DATA-DRIVEN TRANSIT PLANNING IN RURAL OREGON

2018 ITE JOINT WESTERN DISTRICT AND TEXAS DISTRICT MEETING
KRISTA PURSER
Why does this matter?

- Serve Communities, Increase Opportunities
  - Increase in data informs planning
  - Increase in technology informs riders
  - Increase in both creates equitably, economically, and environmentally sustainable communities
Presentation Overview

• Existing Systems: Lincoln County
  – What works today? What doesn’t work?
  – How would changes impact community members?
  – What resources (operating costs, capital costs, staff, bus drivers) would that take?

• New Systems: The Dalles
  – Where are our population and employment densities now? In the future?
  – What do similar systems cost? Where’s funding coming from?
  – What routes can reach the high-priority locations? Where can’t the bus drive?
  – What ridership can we expect?
  – How do cities implement the system?
Existing System Routing

Case Study: Lincoln County, Oregon

- Population 46,000
- Fixed-route, dial-a-ride, regional
  - 2 city loops
  - 2 city dial-a-ride
  - 3 county routes
  - 2 regional connectors
Questions to Ask

- Capturing more or less people?
- Missing any stops?
- Transfers?

### Existing Route

<table>
<thead>
<tr>
<th>Route</th>
<th>¼ Mile Capture</th>
<th>½ Mile Capture</th>
<th>¾ Mile Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Route</td>
<td>5,087</td>
<td>6,280</td>
<td>11,955</td>
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<tr>
<td>South Route</td>
<td>1,450</td>
<td>3,268</td>
<td>4,332</td>
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<tr>
<td>East County</td>
<td>2,854</td>
<td>4,661</td>
<td>6,713</td>
</tr>
<tr>
<td>Newport City Loop</td>
<td>4,932</td>
<td>6,220</td>
<td>6,584</td>
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<tr>
<td>Lincoln City Loop</td>
<td>3,383</td>
<td>3,908</td>
<td>6,221</td>
</tr>
<tr>
<td>Total LCTSD Service</td>
<td>11,619</td>
<td>17,506</td>
<td>28,911</td>
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</table>

### Projected

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Operating Cost</th>
<th>Miles</th>
<th>Population Capture</th>
<th>Employment Capture</th>
<th>Total Capture</th>
<th>Ridership</th>
<th>Ridership/Capture Ratio</th>
<th>Cost/Rider</th>
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</thead>
<tbody>
<tr>
<td>Existing Route</td>
<td>$358,336</td>
<td>51</td>
<td>2,833</td>
<td>4,649</td>
<td>7,482</td>
<td>50,835</td>
<td>6.79</td>
<td>$ 7.05</td>
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<tr>
<td>Modified Route</td>
<td>$350,800</td>
<td>50</td>
<td>3,504</td>
<td>4,867</td>
<td>8,371</td>
<td>56,875</td>
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<td>$ 6.17</td>
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</table>
Routing Efficiencies

- Do changes align with community need?
- When are these changes needed?

East County Route Options

- Existing
- Option 2A
- Option 2B
Communicating Need

• Identify impacts to range of criteria
Impacts & Costs

- Projecting Costs
  - Identified impacts of increased mileage and fleet turnover
  - Understanding need for partnership, grant funding, etc.
  - Tools for performance measurement and financial tracking
New Systems – The Dalles

- Wasco County
- Population - 15,000
- Dial-a-ride and regional transit
Key Destinations

1) Transit Center
2) 6th Street Shopping
3) Downtown
4) Lone Pine Region
5) Veteran’s Affairs*
6) Columbia Gorge Community College
7) Mid-Columbia Medical Center
Transit-Supportive Densities 2010

- Population density of 3 households/gross acre or more; or,
- Job density of 4 employees/gross acre.
Transit-Supportive Densities 2036

- Population density of 3 households/gross acre or more; or,
- Job density of 4 employees/gross acre.
LINK (Dial-a-Ride) Findings

- Origins and Destinations

![Diagram showing origins and destinations for various locations]

- Transit Center
- Mid-Residential
- Downtown
- West Residential
- 6th Street-Shopping
- East Residential
- Veteran’s
- Lone Pine
- Highway 30
- CGCC
- Chenoweth/Cherry Heights
- Mid-Columbia Medical Center
- Industrial
- Columbia Gorge Discovery...
The Dalles to Hood River

- 3 buses/day between The Dalles and Hood River
- 2 buses/week between The Dalles, Hood River, and Portland
- Approx. 3.5 rides/hour on intercity CAT services
- Strong commute pattern to/from Hood River
- Survey results:
  - Range of trip purpose, age, income status, and employment status
  - Mix of choice and captive riders
  - Potential first-mile last-mile issues
Cost & Funding Assumptions

• $500,000 per 40-foot bus\(^1\)
  – Oregon 2015-2018 STIP shows an average $350,000 STIP funding for bus purchases
  – ~$150,000 local match per 40-foot bus

• $70/hour operating cost\(^2\)
  – Similar agencies by region and services provided

• Funding Sources
  – State Programs
  – Federal Funding
  – Local taxes, advertising, parking meters/fines

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\(^1\) APTA 2016 Public Transportation Vehicle Database

\(^2\) Rural Integrated National Transit Database
# Ridership Estimation

- **Methodology – TCRP 161**
  - College enrollment, population, and annual revenue-hours
  - Example for following service:
    - 6:00 a.m. to 7:00 p.m. on weekdays
    - 8:00 a.m. to 6:00 p.m. on weekends

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Number of Routes</th>
<th>Headways (minutes)</th>
<th>Days per Week</th>
<th>Annual Revenue-Hours per Route</th>
<th>TCRP 161 Estimated Ridership</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>60</td>
<td>5</td>
<td>3,315</td>
<td>34,800</td>
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<td>7</td>
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<td>41,100</td>
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<td>6,630</td>
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<td>7,730</td>
<td>60,300</td>
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<td>7</td>
<td>8,830</td>
<td>66,600</td>
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<tr>
<td>3</td>
<td>3</td>
<td>60</td>
<td>5</td>
<td>9,945</td>
<td>73,000</td>
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<td>6</td>
<td>11,595</td>
<td>82,600</td>
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<td></td>
<td>7</td>
<td>13,220</td>
<td>91,900</td>
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Comparison to Similar Systems

Comparison to Small Oregon Cities

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Revenue Hours</th>
<th>College Enrollment</th>
<th>Method</th>
<th>Ridership</th>
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<tr>
<td>Sandy</td>
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<td>14,682</td>
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<td>TCRP 161</td>
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<td>Actual</td>
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<td>Canby</td>
<td>16,866</td>
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<td>TCRP 161</td>
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<td>Actual</td>
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<td>The Dalles</td>
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<td>13,983</td>
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<td>85,600</td>
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<td></td>
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<td></td>
<td></td>
<td>Actual</td>
<td>-</td>
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</table>
Alternative 1 – One Route

- Buses Required – 1
- 5/6 Key Destinations
- Revenue Hours – 4,415
- Estimated demand - 41,100 annual rides for 7-day service
- Cost - $309,100 per year to operate, $500,000 capital cost
- ¼ Mile Capture area – 7,600 people, 5,100 jobs
Alternative 2 – Two Routes

- Buses Required – 2
- 6/6 Key Destinations + Veteran’s Affairs
- Revenue Hours – 8,830
- Estimated demand - 66,600 annual rides for 7-day service
- Cost - $610,400 per year to operate, $1,000,000 capital cost
- ¼ Mile Capture area – 9,400 people, 5,700 jobs
Phasing & Implementation

Use of LINK dial-a-ride bus

- No capital costs and similar operating costs
- Potential for 9-10 rides/hour (compared to current 3.5 rides/hour)
- Increase transit ridership, lower strain on dial-a-ride system

Pursue separate and designated service

- Initiate one bus route system
- Expand as demand and funding increases
- Increase days/week based on ridership trends and community outreach
Outcomes

- Oregon HB2017
  - Direct funding for transit systems
- Lincoln County to begin implementation
  - Projected funding will comfortably cover existing and expanded services
  - Communication and public outreach key to effective implementation
- The Dalles to explore fixed-route transit service further
  - Some funding would need to stem from County funds which currently serve regional needs
Questions?