How Innovation, Consumer Preferences and Technology are Transforming Public Transit

James Corless, Director, T4America
Transportation for America is an alliance of local elected, business and civic leaders from communities across the country, united to ensure that states and the federal government step up to invest in smart, homegrown transportation solutions — because these are the investments that hold the key to our future economic prosperity.
Our Members Include:

*T4A’s members are cities, counties, non-profit organizations and businesses of various shapes and sizes.*
OVERVIEW

1. Trade offs in transit planning—coverage vs. ridership
2. New tools in transit planning
3. Transit innovations in other regions
4. Transportation takeaways for Idaho
## EXERCISE: $200 TRANSIT BUDGET

<table>
<thead>
<tr>
<th>Color</th>
<th>Duration</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple</td>
<td>10 min</td>
<td>$15 each</td>
</tr>
<tr>
<td>Blue</td>
<td>20 min</td>
<td>$10 each</td>
</tr>
<tr>
<td>Yellow</td>
<td>60 min</td>
<td>$5 each</td>
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</tbody>
</table>
A NEW COMPANY IS MOVING TO TOWN

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<tr>
<td>1</td>
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<td>3</td>
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<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

- 1: University
- 2: Office Park
- 3: Downtown
- 4:
- 5:
- 6: Hospital
What makes transit work?

**Street connectivity**

- The gridded street network of downtown Raleigh makes it easy to reach many different bus stops (dots).
- The lack of street connectivity along Creedmoor Road in North Hills, Raleigh, limits available walk paths to reach bus stops (dots).

**Sidewalks**

- Sidewalks, represented by the blue-green lines, are available on many streets for riders to use to reach their bus stops (dots). Areas around Old Wake Forest Road in North Hills, Raleigh, provide plenty of sidewalks for riders.
- Stretches of Capital Boulevard in Raleigh lack sidewalks (blue-green lines), forcing riders traveling to and from bus stops (dots) to walk along the shoulder of a busy arterial.

**Crossings**

- This intersection in Southwest Raleigh includes marked crossings, allowing riders to easily reach their bus stops and destinations.
- A lack of marked crossings along US-70 in South Raleigh makes it difficult for riders to reach their bus stops and destinations.
IndyGo deciding which routes should get focus and resources

Kathleen McLaughlin  October 17, 2014

Highs and lows
IndyGo’s 6.8 million rides through August this year were concentrated in a few busy routes and declined on others.

Forty percent of ridership focused on three routes:

<table>
<thead>
<tr>
<th>Route</th>
<th>Ridership through August</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Washington Street</td>
<td>1,002,500</td>
</tr>
<tr>
<td>39 38th Street</td>
<td>931,185</td>
</tr>
<tr>
<td>10 Tenth Street</td>
<td>806,154</td>
</tr>
</tbody>
</table>

Ridership fell by double digits on four routes:

<table>
<thead>
<tr>
<th>Route</th>
<th>Ridership through August</th>
<th>Decline from a year ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 East 16th Street</td>
<td>35,721</td>
<td>21.6%</td>
</tr>
<tr>
<td>28 St. Vincent</td>
<td>130,040</td>
<td>11.8%</td>
</tr>
<tr>
<td>16 Beech Grove</td>
<td>93,762</td>
<td>11.4%</td>
</tr>
<tr>
<td>2 East 34th Street</td>
<td>153,622</td>
<td>10.8%</td>
</tr>
</tbody>
</table>

Source: IndyGo
EXISTING 2016

Source: IndyGo; credit: Jarrett Walker & Associates
Source: IndyGo; credit: Jarrett Walker & Associates
**UP TO 200 locations**

The city is all yours. With **up to 200 locations planned in Indy**, you can find an electric car wherever you need one. From downtown to the city limits, north to south and east to west, BlueIndy lets you follow your whims, whatever road they may take. The adventure starts now; only you can decide where it will take you.
More walking = more transit ridership

Typical Access Mode to Transit

<table>
<thead>
<tr>
<th>Frequency of transit use</th>
<th>0%</th>
<th>50%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>About 1 day/month</td>
<td>50.4%</td>
<td>46.6%</td>
<td>3%</td>
</tr>
<tr>
<td>2-3 days/month</td>
<td>59.4%</td>
<td>36%</td>
<td>4.5%</td>
</tr>
<tr>
<td>About 1 day/week</td>
<td>65.2%</td>
<td>27.6%</td>
<td>7.3%</td>
</tr>
<tr>
<td>2-3 days/week</td>
<td>69.5%</td>
<td>26.5%</td>
<td>4%</td>
</tr>
<tr>
<td>4 or more days/week</td>
<td>72.1%</td>
<td>25.4%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

TransitCenter: “Who’s on Board 2016”
Current 4-Division eastbound stops

Proposed bus stations on SE Division Street between 12th and 82nd Avenues

Proposed Division station locations

Continues to Downtown Portland

Continues to Gresham and Mount Hood Community College
Access Across America: Transit 2014 Accessibility Maps

The following maps show summary accessibility data and maps for each of the 46 metropolitan areas included in the study.

The maps show 30-minute accessibility values at the Census block level. Lighter colors indicate few jobs can be reached within 30 minutes; darker colors indicate more jobs can be reached within 30 minutes. At the highest levels, millions of jobs are accessible by transit within 30 minutes. Travel times include walking, waiting, riding, and transfers.
NEW TOOLS IN TRANSIT PLANNING
A Planning Platform for Public Transit

See your plans come to life. Used by 100+ transit agencies in 8 countries.

Request a Demo
CASE STUDIES
U.S. regions building or considering new bus rapid transit service - 2016

Data on BRT systems that are planned, funded or under construction comes from Yonah Freemark and Steven Vance’s Transit Explorer project. January 2016.
http://www.thetransportpolitic.com/transitexplorer/
Running Ways—lanes in which BRT vehicles operate—are improved to help decrease travel time, increase predictability, and increase a sense of permanence. Examples of improvements include: vehicles using dedicated lanes or guideways; semi-dedicated lanes (including high occupancy vehicle (HOV) or high occupancy toll (HOT) lanes).

Stations or shelters provide additional rider amenities and differentiate BRT from standard bus service. Amenities can include, among other things, weather-proofing, safety improvements, public art, and landscaping.

Stylized vehicles run on alternative fuels or hybrid technology for a cleaner and quieter trip. BRT vehicles are also often designed to carry more riders and improve boarding with multiple boarding doors or low floors.

--

**Source:** United States Government Accountability Office (2012)
Cleveland OH

Built bus rapid transit system – “Health Line”
Opened in 2008 replacing local bus service
Ridership increased 54% - 14,300 people/day
Reduced transit travel time 29% along corridor
EUCLID AVENUE BEFORE

Cleveland OH
Cleveland OH

EUCLID AVENUE AFTER
# BRT Gaining Office Share

<table>
<thead>
<tr>
<th>OFFICE Development Metric</th>
<th>BRT Metros</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2000-2007</strong></td>
<td></td>
</tr>
<tr>
<td>New Office Square Feet</td>
<td>39.0 million square feet</td>
</tr>
<tr>
<td>Within less than 1/2 mile of BRT</td>
<td>4.5 million square feet</td>
</tr>
<tr>
<td>Share</td>
<td>11%</td>
</tr>
<tr>
<td><strong>2007-2015</strong></td>
<td></td>
</tr>
<tr>
<td>New Office Square Feet</td>
<td>13.7 million square feet</td>
</tr>
<tr>
<td>Within less than 1/2 mile of BRT</td>
<td>2.1 million square feet</td>
</tr>
<tr>
<td>Share</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Change in Share of New Office Development</strong></td>
<td>33%</td>
</tr>
</tbody>
</table>
From Pre-Recession Job Hemorrhaging to Post-Recession Turn-Around

<table>
<thead>
<tr>
<th>BRT Summary</th>
<th>BRT Corridor 2002-2007</th>
<th>BRT Corridor 2007-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Job Change in BRT Corridors</td>
<td>-455</td>
<td>22</td>
</tr>
</tbody>
</table>
Major Disruptive Technologies

- Geolocation
- Ridematching
- Fare Payment
- Driverless vehicles
# Some Important Definitions

<table>
<thead>
<tr>
<th>Mode</th>
<th>Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car-sharing</td>
<td>One car – multiple drivers</td>
</tr>
<tr>
<td>Ride-sharing</td>
<td>Existing trip being taken – add at least 1 passenger (no new vehicle trips added)</td>
</tr>
<tr>
<td>Ride-hailing</td>
<td>One driver – 1+ passengers (taxis/Uber/Lyft)</td>
</tr>
<tr>
<td>Vanpools</td>
<td>Existing trip – volunteer driver (ridesharing with 1+ passengers – typically work)</td>
</tr>
<tr>
<td>Microtransit</td>
<td>One vehicle – demand driven – fixed OR deviated route – many passengers – professional driver</td>
</tr>
<tr>
<td>Transit</td>
<td>One vehicle – fixed route – many passengers – professional driver</td>
</tr>
<tr>
<td>BRT (Bus Rapid Transit)</td>
<td>Same as transit – but with dedicated lanes, fare prepayment, signal priority etc.</td>
</tr>
</tbody>
</table>
Major Technological Innovations

- Geolocation
- Ridematching
- Dynamic Routing & Scheduling
- In-App Fare Payments (across multiple modes)
- Driverless vehicles
Figure 4: Lifestyle changes since starting to use shared modes (net change) — supersharers v. all respondents

Source: SUMC and APTA; March 2016
Metro Denver city experiments with free Lyft rides to light rail

Aug 11, 2016, 6:00am MDT    Updated Aug 16, 2016, 8:32am MDT


Cathy Proctor
Reporter
Denver Business Journal

Denver's mass transit system is expanding – particularly its rail network – but sometimes just getting to the train station is the biggest hurdle.
With Special Recognition to:
Pinellas County, FL
NO TAX FOR TRACKS
STOP
PINELLAS LIGHT RAIL

Vote No Nov. 4th
TAKING YOU PLACES

TRANSPORTATION ALTERNATIVE

PSTA is partnering with Uber and United Taxi to provide access to the public transit network in underserved areas. PSTA will pay half the fare, up to $3 per ride to and from designated stops within the zone.

Wheelchair van service is available for those unable to ride in a sedan by calling 727-536-7433 x1 and asking for same-day PSTA service.

For more information
PSTA.net/DirectConnect
PSTA InfoLine 727-540-1900

Service brought to you by
PSTA

DirectConnect
PINELLAS PARK
Taking You to the Bus Stop
HOW IT WORKS
- Trips must begin or end at the designated stop.
- Must be in the zone.
- 7 a.m. to 7 p.m.
Monday through Saturday

SERVICE ZONE

HOW TO RIDE
1. Choose a provider
2. Request a ride
   - Download the app
   - Apply promo code 'PSTA' in the Uber app, then slide over to the 'PSTA' option to request a ride
   - United Taxi via phone or app
3. Pay your fare
   - PSTA pays half the fare up to $3
   - United taxi accepts both cash and credit card
   - Uber accepts credit card via the app
4. Travel to or from a designated stop in the same trip

SERVICE PROVIDERS

1. Uber
   - Submit a trip request using the Uber app and get a reliable ride in minutes. PSTA will pay half the fare up to $3 per ride to or from designated stop.

2. United Taxi
   - Submit a trip request by calling 727-777-7777 or by using the app. PSTA will pay half the fare up to $3 per ride to or from designated stop.

STOPS
Pinellas Park Transit Center
3801 70th Ave N
(South end of Shoppes at Park Place)

US 19 in front of Walmart
8001 US Hwy 19 N
Pinellas Park

How to Ride

1. Choose a provider
2. Request a ride
   - Download the Uber app: Google Play | App Store
     - Apply promo code 'PSTA' in the Uber app, then slide to the 'PSTA' option to request a ride
   - Download the United Taxi app: Google Play | App Store
   - United Taxi via phone 727-777-7777 or app
3. Pay your fare
   - PSTA pays half the fare up to $3
   - Uber accepts credit card via the app
   - United Taxi accepts both cash and credit card
4. Travel to or from a designated stop in the same trip

Legend

- Pilot Zone Service Area
- Designated Stop

Source: PSTA, 2015
MARKETING

- Branding
- Outreach
- Ribbon Cutting
- Board Member Support
- Direct Marketing Efforts
- Press Release
TAKING ACTION FOR YOU

PARTNERSHIP WITH UBER AND PSTA EXPANDING
PILOT PROGRAM GIVES LOW OR NO COST UBER RIDES
Two services cut: one fixed route, one shuttle

- 6 month pilot $40,000 – half of prior service cost
- Provided paratransit service plus dial-up service
- Expanded pilot to 20 more cities August 2016

New service “TD late shift” for low income workers
- 9pm-6am free rides on Uber
Bridj pop-up bus service arrives in D.C.

Bridj is offering service between these D.C. neighborhoods. (Image courtesy of Bridj)
One of the pilot program's new Bridj vans. (Kansas City Area Transit Authority)
City hopes to use Uber to give rides to seniors

The Gainesville City Commission Thursday decided to move forward with a six-month pilot program that will pair popular ride-sharing company Uber with an unlikely customer base: senior citizens.
Freedom In Motion: More Options For Senior Mobility

Last year, we announced an exciting program for senior citizens called Freedom In Motion. In collaboration with the City of Gainesville, ElderCare of Alachua County, and the Gainesville Area Chamber of Commerce, Uber was able to provide on-demand
Gainesville, Fla.

Mayor Ed Braddy opens Uber door for the first Freedom In Motion passenger, Shirley.
Stationless Bikesharing: Sobi
Capital Community Bikeshare - Lansing

- Pilot in 2013, First phase launched 2014
- $31,000 up front capital to launch pilot
- Partnered with “A2B Bicycles” startup in MI – grad student
- “Smart Bikes” with touch screens - $2K per bike vs $4K
TAKEAWAYS
Transportation Takeaways

- Growing new consumer demand for more transit options
- Mass transit not just for big cities anymore
- Innovation happening all across US in places big & small
- Technology alone won’t solve it all
- We need to be clear about the best roles for each option

**Key ingredients for success:**
- Smart planning and supportive land use
- Partnerships w/ private sector/startups
- More real time data
- Local political leadership
- Flexible local funding sources
Transportation Takeaways

• **Local Government** – plan supportive land uses – consider bus priority features – fund pilot programs to test mobility services and allow them to fail fast

• **Highway Districts** – consider transit as an investment in avoided roadway cost – consider signal preemption other transit features – replace LOS with access measures

• **Transit agencies** – test new pilots, partner with mobility providers, seek new grants from health agencies & foundations

• **MPOs/regional agencies** – develop multimodal access measures to evaluate projects based on cost-benefit – ID flex funds to support mobility pilots – use new modeling tools

• **State DOTs** – see highway districts!
How Much Do States Spend of Their Own Dollars on Transit?

State spending on transit as a percentage of total transit spending, FY 2010-2012

Map showing the distribution of state transit spending across the United States. The map is color-coded to indicate the percentage of state spending on transit, ranging from 0-5% to 40.1-100%.

Source: National Transit Database

Fast Forward to 2016

Outlays exceeding gas tax receipts since the turn of the century
Only general fund transfers have kept the trust fund solvent

In billions

- Highway Trust Fund balance
- Gas tax receipts **plus** general fund transfers
- Total outlays

*2012-2020 numbers are based on most recent CBO projections- August 27th, 2012
**DOT requires a minimum $6 billion cushion, hence the HTF hits the red before crossing zero.
New Study: property values within one block of Indy cultural trail have increased 148%
Figure 2. The Growth in Bikeshare Programs in the United States (2007-2014)
Transportation Takeaways

• You are in a race for talent against other peer regions
• You must learn from others – Denver, Salt Lake
• Those who raise more local dollars will do better
• A comprehensive approach is critical
  • Not just about bus vs. rail
  • Bigger ‘signature’ projects are important – so too are small ones
• Your tent must be big and diverse
• It’s not about rubber tires vs. steel wheels
  • Name of the game is prosperity, competitiveness, quality of life
Transportation Measures Win at the Polls

70% Approval Rate for Transportation Measures

Twice the Approval Rate of All Ballot Measures

Success Across Region, Population, Party Affiliation
309 finance measures on ballots between 2000-2010
84% of all transportation measures are finance-related
Sales tax increases or renewals are most common type
Bonds are most successful with 84% approval—but are far more common on statewide ballots than local and regional
Property tax measures are more successful than sales tax measures, with 81% approved vs. 59%
Public Transit Funding, All Sources (Billions of $)

- Federal
- State
- Fares & Other
- Local
Denver Eagle P3 Funding**
in Millions of Dollars

- **$280** TIFIA Loan*
- **$1,030** New Starts Grant
- **$62** Fed. Formula Grants
- **$92** Private Equity
- **$397.8** Private Activity Bonds
- **$203** Local Funds

*All federal loans and private bonds will have to be repaid with local funding.
**Denver Regional Transportation District “2011 Annual Report to DRCOG on FasTracks,” available through the following link: http://www.rtd-fastracks.com/main_54
Available funding options by local ballot measure

Gas Tax

Transportation for America
"MEASURING" UP STATE & LOCAL TRANSPORTATION FUNDING CAMPAIGNS
Center for Transportation Excellence
Available funding options by local ballot measure

Sales Tax
Available funding options by local ballot measure

Property Tax

[Map of the United States showing states where property tax is available for funding purposes.]
<table>
<thead>
<tr>
<th>State</th>
<th>Key funding options available by local ballot measure</th>
<th>Ballot measures considered 2000-13</th>
<th>Local funding legislation considered 2013-14</th>
<th>Ballot measures anticipated 2014-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>SPV</td>
<td>S</td>
<td>S G B</td>
<td>S V G B</td>
</tr>
<tr>
<td>NV</td>
<td>S VG</td>
<td>S</td>
<td>S G B</td>
<td>S V G B</td>
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<tr>
<td>NH</td>
<td>V</td>
<td>B</td>
<td>VG</td>
<td>B</td>
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<td>NJ</td>
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<td>NY</td>
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<td>O</td>
<td>B</td>
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<td>OR</td>
<td>PVGIB</td>
<td>P</td>
<td>B</td>
<td>G B</td>
</tr>
<tr>
<td>PA</td>
<td>IB</td>
<td>S</td>
<td>VG B</td>
<td>B</td>
</tr>
</tbody>
</table>

*Note: Dedicated revenue refers to measures committing existing funds.*
Funding for Crenshaw Light Rail Line in Millions of Dollars**

- **$1,600**
  - $545.9 TIFIA Loan*
  - 31% Federal Loans

- **$1,200**
  - $98.0 Fed. Grant
  - 6% Federal Grants

- **$800**
  - $237.9 State Funds
  - 14% State Grants

- **$611.1 Measure R Sales Tax**
  - 49% Local Funds

- **$153.7 Propos. A & C Sales Tax**
  - City Funds

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*All federal loans and private bonds will have to be repaid with local funding.
**LA Metro Finance, Budget, and Audit Committee (October 2011)
*Crenshaw/LAX Transit Corridor Project*
Funding for Dulles Metrorail Extension Phase I in Millions of Dollars

- $3,000
  - $900 New Starts
  - $2,100
    - $750 Federal Formula
    - $176 Virginia DOT
  - $524 Special District Tax
- $1,000 Dulles Toll Road Revenue Bonds (MWAA)
- $0 64% Local Funds
- $0 30% Federal Grants
- $0 6% State Grants

By 2025, the Dulles Metrorail Extension is anticipated to annually reduce:

- 402 million vehicle miles
- 160 tons of CO2 emissions
- 15 tons of volatile compounds
- 130 tons of NO emissions
309

Ballot measures were considered nationwide from 2000–2010 to raise new revenues for transportation. What types of revenues did they seek?

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Tax</td>
<td>39%</td>
<td>![Symbol]</td>
</tr>
<tr>
<td>Property Tax</td>
<td>26%</td>
<td>![Symbol]</td>
</tr>
<tr>
<td>Bonds</td>
<td>11%</td>
<td>![Symbol]</td>
</tr>
<tr>
<td>Vehicle Fee</td>
<td>3%</td>
<td>![Symbol]</td>
</tr>
<tr>
<td>Advisory / Non-Binding</td>
<td>3%</td>
<td>![Symbol]</td>
</tr>
<tr>
<td>Other</td>
<td>18%</td>
<td>![Symbol]</td>
</tr>
</tbody>
</table>

Bonds have the most successful approval rates. They are far more common on statewide ballots than local and regional.

- Bonds: 84%
- Property Tax: 81%
- Sales Tax: 59%

*Each icon represents five transportation measures on ballots from 2000–2010.*
Transportation ballot measures pass at **twice** the rate of all other ballot measures. This success holds across different regions, populations and party affiliations.

**70%**

The average approval rate for public transportation ballot measures over the last 10 years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Approval Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>65% Approved</td>
</tr>
<tr>
<td>2007</td>
<td>66% Approved</td>
</tr>
<tr>
<td>2008</td>
<td>77% Approved</td>
</tr>
<tr>
<td>2009</td>
<td>73% Approved</td>
</tr>
<tr>
<td>2010</td>
<td>77% Approved</td>
</tr>
</tbody>
</table>
Bus

Private Car