

# The Alaskan Way Viaduct & Seawall Replacement Program



## Central Waterfront

**Alaskan Way Viaduct  
Stakeholder Advisory Committee**

**Air quality and carbon footprint  
Nov. 20, 2008**

# **Improve the health of the environment.**

**Guiding Principle 6, Measure 1:**  
Assess changes in air quality.

## Air Quality

- Measure
  - Changes in air quality based on regional travel model data and estimated emission rates.
    - Center City and four-county region evaluated
    - Emissions based on current EPA model
  - Study does not include emissions during the construction period.

Central Waterfront

# Key Findings

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F	Scenario G	Scenario H
<b>Center City Percent Change from Existing Conditions</b>								
<b>CO</b>	-38%	-32%	-32%	-31%	-31%	-27%	-31%	-31%
<b>NO<sub>x</sub></b>	-56%	-52%	-51%	-51%	-51%	-48%	-51%	-51%
<b>VOC</b>	-49%	-44%	-44%	-44%	-44%	-41%	-44%	-44%
<b>PM<sub>10</sub></b>	-41%	-35%	-35%	-33%	-34%	-30%	-33%	-34%
<b>PM<sub>2.5</sub></b>	-51%	-47%	-46%	-45%	-46%	-43%	-45%	-46%

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# Key Findings

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F	Scenario G	Scenario H
<b>Regional Percent Change from Existing Conditions</b>								
<b>CO</b>	-26%	-26%	-26%	-26%	-26%	-25%	-26%	-26%
<b>NO<sub>x</sub></b>	-47%	-47%	-47%	-47%	-47%	-47%	-47%	-47%
<b>VOC</b>	-42%	-42%	-42%	-42%	-42%	-41%	-42%	-42%
<b>PM<sub>10</sub></b>	-29%	-29%	-29%	-29%	-29%	-28%	-29%	-29%
<b>PM<sub>2.5</sub></b>	-42%	-42%	-42%	-41%	-41%	-41%	-41%	-41%

## Key Findings

- Total pollutant burden for all scenarios is lower than existing conditions.
  - Future per vehicle emissions will decrease.
- All scenarios have equivalent effects on air quality.
- Scenario A has slightly lower emissions in Center City.

## What did we learn?

- No difference in emissions at the regional level.
- Other scenarios are similar (within margin of modeling accuracy).
- Air quality is not a significant discriminating factor.

# **Improve the health of the environment.**

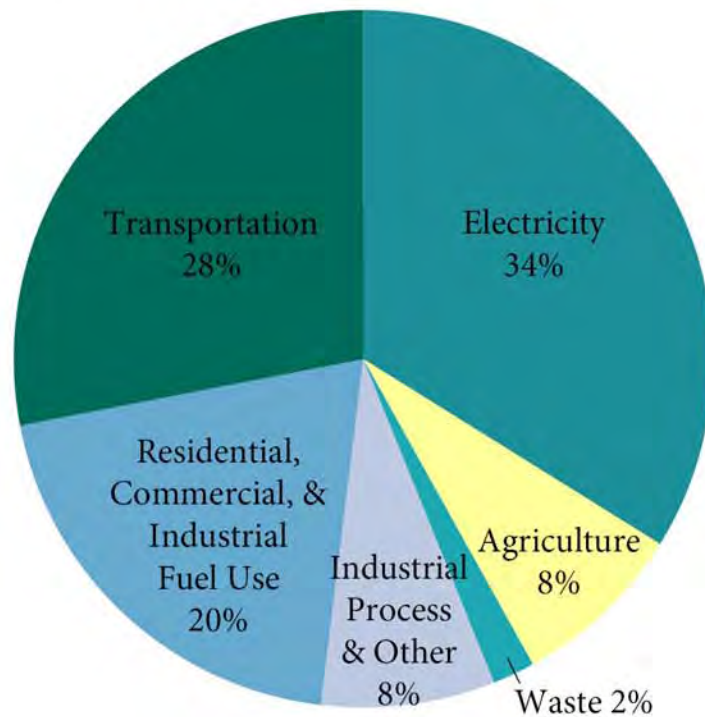
**Guiding Principle 6, Measure 2:**  
Assess changes in carbon footprint.

## Carbon Footprint

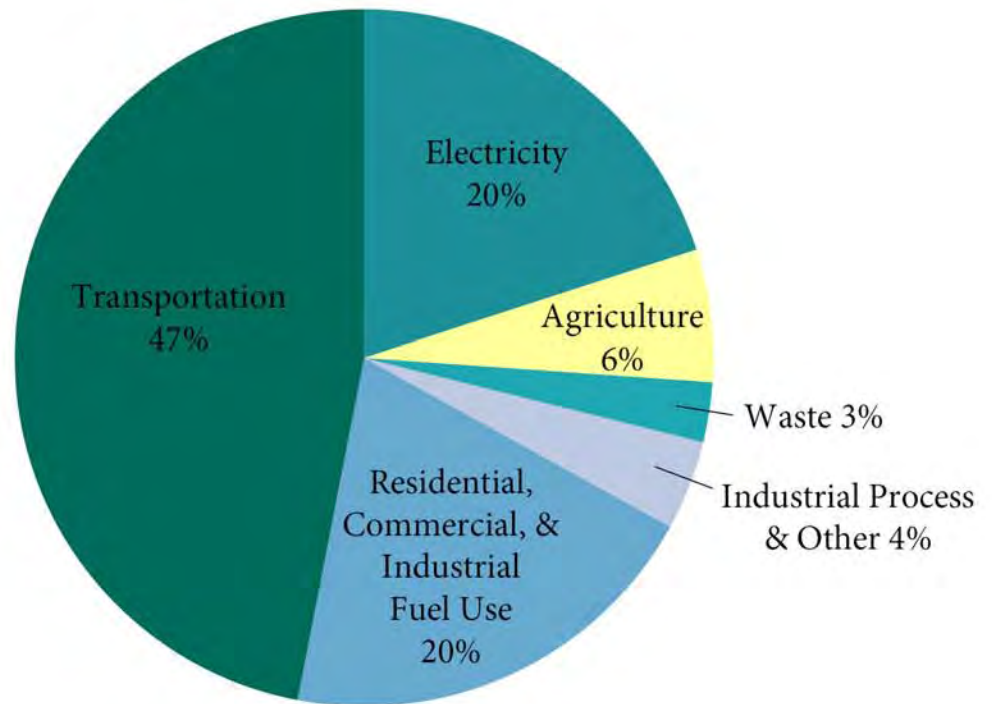
- **Measure**
  - Greenhouse gas emissions based on regional travel model data
    - Vehicle miles traveled
    - Vehicle speed
  - Study does not include emissions during construction period
- **Discuss**
  - Greenhouse gas emissions in region
    - 2015
    - Long run
      - Changes in vehicles (i.e., more hybrids)
      - Changes in land use

# Transportation accounts for 47% of greenhouse gases in Washington

U.S. Greenhouse Gas Emissions



Washington Greenhouse Gas Emissions



## Key Findings

		<b>Scenarios</b>							
<b>Predicted Increase</b>	2015 Base	A	B	C	D	E	F	G	H
<b>Regional VMT as compared to existing conditions</b>	13%	13%	13%	13%	13%	13%	14%	13%	13%
<b>Regional VMT per capita as compared to existing conditions</b>	4%	4%	4%	4%	4%	4%	5%	4%	4%
<b>Regional VMT at speeds less than 20 mph as compared to existing conditions</b>	109%	109%	103%	105%	102%	103%	108%	101%	105%
<b>Regional CO<sub>2</sub> as compared to existing conditions</b>	14%*	14%*	14%*	14%*	14%*	14%*	15%*	14%*	14%*

\*This analysis does not take into consideration future increased fleet fuel efficiency, and CO2 percentage increases are expected to be lower as compared to existing conditions.

## What Did We Learn?

- Greenhouse gas emissions in 2015 do not distinguish between the scenarios.
- Changes beyond 2015 could help reduce increases in greenhouse gasses.
  - Alternative fuel and hybrid vehicles
  - Land use