


Using Smart Growth Strategies to Reduce Greenhouse Gas Emissions

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U.S. EPA Smart Growth Program

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What Is Smart Growth?

- Making how and where we build more sustainable
- Development that benefits community, environment, public health, and economy
- Flexible enough to be used in urban, suburban, and rural settings

Compact design

Walkable neighborhoods

Distinctive communities with strong sense of place

Predictable, fair development decisions

U.S. Greenhouse Gas Emissions

- Transportation = 28% of U.S. GHG emissions
  - Personal vehicles = 61% of transportation emissions, 21% of total GHG emissions
- Buildings = 35% of U.S. GHG emissions
  - Residential = 17%
  - Commercial = 18%
- Transportation + buildings (aka communities) = 63% of total U.S. GHG emissions

All numbers are for 2007. From EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007, April 2009, http://epa.gov/climatechange/emissions/usinventoryreport.html

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Smart Growth and GHG Emissions

- Transportation
  - Choices (transit, bike, walk)
  - Shorter distances
- Land use
  - Compact development patterns and building design
  - Energy use
  - Urban heat island effect
- Can’t meet GHG reduction goals without taking into account where and how we build

Benefits of Smart Growth Approaches to Reducing GHGs

- Allows expenditures for GHG reduction to meet multiple goals
- Smart growth is a natural outgrowth of market demand
- Reduces air and water pollution
- Encourages cleanup and reuse of brownfields
- Reduces energy and transportation costs
- Enhances public health
- Creates more choices in housing and transportation
- Enhances quality of life and strengthens communities

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Estimates of CO_2 Reductions in 2050 From Compact Development

- *Growing Cooler* (ULI, 2008): **7-10%**
- *Moving Cooler* (ULI, 2009): **9-15%** (package of land use measures and improved travel options)
- *Driving and the Built Environment* (Transportation Research Board, 2009): **1-11%**, depending on scenario
- Estimates do not include energy efficiency, cleaner cars, or cleaner fuels, which would create further reductions
- Reductions from compact development take longer because of development timeline, but they are essentially permanent

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Where We Build

- Strengthen existing communities
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space and critical environmental lands

How We Build

- Compact design
- Mix of land uses
- Walkable neighborhoods
- Green building

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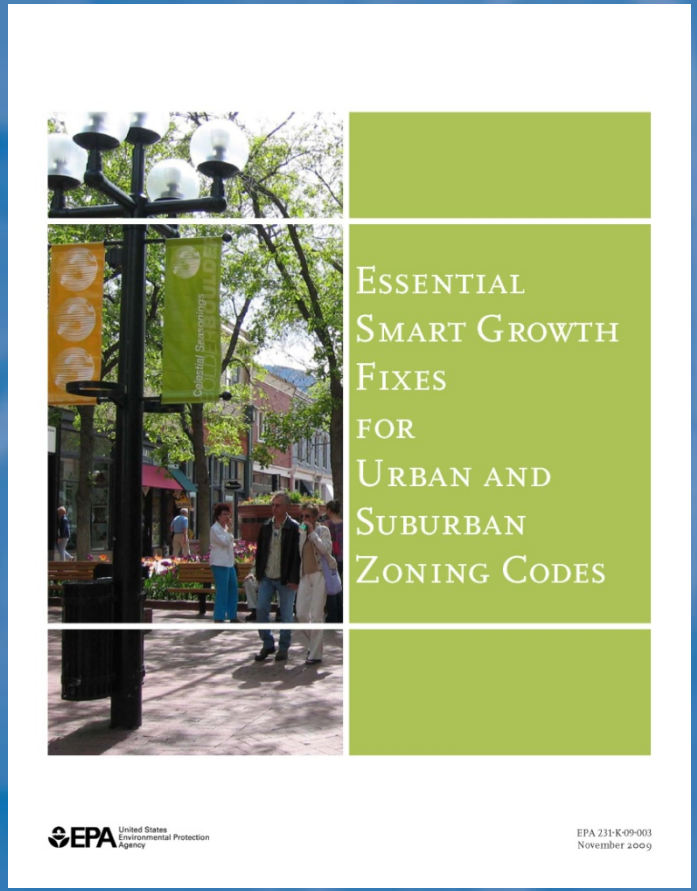
Tools and Resources

- Essential Smart Growth Fixes for Urban and Suburban Zoning Codes
  - Modest adjustments
  - Major modifications
  - Wholesale changes



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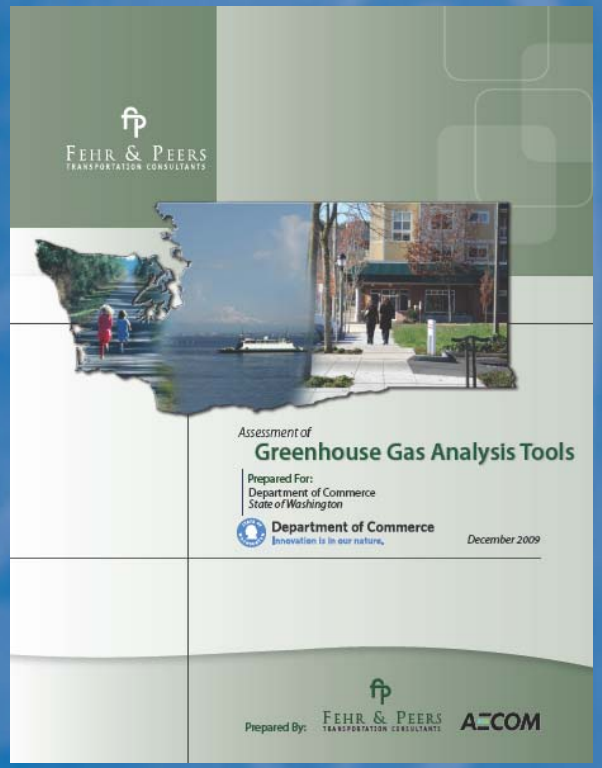
Tools to Assess GHG Emissions from Land Use and Transportation

- WA Dept. of Commerce study
- Assessed tools based on:
  - Applicability for community plans;
  - Availability to public agencies;
  - Sensitivity to land use and transportation changes;
  - Adaptability to local conditions;
  - Use of data and hardware that local agencies have available; and
  - Accuracy.



www.commerce.wa.gov

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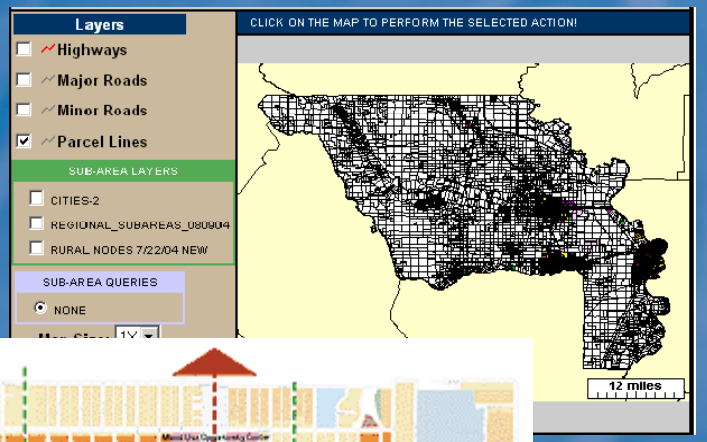
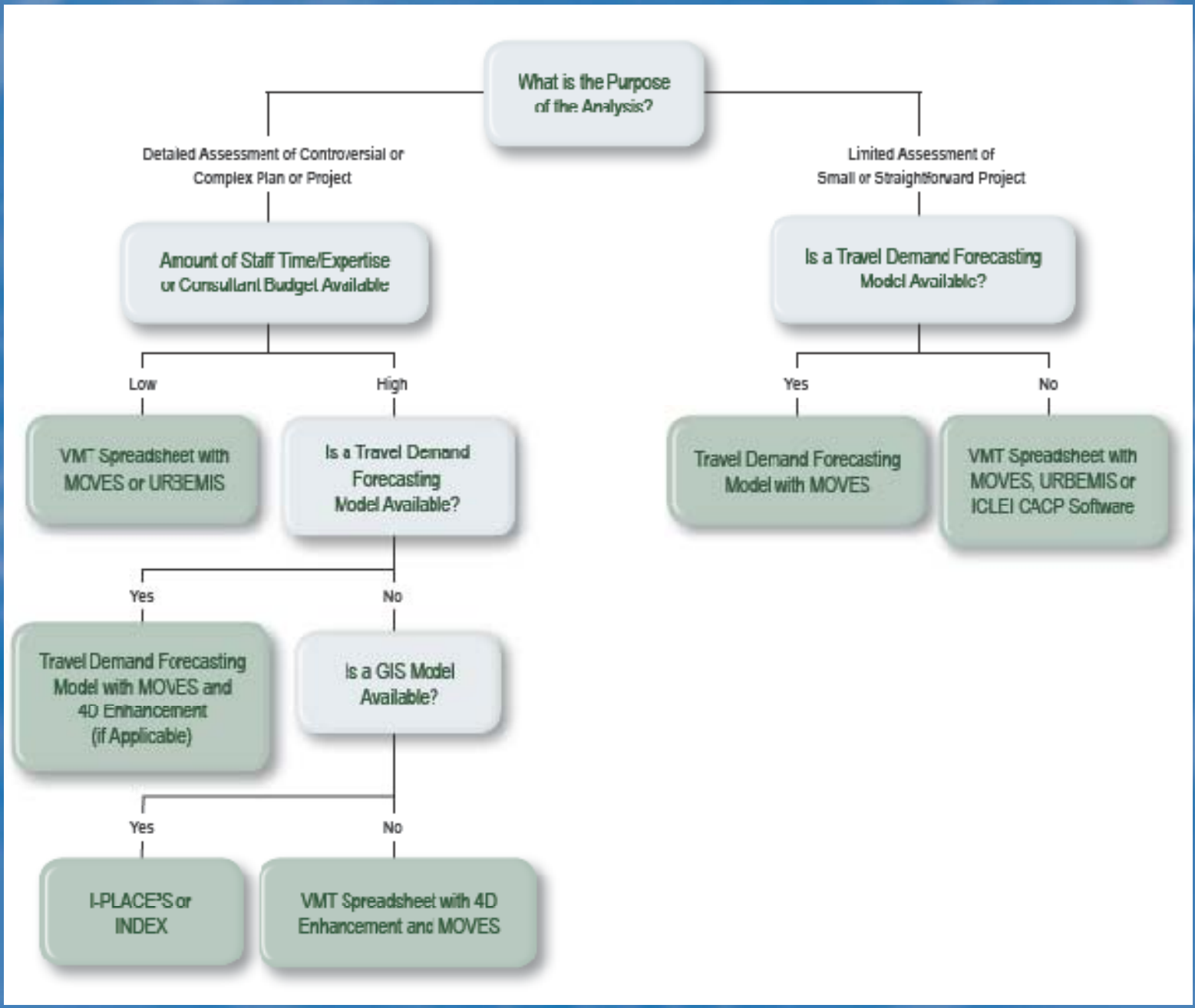
United States Environmental Protection Agency

Tools to Assess GHG Emissions from Land Use and Transportation

- VMT spreadsheet w/emissions factors
- VMT spreadsheet w/4D smart growth adjustments
- Travel demand forecasting (TDF) models
- Enhanced TDF models
- ICLEI CACP software
- URBEMIS
- PLACE^{3}S
- INDEX




What is the Purpose of the Analysis?
Detailed Assessment of Controversial or Complex Plan or Project
Limited Assessment of Small or Straightforward Project
Amount of Staff Time/Expertise or Consultant Budget Available
Is a Travel Demand Forecasting Model Available?
Low
High
Yes
No
VMT Spreadsheet with MOVES or URBEMIS
Is a Travel Demand Forecasting Model Available?
Travel Demand Forecasting Model with MOVES
VMT Spreadsheet with MOVES, URBEMIS or ICLEI CACP Software
Yes
No
Travel Demand Forecasting Model with MOVES and 4D Enhancement (if Applicable)
Is a GIS Model Available?
Yes
No
I-PLACE³S or INDEX
VMT Spreadsheet with 4D Enhancement and MOVES

HUD-DOT-EPA Partnership for Sustainable Communities

- DOT TIGER grants: jobs, economic activity, livable communities
- HUD-FTA mixed-income, transit-oriented development guide (www.mitod.org)
- HUD Sustainable Communities Planning Grant Program ($100 million)
- EPA Urban Waters Initiative
- EPA Brownfields Pilots

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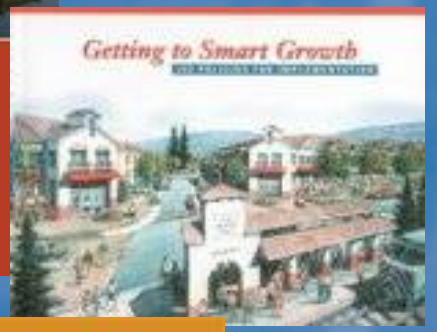
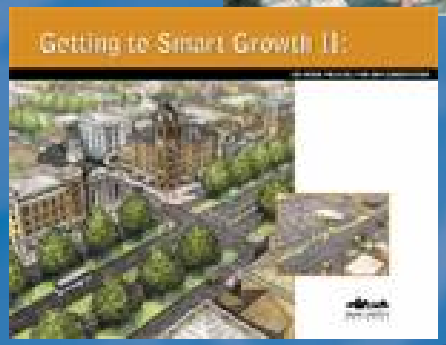
EPA Smart Growth Resources

- Publications
- Research
- Technical assistance
  - Application open until April 9, 2010
- National Award for Smart Growth Achievement
  - Application open until April 5, 2010
- New Partners for Smart Growth annual conference
  - Charlotte, NC, Feb. 3-5, 2011





www.epa.gov/smartgrowth

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For More Information

- EPA Smart Growth
  www.epa.gov/smartgrowth
- Smart Growth Network
  www.smartgrowth.org

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