Reducing Transportation-Related Greenhouse Gas Emissions in Thurston County

Summary

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I. Introduction

This paper provides background and analysis of the greenhouse gas emissions produced by on-road transportation activity in Thurston County, and effective strategies for reducing those emissions.

II. Transportation-Related Emissions in Thurston County

Based on Thurston Climate Action Team's inventory of 2010 County greenhouse gas emissions, emissions for on-road vehicles (transportation) for that year were 1,221,057 metric tons of carbon dioxide equivalent. This was about 44.4% of total emissions for the county. Using target percentages recommended by the Sustainable Thurston project, transportation emission targets would be 695,463 MTCO2e by 2020, 510,006 MTCO2e by 2035, and 185,457 MTCO2e by 2050. Based on the estimated population increases for 2020 and the estimated impacts of existing programs (as examined by the Governor's Climate Legislative and Executive Workgroup, or CLEW), it is estimated that additional reductions of 633,543 MTCO2e will be required for transportation in Thurston County by 2020, and 936,995 MTCO2e by 2035.

III. Strategies for Reducing Transportation Emissions

This paper examined three principal strategies for reducing transportation-related greenhouse gas emissions:

- Lowering the carbon footprint of fuel
- Increasing vehicle efficiency
- Reducing vehicle miles traveled

A. Lowering the carbon footprint of fuel

To examine this strategy, we reviewed studies by the Union of Concerned Scientists, CLEW, TIAX (a transportation technology group), and the Washington Climate Action Team, in addition to other web searches. Fuels examined included ethanol and biodiesel. Primarily because of the lack of infrastructure and volume availability for these fuels, we concluded that alternative fuels of this type do not at this time present an opportunity for significant reductions in Thurston County's transportation-related carbon emissions.

B. Increasing vehicle efficiency

To examine this strategy, we primarily examined reports completed by CLEW, TIAX, Pacific Northwest National Laboratories, Washington Climate Action Team and the Union of Concerned Scientists, along with data and calculations from the Department of Energy's Alternative Fuels Data Center and fuel economy website.

We concluded that encouraging drivers to switch to more fuel efficient vehicles, and to buy electric vehicles when they're in the market for a new car were the most effective ways of reducing greenhouse gas emissions by increasing vehicle efficiency in our communities. Examples of our calculations (completed in 2014 and therefore reflecting 2014 fuel prices) are:

- Buying a LEAF rather than a standard Accord saves 3 MTCO2e/yr and 36.4 MTCO2e over the life of the car, as well as $14,769, or about 5.4 pounds of CO2e along per dollar saved.

- Crushing a gas guzzler, buying a ten year old Honda Civic to replace it, and driving that for four years saves 5.45 MTCO2e/yr and 21.8 MTCO2e over the remaining life of the car, as well as $6,533, or about 7.3 pounds of CO2e per dollar saved.

C. Reducing vehicle miles traveled

To examine this strategy, we primarily examined reports completed by CLEW, Washington Climate Action Team, Thurston Regional Planning Council/ Sustainable Thurston, and the Puget Sound Regional Council.

Because of the relatively low density of population in Thurston County, it is not expected that transit-oriented development or other community design initiatives to increase density of housing within Thurston County will result in any significant reductions to VMT in the foreseeable future. Nevertheless it is useful to increase density within the county by integrating shops and work with residential neighborhoods, including emissions modeling in land-use decisions and increasing density along transit corridors. These efforts can have positive

longer-term effects for our region.

Programs to reduce vehicle miles traveled through ride-sharing, improving transit services to make them more attractive and efficient, and promoting walking and biking can be effective ways of reducing carbon emissions in the short term.