had narrowed the scenarios for consideration to three scenarios:

- Scenario A – Reference Case
- Scenario B – Enhance Existing Policies
- Scenario C – Explore New Policies

These scenarios reflect progressively more ambitious assumptions about changes to land use and transportation plans and other measures that can contribute to GHG reduction from light duty vehicle travel. For example, the most ambitious scenario assumes implementation of state actions called for in the Oregon Statewide Transportation Strategy (STS) Vision. These new STS programs and actions could include:

- expanded state transportation funding through either gas tax increases or a shift to a vehicle miles traveled (VMT) based fee;
- broad scale adoption of pay-as-you-drive insurance;
- programs to encourage eco-driving;
- expanded car sharing; or
- TDM programs and incentives.

In terms of local actions that can affect scenario outcomes, future land use plan adjustments could result in markedly different GHG reduction estimates for 2035 since mixed-use development is associated with significant reductions in vehicle miles traveled per capita – 10-20% or more when compared to conventional development patterns. This idea is supported by the PMT's January 21, 2014 *Greenhouse Gas Reduction Policies* memo, which finds that:

> *The Community Design and Pricing policy bundles are key to achieving reductions that meet the state target. No policy scenario met the state target without at least Community Design or Pricing implemented at Level 2 or 3.*
> …

Community Design is one of the most effective policy bundles at reducing emissions.

Most recently, the CLSP partner jurisdictions' technical advisory committee (TAC) created a draft matrix of potential implementation actions for Scenarios B and C using the scenarios draft policies. In most cases, implementation actions are general and potentially employed by any jurisdiction in the metropolitan area. In other cases, some are unique to a particular jurisdiction. The jurisdictions may need additional resources or help to implement many of the actions. Thus, needed support is also listed. The final matrix of actions will be used to tailor a set of implementation strategies for the preferred scenario that is unique to the circumstances of each jurisdiction.

With completion of the alternative scenarios analysis, the CLSP process has moved into its final phase – selection of a preferred land use and transportation scenario based on feedback from community members and the jurisdictions involved. To frame the community discussion, the PMT prepared a draft *Scenario Choices Guide* (Attachment B). This guide describes the policy choices that will inform the development of a preferred scenario. A third community workshop was held on December 9, 2014, and a community feedback tool was deployed online through January 31, 2015:
http://www.clscenarioplanning.org/future-builder/ (See Attachment C)

The PMT expects to identify its preferred scenario by early 2015. Investing beyond existing plans is being considered for transit and active transportation, while current levels of parking management, education and marketing efforts are likely to remain unchanged.

More information can be found on the Lane Council of Governments website at:
http://www.livabilitylane.org/projects/scenario_planning_gas_emissions.htm

IV. DEPARTMENT ANALYSIS

The CLSP project has made steady progress in preparing a land use and transportation scenario as called for by HB 2001. The preferred scenario will build on existing plans (e.g., Envision Eugene) and multi-jurisdictional strategies. The effort has addressed a broad range of goals and issues of importance to the region and state, including public health and equity. Moreover, the work to date demonstrates that, with additional effort, GHG reduction targets are within reach in the Central Lane metropolitan area.

V. RECOMMENDATION

No formal commission action is recommended or required. This briefing on Central Lane's scenario planning project is an opportunity for the commission to learn more about the scenario planning work being accomplished in the Eugene-Springfield area and to offer feedback for consideration by Central Lane partner jurisdictions as they select their preferred scenario this spring. The commission could identify any issues or questions that would be helpful to the Central Lane Scenario Planning partners as they consider and select their preferred scenario.

VI. ATTACHMENTS

A. Evaluation Summary – 7/10/14: Scenarios A, B & C
B. Scenario Choices: A resource for community discussion
C. *Future Builder* flyer

Evaluation summary – 7/10/14

Category	Criteria	Unit of measure	Scenario A Reference case	Scenario B Enhance existing policies	Scenario C Explore new policies
ECONOMY & PROSPERITY	Driving costs as percentage of household income[1]	% of average HH income	19.1%	19.0%	18.8%
	Average household income by housing type	$2005		Multi-family: $45,500 Single family: $67,500	
	Parking costs	Average regional daily parking cost ($2005)	$2.74	$6.00	$6.00
	Value of time lost to congestion[2]	$ per person per year ($2005)	$513	$425	$363
ENERGY CONSUMPTION AND GHG EMISSIONS	GHG emissions per capita	Tons CO2/year	1.29	1.04	0.97
	State GHG emissions reductions target	Meets or does not meet target	Does not meet target	Meets target	Meets target
	Petroleum fuel consumption	Gallons per capita per year	151	120	111
TRANSPORTATION	Vehicles miles travelled	VMT/capita	22.3	19.1	17.6
	Transit service	Revenue miles/capita	18	28	30
	Bicycle travel[3]	Bicycle miles travelled/capita	0.5	1.6	1.9
	Pedestrian travel	Walk trips/capita	123	124	125
	Transit ridership	Total annual ridership	*T.B.D.*	*T.B.D.*	*T.B.D.*
	Vehicle ownership	Average no. of vehicles/household	1.9	1.8	1.8

[1] Includes both average annual vehicle ownership and operating costs.

[2] Value of time for personal trips is assumed to be $12.50 per hour. From US Department of Transportation (2011).

[3] This criterion represents the number of miles "diverted" from car travel and instead travelled by bike.

Category	Criteria	Unit of measure	Scenario A Reference case	Scenario B Enhance existing policies	Scenario C Explore new policies
	Hours of congestion	Hours per capita per year	41	29	24
AIR QUALITY	Criteria air pollutant emissions	% reduction or increase in pollutants (as compared to Reference Case)	-	-15%	-23%
FEASIBILITY	Legal, legislative, or regulatory barriers to implementation	Qualitative assessment	• None. Scenario A is based on current policy direction.	• Parking fees must be increased. • State must mandate universal pay-as-you-drive insurance e. • Local governments must increase local gas tax.	• State must implement VMT fee and mandatory pay-as-you-drive insurance. • Regional share of funds spent on cycling and transit must increase significantly.
	Public/private infrastructure costs	Qualitative assessment	• This scenario is fiscally constrained and can be achieved with existing revenue sources. • Most infrastructure costs would be public.	• This scenario would require private developers to build more infrastructure. • Public infrastructure costs would also go up, funded by increased revenues.	• This scenario would have the highest public infrastructure costs. • Private infrastructure costs would be the same as Scenario B.
	Local revenue from VMT fee or gas tax	Annual $ per capita	$79	$119	$217
	Political or public acceptability	Qualitative assessment	• High public and political acceptability. • Scenario A reflects current policy direction.	• May be controversial to increase requirements for private developers. • Likely controversial to raise parking fees and the local gas tax.	• VMT fee, road diets, and mandatory pay-as-you-drive insurance may be controversial. • Greatly increased expenditures on transit, cycling, and walking infrastructure may be controversial.
HEALTH	Physical activity per capita	Number of walk and bike miles per week	Walk: 1.1 Bike: 3.7	Walk: 1.1 Bike: 11.2	Walk: 1.1 Bike: 13.4

Category	Criteria	Unit of measure	Scenario A Reference case	Scenario B Enhance existing policies	Scenario C Explore new policies
	Health benefits from increased walking and biking	Annual number of premature deaths avoided due to physical activity	11	44	50
	Chronic illness incidence	% reduction or increase	*T.B.D.*	*T.B.D.*	*T.B.D.*
	Annual cost savings due to reduced disease burden	$	$4,000,000	$30,000,000	$38,000,000
	Annual change in fatal or injury accidents	Increase in number of fatal or injury crashes over base year	Injury or fatalities: 4 Fatalities only: 1	Injury or fatalities: 3 Fatalities only: 1	Injury or fatalities: 2 Fatalities only: 1
EQUITY	Driving costs as percentage of household income	% of average HH income	Driving costs as a percentage of household income are similar across scenarios. However, Scenarios B and C include increased availability of other modes (like transit and cycling) that may decrease the overall cost of travel for lower-income residents. This is dependent on whether improvements to cycling, walking, and transit are made in areas where low-income households live and work – if not, there may be a negative effect on equity. Low-income drivers may proportionately pay far more for travel.		
	Average household income by housing type	$	The average household income by housing type does not change across scenarios.		
	Physical activity per capita	Number of walk and bike miles per week	Positive effects are likely if cycling and walking improvements are made in areas where low-income and minority households live and work.		

Central Lane Scenario Planning

Scenario Choices

A resource for community discussion

November 2014

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Introduction

The Central Lane Scenario Planning (CLSP) process started in response to state legislation[1] directing the Central Lane Metropolitan Planning Organization (MPO) to undertake scenario planning to consider how the region might reduce greenhouse gas emissions from transportation. The state has set greenhouse gas reduction targets for all metro regions in the state. All local government partners – the cities of Springfield, Eugene, and Coburg, and Lane County – are charged with considering the state emissions reduction target and cooperatively selecting a preferred scenario at the end of the process. Lane Transit District (LTD) is also participating in the process. The region is not required to meet the state reduction target or to implement the preferred scenario.

The CLSP process is being coordinated by the Project Management Team (PMT), comprised of representatives of all the local government partners, consultants, Lane Transit District, and the Central Lane MPO. A Technical Advisory Committee convenes regularly to discuss technical issues, like policy implementation, as they relate to the process.

Timeline

The CLSP process, spurred by state legislation in 2009, began with efforts to understand what existing plans and policies mean for the region's future. From this information, the PMT developed a *reference scenario*, based on existing plans and policies, which provides a baseline for comparison for alternative future scenarios.

Next, the PMT developed alternative future scenarios to see how outcomes might change. The PMT learned that changing policies or implementing new policies results in many positive outcomes, including

What is "scenario planning?"

Scenario planning is a process for considering a range of plausible futures, allowing for examination of how different transportation choices would affect the region in terms of land use, equity, public health, and other factors.

Who is participating in the process?

Central Lane MPO
City of Coburg
City of Springfield
City of Eugene
Lane County
Lane Transit District

What is the region's greenhouse gas reduction target?

*The region's target is to achieve a **20%** per capita greenhouse gas emissions reduction below 2005 levels (excluding reductions achieved through vehicle fleet and technology changes). This target applies only to emissions from light vehicles.*

Reference scenario + fleet and fuel changes gets us most of the way

An additional 17% reduction would meet the state target

[1] Section 38a of the 2009 Jobs and Transportation Act.

household savings related to the cost of driving, better air quality, reduced congestion, and improved public health.

In the final step of the process, currently underway, the PMT will test and refine different scenarios to achieve desired outcomes. The PMT will present their findings to policymakers in each jurisdiction for consideration and revision. Local governments in the region are tasked with cooperatively selecting a preferred scenario, but are not required to implement it.

What have we learned so far?

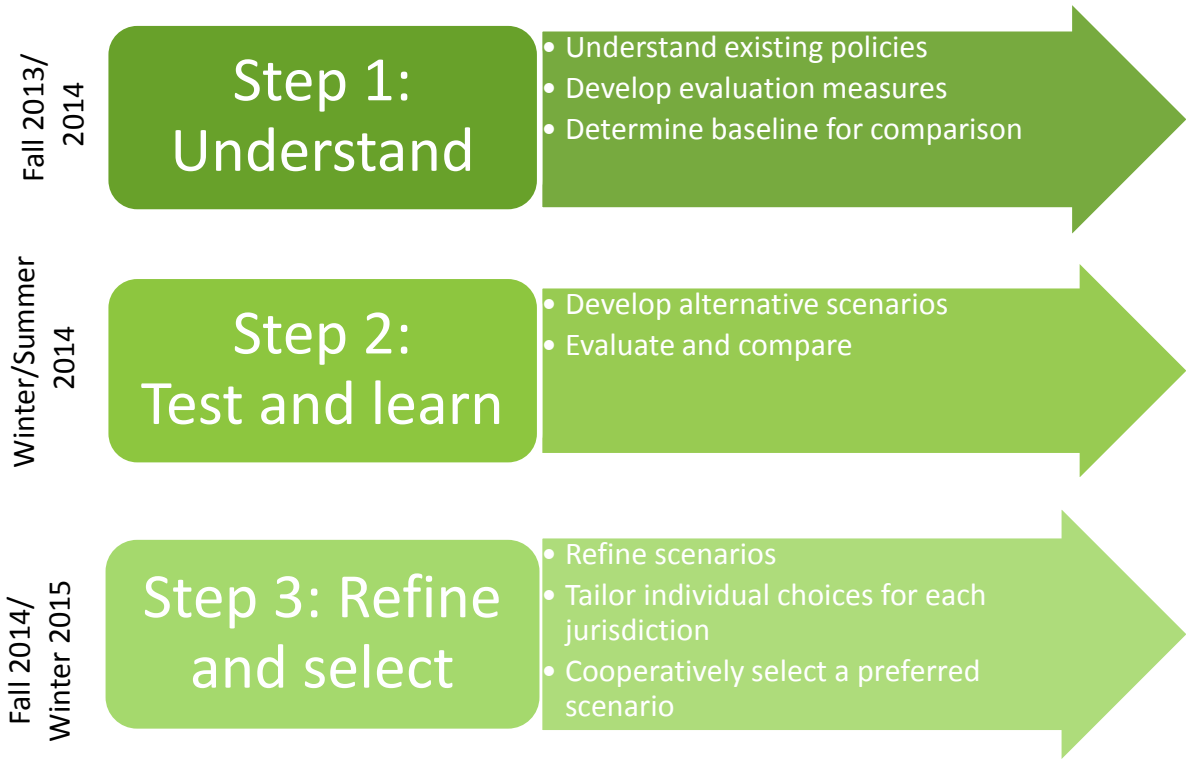
Reference scenario

The "reference scenario" is the baseline to which alternative scenarios are compared; it approximates the future if current policy direction is carried out without significant changes. The reference scenario represents our best assumptions about how current policy direction could be implemented over the next 25 years. Under the reference scenario:

- The regional population increases by about 72,000 to over 300,000 people.
- Future land use plans in Envision Eugene, Springfield 2030, and the Coburg Urbanization Study are realized.

*The MPO government partners are tasked with **considering the state's greenhouse gas reduction target** for the region and **cooperatively selecting a "preferred scenario**." However, the preferred scenario is not required to achieve the state reduction target.*

- When adjusted for inflation, federal, state, and local gas taxes stay about the same.
- The region's auto and light truck fleet mix changes, with more electric and hybrid vehicles and fewer light trucks or SUVs. Average fleet fuel economy increases significantly.
- The transportation system is improved according to the Regional Transportation Plan (RTP).
    - Five additional bus rapid transit lines (like EmX) are built.
    - The number of miles travelled by bike double.
    - The roadway system is relatively similar to today, with minor increases in capacity on some major streets and highways.



What did we learn?

Under the reference scenario, the region makes significant improvements in many outcome areas. Changes in vehicle technology and greater fuel efficiency result in major greenhouse gas emissions reductions. Implementing local plans and policies also helps reduce emissions.

In addition to greenhouse gas emission reductions, residents are also likely to walk or bike significantly more by 2035 and the region would achieve a modest improvement in public health outcomes, like reduced chronic disease.[2] Since vehicles will be more efficient, fossil fuel consumption would decrease and air quality would improve. Residents would spend the same proportion of their income on driving as today. With more residents in the region, traffic congestion would worsen slightly.

*Under the reference scenario, the region achieves a **major reduction in greenhouse gas emissions per capita.** An additional 17% reduction would meet the state target.*

[2] Chronic diseases include cardiovascular disease, cancers, diabetes, and others.

Given that the region has been, and continues to be, a national leader in "smart growth" land use policies, the project partners agreed to use existing or emerging land use policy to inform the reference scenario and all other scenarios considered during the process. Based on current projections, by 2035, 1 in 6 people will live in a mixed use community. The Eugene-Springfield metro area is ranked the 4th most compact urbanized area in the United States.[3] From 2000 to 2010, land use efficiency increased in the region, contrary to the trend in most of the nation. Staying the course with current land use policies will continue to improve livability, conserve open space and farmland, and ensure an urban character that encourages bicycling, walking, and using transit.

Census Urbanized Area	Rank	Urban Sprawl index 2010	Urban Sprawl index 2000
San Francisco--Oakland, CA	1	180.94	184.06
Reading, PA	2	169.32	155.74
Madison, WI	3	152.87	147.2
Eugene-Springfield, OR	**4**	**152.54**	**151.42**
Salem, OR	18	133.51	134.82
Portland, OR--WA	28	126.14	121.95
Winston-Salem, NC	159	54.29	53.49
Victorville--Hesperia, CA	160	61.88	55.43
Hickory, NC	161	44.94	48.76
Atlanta, GA	162	36.84	39.5

The Eugene-Springfield metro area is one of the least sprawling urban areas in the country – ranked higher than other Oregon metro areas like Portland and Salem.

Scenario testing

The PMT evaluated a suite of different strategy choices to understand their effects on greenhouse gas emissions, public health, equity, and the economy. The team evaluated strategies in five areas:

- Transit
- Active transportation (bicycling and walking)
- Pricing
- Roads
- Education and marketing

[3] Measuring Urban Sprawl and Validating Sprawl Measures. Reid Ewing & Shima Hamidi. Metropolitan Research Center (2014).

Scenario A: Reference scenario

Shows the results of implementing adopted plans or recent policy direction.

Scenario B: Enhance existing policy

Shows the results of maximizing actions that are consistent with recent policy direction but go beyond what we can expect to achieve without new revenues or other action.

Scenario C: Explore new policies

Shows the result of new policies or actions that may build on existing policy direction or explore new actions.

From this testing, the PMT combined different strategies into two alternative "scenarios," (Scenario B and C above) representing additional levels of investment in these different policy areas. Project technical staff evaluated these alternative scenarios in order to better understand how the region might change with investment in these different policy areas. This analysis, presented in the following sections, will inform development of the preferred scenario in early 2015.

Making choices

Preliminary recommendations

In fall 2014, the CLSP government partners forwarded the preliminary recommendations below for inclusion in the preferred scenario. They previously agreed to include existing or emerging (those that are in development but not yet adopted) plans and policies regarding future land use – including zoning, urban growth boundary expansions, and population growth. These background land use and population assumptions will carry through all scenarios.

- ✓ Adopt state assumptions about future vehicle fleet fuel efficiency and vehicle technology.

  During development of the Statewide Transportation Strategy (STS), a statewide plan for reducing greenhouse gas emissions from transportation, the state developed future vehicle fleet technology and fuel efficiency assumptions as part of the final strategy. These assumptions will be carried forward in the preferred scenario.

- ✓ Support state efforts to implement pay-as-you-drive insurance.

  Pay-as-you-drive insurance is a model of vehicle insurance where, instead of paying a flat annual or semi-annual fee, drivers pay per mile driven. The STS suggests that near-universal adoption of this type of insurance by 2035 would support meeting state goals.

- ✓ Carry forward existing plans for the region's roads and highways.

  Existing plans for the region's arterial and highway system will be carried forward in the preferred scenario. These include plans for minor expansion of arterials and freeways, as well as improvements in access management, incident response, traffic signal timing, and ramp meters.

- ✓ Encourage greater participation in travel demand management and education programs.

  The region will invest further in programs that reduce single-occupant vehicle use and encourage use of other transportation modes. These include workplace commuting programs, individual marketing programs (like SmartTrips), as well as encouraging expansion of car sharing programs. Other education programs will encourage "eco driving" practices (like keeping tires inflated and accelerating slowly from stops) to reduce vehicle emissions.

What choices do we still need to make?

Policymakers will decide what level of investment and what mix of strategies best support the region's goals and objectives. Decisions still need to be made about the following strategies:

- How much investment should the region make in transit? How do we want to spend to spend our transit dollars — on new transit service, or other improvements that make riding easier and more appealing?
- How much investment should we make in active transportation? What is a realistic target for how many trips shift to bicycling and walking in each city?
- How should communities manage parking better?
- How should we charge for driving in the future? What does future transportation funding look like?

Strategy overview

The following sections describe different strategies for each of the areas above, as well as benefits and challenges associated with implementing strategies. Strategies are generally "additive" – that is, the "highest level of investment" scenario includes strategies in the "reference" and "additional investment" scenarios. Benefits are presented in four categories:

Greenhouse gas emissions

Equity

Public health

Economy

Greenhouse gas emissions reduction potential and relative cost information is also provided in the following sections. The table below provides an explanation of greenhouse gas reduction benefits and relative comparison of public cost.

Greenhouse gas reduction benefit	Relative cost[4]
◆ 1 – 2% reduction	$ Lowest relative public cost
◆◆ 2 – 5% reduction	$ $
◆◆◆ 5 – 9% reduction	$ $ $ Highest relative public cost

[4] No cost estimates were completed as part of this process.

Transit

The communities of central Lane County benefit from accessible, frequent, and convenient transit service. Transit service provided by the Lane Transit District (LTD) is more productive than most of its peer agencies. Improving transit service provides many community benefits — some ways of enhancing transit service include:

- Increasing service frequencies on existing routes, implementing new frequent service routes, or running buses earlier in the day and later in the evenings.
- Improving amenities, like adding benches and shelters, or providing real-time arrival information.
- Reducing fares or increasing access to transit pass programs.
- Improving walking and bicycling access to and from transit stations and stops as well as providing secure bicycle parking.

Benefits

Transit ridership increases with improvements to speed and reliability. Improving service, by increasing service frequencies or expanding routes, can result in significant emissions reductions. Full buses have the lowest greenhouse gas life-cycle cost of any urban transportation mode (other than biking and walking).

Transit provides essential transportation service to disadvantaged populations (such as people with disabilities, children, low-income residents, and senior citizens).

Transit use increases physical activity – most transit riders start and end their trips as pedestrians or cyclists. Transit also reduces air pollution which contributes to chronic diseases like asthma.

Research shows that high-quality transit service, like EmX, can stimulate development. Transit service can also save consumers money over car ownership, freeing up money for other uses in the local economy.

Nearly two-thirds of the region's population has access to free or low-cost transit through pass programs or other fare reduction programs.

Challenges

- Additional transit infrastructure (like new routes, more buses, stop amenities, etc.) will be necessary to enhance transit service in the region, but funding for further transit infrastructure investments is limited. External revenue sources, like federal grants, are uncertain. In addition, local match for capital grants can be difficult to identify.
- Important to consider the tradeoffs of enhancing service in high demand corridors and expanding coverage to new areas.

How much investment should we make in transit?

LTD provided nearly 12 million rides[5] in 2012. The bus rapid transit system (EmX) is the backbone of the frequent transit network in the region, carrying 25% of all weekday trips on the system. The transit system is a vital component of the region's multi-modal transportation system, and further expansion is included in the region's adopted plans and policies. However, transit is dependent on funding from federal, state, and local sources that are not keeping pace with demands on the system. Continued growth in ridership depends not just on the bus system itself, but also the ease of riding, availability of connections at transit stops (especially sidewalks), and quality of transit facilities (like having shelters and schedules available at stops).

The EmX bus rapid transit system began in the Franklin corridor in 2007. Since then, transit ridership has tripled in the corridor.

Transit is an effective way to reduce greenhouse gas emissions. It also provides benefits to regional mobility and accessibility, but securing adequate funds to improve and operate the transit system will continue to be a challenge in the future.

[5] 2012 transit statistics, American Public Transportation Association.

Transit strategies and example actions

	Scenario A: Reference scenario	Scenario B: Additional investment	Scenario C: Highest level of investment
Policies			
Improve transit service	Expand EmX system to 5 lines Implement Frequent Transit Network	Expand EmX system to 7 lines Enhance "feeder" service to EmX routes	Increase service frequencies on other existing routes Increase service levels on high productivity EmX routes
Transit revenue miles per capita[6]	18	28	34
Improve stop amenities	Continue LTD policies on upgrading stops	Improve more stops with benches, shelters, etc. Implement an "e-fare" system to make using transit easier Implement real-time arrival information at stops	Same as "Additional Investment"
Ensure safe access	Construct pedestrian and bicycle improvements consistent with local transportation system plans	Prioritize bicycle and pedestrian improvements to areas near transit stops	Identify new funding for bicycle and pedestrian access to transit stops
Fares	Continue current fare structure (adjusted for inflation)	Continue current fare structure (adjusted for inflation); enhance reduced fare programs for students, workplace programs, etc.	Reduce transit fares for all riders.
Expected results			
GHG emissions reductions	♦	♦♦	♦♦♦
Cost	$$	$$$	$$$

[6] "Revenue miles per capita" is a measure of transit service. The more revenue miles per capita, the more transit service – in terms of both the number of routes and frequency of routes – available to citizens.

Active transportation

Bicycling and walking (along with other "active" ways of getting around) are important ways for residents of central Lane County to get around the region. 12% of regional trips are made by bicycling and walking today, but it is important to increase this share to meet regional goals. Use of active transport modes can be encouraged through two broad strategies:

- Providing off-street paths (or other protected facilities, like buffered bicycle lanes and cycle tracks), sidewalks, safe pedestrian crossings, and other infrastructure. Bike lanes work for some users, but facilities with greater separation from traffic help all users feel secure when bicycling.[7] This is also true for pedestrians - in Portland, Oregon, a study showed that a 10% increase in sidewalk "coverage" (the number of streets with sidewalks on them) resulted in a 2.5% increase in walking.[8]
- Implementing programs like bike sharing, safe routes to schools programs, expanded bike parking, and wayfinding. Some studies have found safe routes to school programs double the number of students cycling and walking to schools, while ensuring ample bike parking at workplaces almost doubles the likelihood of commuting by bike.[9]

Benefits

Bicycling and walking essentially produce no greenhouse gas emissions. Generally, most trips under three miles can be made by bike and under one mile by walking. Given that about 40% of car trips are three miles or less,[10] there is considerable room for improvement.

Bicycling and walking are inexpensive ways to travel. Given the high cost of vehicle ownership, providing high-quality bicycling and walking facilities in low-income neighborhoods improves social equity.

Bicycling and walking are both physically active modes, meaning

Seattle, Washington's implementation of a lane reduction (reducing the space allocated to cars and increasing space for other modes) on 125th Street has resulted in significant benefits. Since the lane reduction was completed, there has been a 17% decrease in injury collisions, an 11% decrease in speeding, and over a 100% increase in the number of bicyclists and pedestrians using the street.

[7] Lessons From The Green Lanes: Evaluating Protected Bike Lanes In The U.S. (2014)
[8] Handy, et. al. Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. (2013).
[9] Handy, et. al. Impacts of Bicycling Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. (2013).
[10] National Household Travel Survey data (2009).

significant public health benefits can be realized when a greater share of residents cycle or walk to their destinations. Air pollution is also reduced, which contribute to chronic diseases like asthma.

Bicycling and walking save consumers money that can be spent on other goods and services in the local economy (that would otherwise be spent on car ownership and operation). Bicycling and walking also reduce health care costs.

Challenges

- Gaps in the bicycling and walking networks make some trips unpleasant, difficult or impossible. Bike lanes and curbside sidewalks on busy streets do not create comfortable conditions for walking and biking.
- Perception that bicycling and walking are unsafe.
- Limited funds available to construct bicycling and walking facilities.
- Fair distribution of high quality infrastructure to benefit all residents, including low-income residents.
- Walking and bicycling can be difficult in locations where streets are disconnected or where homes are located far from services and jobs.

How much investment should we make in active transportation?

About 6% of workers in the region commute to work by bicycling or walking.[11] The region's governments have made bicycling and walking infrastructure a priority in adopted transportation system plans. Like transit, it will likely take significantly more infrastructure to achieve higher levels of bicycling and walking. Bicycling and walking are very beneficial modes – they result in large public health benefits and produce essentially zero greenhouse gas emissions, while helping to reduce traffic congestion and cost far less than owning and operating a vehicle. Importantly, active transportation projects are usually less expensive than transit or roadway investments and offer the potential for high returns in terms of greenhouse gas emission reductions and other benefits.

[11] 2012 American Community Survey (ACS) data, US Census Bureau

Active transportation strategies and example actions

	Scenario A: Reference scenario	Scenario B: Additional investment	Scenario C: Highest level of investment
		Policies	
Bicycling and walking infrastructure	Build most of the bicycling/walking projects in regional plans, but not all due to funding constraints	Require developers to provide high quality bicycling and walking infrastructure as part of new development Build almost all planned bicycling/walking projects	Implement lane reductions (modify travel lanes widths, or the number of lanes, to provide safety benefits and improve the bicycling/ walking environment). Expand the shared use path system Remove restrictions for using some types of funds on cycling and walking projects
Other programs	Implement limited bike share program	Implement full bike share system Require developers to provide high-quality infrastructure	Improve bicycling and walking access and amenities around transit stops
		Expected results	
No. of bike miles[12] travelled per capita per day	0.5	1.6	1.9
Estimated number of lives saved each year[13]	11	44	50
Annual health care cost savings[13]	$4,000,000	$30,000,000	$38,000,000
GHG emissions reductions	♦	♦♦♦	♦♦♦
Cost	**$$**	**$$$**	**$$$**

[12] Recreational bicycle travel is not included in this estimate.
[13] Due to reduction in chronic disease (cancer, cardiovascular disease, diabetes, etc.) from increased physical activity.

Parking management

Managing parking for both commuters and for other trips (like shopping downtown) is an effective tool for making more efficient use of the limited parking supply and reducing the need for additional parking. Parking management is implemented through local development codes. Managing parking works best when used in a complementary fashion with other strategies; it is less effective in areas where transit or bicycle and pedestrian infrastructure is lacking.

On-street parking actions 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, and freight truck loading/unloading areas.

Off-street parking approaches include providing spaces in designated areas, preferential parking (for vehicles listed above), shared parking between land uses (for example, movie theater parking at night and business center parking in the same space during the day), and park-and-ride lots for transit and carpools/vanpools. "Unbundling" parking costs (i.e., charging renters for parking separately) from the cost to rent apartments or homes can result in reduced need for parking stalls. Constructing parking garages in downtowns and other mixed-use areas can allow surface lots to be developed for other uses.

Benefits

Efficient parking strategies can make finding an open parking spot easier, which cuts down the wasted driving and related emissions spent looking for an open stall. Parking management strategies can be very effective at encouraging drivers to shift to other transportation modes which reduce greenhouse gas emissions.

Local code revisions that reduce minimum parking standards can lower the cost of new development. The average construction cost of structured parking is $15,000 per stall.[14]

Since parking management strategies encourage shifts to active transport modes, they indirectly result in public health benefits.

These strategies can also help ensure parking "turnover," meaning parking stalls are available for customers when they need them. Reducing parking

[14] Litman, 2013. Parking Costs. http://www.vtpi.org/tca/tca0504.pdf

requirements and efficiently using the existing parking supply saves land for other more valuable purposes and can reduce the costs of development. Parking management can also generate revenue. Parking management strategies can save consumers money by encouraging them to shift to less expensive modes of transport.

Challenges

- Strategies that increase the cost of parking can be disproportionately harmful to low-income citizens who do not have other transportation options. Providing access to high quality transportation alternatives can help solve this problem.
- It is difficult to manage parking where few transportation alternatives, like transit, exist. Parking management techniques can be controversial.

Parking management strategies and example actions

	Scenario A: Reference scenario	**Scenario B: Additional investment**	**Scenario C: Highest level of investment**
Policies			
Manage workplace (long term) parking	Little change from today	Manage parking in more areas and increase rates for paid parking	Expand areas where parking is managed even more and increase rates for paid parking compared to the other investment levels
Manage non-work (short term) parking	Paid parking implemented in downtown Springfield	Manage parking for short term uses and increase rates for paid parking	Expand areas were parking for short term uses is managed event more and increase rates for paid parking compared to other investment levels
Expected results			
GHG emissions reductions	◆	◆	◆
Cost	$	$	$

Paying for our transportation system

The central Lane County region, along with most other jurisdictions in Oregon and the US, have long relied on federal and state revenues to fund construction of the transportation system. However, revenues from both sources (which in large part come from user fees like fuel taxes) are stagnating or declining. Funds for operating and maintaining the system are even more constrained. The strategies discussed in this guide will require, in many instances, more funding than is currently available. In addition, as new vehicle technologies like plug in hybrid and electric vehicles become more common, traditional user fees like fuel taxes will become less viable and less equitable.

Restructuring the way we pay for maintaining and improving the transportation system can be considered to help fund the strategies included in this guide. In addition to enhancing revenues, restructuring transportation user fees can also encourage drivers to use other transportation modes for more of their trips, and can ensure that everyone pays for their use of the transportation system. Revenue mechanisms include:

- Per-mile user fee: drivers are charged a fee for each mile they travel instead of a gas tax. The results of Oregon's first road usage free pilot project showed that participants drove 11% to 14% fewer miles per day.[15]
- Transportation system maintenance fees: these fees are usually assessed by the number of trips or by specific land use (e.g., single family residential, commercial, etc.). Revenue from these fees generally supports maintenance projects.
- Vehicle registration fees: registration fees are paid annually and can raise revenues for a wide variety of transportation projects.
- Carbon tax: usually levied as a fee per ton of carbon dioxide emitted, carbon taxes can also be incorporated as an additional fee per mile travelled. Carbon taxes are intended to account for the social cost of greenhouse gas emissions and are not

[15] Handy, et. al. Impacts of Road User Pricing on Passenger Vehicle Use and Greenhouse Gas Emissions. (2013).

necessarily "user fees." Putting a cost on pollution has been shown to be effective at reducing pollution through market forces, rather than regulatory approaches.

In 2008, Vancouver, British Columbia started assessing a carbon tax, placing a price on the use of carbon-based fuels which has resulted in a 17% per capita decline in fuel consumption.

- Increase or implement state and local gas taxes: local governments could increase local fuel tax, or the central Lane County region could encourage the state to increase the gas tax. Historically, state and federal fuel taxes have not increased at the same rate as inflation, reducing the buying power of revenues over time.

Benefits

User fees can encourage drivers to take alternate modes for some trips, or drive more fuel efficient vehicles. They can be very effective at reducing greenhouse gas emissions.

Gas taxes can disproportionately impact low-income residents, who may drive less fuel efficient vehicles and end up paying more in gas tax as a result. Per-mile fees may help reduce this inequity.

User fees can reduce driving and encourage shifts to other modes, resulting in public health benefits from more residents using active modes.

These revenue mechanisms can increase transportation revenues in the region.

Challenges

- The region faces declining transportation revenues in both the short and long term if gas taxes are not increased or new revenue mechanisms are not implemented.
- New revenue mechanisms can disproportionately affect low-income residents if not implemented with appropriate mitigation measures.
- Though technology has advanced significantly in recent years, some revenue mechanisms may be costly to implement currently, but costs are likely to fall in the future.
- Some pricing strategies may be controversial.

The Oregon Department of Transportation (ODOT) has completed two pilot projects testing a per-mile user fee for drivers. ODOT reduced concerns about privacy by providing several reporting options, one of which required no in-vehicle device.

New sources of revenue for investments

	Scenario A: Reference scenario	**Scenario B: Additional investment**	**Scenario C: Highest level of investment**
Policies[16]			
Gas taxes	State and local gas taxes keep pace with inflation	Increase state and local gas taxes to $1.19 per gallon	Eliminate state and local gas taxes and implement new system
Per-mile travelled fee	0	0	$0.04 per mile
Carbon tax	0	0	$50 per ton
Expected results			
GHG emissions reductions	♦	♦	♦♦♦
Cost	$	$	$

[16] All figures in 2014 adjusted dollars.

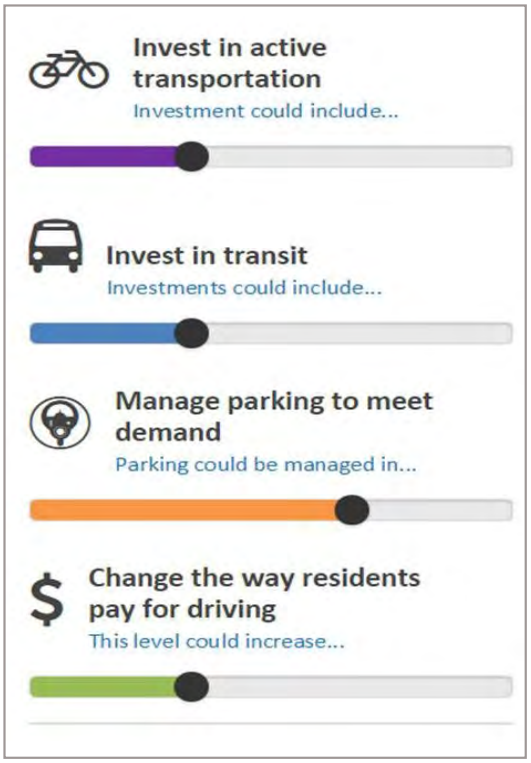
Central Lane Scenario Planning

November 2014

Ideas about transportation in central Lane County?

Use *Future Builder* to create and compare transportation investments and share your ideas with friends and with regional decision makers.

Future Builder is a scenario planning tool that allows you to create and compare transportation investment scenarios. Learn how different investments benefit the region's economy, the transportation system, and affects greenhouse gas emissions.



Your input will inform decisions by local elected officials during the Central Lane Scenario Planning process. At the end of this process, local elected officials will select a regional scenario that contains a set of potential actions that will reduce greenhouse gas emissions and improve livability in the region.

We need to hear from you and others in the community, so **please visit our website at CLscenarioplanning.org to use *Future Builder*** and share your favorite scenario on Facebook or Twitter.

Don't miss your chance! *Future Builder* will be available until January 9, 2015.

Interested in learning more? Save the date!

Public Workshop #3
December 9, 2014, 5:30 to 7:30 pm
Lane Community College - Downtown Eugene Campus
Room 112
101 W. 10th Avenue

At this workshop, we will present possible elements of the final scenario and discuss what levels of investment the region should make in other specific areas (like transit, bicycling, and walking infrastructure).

Visit www.CLscenarioplanning.org for more information