HEALTH IMPACT ASSESSMENT ON TRANSPORTATION POLICIES IN THE EUGENE CLIMATE AND ENERGY ACTION PLAN

A collaborative project of Upstream Public Health, the City of Eugene Office of Sustainability, Community Health Partnership: Oregon’s Public Health Institute, and Lane County Public Health.

August 2010

ABOUT THIS PROJECT
This project examines the health benefits and negative impacts of transportation recommendations within the Eugene Climate and Energy Action Plan (CEAP). It examines seven objectives within the CEAP and summarizes the scientific evidence that links those policies to health issues in Eugene. Those health issues include injuries and chronic cardiovascular and respiratory diseases and will be impacted by the CEAP objectives through changes in collision rates, physical activity, and air pollution.
Screening

Scoping

A Community Climate and Energy Action Plan for Eugene

5/3/10 Draft
How much time and what resources are available to do the analysis?

Which policies within the Climate and Energy Action Plan most affect health?

Which health impacts and populations should we focus on?

Are there strong community and local partners to support the work?
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Physical Activity
Injuries and Fatalities
How much time and what resources are available to do the analysis?

Which policies within the Climate and Energy Action Plan most affect health?

Which health impacts and populations should we focus on?

Are there strong community and local partners to support the work?
Elderly

Young
Pre-existing Health Conditions
Communities of Color
Low-Income
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Which policies within the Climate and Energy Action Plan most affect health?

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Are there strong community and local partners to support the work?
Advisory Committee
Screening

Scoping

Assessment

A Community Climate and Energy Action Plan for Eugene

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LAND USE AND TRANSPORTATION

What is the Land Use and Transportation Action Area?

This section of the Community Climate and Energy Action Plan considers how the community is spatially organized, and how that organization affects transportation needs. The transportation systems in this section are those that move people and local freight: passenger vehicles, bicycles, mass transit systems, air transport and local freight distribution systems, and the roads and other infrastructure required for these systems. Transportation of goods is discussed in Chapter 4: Consumption and Waste section.

Although a particular land use may directly impact consumption of fossil fuels and emission of greenhouse gases, in most cases, the more important impacts of land uses are on the demand for transportation systems. Land use directly impacts transportation system needs and transportation systems contribute significantly to fossil fuel consumption and GHG emissions. As the two are so connected, this plan will consider them together and outline action items for each that will affect the other.

What Part of Eugene’s GHG Footprint Comes From Land Use and Transportation?

According to the analysis completed for the Metro Regional Greenhouse Gas Inventory,[23] about 25 percent of the Portland area’s greenhouse gas emissions are associated with local transportation systems. This plan will assume that GHG impacts for Eugene are similar. The majority of emissions come from on-road commercial vehicles, private cars and air travel, with rail, marine and mass transit contributing smaller amounts of greenhouse gases (see Figure 6).

Figure 6: Greenhouse gas emissions by system. Source: Metro Regional GHG Inventory

Transportation Policies to ↓ Greenhouse Gas Emissions

↓ Motor Vehicle Use

↑ Use of Alternative Fuels

↑ Use of Alternative Transportation

↑ Air Quality

↓ Car Collisions

↓ Car Injuries and Fatalities

↓ Mortality and Chronic Disease

↓ Risk Pedestrian and Bicyclist Fatalities

↑ Physical Activity

↑ Health Impacts
Vulnerable Populations
A Community Climate and Energy Action Plan for Eugene

5/3/10 Draft
Table 12: Percent of Selected Air Emissions that Come from On-Road Vehicles in Lane County, 2002

<table>
<thead>
<tr>
<th>Emissions</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide</td>
<td>68</td>
</tr>
<tr>
<td>Nitrogen Oxides</td>
<td>62</td>
</tr>
<tr>
<td>Volatile Organic Compounds</td>
<td>27</td>
</tr>
<tr>
<td>Particulate Matter</td>
<td>5</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>19</td>
</tr>
</tbody>
</table>

Data from US Environmental Protection Agency, 2002.

**Alpha Connectivity**

<table>
<thead>
<tr>
<th>Edges</th>
<th>Vertices</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

\[ \alpha = \frac{(\text{edges}-\text{vertices}+1)}{(2\times\text{vertices} - 5)} \]

**Gamma Connectivity**

<table>
<thead>
<tr>
<th>Edges</th>
<th>Vertices</th>
<th>( \gamma )</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

\[ \gamma = \frac{\text{edges}}{(3\times(\text{vertices}-2))} \]

The Lane County census tracts range from an Alpha value of 0.03 (very low connectivity) to 0.39 (higher connectivity). Gamma values range from 0.35 to 0.60 (data from the RAND Center for Population Health and Health Disparities).
Screening

Scoping

Assessment

Recommendations

Reporting
HEALTH IMPACT ASSESSMENT ON POLICIES REDUCING VEHICLE MILES TRAVELED IN OREGON METROPOLITAN AREAS

A collaboration between Upstream Public Health, Oregon Health & Science University, Human Impact Partners, and a health and transportation expert advisory committee.

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Photos Thanks To Flickr Users:

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