

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



PHOTO: DON HANKINS



PHOTO: REDLICK ON FLICKR.COM

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?

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?

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?

Land Use and Transportation

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,¹²⁰ 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).

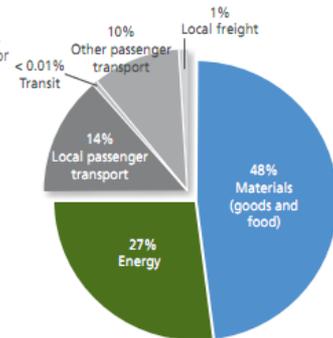


Figure 6: Greenhouse gas emissions by system. Source: Metro Regional GHG Inventory

¹²⁰ "Regional Greenhouse Gas Inventory; The Carbon Footprint of Residents and Businesses Inside the Portland Metropolitan Region," Metro Regional Government, April 2010.

Land Use and Transportation

Food and Agriculture

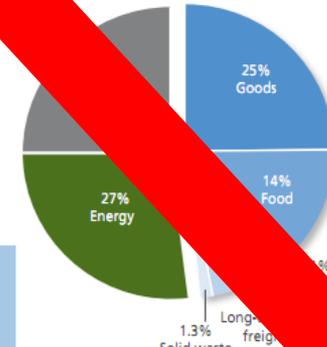


Figure 5: Greenhouse gas emissions by system. Source: Metro Regional GHG Inventory

Food and Agriculture

What is the Food and Agriculture Action Area?

In this Plan, the food and agriculture section covers everything related to food production and delivery from agricultural field to grocery store shelves. This includes production, infrastructure and activities which produce agricultural products, the systems used to transport and distribute food, and the systems that dispose of waste from food production, distribution and consumption.

What Part of Eugene's GHG Footprint Comes From Food and Agriculture?

Eugene's 2007 Greenhouse Gas Inventory does not specifically identify greenhouse gas emissions associated with food production and distribution. However, Metro's regional greenhouse gas inventory estimates that food provision accounts for roughly 14 percent of the region's greenhouse gas emissions for the Portland Metro area. This plan will assume that the findings for Eugene are similar. This figure does not include GHG emissions associated with food or disposal of solid waste generated by food production.

How Do Food and Agriculture Systems Contribute to GHG

A common misconception is that transportation is the largest source of greenhouse gas emissions associated with food. In fact, GHG emissions associated with our food come primarily from the food production phase¹²¹—a result of energy use by farm machinery, processing equipment, manufacture of fertilizers and other agricultural inputs, production of animal feed, provision of irrigation water, etc. The food production phase is a very significant amount of GHGs, largely in the form of methane gas emitted by livestock animals and management of their wastes.

While there is growing national interest in locally produced foods and there are many good reasons to support local growers, when it comes to reducing GHG emissions associated with food, the most effective approach is to reduce the consumption of energy-intensive foods such as dairy products and red meat. It turns out that the methods used to grow our food, and the amount of meat and dairy products that we eat, have a much more significant impact on total GHG emissions than do typical transportation methods or distances.

¹²⁰ "Regional Greenhouse Gas Inventory; The Carbon Footprint of Residents and Businesses Inside the Portland Metropolitan Region," Metro Regional Government, April 2010. See Appendix 7 of this document.

¹²¹ "Food Miles and the Relative Climate Impact of Food Choices in the United States," Weber and Matthews, 2008.

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?

Physical Activity



Air Quality





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



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?

Advisory Committee



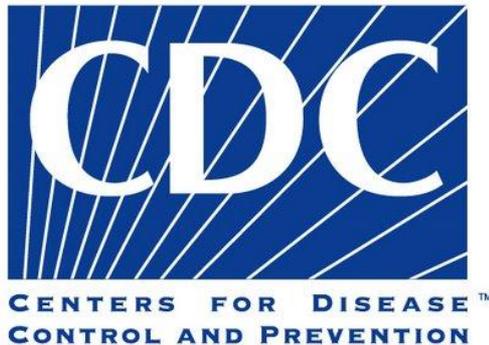
Lane Coalition for Healthy Active Youth



Draft HIA Input



UNIVERSITY
OF OREGON



Screening

Scoping

Assessment

A Community
Climate and Energy Action
Plan for Eugene

5/3/10 Draft



Land Use and Transportation

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,^[30] 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).

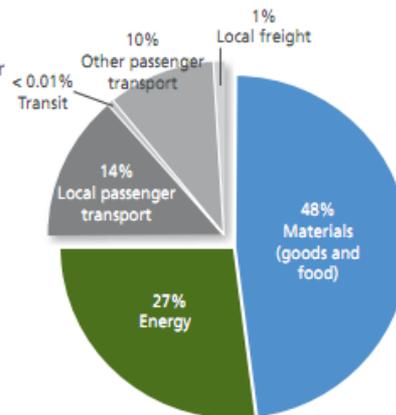


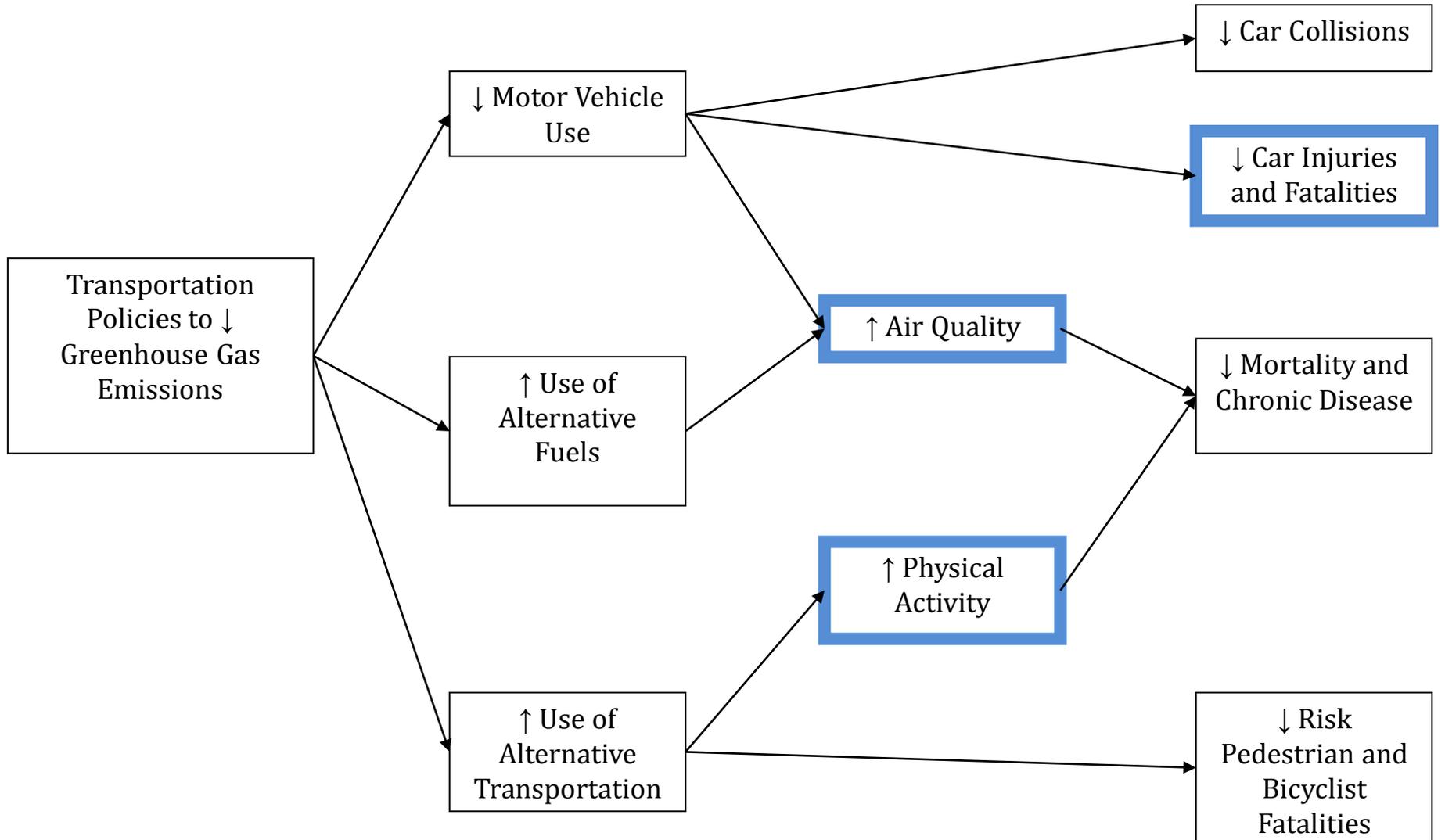
Figure 6: Greenhouse gas emissions by system.
Source: Metro Regional GHG Inventory

Land Use and Transportation

Objectives

^[30] "Regional Greenhouse Gas Inventory; The Carbon Footprint of Residents and Businesses Inside the Portland Metropolitan Region," Metro Regional Government, April 2010.

Health Impacts



Vulnerable Populations



Advisory Committee



Community Engagement



Draft HIA Input



UNIVERSITY
OF OREGON

Analysis



Community Forum



A Community Climate and Energy Action Plan for Eugene

5/3/10 Draft

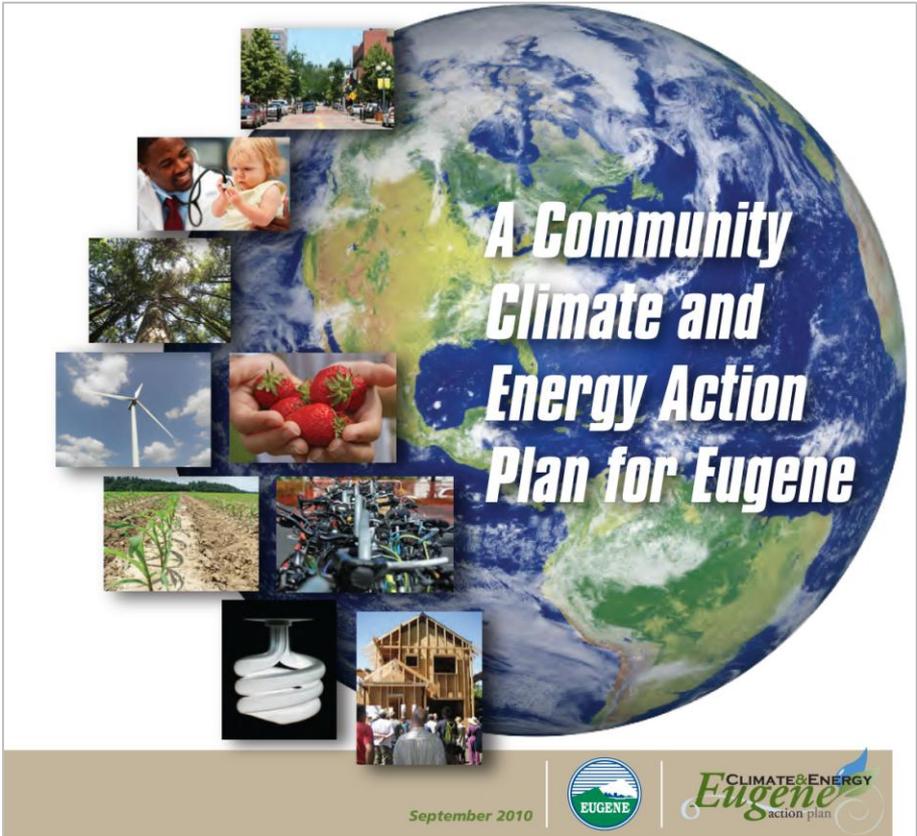


Table 12: Percent of Selected Air Emissions that Come from On-Road Vehicles in Lane County, 2002

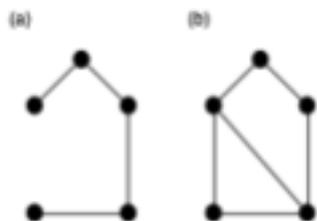
Emissions	Percent
Carbon Monoxide	68
Nitrogen Oxides	62
Volatile Organic Compounds	27
Particulate Matter	5
Sulfur Dioxide	19

Data from US Environmental Protection Agency, 2002.

Alpha Connectivity

	Edges	Vertices	α
a	4	5	0
b	6	5	0.4

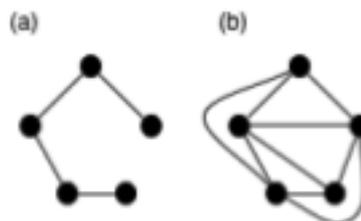
$$\alpha = (\text{edges} - \text{vertices} + 1) / (2 * \text{vertices} - 5)$$



Gamma Connectivity

	Edges	Vertices	γ
a	4	5	0.44
b	9	5	1.0

$$\gamma = \text{edges} / (3 * (\text{vertices} - 2))$$



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).^{xiii}

Screening

Scoping

Assessment

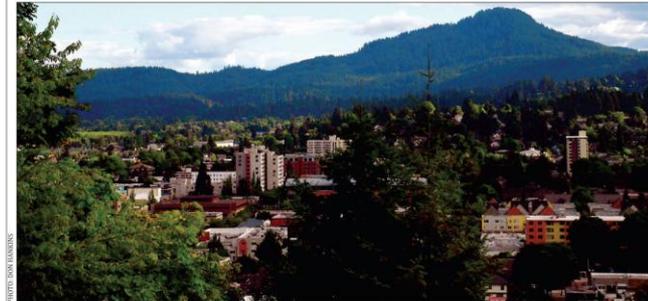
Recommendations

Reporting

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.

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.*

May 2009



Mel Rader, Co-Director
Upstream Public Health
240 N. Broadway St., Suite 201
Portland, OR 97227

503.284.6390
mel@upstreampublichealth.org



Photos Thanks To Flickr Users:

adrimcm

hectorhannibal

Peter Gene

David Schroeter

Pawel Loj

Ed Yourdon

Matt Lemmon



**UPSTREAM
PUBLIC HEALTH**

Heidi Guenin
Transportation Policy Coordinator
heidi@upstreampublichealth.org
503-284-6390



UPSTREAM
PUBLIC HEALTH