![Center for Clean Air Policy logo](Center for Clean Air Policy)

Do. Measure. Learn.
(Repeat)

Steve Winkelman
Director Transportation and Adaptation Programs

12th Asilomar Transportation & Energy Conference
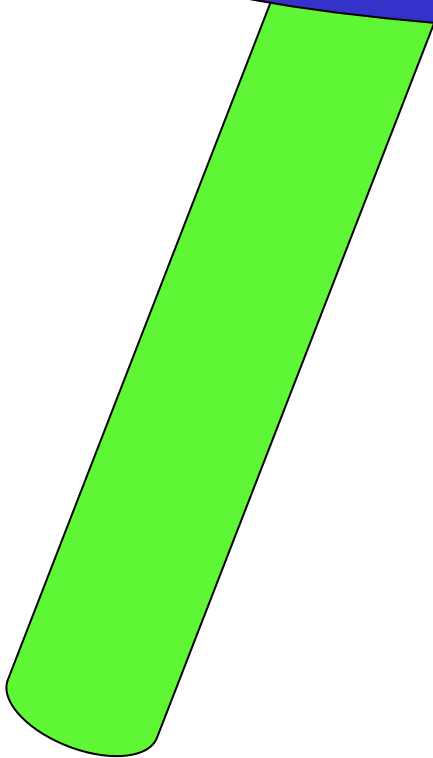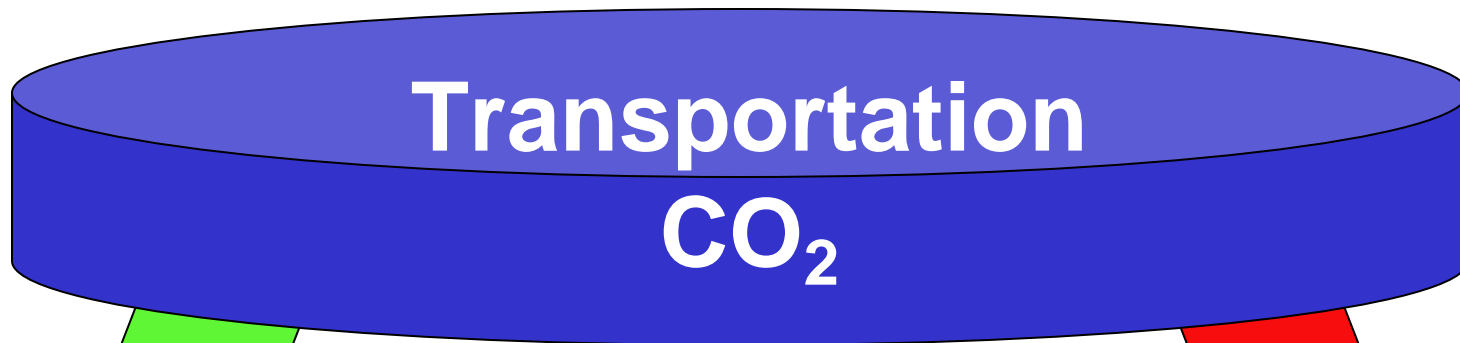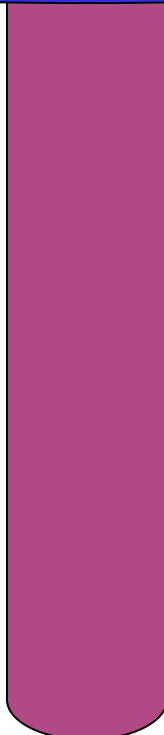July 20,2009

What's at Stake?

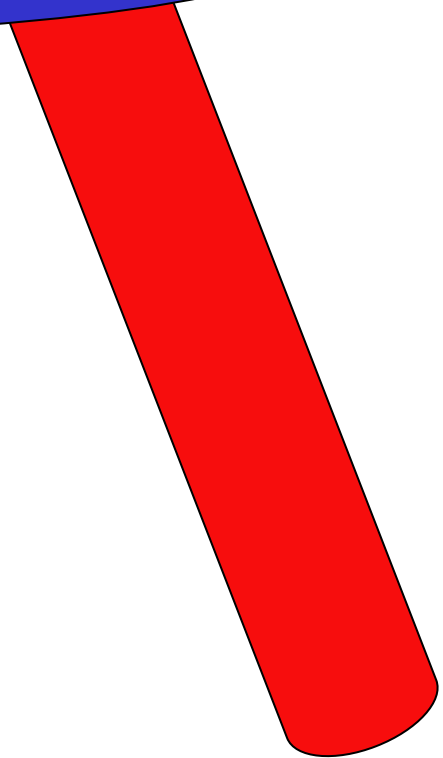# Center for Clean Air Policy
Dialogue. Insight. Solutions.

- λ Help govts craft & implement climate policy
- λ Dialogues: Int'l, US, VMT, State Executives
- λ Urban Leaders Adaptation Initiative
  "**Ask the Climate Question**"
- λ Research: Economic Benefits of Smart Growth
  - » Cost-Effectiveness of Travel Efficiency (June 2009)
  - » "Growing Wealthier" (Fall 2009)
- λ International Climate Policy and Transportation
  - » Developing country transport GHG policies, NAMAs
  - » International Transport Emissions Guidebook
- λ Unprecedented interest in the last year
  - » Congressional committees, state DOT directors, AASHTO, FHWA, EPA, CARB, Ford, WSJ, NYT, Huffington Post, even Al Gore

Transportation CO$_2$

Vehicles

Fuels

VMT

The 3-Legged Stool

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VMT and Gasoline Prices: 1981 - 2008

Legend:
- VMT (1981=100%)
- VMT per Capita
- Gasoline (real 1982 $)

S. Winkelman, CCAP, 2009: based on FHWA, US Census, EIA, BLS
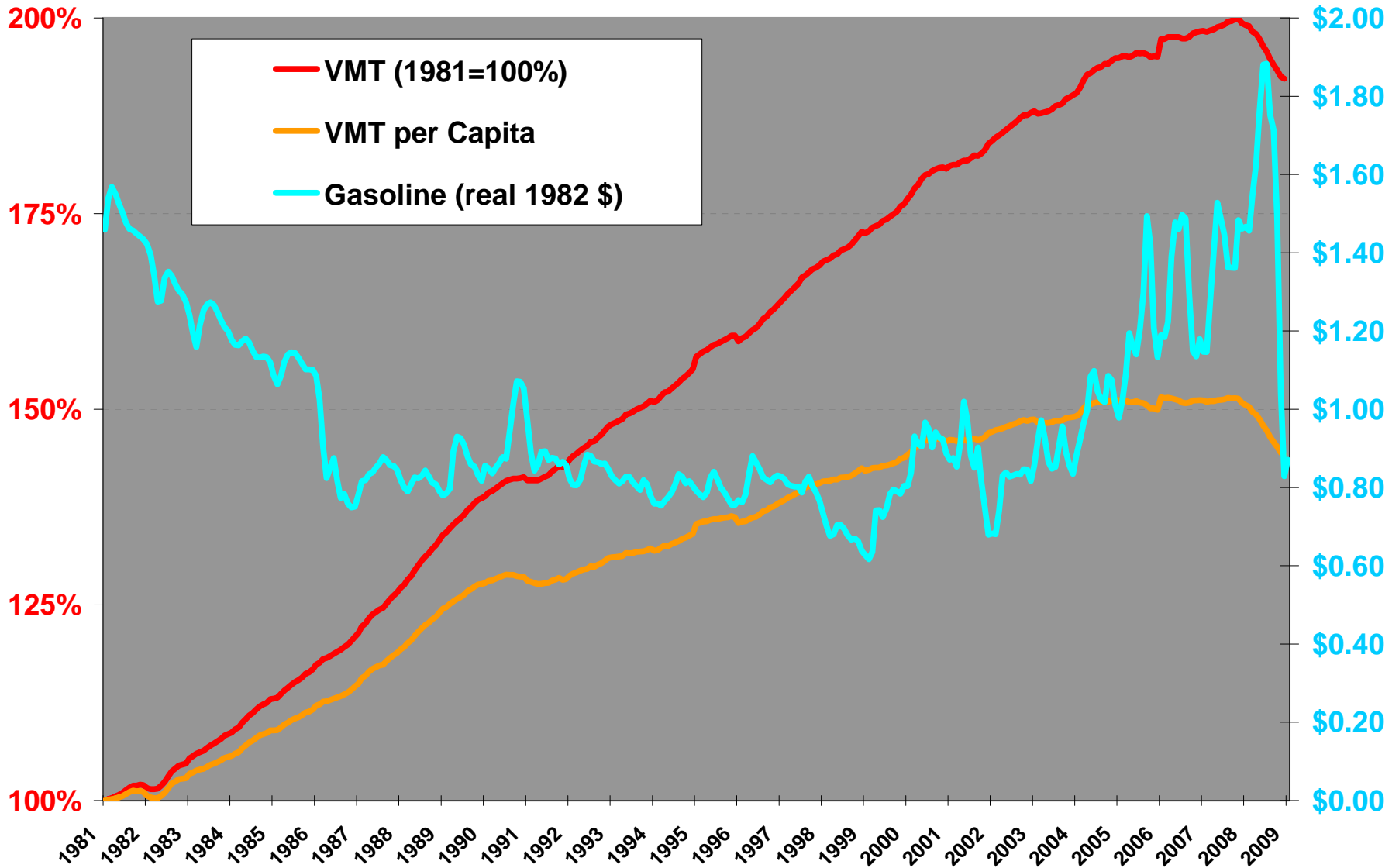
VMT +15%/capita (+1.4%/yr) (55 mpg CAFE & -15% GHG)

S. Winkelman, CCAP. 2030: 55 mpg CAFE & -15% Fuel GHG.
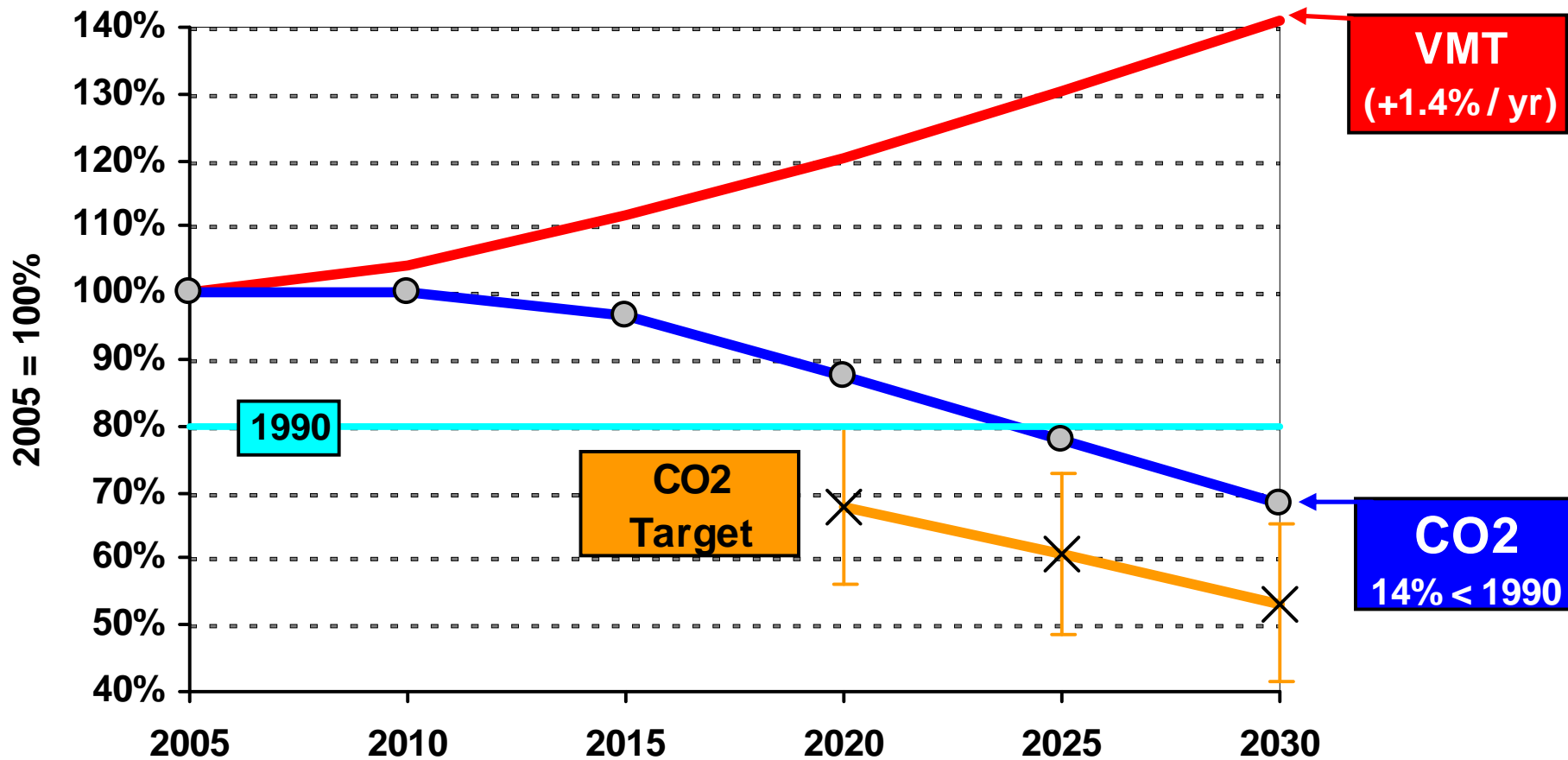
VMT -10%/capita (+0.4%/yr) GHG 33% < 1990 in 2030

S. Winkelman, CCAP. 2030: 55 mpg CAFE & -15% Fuel GHG.
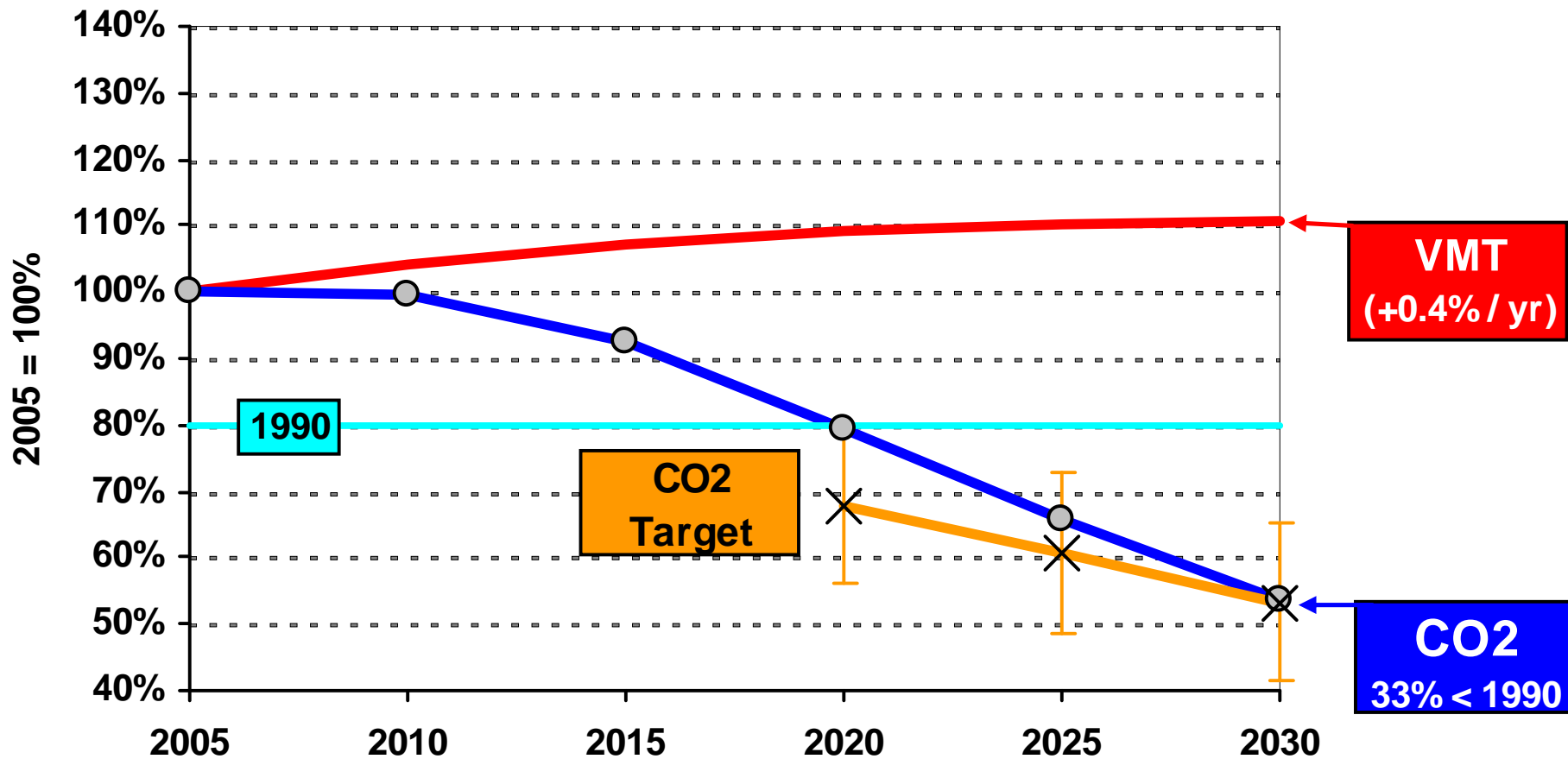
Best Practices can cut VMT per capita by 10%

- λ Portland region: -9% VMT/capita (1990-2007)
  - » Pop +14%, grew as economic center. US: +8%/capita
- λ Arlington, VA: -25% VMT/capita (1980-2005)
  - » 60% lower VMT than regional avg – household $ savings
- λ Atlantic Station: -59% VMT/capita
- λ Sacramento: -8% VMT/capita (through 2035)
- λ NYC: -1% traffic pop +2%, jobs +6% (2002-7)
  - » transit +8%, bike +70%
- λ Sexy sidewalks work
  - » Efficient communities can absorb growth

VMT & Climate Policy Dialogue

λ **Transport GHG Reduction Incentive Program**

λ **Data & Modeling Recommendations**

λ **Implementation & Performance Measures**

λ **Comparing Travel Efficiency Policy Proposals**

   » CCAP, Waxman-Markey, Oberstar, CLEAN-TEA

   » Goals, Implementation Plans, Funding, Accountability

Proposal: Transportation GHG Reduction Incentive Program

- λ 10% of cap-and-trade $ to fund travel efficiency
- λ State & MPO **bottom-up** goal-setting
- λ A **Funded Responsibility**
- λ Provide tools and funding for states & MPOs to **Plan, Do, Measure & Learn**
- λ Competitive grants -- "**Do More, Get More**"
- λ Travel Data and Modeling Recommendations

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GHG Performance Measurement: Linking Policies & Outcomes

- λ Multiple reasons to measure
  - » Baselines, progress, diagnosis, accountability, forecasts
  - » Levels of detail and confidence depends on use
- λ Desired qualities of performance measures
  - » <u>Effectiveness</u> at tracking progress on policy goal
  - » <u>Efficiency</u>: ability to inform multiple goals
    - – E.g., VMT ~ accessibility, wear-and-tear, safety, energy, GHG, household travel costs
  - » <u>Practicality</u>: availability and cost of collecting data

GHG Performance Measurement

- λ Workgroup considered GHG, VMT: total & per cap
  - » Measure from historic not forecast levels (e.g., 2005)
  - » Accessibility metrics: transp cost/HH (HUD/DOT)
- λ GHG/capita deemed a good metric (RTAC & BPC too)
- λ Need VMT and/or fuel data to measure
  - » Identify problems & opportunities, calibrate models
- λ "Flying blind" on data, so workgroup dove into improvement needs
- λ No need to wait for perfect data
  - » Develop GHG baselines from current VMT and fuel data
  - » Improve over time

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Data Recommendations to Support Performance-Based Transportation Policy

1. Increase **Funding** for Travel Data, Modeling
   Need **$1 billion/yr** ≈ 1% of $500 billion, or
   1 latté per capita for:
   σ state, MPO and local data & planning
   σ Federal data, research analysis, model improvement, technical assistance
   (details: March testimony to House Science Cmttee)

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Data Recommendations to Support Performance-Based Transportation Policy

2. Improve Quality and Utility of Travel **Data**
   - NHTS, MPO surveys, VIUS, rotating panel, CFS
   - TRB should study highest priority improvements
   - Assess electronic sources
     (GPS, cell, EZPass, pvt fleets)
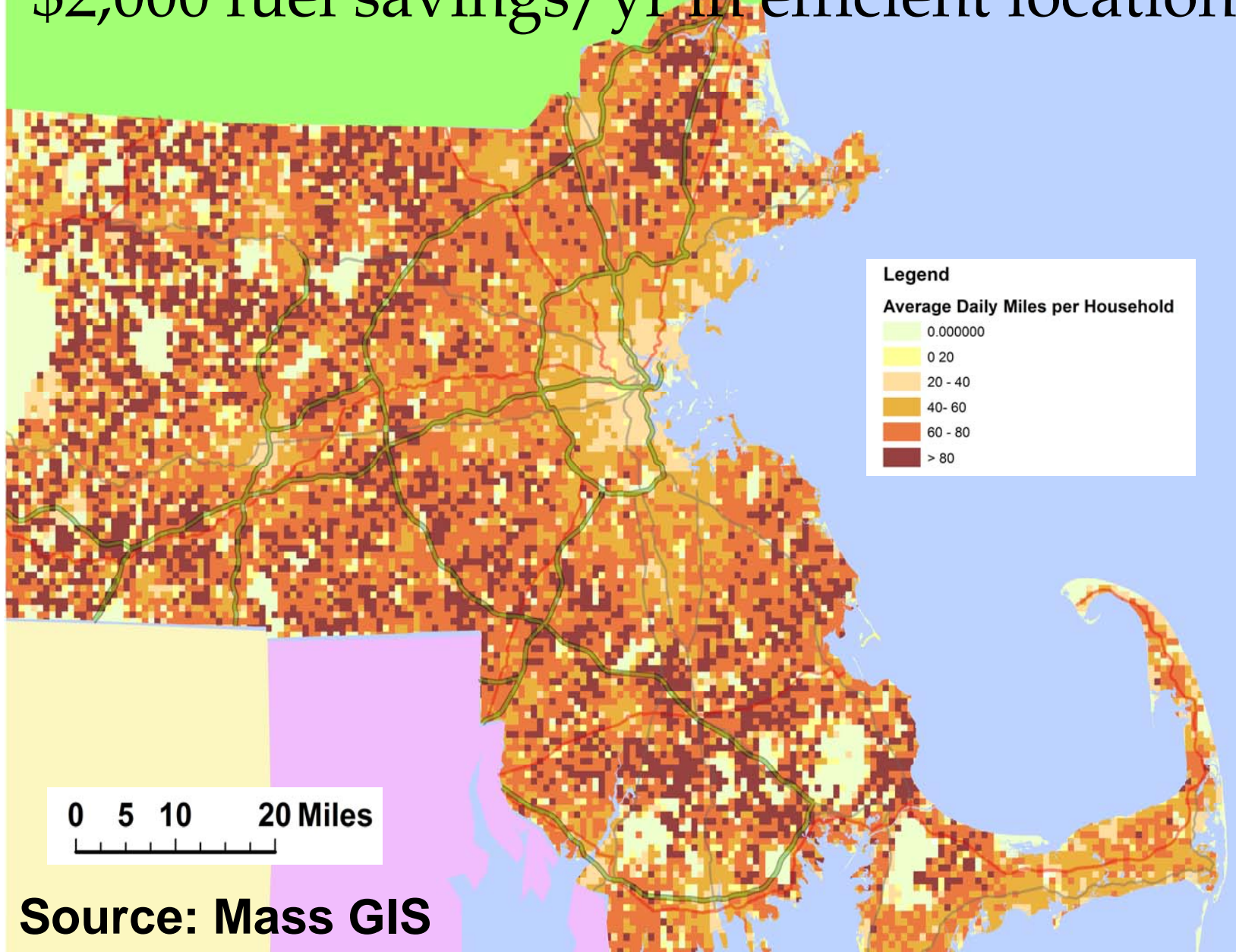   - Short-term:

   σ **odometer** (annual, zip code level)

   σ **retail fuel sales** (quarterly, zip code level)

   σ VMT tax pilot

VMT per Household

$2,000 fuel savings/yr in efficient locations

Legend

Average Daily Miles per Household

- 0.000000
- 0 20
- 20 - 40
- 40 - 60
- 60 - 80
- > 80

0 5 10   20 Miles

Source: Mass GIS

CCAP Travel Data Recommendations

3. Enhance Travel **Models and Capacity**
   - CO2 v. speed, transit, land use, TDM, NMT, freight, fuel prices, induced demand, system effic
   - Enhance state, MPO & local planning capacity

CCAP Travel Data Recommendations

4. Improve **Fuel Economy** Measurement
   - Expand testing of real-world fuel economy
   - Improve driving cycle tests, individual FE prediction
   - Important for CO_2 vs. speed & traffic flow

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CCAP Travel Data Recommendations

5. **Coordinate** across Government Agencies (DOT, EPA, DOE, IRS, HUD, Census)

   Share, compare, corroborate and integrate data sets (travel, fuel sales, fuel economy, demographics, land use)

   Analyze relationships among policy variables

   Provide guidance, technical support, tools, info on:

   σ data collection, model improvement, scenario analyses, best practices, policy design, implementation, evaluation

It's about the economy... (*shmendrik*)

λ Travel efficiency can reduce CO2 at net costs savings (CCAP 2009)

» Sacramento: save $9 billion, savings of $200/ton

» Atlanta: Tax revenues $300 million > upfront costs

» Portland: bikes to save $1,000/ton CO2

» Georgia: -7% VMT, $400 billion savings

» Tampa: $60 million streetcar attracted $1 billion pvt

» PAYD: could cut CO2 8% and save $50 billion/yr

» Short-tem: cut oil use 14% at < $3/ton CO2

» Arlington households spend 60% less on gasoline

Climate Models don't pick it up: "It's not a real $20 bill"

λ Price signal $50/ton ◊ cut 4% VMT

- » Need complementary policies on all 3 legs
- » Models predict 5% of US GHG savings from transportation

λ Modelers assume high cost per ton for travel efficiency

- » Portland, Arlington, NYC, Atlanta experience is ignored

λ Models miss major GHG benefits

- » E.g., shorter drive trips, walk, bike ◊ 2-4X transit benefits

λ Models miss major economic benefits

- » Infrastructure, local taxes, leveraged private investment

λ Need Federal assistance – help states, MPOs, locals discover and pursue their own self interest

Federal Opportunities

λ **Climate bill**

» Waxman-Markey: 0 - 1% for travel efficiency

» CLEAN-TEA: 10% of climate allowance value

» Prime the pump – start to **Do. Measure. Learn.**

λ **Transportation bill extension**

» Fund data and planning improvements to transition to performance-based policy.

» Odometer. Fuel Sales.

λ **How Green is your TEA?**

» **Ask the Climate Question**: $500 billion cut GHGs?

» 1% for measurement, evaluation, research, planning

Closing Thoughts

λ   High VMT growth a policy choice, not pre-ordained

λ   Travel efficiency can reduce GHGs and save $

λ   Planning and incentives as important as regulation & technology for climate resiliency

λ   Smart growth planning is the applied R&D to invent walkable, efficient communities

λ   You can't manage what you don't measure.

λ   **You don't get what you don't ask for**

Source: Larry Frank

Transportation & Climate Policy Resources

www.ccap.org

- **λ** **Travel Data and Modeling Recommendations to Support Climate Policy and Performance-Based Transportation Policy** (January 2009)

- **λ** **Winkelman testimony to House Subcommittee on Technology and Innovation** "The Role of Research in Addressing Climate Change in Transportation Infrastructure" (March 2009)

- **λ** **Cost-Effective GHG Reductions through Smart Growth & Improved Transportation Choices:** *An economic case for investment of cap-and-trade revenues* (June 2009)

- **λ** **Winkelman testimony to Senate Committee on Environment and Public Works**: "Transportation's Role in Climate Change and Reducing Greenhouse Gases" (July 2009)

- **λ** **Growing Wealthier: The Economic Benefits of Smart Growth** (forthcoming)

Contacts

Steve Winkelman   **swinkelman@ccap.org**

Marty Spitzer   mspitzer@ccap.org

Chuck Kooshian   ckooshian@ccap.org

Allison Bishins   abishins@ccap.org

www.ccap.org

Research Needs
Transportation and Climate

- λ **Winkelman testimony to House Subcommittee on Technology and Innovation** "The Role of Research in Addressing Climate Change in Transportation Infrastructure" (March 2009)

- λ Level, timing and cost of transp GHG reductions (all legs of the stool)

- λ Economic benefits and co-benefits

- λ Interactions among measures (induced demand, price response)

- λ Measuring accessibility (regional, local)

- λ Impact of fuel price in places with different accessibility levels

- λ Operationalizing performance metrics

- λ Real world pilots – measure while doing

- λ Climate impacts on transportation and adaptation opportunities