

Taking the car out of carbon

Pace Energy & Climate Change
Center

June 27, 2012

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takingthecaroutofcarbon.tumblr.com

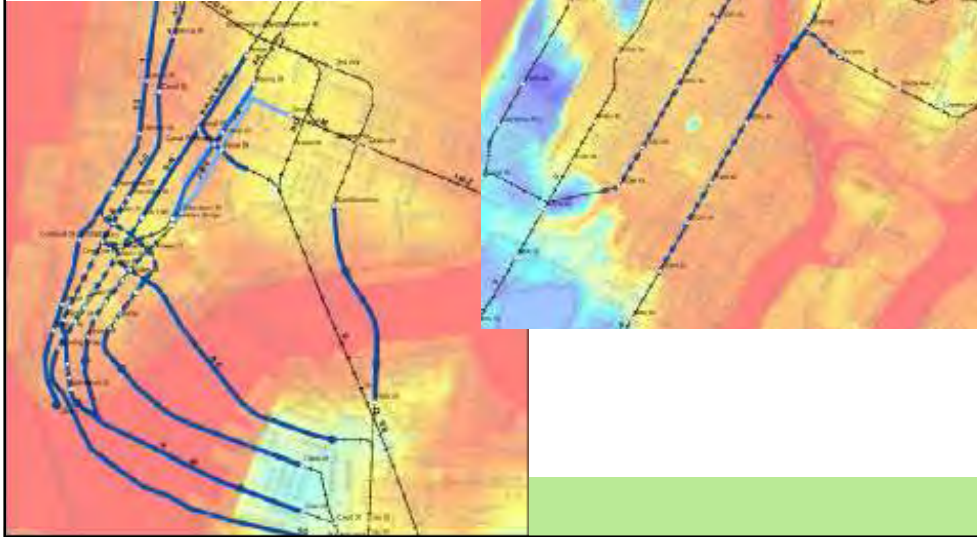


Adaptation and Climate Change



Metropolitan Transportation Authority

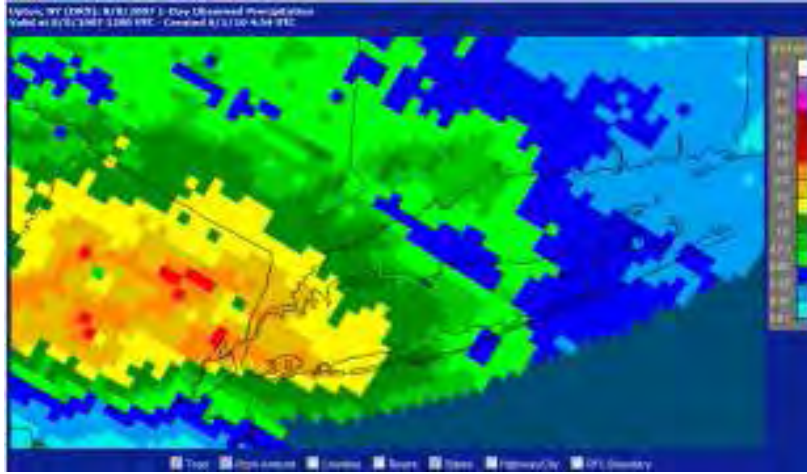
**100-year flood with
4ft sea level rise**



**Case Study:
Lessons from August 8, 2007**

- 1.4 to 3.5 inches of rainfall in two-hour period
- Pockets of intense, sustained rain overwhelms regional drainage systems
- First tornados to hit Brooklyn in over 100 years
- Storm coincides with morning rush hour
- Reports of flooding throughout system begin just before 6am

Anatomy of a Storm



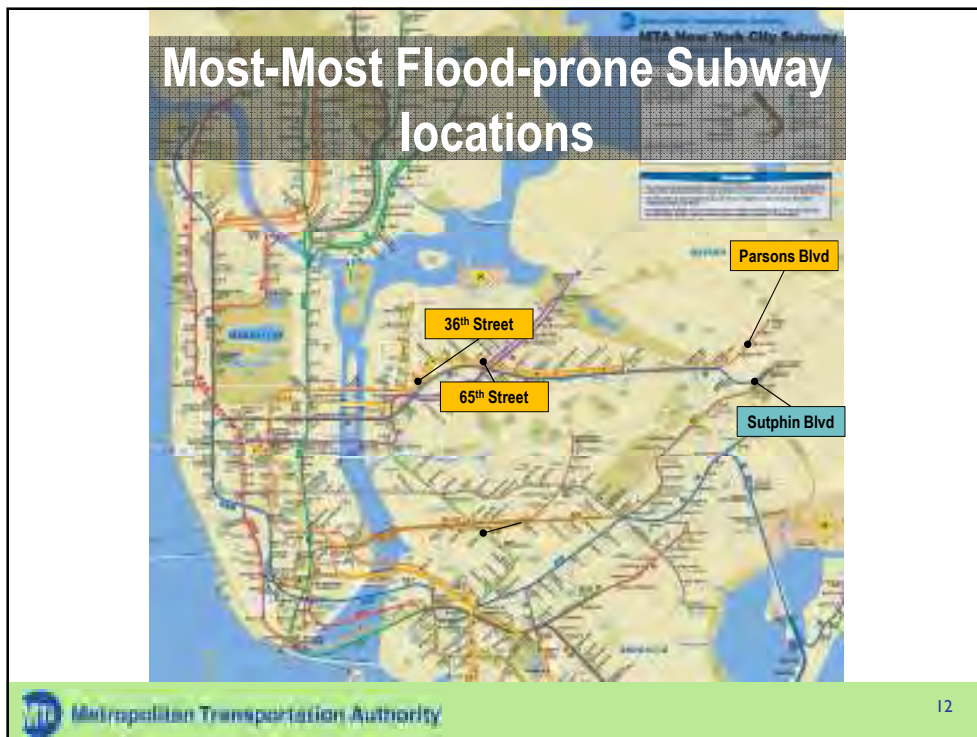
Progression of the Worst Flooding

- 6:10 am
- 6:31 am
- 6:46 am
- 7:11 am
- 7:20 am



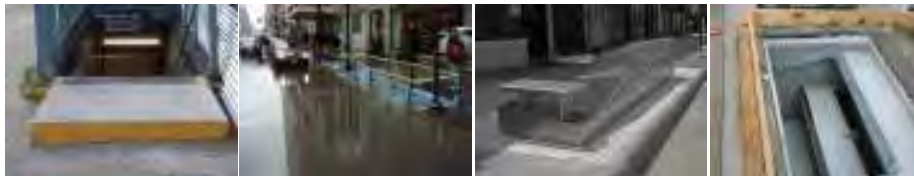












19 raised pads

770 gratings
paved-over

813 raised
gratings

14 mechanical
closing devices

in 4 locations:

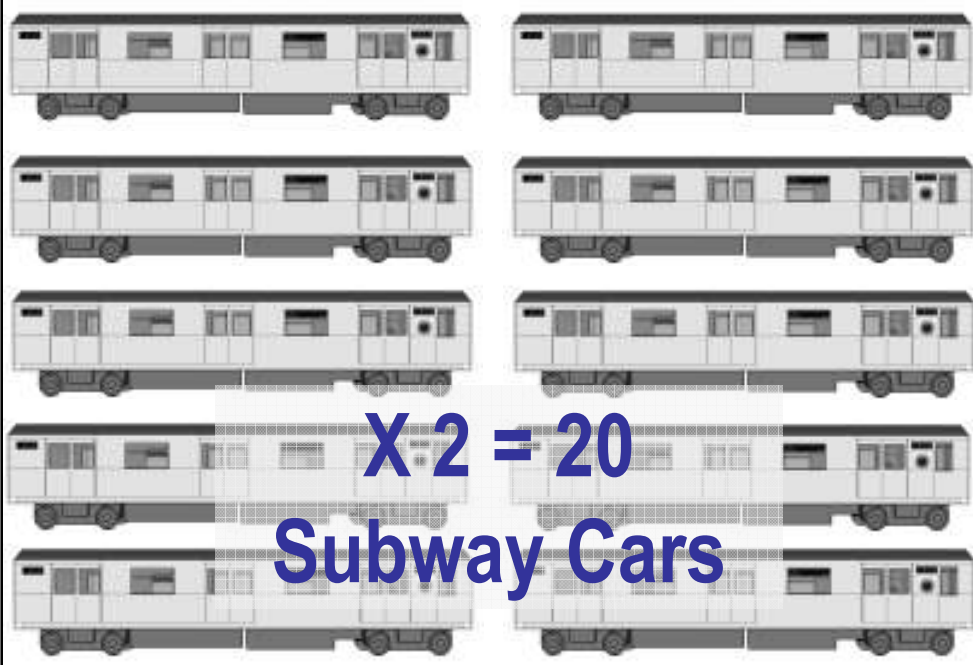
36th Street

65th Street


Sutphin Blvd.

Parsons Blvd


= \$33.6 million




**X 2 = 20
Subway Cars**

 Metropolitan Transportation Authority

19



X 3 = 60 Buses

 Metropolitan Transportation Authority

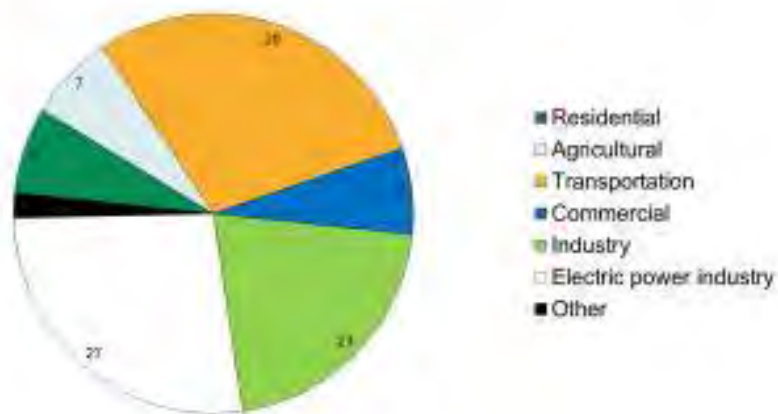
20



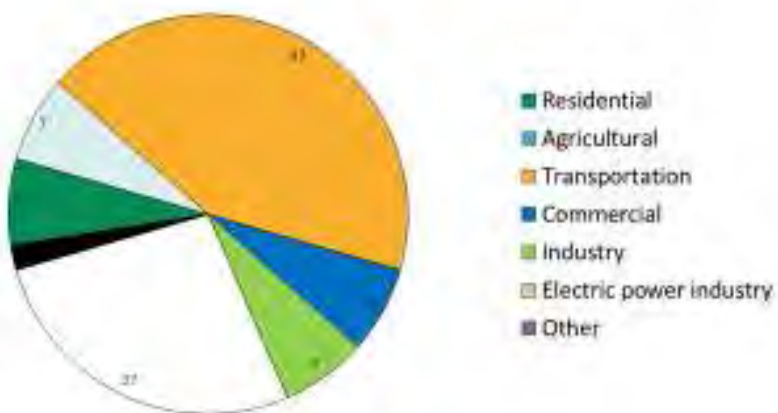
Energy Consumption & Sustainability: Macroview



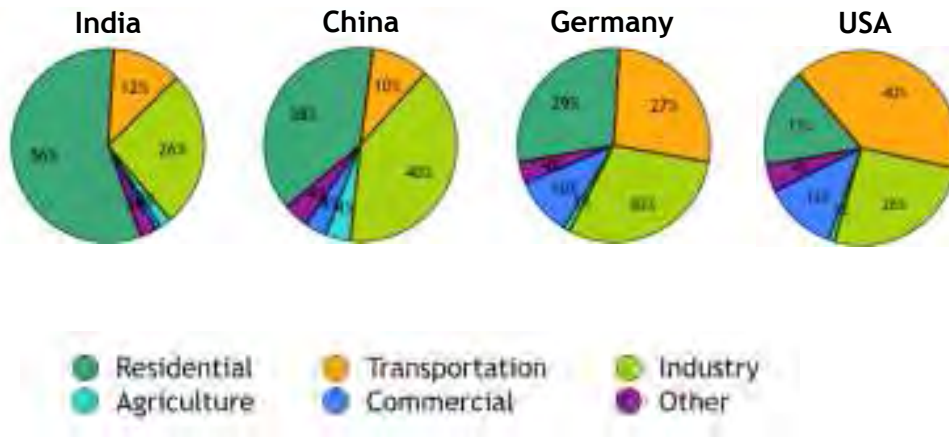
Emissions from Transportation, tailpipe only



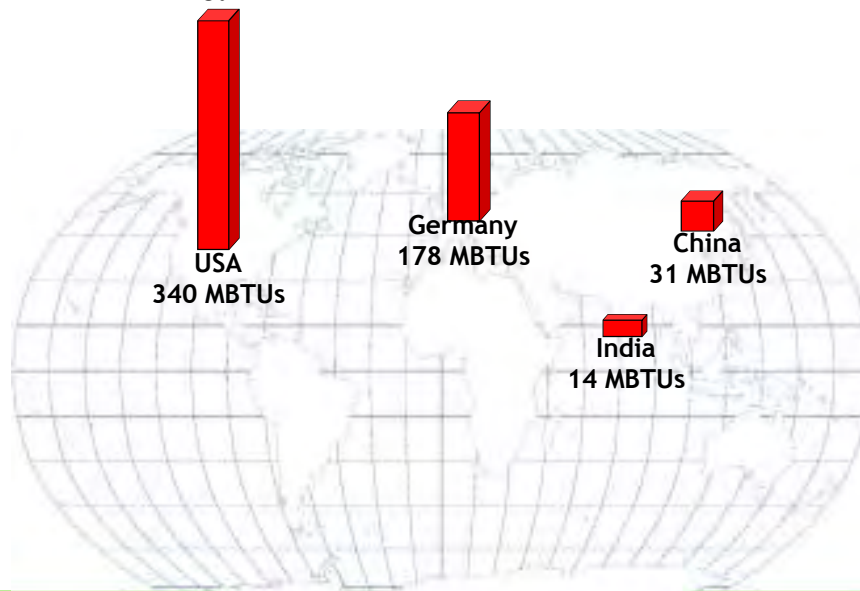
Emissions from Transportation, "wells-to-wheels"



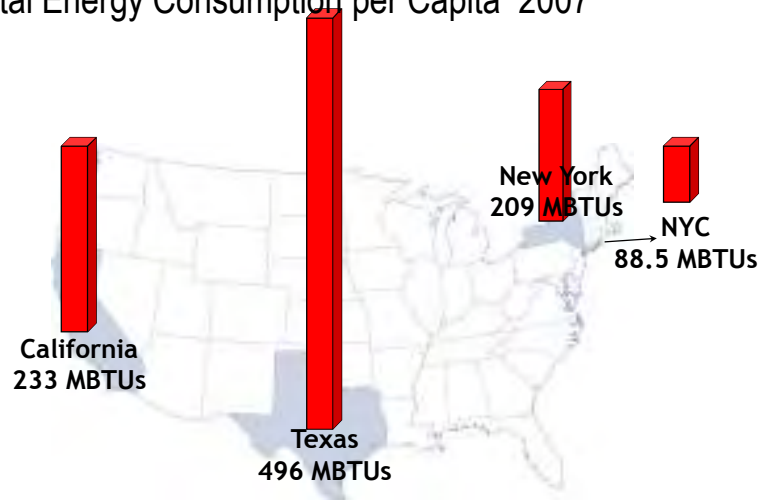
Energy Consumption by Sector, 2005



Total Energy Consumption per Capita, 2005



Total Energy Consumption per Capita 2007



Energy Consumption & Sustainability: Microview

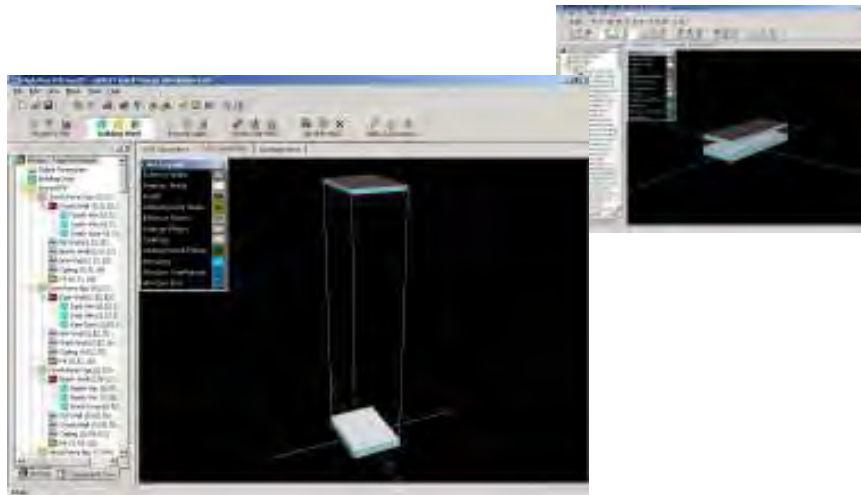
Energy Consumption: Low-Rise Office Park vs. Tall Urban Building



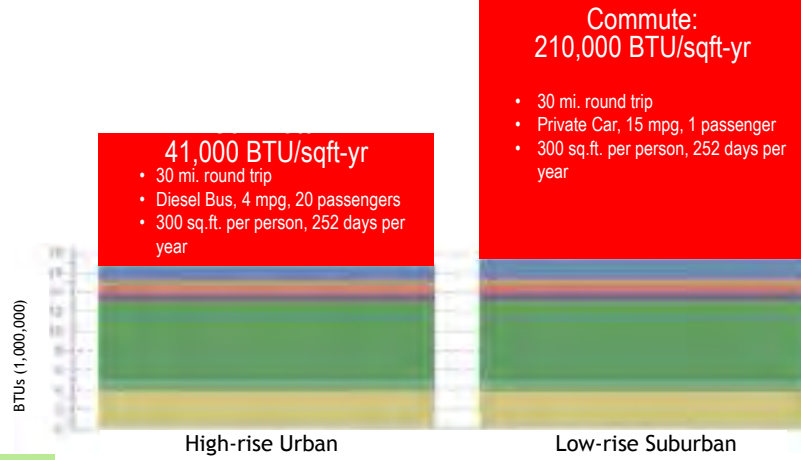
	High-Rise	Low-Rise
Number of buildings	1	10
Average floor size	30,612 sf	36,000 sf
Area of roof	88,000 sf	375,000 sf
Area of ext wall	343,000 sf	385,000 sf
Area of parking	0 sf	1,837,500 sf



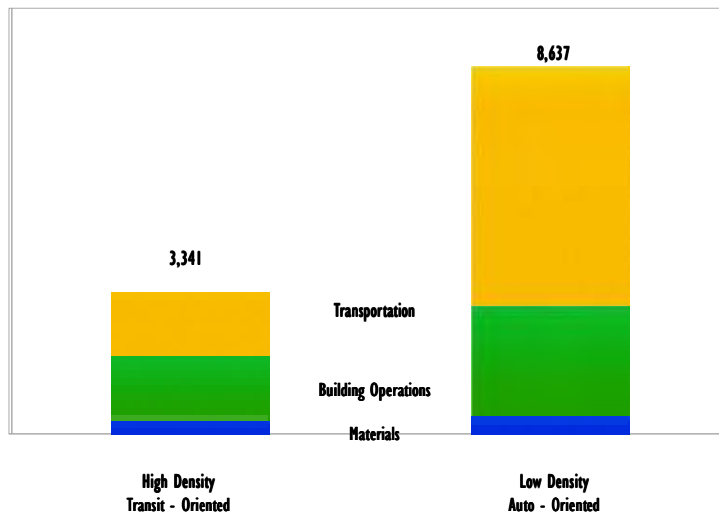
Energy Consumption: Low-Rise Office Park vs. Tall Urban Building



Energy Consumption: Low-Rise Office Park vs. Tall Urban Building



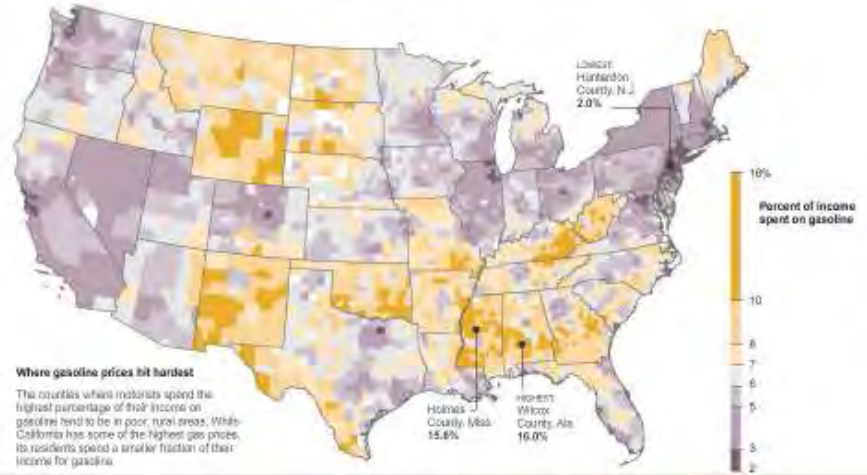
GHG Per Person: Kg CO₂E (Carbon dioxide equivalent) pa.



The Varying Impact of Gas Prices

Gas prices are high throughout the country, but how hard they hit individual families depends on income levels, which vary widely.

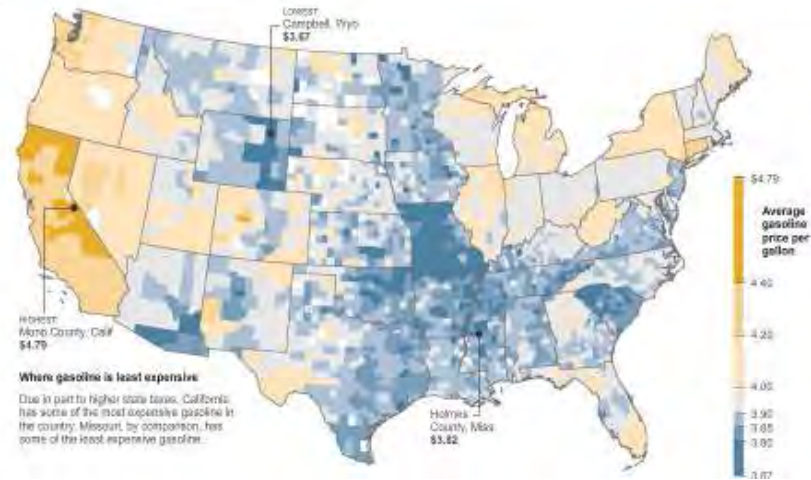
PERCENT OF INCOME ON GAS | GAS PRICES | MEDIAN INCOME



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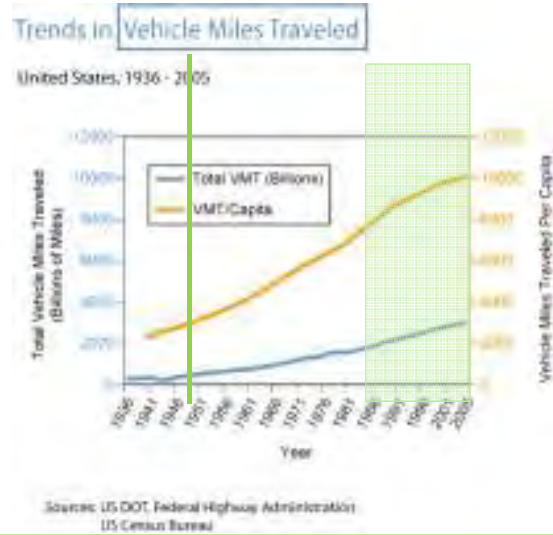
PERCENT OF INCOME ON GAS | GAS PRICES | MEDIAN INCOME



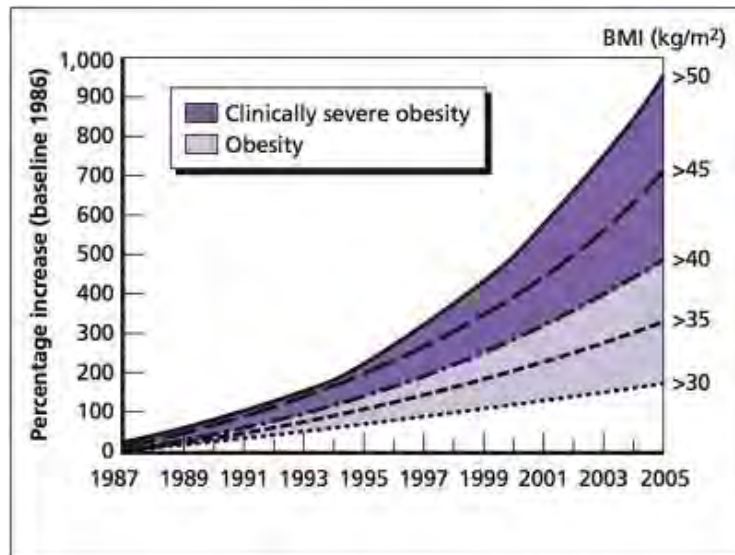
Public Transportation and Public Health



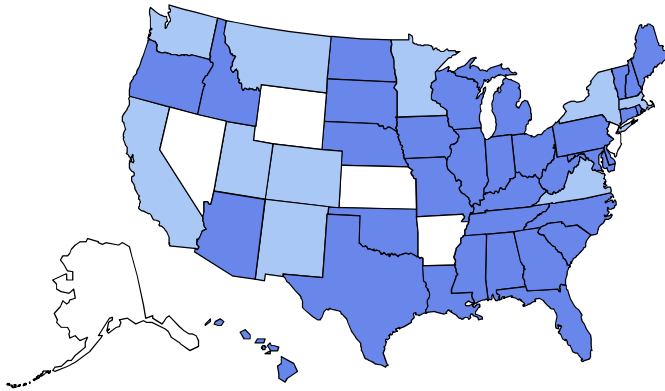
Vehicle Miles Traveled Trend-lines



Obesity Trendlines



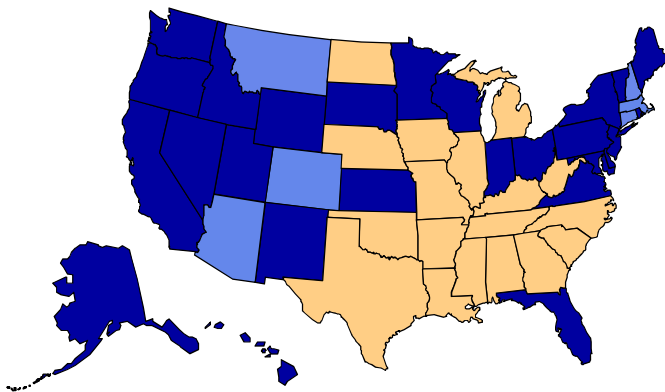
Obesity Trends* Among U.S. Adults BRFSS, 1990



No Data
 <10%
 10%-14%

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)

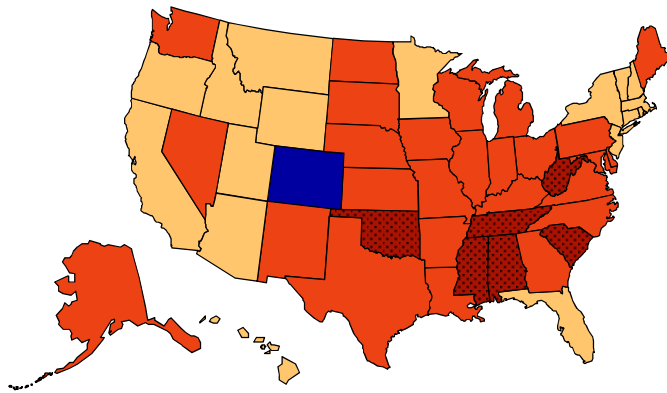
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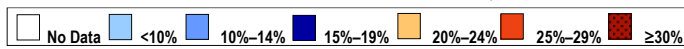
No Data
 <10%
 10%-14%
 15%-19%
 $\geq 20\%$

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)

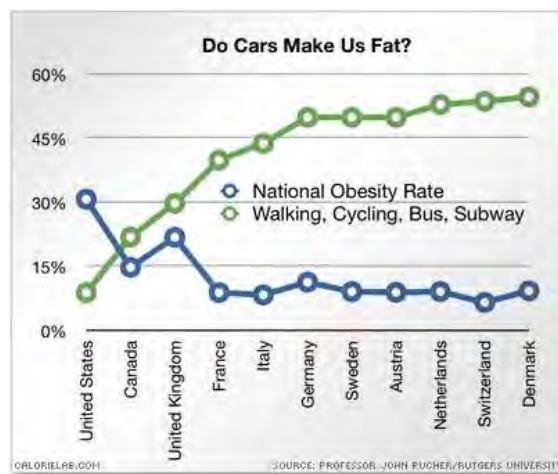
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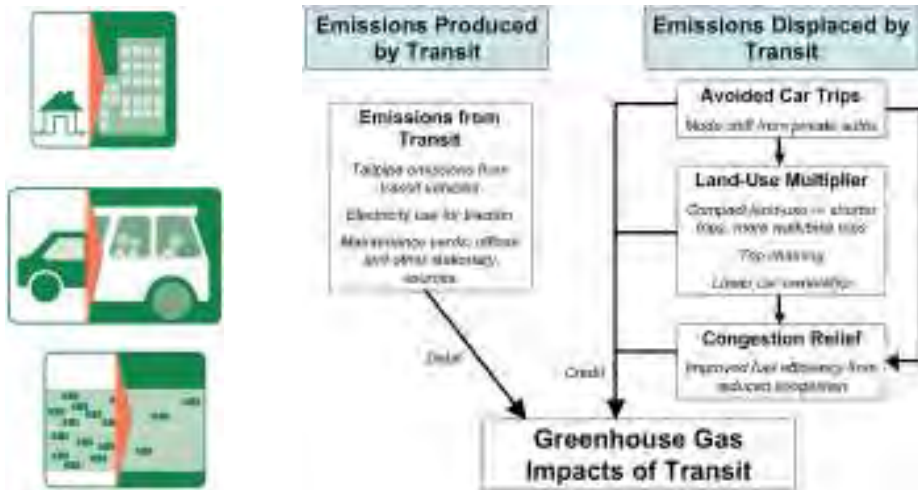


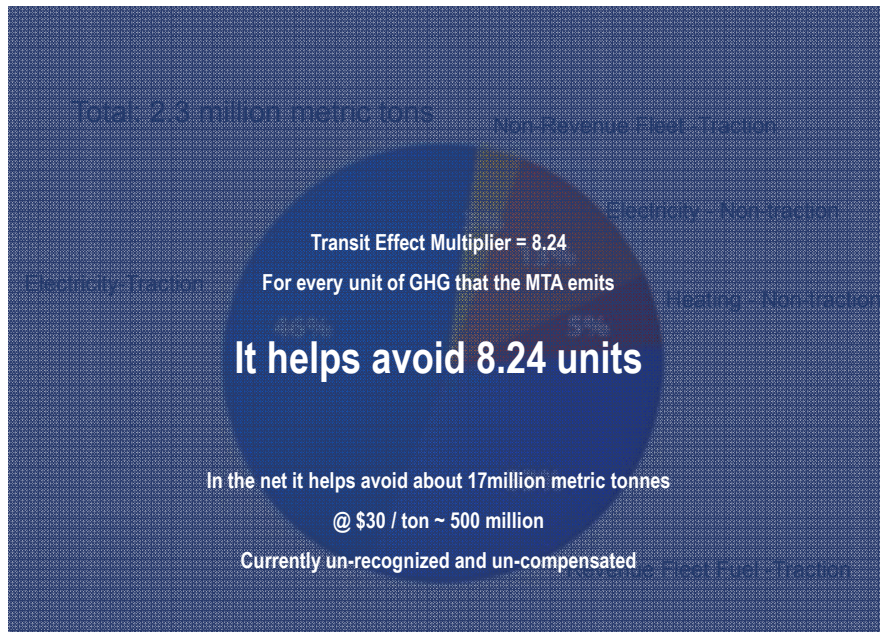
Inverse Correlation

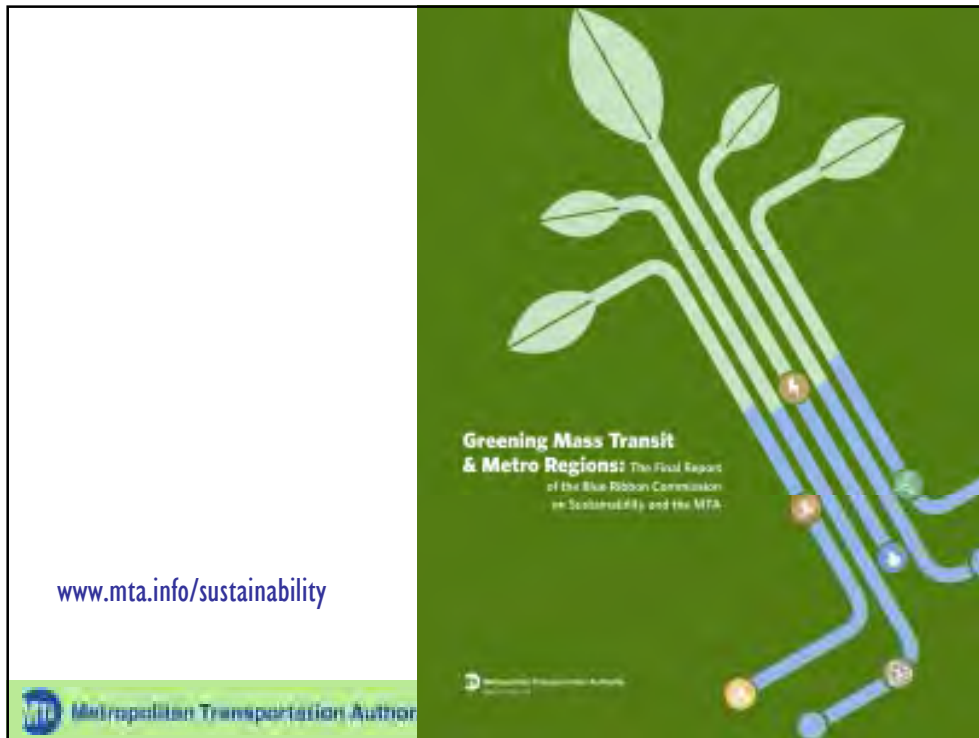


What is it worth?

Transit GHG Emissions Typology







“Does not work anywhere but New York.”

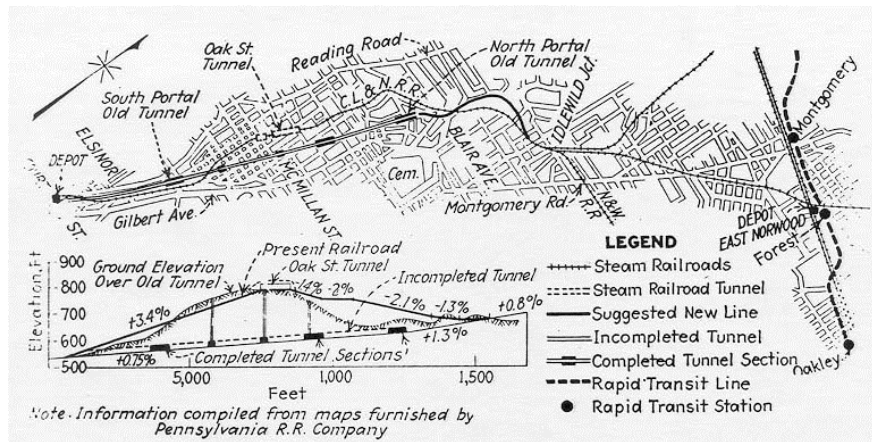
Is Transit for Everywhere? Cincinnati's Close Brush



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Is Transit for Everywhere? Cincinnati's Close Brush



Is Transit for Everywhere? What happened in NYC

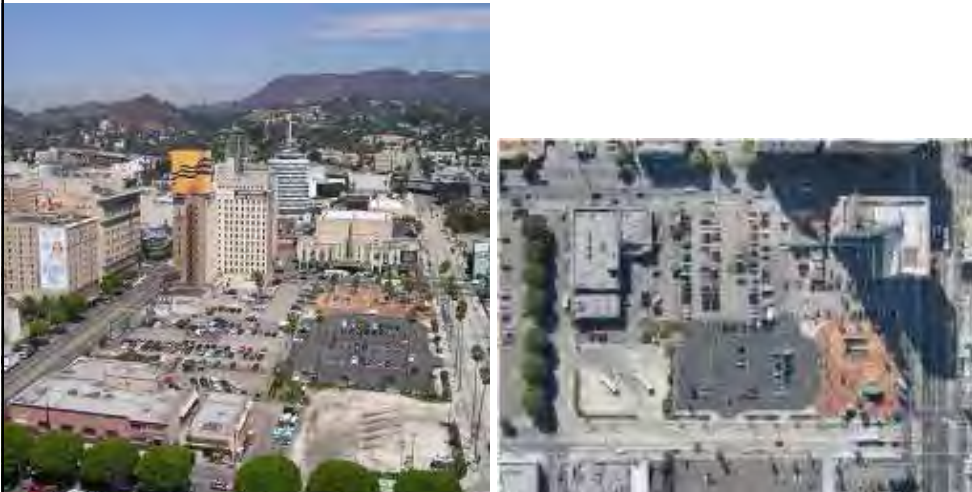


Is Transit for Everywhere? What happened in NYC



 Metropolitan Transportation Authority

Is Transit for Everywhere? Can LA become a Transit City?



 Metropolitan Transportation Authority

Is Transit for Everywhere? Can LA become a Transit City?

hollywood blvd, vine street, la

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Metropolitan Transportation Authority



Metropolitan Transportation Authority



Conclusions

<p>As societies develop/industrialize, their energy needs rise.</p>	<p>Transportation emerges as a major consumer of energy.</p>	<p>Automobile-based paradigm with corollary suburban sprawl is wasteful and unsustainable</p>
<p>It negates the good effects of "green" building methods and technologies</p>	<p>Sustainable urban growth has to embrace mass-transit and support density</p>	<p>Designing the right carbon-constrained system can make this happen</p>

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