

# Oregon Greenhouse Gas Reduction Toolkit: Strategy Report

## OREGON SUSTAINABLE TRANSPORTATION INITIATIVE



## Transit Services and Facilities

*This report highlights how expanding and improving public transit service can help reduce greenhouse gas (GHG) emissions and support other community goals.*



### What is it?

Improving transit service and facilities will make transit more widely available and encourage more transit trips, increasing ridership and contributing to GHG reduction goals. There are many ways to improve transit service, including:

- » Increasing service hours and frequency to reduce travel times and enhance mobility
- » Expanding route coverage to increase the number of destinations that can be reached by transit, providing more options and greater accessibility
- » Adding transit stops along certain routes and providing express service (fewer stops) along other routes, as appropriate
- » Providing real-time transit arrival/departure information to reduce actual and perceived wait times and increase transit reliability
- » Providing transit-supportive facilities such as park and rides, long-term bicycle parking, and quality pedestrian connections so that riders have safe and convenient options for accessing transit

These types of improvements will encourage a mode shift away from single occupancy vehicles, reduce vehicle miles traveled (VMT), and spur more walking and biking to transit.

### How well does it work?

There are a number of studies that estimate the benefits (increased trips and/or decreased greenhouse gas emissions) that may result from improvements to transit service. The Saving Oil in a Hurry<sup>1</sup> report indicates that increasing off-peak and weekend service frequency by 40% will result in a 20% increase in total number of transit trips. Additional research has estimated that “public transit can reduce harmful CO<sub>2</sub> emissions by 37 million metric tons annually.”<sup>2</sup> On a smaller scale, a study done of the Bay Area Rapid Transit (BART) system in San Francisco indicated that increases in off-peak frequency (from 20 minute to 15 minute headways) resulted in a reduction of 1,000 metric tons of CO<sub>2</sub> emissions per year.<sup>3</sup>

### How can it benefit my community?

In addition to reducing GHG emissions, transit improvements can contribute to other common community goals by:

- » Reducing congestion

<sup>1</sup> *Saving Oil in a Hurry*. International Energy Agency, 2005. Website: <http://www.iea.org/publications/freepublications/publication/savingoil.pdf>

<sup>2</sup> *Cool Planning: A Handbook on Local Strategies to Slow Climate Change*. Oregon Transportation and Growth Management Program, 2011. <http://www.oregon.gov/LCD/TGM/docs/coolplanninghandbook1312011.pdf>

<sup>3</sup> *Climate Smart Communities Scenarios Project: Strategy Toolbox from Metro*, August 2011: <http://www.oregonmetro.gov/index.cfm/go/by.web/id=36945>

- » Improving mobility for people who rely on transit
- » Increasing physical activity for commuters who walk or bike to and from transit stops
- » Spurring economic growth through increased opportunities for transit-oriented development, especially near major transit centers
- » Supporting community strategies for compact urban form and growth management

## What does it cost?

The cost of improving transit service depends greatly on the specific improvements. Larger projects such as expanding transit coverage or constructing a new park and ride are obviously more time-consuming and costly than increasing frequency on a bus route or implementing a new real-time transit tracking program. The following provides some general information about costs and cost-effectiveness of various transit improvements.

- » More information about the cost of real-time information systems can be found here: <http://www.oregonmosaic.org/124/transit.html>
- » In terms of cost-effectiveness, increasing off-peak service frequency is typically less expensive on a per hour/mile basis than increasing peak service frequency.<sup>4</sup>
- » Generally speaking, bus rapid transit service is more cost effective than light rail and offers the greatest potential for greenhouse gas reductions per passenger mile.<sup>5</sup>

## Where has it been used?

- » One Bus Away is a real-time transit information application for cell phones that provides up-to-date arrival information for bus service in the Puget Sound region in Washington State. More information is available here: <http://onebusaway.org/>
- » The City of Corvallis has expanded the Corvallis Transit System (CTS) in recent years, in part through funding provided by their transit operations fee. In addition, CTS became a fare-free service in 2011. More information is available here: <http://www.corvallisoregon.gov/modules/showdocument.aspx?documentid=4248> and here: <http://www.corvallisoregon.gov/index.aspx?page=183>
- » Snohomish County Community Transit has slowly expanded its service range and frequency since it began, increasing from just seven stops 1976 to over 2,100 stops currently, including 21 park and rides. More information is available here: <http://www.commtrans.org/about/agencyprofile/>

## Where can I learn more?

- » Brochure from the American Public Transportation Association: Public Transportation Reduces Greenhouse Gases and Conserves Energy: The Benefits of Public Transportation. Website: [http://www.apta.com/resources/reportsandpublications/Documents/greenhouse\\_brochure.pdf](http://www.apta.com/resources/reportsandpublications/Documents/greenhouse_brochure.pdf)
- » The Transportation Cooperative Research Program website provides access to free research publications about bus and rail operations as well as manuals and guidebooks for a variety of transit programs and services. Website: <http://www.tcrponline.org/bin/publications.pl>
- » Guidebook and best practices for transit improvements from the Florida Department of Transportation Research Center: <http://www.nctr.usf.edu/pdf/77720.pdf>
- » Potential transportation funding sources for metropolitan planning organizations that wish to generate new local sources of revenue to finance increased transit service (or expenditures): [http://narc.org/uploads/File/Transportation/Library/NCHRP\\_Metro\\_Funding.pdf](http://narc.org/uploads/File/Transportation/Library/NCHRP_Metro_Funding.pdf)

*The Toolkit is a component of the Oregon Sustainable Transportation Initiative (OSTI), which was formed to address the requirements of Senate Bill 1059 (2010).*

*For more information, please visit:*

<http://cms.oregon.gov/ODOT/TD/TP/pages/ghgtoolkit.aspx>



<sup>4</sup> TCRP Report 95. "Chapter 10: Traveler Response to Transportation System Changes: Bus Routing and Coverage." 2004. p. 9-29. Website: [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_95c10.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c10.pdf).

<sup>5</sup> *The Potential for Bus Rapid Transit to Reduce Transportation-Related CO2 Emissions. Journal of Public Transportation, Volume 9, Issue 3, Special Edition: BRT by William Vincent, Lisa Callaghan Jerram. Website: <http://www.nctr.usf.edu/wp-content/uploads/2010/03/JPT-9-3S-Vincent.pdf>*