Public Transportation: Introduction

- Current status and recent trends in the US
- Significant influences
- Critical assessment
- Arguments supporting public transport
- Future influences
- Ingredients for future success

US Urban Transport Today
Trends in Modal Split for Daily Travel
in the United States (1969-2009)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>81.8</td>
<td>83.7</td>
<td>82.0</td>
<td>87.1</td>
<td>86.5</td>
<td>86.4</td>
<td>83.4</td>
</tr>
<tr>
<td>Transit</td>
<td>3.2</td>
<td>2.6</td>
<td>2.2</td>
<td>2.0</td>
<td>1.8</td>
<td>1.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Walk</td>
<td>n/a</td>
<td>9.3</td>
<td>8.5</td>
<td>7.2</td>
<td>5.4</td>
<td>8.6</td>
<td>10.4</td>
</tr>
<tr>
<td>Bicycle</td>
<td>n/a</td>
<td>0.7</td>
<td>0.8</td>
<td>0.7</td>
<td>0.9</td>
<td>0.9</td>
<td>1.0</td>
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<tr>
<td>Other</td>
<td>5.0</td>
<td>3.7</td>
<td>6.5</td>
<td>3.0</td>
<td>3.2</td>
<td>2.5</td>
<td>3.1</td>
</tr>
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</table>

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US Transit Ridership at Highest Level in Four Decades

- Ridership increasing moderately but remains small
- Strong financial support from all levels of government
- Significant growth in number of new rail starts in past 25 years
- Major rebuilding of many older systems over past 20 years
- Slow institutional innovation, but growing recognition that fundamental change may be necessary for survival well into 21st century

Source: American Public Transportation Association, Transit Facts 2015 (for 2013)
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Since 2004 Public Transit Use Has Grown More Than Population of Highway Travel

![Graph showing percent change from 2004 to 2014 for transit passenger miles, population, and highway vehicle miles of travel.](Source: American Public Transportation Association, Transit Facts 2015 (for 2013))

Highest Transit Share Among 50 Largest Metropolitan Statistical Areas (2013)

![Bar chart showing percentage of commuters by travel mode for the United States and Puerto Rico: 2009-2013.](Source: 2009-2013 5-Year American Community Survey Commuting Flows. Table 2. County to County Commuting Flows by Travel Mode for the United States and Puerto Rico: 2009-2013. Source: public domain.)


<table>
<thead>
<tr>
<th>Area</th>
<th>Car</th>
<th>Transit 2000</th>
<th>Transit 2013*</th>
<th>Non-Motorized</th>
<th>Work at home</th>
</tr>
</thead>
<tbody>
<tr>
<td>NY-NJ-CT-PA</td>
<td>65.7</td>
<td>24.9</td>
<td>30.2</td>
<td>6.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Chicago</td>
<td>81.5</td>
<td>11.5</td>
<td>11.3</td>
<td>4.2</td>
<td>2.9</td>
</tr>
<tr>
<td>San Francisco -Oakland</td>
<td>81.0</td>
<td>9.5</td>
<td>14.7</td>
<td>5.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Washington DC-Baltimore</td>
<td>83.2</td>
<td>9.4</td>
<td>14.2</td>
<td>3.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Boston</td>
<td>82.7</td>
<td>9.0</td>
<td>11.8</td>
<td>5.1</td>
<td>3.2</td>
</tr>
</tbody>
</table>

↑ ↓ indicates change of more than 0.5% from 1990-2000

Public Transport Funding by Source (2013, in $ billions)

<table>
<thead>
<tr>
<th>Source</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fares</td>
<td>---</td>
<td>15.0 (32.5%)</td>
</tr>
<tr>
<td>Other directly generated</td>
<td>4.2 (23.7%)</td>
<td>4.7 (10.2%)</td>
</tr>
<tr>
<td>Local</td>
<td>3.2 (18.4%)</td>
<td>10.2 (22.2%)</td>
</tr>
<tr>
<td>State</td>
<td>2.9 (16.3%)</td>
<td>12.0 (26.1%)</td>
</tr>
<tr>
<td>Federal</td>
<td>7.4 (41.7%)</td>
<td>4.1 (8.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>17.7 billion</td>
<td>46.0 billion</td>
</tr>
</tbody>
</table>

↑ ↓ indicates change of more than 0.5% from 1990-2000


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**Significant Influences**

- Suburbanization of homes, employment and attractors
- Low costs for car ownership and operation
- Extensive urban road infrastructure
- Government policies towards roads and public transport

### Suburbanization: 2000 Journey to Work

#### A. Total Trips (in millions of daily trips)

<table>
<thead>
<tr>
<th></th>
<th>Central City</th>
<th>Suburbs</th>
<th>Total Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes in</td>
<td>28.2 (27%)</td>
<td>9.2 (9%)</td>
<td>37.4 (36%)</td>
</tr>
<tr>
<td>Jobs in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburbs</td>
<td>20.8 (20%)</td>
<td>44.6 (43%)</td>
<td>65.4 (64%)</td>
</tr>
<tr>
<td>Total Jobs</td>
<td>49.0 (48%)</td>
<td>53.8 (52%)</td>
<td></td>
</tr>
</tbody>
</table>

#### B. Share of 1990-2000 Increase

<table>
<thead>
<tr>
<th></th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes in</td>
<td>5%</td>
<td>14%</td>
</tr>
<tr>
<td>Jobs in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburbs</td>
<td>16%</td>
<td>65%</td>
</tr>
</tbody>
</table>

#### C. Public Transport Mode Share

<table>
<thead>
<tr>
<th></th>
<th>Central City</th>
<th>Suburbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes in</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Jobs in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburbs</td>
<td>6%</td>
<td>2%</td>
</tr>
</tbody>
</table>

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**Home to Work Trip Modal Split from the CTPP 2010**

*Analysis provided by Mikel Murga*  
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The Car-Road System

- High car ownership levels
  - 600 cars per 1000 population
- High car usage
  - 10,000 veh-km per capita annually
- Low taxes, fees and user charges for car ownership and use
  - Sales taxes range from 5-8%
  - Users pay only 60% of road infrastructure costs in US
  - Fuel taxes are from 10-20% of European levels
- Urban parking supply is relatively widely available and often free
  - 380 parking spaces per 1000 central city workers in 10 largest US cities
  - 95% of car commuters enjoy free parking
- Highly developed urban road system
  - 6.6 metres of road per capita in 10 largest US cities; 3 times European levels

Source: The Urban Transportation Crisis in Europe and North America, by John Pucher and Christian LeFevre, 1996.

Traditional Arguments Supporting Transit

- **Equity** access for those who cannot or do not choose to drive
- **Congestion** the need for a high-quality alternative
- **Land use influence** public transport is necessary, but not sufficient to change land use
- **Environmental** car technology strategies are more effective
- **Energy** car technology strategies are more effective

Source: The Urban Transportation Crisis in Europe and North America, by John Pucher and Christian LeFevre, 1996.
Other Arguments Supporting Transit

- Economic expenditures for private autos may be alternatively used to improve local economies and quality of life
- Transit allows agglomeration of economic activity in cities:
  - New York, Boston, San Francisco, etc. could not have developed without transit
  - The contribution of earlier investments in heavy rail is not valued appropriately
  - New investments will have a lasting impact – thus the need for a long view (Economic analysis of CrossRail in London)

Transit is contributing to decreasing external costs of transport in cities

- accidents
- impacts on human health
- congestion
- noise
- global warming

Other Arguments Supporting Transit

- Public transport can catalyze the enhancement of the quality of the urban space

A Critical Assessment

- Public transport has been stabilized
- Many new rail initiatives in operation (Phoenix, Denver, Salt Lake City)
- Some real success stories: New York City, Houston, Seattle
- Institutional change is occurring slowly
- Retention of political support
Future Influences on Public Transport

- Urban form
  - continued growth on periphery is likely

- Demographics
  - rapid increase in numbers of elderly

- Technological change
  - telecommunications advances
  - ITS impacts on car/road system performance

- Higher public expectations
  - better service quality needed to attract choice riders
  - greater return for public support

- Transportation Network Companies (TNCs)

Ingredients for Future Success

- Maintain supportive coalition
  - expand base benefiting from public transport: rural, suburban, big cities
  - demonstrate that real change is occurring in response to changing needs and expectations

- Expand the definition of public transport
  - greater variety of services with more flexibility in use of funds

- Greater private sector involvement
  - greater use of partnerships and connections with private sector (e.g., employers and activity providers)
  - more reliance on innovative financing and procurement techniques
  - competition in the provision of services

- Aggressive implementation of new technology
  - better information provision: pre-trip and en route
  - more effective real-time operations control
  - improved vehicle design

- Organizational change
  - greater operating staff responsibility and inclusion, and accountability
  - increased customer orientation