THE TRANSPORTATION REVOLUTION: How it’s changing everything

Institute of Transportation Engineers

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Sam Schwartz Engineering D.P.C.
HOW DO WE KNOW THERE’S A REVOLUTION?

Total and Per Capita Vehicle Miles Traveled (VMT) 1900 - 2013

Sources: “Peak Travel?” Freakonomics, 11 January 2011; FHWA Traffic Volumes 2013
“VMT MAY DOUBLE IN THE NEXT 20 YEARS”

Federal Highway Administrator Mary Peters on “The Perfect Storm” in 2004

Big question: “Where and when to build new capacity (both highways and transit)?”

A BEND IN THE ROAD: EXPECTED VS. ACTUAL VMT

TOTAL AND PER CAPITA VMT 1985 - 2013

Source: “Per capita VMT drops for ninth straight year; DOTs taking notice,” State Smart Transportation Initiative, 24 February 2014.

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RECESSIONS DAMPEN VMT, THEN IT REBOUNDS WITH THE ECONOMY. BUT, NOT THIS TIME

LOW CORRELATION BETWEEN GAS PRICES AND VMT (AT LEAST BELOW $4/GALLON)

Source: “Americans driving down their miles,” The Green Grok, 14 January 2014
PERCENT CHANGE IN TRANSIT RIDERSHIP, VMT, AND POPULATION 1995 - 2013

Sources: “America's transportation needs are huge. Too bad the way we fund them is broken,” The Washington Post, 8 May 2014; 2013 US Census Population Estimates; 2013 APTA Ridership Report; 2013 FHWA Traffic Volume Trends
“The Millennial generation seems to be defying its sheltered, suburban upbringing by delaying the acquisition of a driver’s license and choosing transit. Meanwhile, Baby Boomers, who grew up using transit and were encouraged to do so, are defying their upbringing by avoiding transit now.”

- “Who’s On Board”
YOUNGER PEOPLE ARE DRIVING LESS

The share of 16 to 24-year-olds without a driver’s license rose to 33% in 2011, the highest since at least 1963.

The average annual VMT by drivers aged 16 to 34 dropped by 23% between 2001-2009.

Between 2001-2009, bike trips by 16 to 34-year-olds jumped 24% and transit passenger miles jumped 40%.

WHY ARE THEY DRIVING LESS?

• Neighborhood choice: 38% of under-30s live in urban areas vs. 22% of 30-60s and 14% of over-60s
• Mode choice priorities: travel-time reliability, total travel time, and cost are the top 3 influences amongst under-30s
• Socializing: more via social media, less in person
• Shopping: more via Amazon, less at brick and mortar shops
• Graduated Driver Licensing statutes: harder to get a license
• Sharing economy
  o Car share
  o Bike share
  o Via, Uber
• Student debt: no disposal income for a car
• Backseat rebellion: Millennials grew up watching their parents suffer while driving

YOUNG PEOPLE PREFER URBAN NEIGHBORHOODS TWICE AS MUCH AS OLDER PEOPLE

Sources: Transportation for America survey of Millennials; “Who’s On Board,” TransitCenter, September 2014.

Ideal Neighborhood Type by Age

- 46% of vehicle owners surveyed agree they would seriously consider giving up their car if they could count on a range of transportation options.
- Almost all Millennials (91%) believe that investing in quality public transportation systems creates more jobs and improves the economy.
OF PARENTS, HIGHER-EARNING MILLENNIALS MOST LIKELY TO USE TRANSIT

Transit Use Among Parents of Different Ages by Income

<table>
<thead>
<tr>
<th>Age</th>
<th>Income Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 30</td>
<td>Under $35k</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>$35k–75k</td>
<td>19%</td>
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<td></td>
<td>$75k+</td>
<td>45%</td>
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<tr>
<td>30–60</td>
<td>Under $35k</td>
<td>16%</td>
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<td></td>
<td>$35k–75k</td>
<td>13%</td>
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<td></td>
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<td>16%</td>
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</tbody>
</table>

AGE AND TRANSIT USAGE

Direct inverse relationship until age 60
Seniors begin to return to transit

HOW ARE PEOPLE GETTING AROUND WITHOUT CARS?

Active Transportation

Any method of travel that is all or partly human-powered. It refers to transportation that supports walking, stair use, cycling, and transit. It includes long-term land use and transportation planning to encourage alternate (non-motor vehicle) forms of transport.
STREETS ARE MADE FOR WALKING

- Promotes weight loss
- Improves physical health
- Improves mental health
- Better cognitive function
- Sustainable
- Resilient
- Reduces pollution
- Stimulates economy
- Promotes social interaction
- Increases romantic opportunities
- Greater appreciation of architecture
- Provides a sense of place

Photo courtesy of Transportation Alternatives

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MULTI-MODAL PERSON: WANTS TRANSPORTATION AVAILABLE ANYWHERE, ANYTIME, FOR LESS MONEY
NOT JUST AN EAST/WEST COAST PHENOMENON

Metropolitan Share of Non-Car Commuters, 2007 to 2013

Source: Brookings Analysis of American Community Survey Data
NATURAL ALLIES: PUBLIC HEALTH AND TRANSPORTATION PROFESSIONALS

Obesogenic Environment: Infrastructure, Land-use, Policies, Foods That Lead To Obesity

Source: Neighborhood Environments And Resources For Healthy Living – A Focus On Diabetes In Toronto
Glazier RH and Booth GL. November 2007
“FUN AND RELAXING” RATING FOR STREET WALKABILITY IN TORONTO

Source: walkonomics.com

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ENCOURAGING ACTIVE TRANSPORTATION

• Dense cities with mixed land-use generate short trips
• Safe, convenient cycling including bike parking
• Connected, direct, and pleasant sidewalks and paths
• Traffic systems and designs with pedestrians and cyclists in mind
• Calm residential neighborhoods
• Walk-to-School programs
• Good transit
• Coordinate transit, cycling, and walking
• Laws and enforcement to protect peds + bikes > cars
• Education programs
• Equitable cost of transportation by mode
WHAT DOES IT ALL MEAN?

With 20% Fewer VMT In The USA Annually:

• 6000 fewer road deaths, 690,000 fewer injuries
• 94 gallons of gas per capita not consumed, 30 million gallons of gas not consumed total
• 1429 tons CO2 per capita not consumed, 22.8 million tons CO2 total not consumed
• Z healthier citizens, X fewer cars bought
• $1.43 saved/vehicle mile shifted to active transportation; median urban trip = 3 miles, $5 saved per trip
• Cities grow in population
• Livable cities become magnets where GDP soars

US OIL CONSUMPTION: ACTUAL AND EXPECTED

GDP INVERSELY RELATED TO VMT

Per Capita GDP and VMT for US States (2008)

Source: “Smart growth and better transit can grow wealth,” Houston Tomorrow, 24 January 2011.
VENTURE CAPITAL INVESTMENT POSITIVELY CORRELATES WITH TRANSIT RIDERSHIP

ITE MEMBERS NEED BE COGNIZANT OF MODE INFLUENCES BY AGE

Transit Ridership Influences

MYTH ABOUT THE MOST EXPENSIVE CITIES

Figure 2: Annual Rental Costs for a Typical Regional Household, Selected Cities, 2010

Figure 6: Housing and Transportation Costs as a Percent of Income for a Typical Household, Selected Cities, 2010

Washington State DOT Revises VMT Forecast

CONCLUSION

- The transportation world has changed dramatically
- If the change is sustained this will affect how transportation engineers and planners address urban issues/problems
- Are ITE members ready?

Source: David Alpern, “Hey, Streetcar Critics: Stop Making 'Perfect' the Enemy of 'Good,” City Lab, 1 October, 2014
New York + Newark + Chicago + Washington D.C. + Tampa + Los Angeles
ITE & the Transportation Revolution

Discussion and Questions

Join the Advocacy Network on the ITE Community
See ITE Journal June 2014 Edition for Details