Boulder, CO - Growing Cooler

Transportation: In service of Climate Action
Overview

• Setting the context – Boulder – the climate change discussion

• Reasons for changing approaches to transportation:
  – The climate connection for transportation

• Overview of policies / strategies

• Challenges
• Population – just over 100,000
• Regional employment center (over 40,000 in-commuters)
• Home to CU – Boulder 30,000 students
• County seat, gateway to the Rockies
• Located 25 miles from downtown Denver
• 5,430 feet above sea level
• 25 square miles
• Surrounded by open space
Then it's agreed, we'll hold hearings on global warming.
Context: Boulder on Climate Change

- 2002 – Kyoto Goal adopted by City Council
- 2006 ~ Climate Action Plan
- November 2006 – Ballot 202
  - 1st carbon tax in the nation
  - More than 60% of votes
- 2008 – Smart Grid City
• Achieve Kyoto Protocol of 7% reduction below 1990 levels, or 19% below 2005 levels

• Emissions reduction strategies for all sectors
Context: Climate Action Plan

- In 2007, the tax generated approximately $860,000, could be raised to $1.3 million
- Charged per kilowatt hour on normal Xcel electricity bills
- Approximately $16 per residence, $48 per commercial site and $3266 per industrial site annually
Context: Smart Grid City

- Xcel selects Boulder as first Smart Grid City
- Connects the city with a “smart feedback system between customer and grid”
- Offers real-time energy use
- Prepares for smart technology – automatic changes in energy use -based demand
- Vehicle-to-grid technology – a new opportunity in transportation sector!
Context - CAP Strategies

- Reduce energy use through conservation & efficiency
- Increase the use of renewable energy sources
- Reduce emissions from transportation
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Boulder Inventory

- Transportation: 22%
- Commercial: 40%
- Industrial: 19%
- Residential: 16%
- Solid Waste: 3%
- Transportation: 22%
Figure-2: Boulder GHG Inventory Profile, 1990 – 2012
It took nature millions of years to create the Rocky Mountains.
It takes us just a few hours to make them disappear.
Climate and Transportation

• Important to make that crucial connection between Climate and Transportation

• Transportation has a profound impact: Ranges between 20% and 30% of emissions in Boulder

• Regardless of the stage you are in or role you play to create solutions...

Make the Climate Connection!
Transportation: Policies / Strategies to Address VMT

- Clear policy direction
- Funding travel choices
- Brief tour of examples of infrastructure and programs that are working for us...
  - Complete Streets
  - “GO Boulder”
  - Greenways – blending multiple community objectives
  - Projects and programs that make a difference
Transportation Master Plan

• Fits under the Comprehensive Plan, so serves broader community goals
• Guiding policy for all of transportation in the city through 2025
• Establishes funding priorities
• Developed through an extensive community input process
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**TMP - Policy Evolution**

- **1989 TMP**: creates funding for all modes
  - Individual projects, modal shift goal, start to measure

- **1996 TMP**: completes plans for all modes, “multimodal corridors” idea, no long-term growth in traffic
  - Vehicle Miles of Travel (VMT): key measure

- **2003 TMP**: organizes by multimodal corridor (complete streets) framework
  - Modes are integrated, all projects - all modes
  - VMT, plus other measures
TMP Objectives

- No growth in long-term vehicle traffic;
- Reduce SOV travel to 25 percent of trips;
- Reduce auto emissions of air pollutants;
- No more than 20 percent of roadways congested;
- Expand transportation alternatives for all Boulder residents; and
- Increase transportation alternatives commensurate with rate of employee growth.
Projected VMT at regional rate

Estimated VMT under the TMP

TMP Target: 1994 VMT of 2.4 Million miles
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2003 TMP

Multimodal Corridors
“Complete Streets”

Current Funding

Action Plan

Vision
Broadway - local model
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The Community Transit Network

- HOP, SKIP and a JUMP, then BOUND, DASH, BOLT and STAMPEDE – designed by community
- 10 minute frequencies – No schedule required
- Colorful graphics – active names along street
- Go see StreetFilms – Tonight 5:30, 100 Larkin St
Eco Pass

- Unlimited-use, photo-ID Bus Pass
- 65,000 total passes in Boulder
- Eco Pass holders are nine times more likely to use the bus
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Transit Ridership

Average Daily Boardings 1981 - 2007

Year


Boardings

35,000 30,000 25,000 20,000 15,000 10,000 5,000

Eco Pass Recession JUMP, LEAP, BOUND DASH, STAMPEDE BOLT

Recession

Regional Local

JUMP, LEAP, BOUND

BOLT
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City of Boulder Greenways

- a series of corridors along Boulder Creek and six of its tributaries
Biking System

• 192 miles of on-street bike lanes
• 95% of arterial streets have bike facilities
• 105 miles of multi-use pathway
• 74 underpasses
• Bike racks on all buses
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GO Bike Boulder

GOBikeBoulder.net

Walk & Bike Month

June '08

Boulder, Colorado
• Federally-funded individualized marketing pilot program in North Boulder
  – Approximately 600 participating households
  – Households receive customized travel assistance to increase use of transit and bicycling

• Entering evaluation phase
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Overview - Rapid Transit
137 Additional miles of rapid transit
119 miles Rail
18 miles Bus Rapid Transit
57 Additional rapid transit stations
$4.7B Capital cost (inflated dollars)
2,123 Additional parking spaces at transit parks & rides
Enhanced bus service and FastConnect throughout the region

Corridors

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Vehicle Type</th>
<th>Length (miles)</th>
<th>Stations</th>
<th>Parking</th>
<th>2025 Ridership</th>
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<tbody>
<tr>
<td>Central &amp; CPV</td>
<td>Light Rail</td>
<td>7.1 (existing)/0.8 (new)</td>
<td>18</td>
<td>1,685</td>
<td>31,800 - 32,200</td>
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<td></td>
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<td>400 (new)</td>
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<td></td>
<td>Capital Cost</td>
<td>$118.6M*</td>
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<tr>
<td>East Corridor</td>
<td>Commuter Rail/DMU</td>
<td>23.6</td>
<td>5</td>
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<td>2,848 (existing)</td>
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<td>681 (new)</td>
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<td>Capital Cost</td>
<td>$702.1M*</td>
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<td>2025 Ridership</td>
<td>54,400 - 55,600</td>
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<td>US 36 Corridor</td>
<td>Light Rail</td>
<td>38.1 (existing)/18 (BRT)</td>
<td>7</td>
<td>711</td>
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<td>4,393 (new)</td>
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<td>2025 Ridership 6,500 - 10,100 (BRT)</td>
<td>16,900 (BRT)</td>
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<tr>
<td>Gold Line</td>
<td>Light Rail</td>
<td>11.2</td>
<td>7</td>
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<td>2,030 (new)</td>
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<td>Capital Cost</td>
<td>$401.5M*</td>
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<td>2025 Ridership 16,330 - 18,160</td>
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<tr>
<td>Southwest Corridor</td>
<td>Light Rail</td>
<td>8.7 (existing)/2.5 (new)</td>
<td>5 (existing)/2 (new)</td>
<td>2.597 (existing)</td>
<td>2025 Ridership 20,200 - 23,600</td>
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<td>1,490 (new)</td>
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<td>Capital Cost</td>
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<tr>
<td>Southwest Corridor</td>
<td>Light Rail</td>
<td>19.1 (under construction/2.3 (new)</td>
<td>13 (under construction)/3 (new)</td>
<td>2,009 (existing)</td>
<td>2,320 (new)</td>
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<td>1,490 (new)</td>
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<td>Capital Cost</td>
<td>$541.3M*</td>
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Legend:
- Station without Parking
- Station with Parking
- Light Rail (BRT)
- LRT (BRT) Under Construction
- Commuter Rail/DMU
- Bus Rapid Transit
- Right-of-Way Preservation

Figure ES-1

April 32, 2041
Land Use Coordination

Zoning and Land Use changes coordinated with Transportation Network Plans

Breaking down the grid for all modes

Creating linkages among uses

Mixing uses
Challenges

- Funding
- Political Commitment
- Measuring the right stuff and measuring accurately
- Coordinating across divisions, departments, agencies and the political spectrum
Expenditures over Time

- 1980: 46%
- 1990: 66%
- 2000: 62%
- 2004: 75%

- 1980: 54%
- 1990: 34%
- 2000: 38%
- 2004: 25%
Political Commitment

13th St. contra flow lane
• Removed on-street parking

Table Mesa climbing lane
• Removed vehicle travel lane

17th St. on-street bike lanes
• Removed on-street parking

North Broadway bike lanes
• Remove vehicle travel lane
“If Christ himself were city manager of Boulder, there would be some people who would want to recall him.”

-- Boulder civic leader F.C. Moys, 1923
**Metrics**

- Difficulty of measuring VMT and most referenced metric on Climate Change! (Modeled (at least for now), look for trends – check with other measures)

- Measure what you want as much as or more than what you do not want.

- Risk of measuring the work more than doing the work.
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Importance of measuring

**Figure 3-3. Analysis: Mode Share Objectives**

<table>
<thead>
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<th></th>
<th>1989 TMP</th>
<th>Survey Data*</th>
<th>2020 Objective</th>
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<tr>
<td>SOV</td>
<td>73</td>
<td>58</td>
<td>47</td>
</tr>
<tr>
<td>Multi-occupant auto</td>
<td>23</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>}1</td>
<td>}3</td>
<td>17</td>
</tr>
<tr>
<td>Bicycle</td>
<td>}</td>
<td>}</td>
<td>10</td>
</tr>
<tr>
<td>Transit</td>
<td>3</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

* based on resident diaries, employee surveys, traffic counts, regional origin & destination study and related sources

- Original TMP SOV Reduction, "shift 15% away from SOV" 15 + 73 = 21% reduction
- Actual Reduction '90 - '94 3 + 47 = 6% reduction
- Proposed Reduction by 2020 19 + 44 = 43% reduction

- original TMP objective: shift 15% of daily SOV trips to other modes by 2010
- TMP update direction: no growth in long-term vehicle traffic (requires reducing single-occupant vehicle trips to 25% by 2020)
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Metrics - Resident & Employee Survey

Observations

• Resident and non-resident commute travel behavior significantly different
  – Non-resident SOV – 80% vs. Resident SOV – 53%
  – Non-resident Transit – 6% vs. Resident Transit – 15%

• Making progress toward modal objectives
Future of VMT

- Current funding
- Existing policy and regulations

- Increased funding to maintain system and expand options
- Modest pricing signals and regulatory action

- Additional funding increment for more extensive options
- Stronger pricing signals and regulatory action
Conclusion

• The Context - No matter where you are in the continuum – **Make the Climate Connection**

• Policy / Project - Advance both policy level and project level changes that fund and provide travel choice
  - Develop political allies and champions

• Measure - For credibility and to track trends, but don’t spend all your $/time measuring.

• Think Big – Start Small – Keep At It
Tracy Winfree, City of Boulder, Colorado

winfreet@bouldercoloradogov
303-441-4164