Public Transportation's Role in Responding to Climate Change

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Avoiding Carbon Emissions

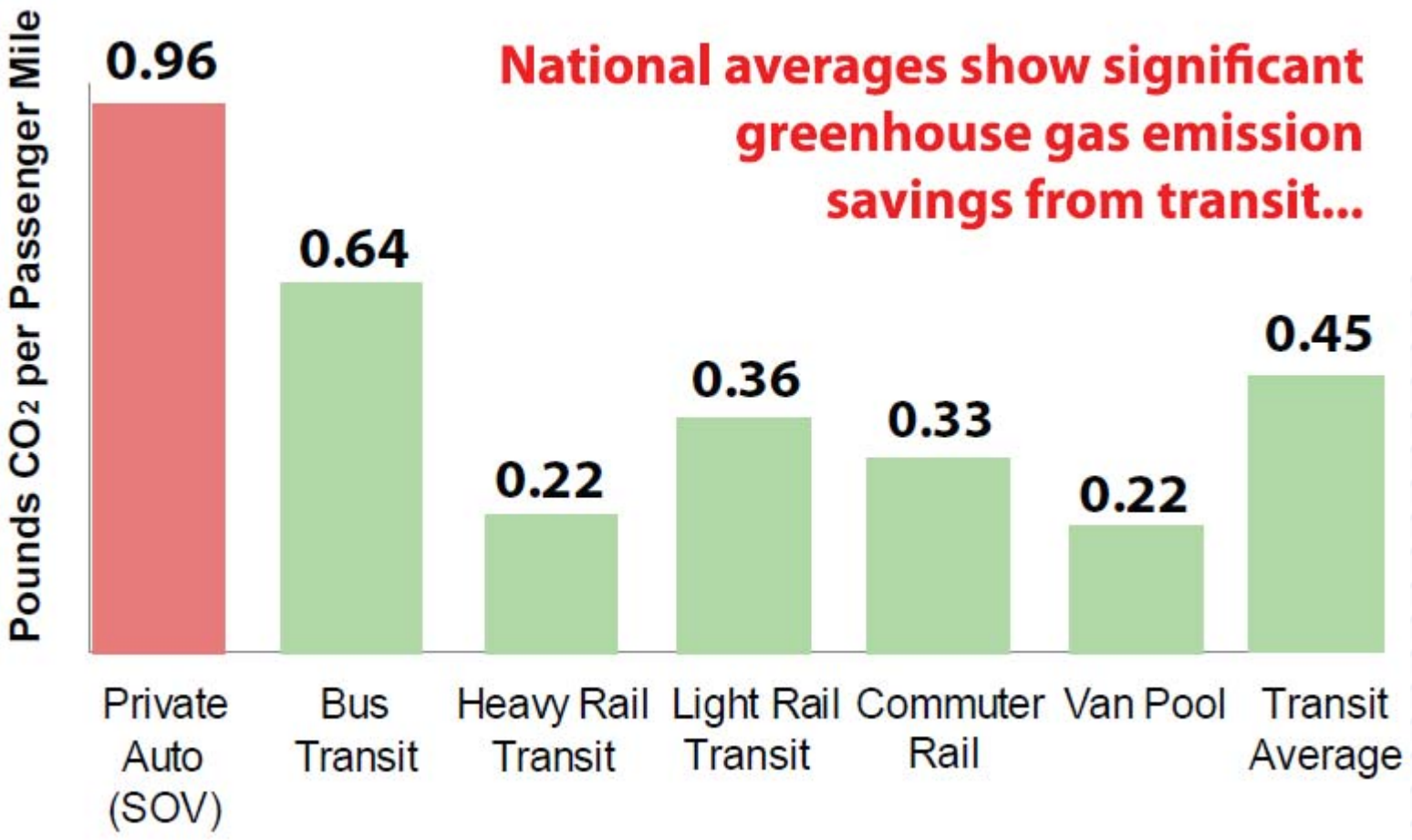
By moving more people in fewer vehicles, transit reduces greenhouse gas emissions.

40 commuters traveling by car

40 commuters traveling by bus.

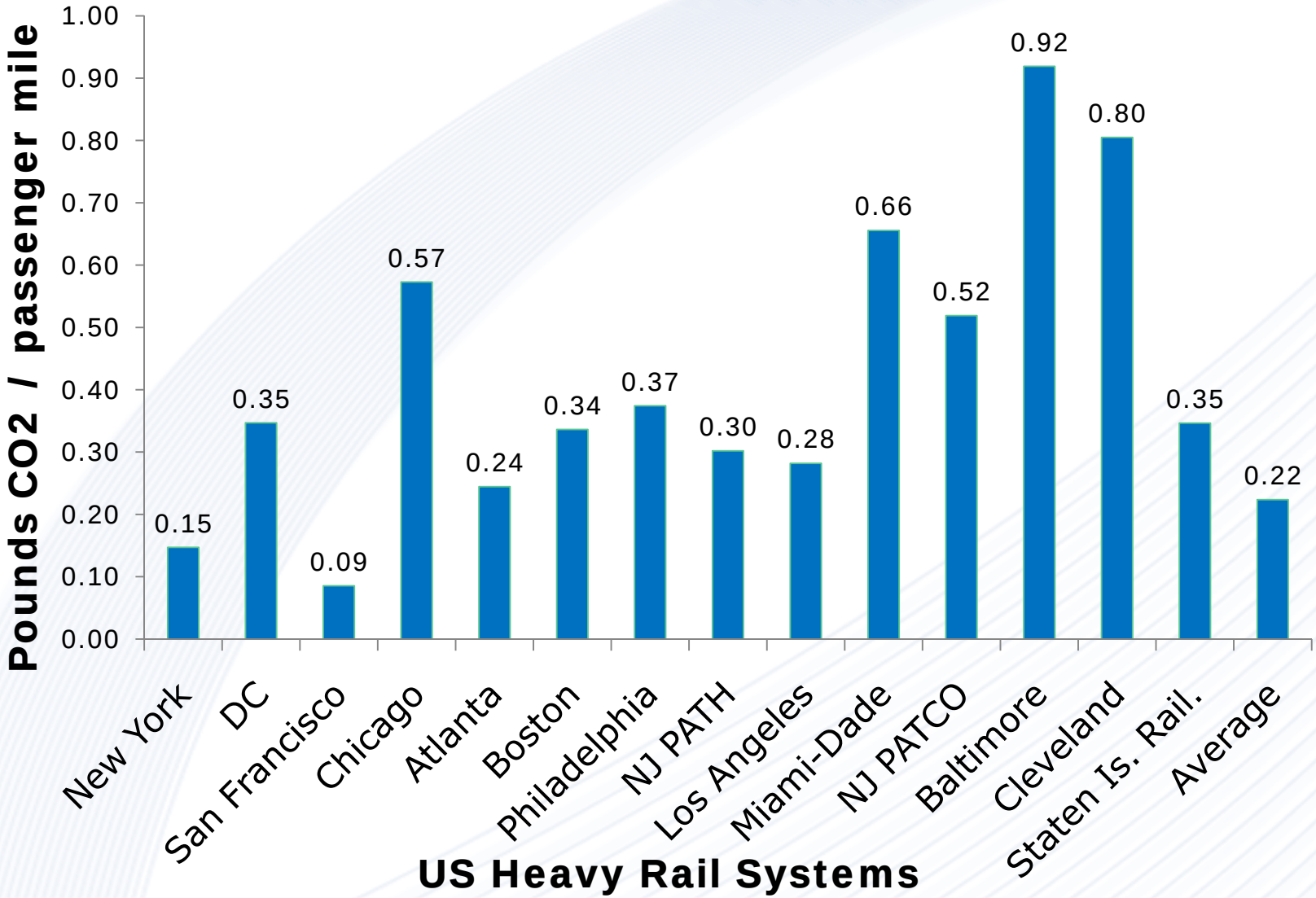
Photo Credit:
City of Ottawa

CO_2 Emissions per Passenger Mile



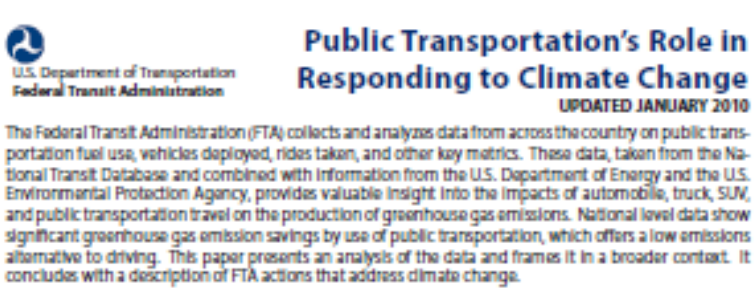
Source: Federal Transit Administration, *Public Transportation's Role in Responding to Climate Change*, 2010. Data sources: Federal Transit Administration National Transit Database, U.S. Department of Energy, U.S. Environmental Protection Agency

Averages Mask Variability



From National Average to Local Specific

- 3 variables influence carbon intensity of transit:
  - Efficiency of vehicles
  - Ridership
  - Carbon intensity of fuel/electricity
- Find the carbon intensity of transit in your local area:

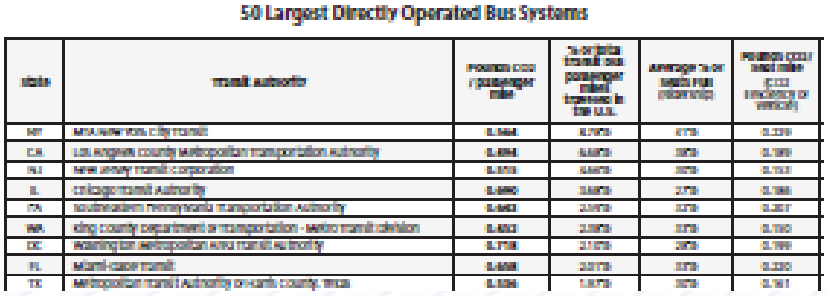


U.S. Department of Transportation
Federal Transit Administration

Public Transportation's Role in Responding to Climate Change

UPDATED JANUARY 2010

The Federal Transit Administration (FTA) collects and analyzes data from across the country on public transportation fuel use, vehicles deployed, rides taken, and other key metrics. These data, taken from the National Transit Database and combined with information from the U.S. Department of Energy and the U.S. Environmental Protection Agency, provides valuable insight into the impacts of automobile, truck, SUV, and public transportation travel on the production of greenhouse gas emissions. National level data show significant greenhouse gas emission savings by use of public transportation, which offers a low emissions alternative to driving. This paper presents an analysis of the data and frames it in a broader context. It concludes with a description of FTA actions that address climate change.



50 Largest Directly Operated Bus Systems

state	transit authority				
NY	MTA New York City Transit				
CA	Los Angeles County Metropolitan Transportation Authority				
NJ	New Jersey Transit Corporation				
IL	Chicago Transit Authority				
PA	Southeastern Pennsylvania Transportation Authority				
WA	King County Department of Transportation - Metro Transit Division				
DC	Washington Metropolitan Area Transit Authority				
FL	Miami-Dade Transit				
TX	Metropolitan Transit Authority of Harris County, Texas				

http://www.fta.dot.gov/documents/PublicTransportationsRoleInRespondingToClimateChange2010.pdf

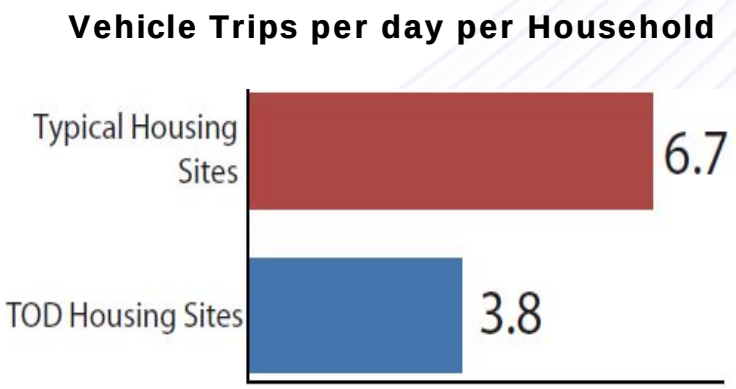
Optimizing Land Use

- Transit facilitates compact land use, which further reduces emissions as it
  - Reduces driving trip distances
  - Supports walking/biking
- Compact development reduces driving 20 – 40%.- Growing Cooler
- Combining transit and supportive land use policies offers synergies that increase each strategy's impact

Optimizing Land Use (cont.)

- CNT Study: highest location efficient transit zones had average household GHG emissions 78% lower than average census block group.

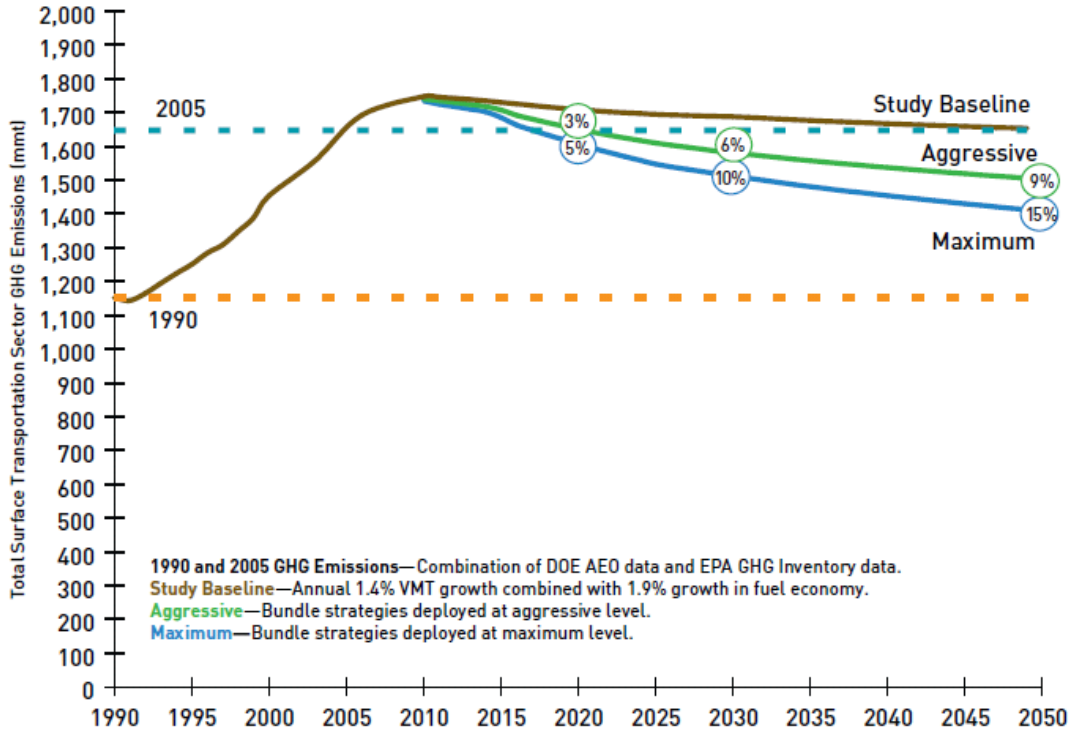
- TCRP 128 “Effects of TOD on Housing, Parking, and Travel” found that 17 surveyed TOD-housing projects averaged 44% fewer vehicle trips than that estimated by ITE manual.



Source: TCRP 128

Optimizing Land Use (cont.)

Figure 4.5 **GHG Reduction for Land Use/Transit/Nonmotorized Transportation Bundle** 2010 to 2050

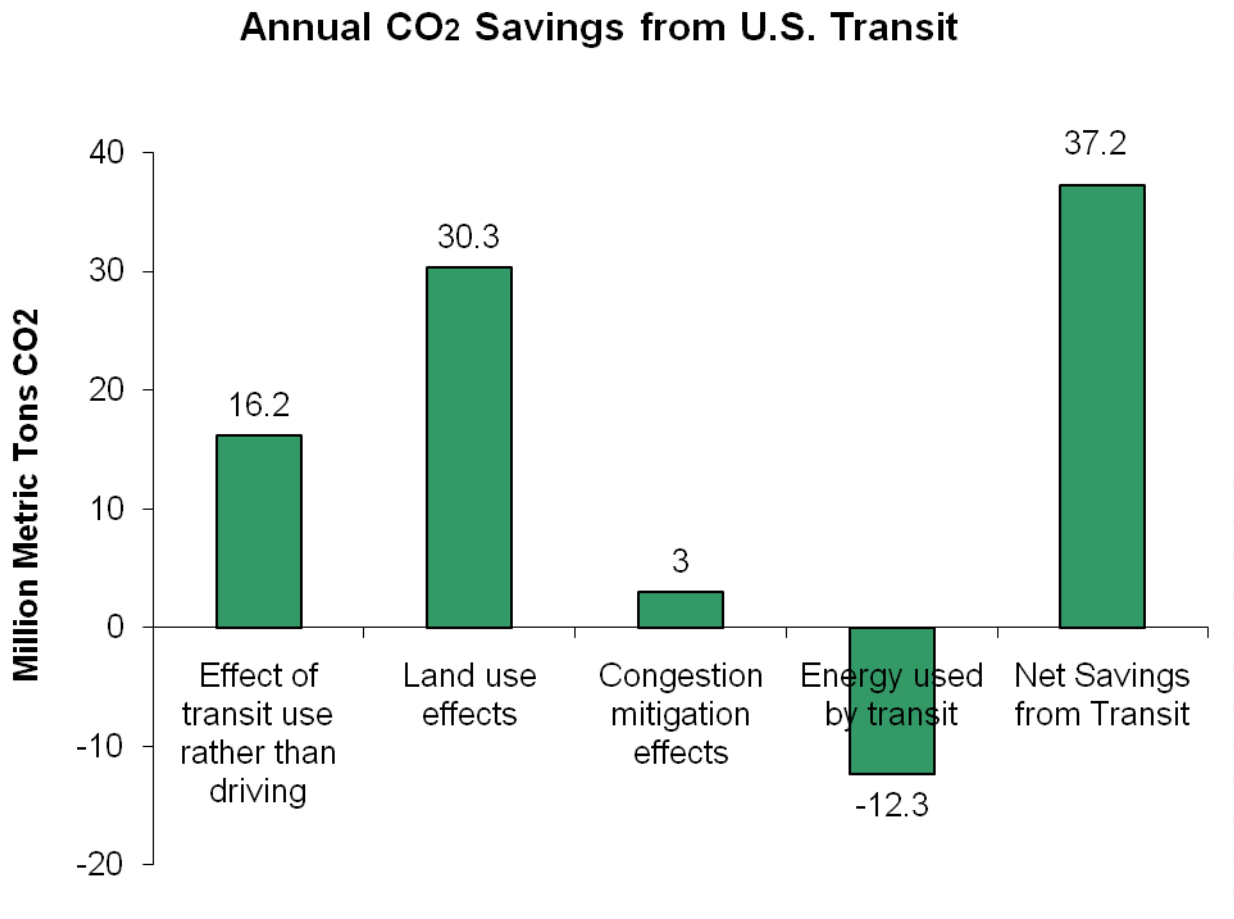


Note: This figure displays the GHG Reduction for Land Use/Transit/Nonmotorized Transportation Bundle at Aggressive and Maximum Deployment for the 2010 to 2050 time period without economy-wide pricing. Percent reductions are on an annual basis from the study baseline.

Moving Cooler study: 9-15% GHG reduction from land use / transit / pedestrian bundle

Source:
Cambridge Systematics. *Moving Cooler*. 2009.

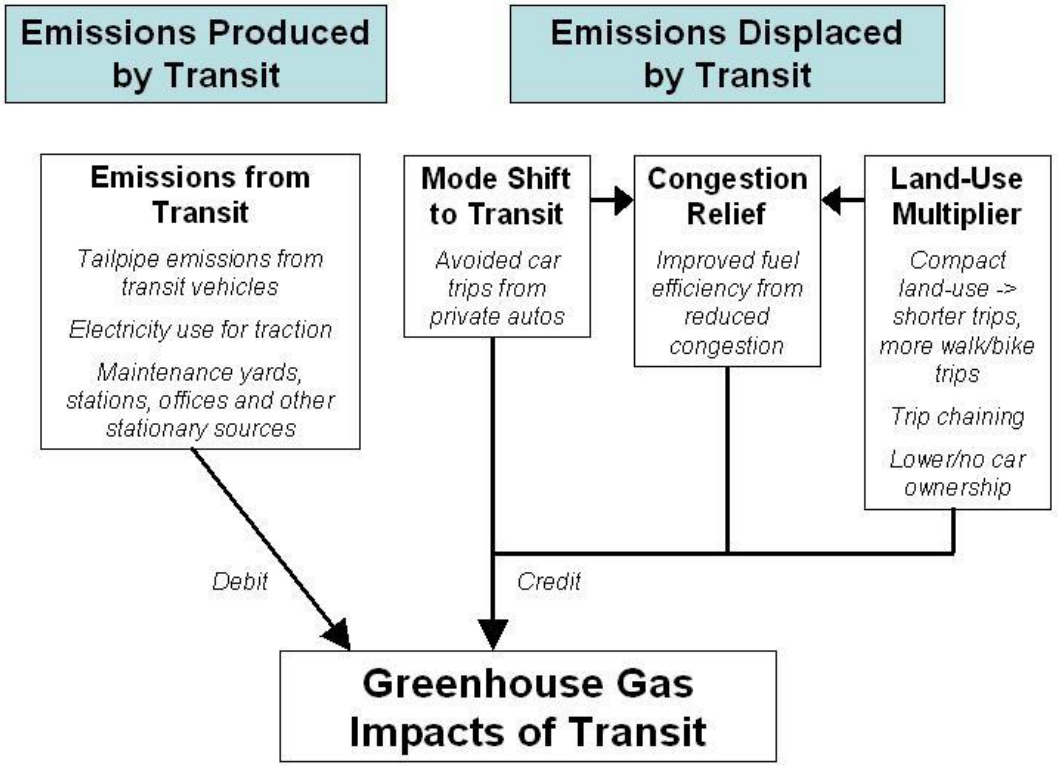
U.S. Transit CO_2 Savings – ICF Report



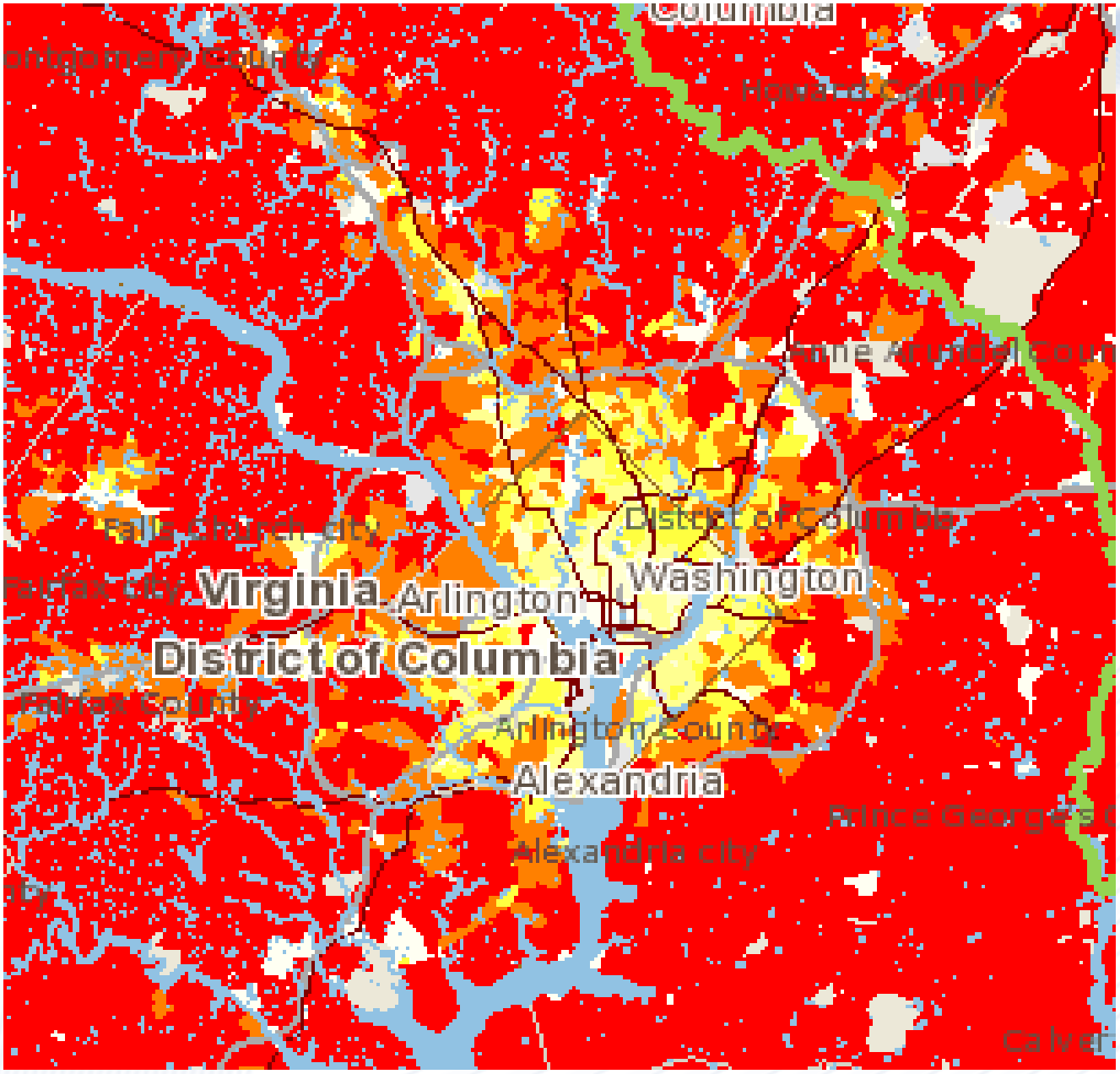
Source: *The Broader Connection between Public Transportation, Energy Conservation and Greenhouse Gas Reduction*, February 2008, Conducted by ICF International, Requested by APTA, Funded by TCRP

Tool for tracking GHG savings from transit

- APTA Recommended Practice: Quantifying GHG from Transit www.aptastandards.com
- Working on method for determining impact of transit on land use for different communities, rather than using national average multiplier of 1.9.



- TCRP Synthesis: Current Practices in Greenhouse Gas Emission Savings from Transit http://www.trb.org/Main/Blurbs/Current_Practices_in_Greenhouse_Gas_Emissions_Savi_163614.aspx



CO_2 per Household from Household Auto Use

- Data Not Available
- Less than 3.3 Metric Tons/HH
- 3.3 to 5.1 Metric Tons/HH
- 5.1 to 6.5 Metric Tons/HH
- 6.5 to 8.6 Metric Tons/HH
- 8.6 Metric Tons/HH and Greater

Source: Center for Neighborhood Technology, *H+T Affordability Index*, http://www.civicfootprint.org/

Minimizing its Own Impact

- Transit agencies can use efficient vehicles, alternative fuels, and green building materials decrease impact of construction and operations.

Tool for Reducing Transit GHGs

- Transit Carbon Management Compendium
  - A handbook for transit agency managers and local governments on how to reduce energy and emissions intensity of transit.
  - Compiles results of FTA research on alternative fuel and fuel efficiency transit vehicles as well as outside analysis
  - GeorgiaTech
  - Coming Soon!
- Environmental Management System (EMS) Training
  - 2 rounds of transit agencies already trained
  - Call for additional transit agencies interested in training issued June 18 http://www.fta.dot.gov/news/news_events_11779.html
- TIGGER: $100M in 2009, $75M in 2010 for capital grants to reduce energy and GHGs

Partnership for Sustainable Communities

Formed in June 2009 by DOT, HUD, and EPA

Livability Principles:

- Provide more transportation choices
- Promote equitable, affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate and leverage federal policies and investments
- Value communities and neighborhoods

Sustainable Communities Partnership Funding Opportunities

US HUD

- Sustainable Community Planning Grants ($100 m)
- Sustainable Community Challenge Grants ($40 m)

US DOT

- TIGER I ($1.2b)
- TIGER II
  - Capital ($570m)
  - Planning ($30m)
- Urban Circulator ($135 m)
- Bus Livability ($150+ m)
- TIGGER & Clean Fuels ($156+ m)

US EPA

- Smart Growth Technical Assistance
- Sustainable Communities Brownfields Pilots
- Clean Water State Revolving Fund Pilots
- Targeted Watershed Grants ($600 m)

Recent Partnership Successes

- HUD Affordable Housing on Brownfields
- DOT (FTA) New Starts Cost Effectiveness
- DOT (FTA) Affordable Housing Near Transit Guide
- DOT (FHWA, FTA) Bicycle & Pedestrian Policies
- DOT, HUD, and EPA Grant Announcements

Joint FTA and FHWA Programs

Transportation Planning Capacity Building Program:

Peer Programs is comprehensive training and assistance to support to decision makers, officials, and staff on:

- Land use
- Scenario planning
- Transit-oriented development
- Operations & management
- Analysis methods

www.planning.dot.gov

FTA Livability Programs Include:

- Transit systems such as buses, subway, light rail, commuter rail, streetcar, monorail, ferries, and people movers
- Community development where neighborhoods are made more safe, healthy, and environmentally sustainable
- Formula and discretionary/competitive grants

www.fta.gov/livability

FTA Formula Funds

- Urbanized Areas Formula Grant Program
- Rail and Fixed Guideway Modernization Formula Program
- Rural and Small Urban Area Formula Grant Program
- Rural Transit Assistance Program

Bicycle pathway and Orange Line Bus Rapid Transit in Los Angeles, CA.
Photo courtesy of LA Metro.

www.fta.dot.gov/funding/grants_financing_263.html

Competitive Funding for Transit:

- Bus and Bus Facilities Discretionary Grant Programs (Urban Circulator and Bus Livability, $280M)
- New and Small Start Discretionary Grant Program
- Public Transportation on Indian Reservations Discretionary Grant Program
- Transit Investment for Greenhouse Gas Reduction (TIGGER) Program
- Transit in the Parks Discretionary Grant Program

www.fta.dot.gov/funding/grants_financing_263.html

Transit Serving Target Populations

- Transportation for Elderly Persons and Persons with Disabilities
- The Job Access and Reverse Commute Program
- New Freedom Formula Grant Program

www.fta.dot.gov/funding/grants_financing_263.htm
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Center for Transit Oriented Development

- Provides best practices, research and tools to support market-based transit-oriented development.
- Partners with both the public and private sectors to strategize about ways to encourage the development of high-performing TOD projects around transit stations and to build transit systems that maximize the development potential.
- Funded by FTA
- http://www.reconnectingamerica.org/public/tod

Thank You!

www.fta.dot.gov/sustainability www.fta.dot.gov/livability

www.climate.dot.gov

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