Public Transit Ridership Trends

August 18, 2020
Planning Credits

• The American Institute for Certified Planners has approved this webinar for 1.5 Certification Maintenance Credits.

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Learning Objectives

1. Identify traditional causes of transit ridership increases and declines

2. Discuss current trends in bus and rail ridership

3. List strategies agencies are using to combat ridership change

#TRBwebinar
TCRP Report 209
Analysis of Recent Public Transit Ridership Trends

Kari Watkins
Simon Berrebi
Chandler Diffee
Rebecca Kiriazes
David Ederer

August 18, 2020
US Transit Ridership by Mode

- Bus ridership declines 12% to 18% from 2012 peak
- Rail ridership declines 4% to 6% relative to 2014 peak
International Changes in Ridership

US is not alone in their ridership losses, but most countries with similar losses have poor economic conditions or substantial changes in demographics.

Historically, most vital factor affecting ridership is the amount of service provided.

In past few years, many agencies have increased service without associated ridership increases.

Transit ridership is cyclical and tied to economic factors:
- Low unemployment increases ridership
- High gas prices increases ridership

Ridership also tied to built environment factors:
- Higher housing and employment density increases ridership
- Low cost parking decreases ridership

Shifts in housing and demographics are not favoring transit access:
- Growing suburbs
- Gentrification in urban cores
New Competition for Ridership

• Increasingly people are making less traditional trips
  • Telecommuting increasing (less monthly transit passes)
  • Flex work schedules
  • Delivery services to stores and restaurants

• There is more competition from new modes
  • Bikeshare
  • Carshare
  • Shared mobility services
    • Evidence that Uber and Lyft replace transit trips, particularly outside of peak hours
    • Also evidence that Uber and Lyft complement transit, particularly for rail systems
Trend Analysis
Ridership Trend Analysis

• Used clusters to produce snapshot of ridership trends
• Trend analysis to examine relationship with three major factors:
  • Population
  • Share of zero-vehicle households
  • Vehicle revenue miles
Dedicated Right-of-Way (Rail Clusters)
Mixed Right-of-Way (Bus) Clusters

Cluster 1 - Mid-sized, transit-oriented
Albany, Baltimore, Pittsburgh, and Cleveland

Cluster 2 - Mid-sized auto-oriented
Charlotte, Tampa, Billings, and Wichita

Cluster 3 - Sprawling small towns
Lansing, Burlington, Blacksburg, and Knoxville

Cluster 4 - Sprawling metropolis
Atlanta, Houston, Denver, and Phoenix

Cluster 5 - Dense metropolis
Boston, Chicago, Seattle, and Miami
Mixed Right-Of-Way (Bus)

<table>
<thead>
<tr>
<th>Population</th>
<th>Zero-Vehicle Households</th>
<th>Transit Service Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2012</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong relationship between population and ridership in every cluster except sprawling metros</td>
<td>Very little relationship between zero-vehicle households and transit ridership</td>
<td>Strong relationship between ridership and service-levels, especially in mid-sized MSAs</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Change from 2012-2016</th>
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<tbody>
<tr>
<td>No relationship linking cities that had population gains to increases in transit ridership</td>
<td>Change in transit ridership and change in zero-vehicle households are only linked in the largest metros</td>
<td>Change in service somewhat linked to change in ridership in mid-sized MSAs, but not in larger metros.</td>
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Dedicated Right-of-Way (Rail)

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<td><strong>2012</strong></td>
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<tr>
<td><strong>Moderate relationship</strong> between population and ridership</td>
<td><strong>Minimal relationship</strong> between zero-vehicle households and transit ridership</td>
<td><strong>Strong relationship</strong> between transit ridership and transit service levels</td>
</tr>
<tr>
<td><strong>Change from 2012-2016</strong></td>
<td><strong>No relationship</strong> between the change in zero-vehicle households and change in ridership</td>
<td><strong>Moderate relationship</strong> between the change in transit service and change in transit ridership</td>
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Ridership Decline Doesn’t Coincide with Service Cuts

**Vehicle Revenue Miles**

- **Bus**
- **Rail**

**Unlinked Passenger Trips**

- **Bus**
- **Rail**
Transit oriented cities have more passengers per revenue mile.
Cities that did not change services expected 8-10% ridership loss.

- Small Town Auto-Oriented
- Mid-Sized Auto-Oriented
- Mid-Sized Transit Oriented
Ridership Vs. Service (Rail)

- Relationship between service and ridership is uniform across clusters
- Over time, transit agencies maintaining service levels constant should not expect changes in ridership
Takeaways: Population and Service Quantity

In 2012
Correlated with bus and rail ridership at one point in time

Between 2012 and 2016
Bus – Do not explain bus ridership decline over time
Rail – Are more closely correlated with change in rail ridership

Therefore, the decline in bus ridership may be linked to external factor affecting travel behavior
Case Studies
• Partnership with schools had an immediate and substantial impact on ridership
• Possible long-term effect as children learn how to ride transit
• Ridership decline immediately following network redesign
• Reached back pre-redesign-levels following service increase
• Although ridership did not increase, nationwide trend was decline
King County Metro, WA

- Improvements to speed and reliability
- Travel demand management
- BRT rollout
- Integrated fares with regional operators
Conclusion

• Following drastic cuts, agencies have progressively restored service
• Over time, rail ridership is closely linked to population and service
• Bus ridership decline could be explained by external factors
• Successful strategies to reverse the trend include
  • Partnerships with schools
  • Speed and reliability
  • Real-time information
  • Travel demand management
TCRP A-43 Research Objectives

• To understand the **factors** contributing to the **recent decline** in transit ridership in the United States and **quantify the relative contribution** of each.

• To identify **strategies** to mitigate or reverse those declines and to **evaluate the effectiveness** of those strategies.

• To develop **recommendations** for how public transportation agencies can **respond to the ridership challenges** they are currently facing.
Thank You!

Dr. Simon Berrebi
simon@berrebi.net
Twitter @SimonBerrebi

Dr. Kari Watkins
kari.watkins@ce.gatech.edu
Twitter @transitmom
Today’s Panelists

#TRBWebinar

Moderator:
Kari Watkins, Georgia Institute of Technology

Simon Berrebi
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