Climate Action Planning in Seattle
Evaluating land use and transportation strategies for achieving carbon neutrality

Presented by Kevin Shively, Nelson\Nygaard
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Climate Action Planning in Seattle

- Introduction
- Climate Goals and Progress in Seattle
- Climate Action Plan Approach
- Evaluation Criteria
- Guiding Considerations
- Transportation Strategies Evaluated
- Land Use Strategies Evaluated
- Analysis of VMT and GHG Emissions Reduction
- Analysis of Combined Impact
- Results & Recommendations
- Steps to Implementation
Nelson\Nygaard Climate Action Planning

- **Projects**
  - Portland Bureau of Transportation GhGE Analysis
  - San Francisco BART Climate Action Planning
  - Seattle Climate Action Plan, Transport & Land Use Strategies

- **Planning Tools**
  - URBEMIS Model, for context-specific eval. of dev. impacts
  - Trip Reduction Impact Analysis (TRIA) Tool

- **Approach**
  - Rigorous technical evaluation, grounded in the literature
  - Focus on cost-effectiveness and feasibility of alternatives
  - Connect climate protection/ GhGE impact analysis to other community goals and objectives
Climate Action Planning in Seattle – Goals & Progress

- 2005 – Seattle committed to meet Kyoto targets
- 2008 – City achieved 2012 goal of reducing GhG emissions to 7% below 1990-levels
Seattle’s Carbon Neutral Challenge

- **Target: Net zero emissions by 2050**
  - Road Transportation represents 40% of GHG emissions in Seattle and 29% of those most directly within City’s sphere of influence.

Transportation & land use strategies aim to reduce...
Seattle’s Carbon Neutral Analysis

- Technical feasibility assessment
- Proof of concept
- Action planning adds funding and political feasibility considerations
## City of Seattle – Preliminary VMT & GhGE Targets

<table>
<thead>
<tr>
<th>Sector</th>
<th>2020 Targets (% reduction compared to 2008)</th>
<th>2030 Targets (% reduction compared to 2008)</th>
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</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>- 14% reduction in total vehicle miles traveled (VMT)</td>
<td>- 20% reduction in total VMT</td>
</tr>
<tr>
<td>Passenger</td>
<td>- 35% reduction in GHG emissions per mile of Seattle vehicles (all trip purposes)</td>
<td>- 75% reduction in GHG emissions per mile of Seattle vehicles (all trip purposes)</td>
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<tr>
<td>Freight</td>
<td>- Maximum 7% increase in VMT</td>
<td>- Maximum 15% increase in VMT</td>
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<tr>
<td></td>
<td>- 25% reduction in GHG emissions per mile of Seattle vehicles</td>
<td>- 50% reduction in GHG emissions per mile of Seattle vehicles</td>
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</tbody>
</table>
1. Form Technical Advisory Groups
2. Assess current City, regional and state policies, plans & programs
3. Identify full range of strategies
4. Screen strategies
5. Evaluate stand-alone & combined GhGE impacts of ‘top tier’ strategies
6. Identify funding opportunities and co-benefits
7. Recommend strategies to Green Ribbon Commission
8. Proceed: Update plans & procedures
Evaluation Framework

Guidance for (1) evaluating transportation and land use strategies, and (2) prioritizing projects, policies & programs

Screening for technical feasibility, funding opportunity, cost-effectiveness, catalytic potential & political opportunity
Seattle CAP - Transportation Strategies Evaluated

- Transportation Hierarchy

1. Expand pedestrian, bicycle & transit facilities and services
2. Implement TDM, marketing & education programs
3. Adopt congestion pricing & other motor vehicle user fees
4. Support transition to more efficient fuels & vehicle technologies
5. Expand market-based parking pricing & management
Seattle CAP – Land Use Strategies Evaluated

1. Adopt “Transit Communities Policy” to allow/support transit supportive development in walking distance of frequent transit
2. Create a Transit Communities Development Authority
3. Update zoning (flexible, performance-based) to foster/allow complete transit communities
4. Provide incentives & outreach to support climate-friendly districts
5. Expand parking pricing/management (eliminate off-street minimums in wider area)
## Seattle CAP – Preliminary Evaluation

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Invest in Transit, Bicycle, and Pedestrian Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Implement HCT in 5 Priority Transit Corridors in Transit Master Plan (TMP)</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>8,200</td>
<td>$76,000,000</td>
<td>$9,000</td>
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<tr>
<td>Implement Bus Priority Treatments in 12 Priority Corridors per TMP</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>7,670</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>Expanded Electrification of In-City Transit Routes (Expand Beyond Trolley Routes in TMP)</td>
<td>TBD</td>
<td>TBD</td>
<td>High</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>Increase Density and Priority of Bicycle Facilities (Expand Bike Facilities Beyond BMP)</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>50,000</td>
<td>$42,500,000</td>
<td>$850</td>
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<tr>
<td>Accelerate Implementation of Ped. Master Plan (PMP); Expand Ped. Facilities Beyond PMP</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>8,550</td>
<td>$66,075,000</td>
<td>$7,728.07</td>
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<tr>
<td>Develop Dense, Transit-oriented Neighborhoods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Develop Dense, Transit-oriented N’hoods (Encourage Walking, Cycling, Use of Transit)</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>103,000,000</td>
<td>$76,569,000</td>
<td>$1</td>
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<tr>
<td>Pricing Vehicle Travel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Promote Transition to Pay-As-You-Drive Auto Insurance</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>22,000</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>Variable Tolling: All Freeways</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>82,850</td>
<td>($397,955,000)</td>
<td>($5,000)</td>
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<tr>
<td>Variable Tolling: All Freeways + Major Arterials</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>142,500</td>
<td>($1,277,646,000)</td>
<td>($9,000)</td>
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# Seattle CAP – Key Assumptions of Land Use Analysis

<table>
<thead>
<tr>
<th>Land Use Assumptions</th>
<th>2020</th>
<th>2030</th>
<th>2050</th>
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</thead>
<tbody>
<tr>
<td>Estimated Market Share of &quot;Compact Development&quot; in Seattle</td>
<td>95.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Reduction in VMT/Capita with &quot;Compact Development&quot;</td>
<td>30.0%</td>
<td>30.0%</td>
<td>30.0%</td>
</tr>
<tr>
<td>Share of Built Environment Constructed Since 2008</td>
<td>24.0%</td>
<td>44.0%</td>
<td>84.0%</td>
</tr>
<tr>
<td>Estimated Percent reduction in VMT/Capita w/ Recommended LU Strategies</td>
<td>6.8%</td>
<td>13.2%</td>
<td>25.2%</td>
</tr>
</tbody>
</table>

Photo by Dan Bertolet, Via Architecture

Seattle, WA
Seattle GhGE Reduction Analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>Business-As-Usual (BAU) Projection (CNS)</th>
<th>Scenario A &amp; B: All Transport &amp; Land Use Strategies</th>
<th>City of Seattle Targets for 2020 &amp; 2030</th>
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</thead>
<tbody>
<tr>
<td>2008</td>
<td>3602</td>
<td>3098</td>
<td>2750</td>
</tr>
<tr>
<td>2020</td>
<td>3840</td>
<td>4005</td>
<td>4265</td>
</tr>
<tr>
<td>2030</td>
<td>3098</td>
<td>2882</td>
<td>1057</td>
</tr>
<tr>
<td>2050</td>
<td>4005</td>
<td></td>
<td>1057</td>
</tr>
</tbody>
</table>
Seattle Climate Action Plan – Projected Results of Recommended Land Use & Transportation Strategies

Estimated Change in GHG Emissions from 2008 Baseline (Metric Tons), Scenario A

2020
-37792
-143500
-125715
-116117
-106340
-142530

2030
0
-200000
-269285
-131603
-519325
-166323
-57636
-1600000
-1200000
-1000000
-800000
-600000
-400000
-200000
0
2050
-74868
-77033

Gap to City Target
Land Use Plng. & Reg.
Fuels & Tech
TDM
Congestion & Parking Pricing & Mgmt
Transit/Bike/ Ped Facilities & Services

-178084
-50219

-381007
-104998
-732459

-1400000
-1600000
Seattle CAP, Co-Benefits

- Better Access
- Affordable housing choices
- Transportation choices
- Economic development
- Shared prosperity
- Social justice
- Public health
- Air & Water quality
Seattle Climate Action Plan – Next Steps

Next steps:
1. Green Ribbon Comm. Recommendations
2. Council adoption
3. Policy guidance for updates to:
   - Comp Plan
   - Bike Master Plan
   - Ped Master Plan
   - Transit Master
   - New Freight Plan
   - Project, program & policy planning & development
Seattle Climate Action Plan – Key Findings & Lessons

- Focus on sectors/strategies within City’s sphere of influence
- Screen for technical/political feasibility, funding opportunity & cost-effectiveness
- Apply available data/projections to localize analysis based on academic/professional literature
- Identify interdependence, synergies and overlaps between strategies
- Evaluate & highlight impacts and **co-benefits**