Okanagan Valley Transportation Symposium
#2:

Transit Overview

September 16, 2011
Presentation Outline

• Travel Patterns and Demographics
• Transit in the Okanagan Today
• Urban Form and Transit
• Transit Mode Characteristics
• Multi-modal Planning & Sustainability
• Synthesis
2007 North and Central Okanagan Household Travel Survey
**Travel Mode Percentages by Time of Day**

<table>
<thead>
<tr>
<th>Travel Mode</th>
<th>Night 0000-0559</th>
<th>AM Peak 0600-0859</th>
<th>Midday 0900-1459</th>
<th>PM Peak 1500-1759</th>
<th>Evening 1800-2359</th>
<th>Total (%)</th>
<th>Total Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Driver</td>
<td>83.5%</td>
<td>64.9%</td>
<td>74.1%</td>
<td>68.5%</td>
<td>66.8%</td>
<td>69.8%</td>
<td>525,065</td>
</tr>
<tr>
<td>Auto Passenger</td>
<td>8.8%</td>
<td>16.6%</td>
<td>13.6%</td>
<td>19.0%</td>
<td>27.2%</td>
<td>17.6%</td>
<td>132,249</td>
</tr>
<tr>
<td>Commercial Vehicle Driver</td>
<td>2.0%</td>
<td>1.2%</td>
<td>0.9%</td>
<td>0.7%</td>
<td>0.2%</td>
<td>0.9%</td>
<td>6,418</td>
</tr>
<tr>
<td>Transit Bus</td>
<td>0.5%</td>
<td>1.4%</td>
<td>1.1%</td>
<td>1.2%</td>
<td>0.6%</td>
<td>1.2%</td>
<td>8,717</td>
</tr>
<tr>
<td>School Bus</td>
<td>0%</td>
<td>5.2%</td>
<td>1.5%</td>
<td>2.9%</td>
<td>0.2%</td>
<td>2.4%</td>
<td>17,982</td>
</tr>
<tr>
<td>Bicycle</td>
<td>2.2%</td>
<td>2.8%</td>
<td>1.0%</td>
<td>2.0%</td>
<td>1.4%</td>
<td>1.7%</td>
<td>13,098</td>
</tr>
<tr>
<td>Roller blades/skateboard</td>
<td>0%</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0%</td>
<td>0.1%</td>
<td>628</td>
</tr>
<tr>
<td>Walk</td>
<td>2.6%</td>
<td>6.6%</td>
<td>6.2%</td>
<td>4.3%</td>
<td>2.6%</td>
<td>5.2%</td>
<td>38,942</td>
</tr>
<tr>
<td>Taxi/airport Shuttle</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0.1%</td>
<td>0%</td>
<td>0%</td>
<td>242</td>
</tr>
<tr>
<td>Others</td>
<td>0.3%</td>
<td>0.6%</td>
<td>1.0%</td>
<td>0.8%</td>
<td>0.5%</td>
<td>0.8%</td>
<td>5,875</td>
</tr>
<tr>
<td>Auto– Combo Driver/Pass</td>
<td>0%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.4%</td>
<td>0.2%</td>
<td>1,566</td>
</tr>
<tr>
<td>Other combo</td>
<td>0%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>0.3%</td>
<td>2,001</td>
</tr>
<tr>
<td><strong>Trip Totals</strong></td>
<td>8,676</td>
<td>148,317</td>
<td>267,057</td>
<td>201,677</td>
<td>114,768</td>
<td>100%</td>
<td>752,720</td>
</tr>
</tbody>
</table>
## Average Trip Time By Mode and By Trip Purpose

<table>
<thead>
<tr>
<th>Mode</th>
<th>Night 0000-0559</th>
<th>AM Peak 0600-0859</th>
<th>Midday 0900-1459</th>
<th>PM Peak 1500-1759</th>
<th>Evening 1800-2359</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Driver</td>
<td>17.8</td>
<td>15.9</td>
<td>14.2</td>
<td>16.5</td>
<td>14.7</td>
<td>15.2</td>
</tr>
<tr>
<td>Auto Passenger</td>
<td>16.3</td>
<td>12.7</td>
<td>14.1</td>
<td>15.1</td>
<td>13.9</td>
<td>14.1</td>
</tr>
<tr>
<td>Transit Bus</td>
<td>20.9</td>
<td>27.4</td>
<td>26.9</td>
<td>31.3</td>
<td>30.5</td>
<td>27.9</td>
</tr>
<tr>
<td>School Bus</td>
<td>0</td>
<td>23.9</td>
<td>21.5</td>
<td>24.8</td>
<td>28.6</td>
<td>23.7</td>
</tr>
<tr>
<td>Bicycle</td>
<td>24.4</td>
<td>17.1</td>
<td>14.9</td>
<td>20.3</td>
<td>19.6</td>
<td>18.0</td>
</tr>
<tr>
<td>Walk</td>
<td>15.6</td>
<td>14.0</td>
<td>14.5</td>
<td>17.2</td>
<td>14.1</td>
<td>15.0</td>
</tr>
<tr>
<td>Others</td>
<td>22.5</td>
<td>21.6</td>
<td>20.8</td>
<td>19.2</td>
<td>18.6</td>
<td>20.4</td>
</tr>
<tr>
<td>Auto–Combo Driver/Pass</td>
<td>0</td>
<td>10.4</td>
<td>22.1</td>
<td>13.0</td>
<td>14.7</td>
<td>16.7</td>
</tr>
<tr>
<td>Other Combo</td>
<td>0</td>
<td>22.7</td>
<td>19.2</td>
<td>20.7</td>
<td>23.9</td>
<td>20.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17.8</strong></td>
<td><strong>15.9</strong></td>
<td><strong>14.6</strong></td>
<td><strong>16.8</strong></td>
<td><strong>14.7</strong></td>
<td><strong>15.5</strong></td>
</tr>
</tbody>
</table>

Transit Trips times typically 2x Auto Times

Source Data: 2007 North and Central Okanagan Household Travel Survey
## Travel Modes by Age Groups

**Source Data:** 2007 North and Central Okanagan Household Travel Survey

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Auto Driver</th>
<th>Auto Pass</th>
<th>School Bus</th>
<th>Transit</th>
<th>Walk</th>
<th>Bike</th>
<th>Other</th>
<th>Total Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-17</td>
<td>1.0%</td>
<td>49.5%</td>
<td>95.2%</td>
<td>23.5%</td>
<td>37.3%</td>
<td>27.4%</td>
<td>7.5%</td>
<td>109,854</td>
</tr>
<tr>
<td>18-24</td>
<td>4.8%</td>
<td>5.5%</td>
<td>2.5%</td>
<td>16.5%</td>
<td>4.7%</td>
<td>8.3%</td>
<td>5.1%</td>
<td>38,125</td>
</tr>
<tr>
<td>25-34</td>
<td>11.9%</td>
<td>5.4%</td>
<td>0%</td>
<td>11.1%</td>
<td>10.2%</td>
<td>10.5%</td>
<td>6.1%</td>
<td>75,869</td>
</tr>
<tr>
<td>35-44</td>
<td>21.5%</td>
<td>6.2%</td>
<td>0.7%</td>
<td>8.0%</td>
<td>9.8%</td>
<td>16.5%</td>
<td>17.1%</td>
<td>129,075</td>
</tr>
<tr>
<td>45-64</td>
<td>47.5%</td>
<td>20.6%</td>
<td>1.6%</td>
<td>22.0%</td>
<td>28.0%</td>
<td>33.4%</td>
<td>52.3%</td>
<td>300,880</td>
</tr>
<tr>
<td>65+</td>
<td>13.3%</td>
<td>12.9%</td>
<td>0%</td>
<td>18.9%</td>
<td>10.1%</td>
<td>3.9%</td>
<td>11.8%</td>
<td>95,843</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69.2%</strong></td>
<td><strong>17.5%</strong></td>
<td><strong>2.4%</strong></td>
<td><strong>1.2%</strong></td>
<td><strong>5.1%</strong></td>
<td><strong>1.7%</strong></td>
<td><strong>1.7%</strong></td>
<td><strong>749,603</strong></td>
</tr>
</tbody>
</table>

**Mode Share Over 24 Hours**

**Age**

**Transit**
Source Data: 2007 North and Central Okanagan Household Travel Survey
Population-Age: Okanagan Similkameen

Copyright © 2011 BC Stats Victoria
Population-Age: Okanagan Similkameen

2036
Population - Age: Central Okanagan

2036
Population - Age: North Okanagan

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Percentage of People With Mobility Impairments, British Columbia, 2001

Difficulty walking half a kilometre or up and down a flight of stairs

- Total: 11%
- 15-24: 2%
- 25-44: 5%
- 45-64: 11%
- 65-74: 24%
- 75+: 42%
Implications for Travel and Transit

- Most travel is local
- Okanagan is aging
- More significant in South
- Lower growth in younger residents
- Implications for trip purposes & destinations
Transit Services in the Okanagan

Conventional Transit
- Kelowna Regional
- Penticton
- Vernon Regional

Custom & Paratransit
- Kelowna Regional
- North Okanagan
- Okanagan - Similkameen
- Osoyoos
- Penticton
- Vernon Regional
Transit Rides per Capita: 2010-11

- Kamloops: 45.7
- Kelowna Regional: 38.0
- Penticton: 14.2
- Vernon Regional: 10.8

Source Data: BC Transit 2010/11 Year End
Transit Rides per Capita: 2010-11

- Kamloops: 45.7
- Kelowna Regional: 38.0
- Penticton: 14.2
- Vernon Regional: 10.8

Source Data: BC Transit 2010/11 Year End
Local Cost per Capita: 2010-11

- Kamloops: $30.01
- Kelowna Regional: $41.45
- Penticton: $25.45
- Vernon Regional: $18.63

Source Data: BC Transit 2010/11 Year End
Total Cost per Ride: 2010-11

- Kamloops: $2.85
- Kelowna Regional: $3.69
- Penticton: $5.26
- Vernon Regional: $5.60

Source Data: BC Transit 2010/11 Year End
Custom Transit/Paratransit – Rides per Capita: 2010-11

Source Data: BC Transit 2010/11 Year End
Custom Transit/Paratransit – Service Hours/Capita: 2010-11

Source Data: BC Transit 2010/11 Year End

- Kamloops *
- Kelowna Regional **
- North Okanagan
- Okanagan - Similkameen: 0.75
- Osoyoos: 0.29
- Summerland: 0.16
- Vernon Regional: 0.25
Custom Transit/Paratransit – Local Cost/Capita: 2010-11

Source Data: BC Transit 2010/11 Year End
### Custom Transit/Paratransit – Cost Per Ride: 2010-11

<table>
<thead>
<tr>
<th>Location</th>
<th>Cost Per Ride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamloops *</td>
<td>$17.64</td>
</tr>
<tr>
<td>Kelowna Regional **</td>
<td>$13.63</td>
</tr>
<tr>
<td>North Okanagan</td>
<td>$7.85</td>
</tr>
<tr>
<td>Okanagan - Similkameen</td>
<td>$13.64</td>
</tr>
<tr>
<td>Osoyoos</td>
<td>$20.12</td>
</tr>
<tr>
<td>Summerland</td>
<td>$9.32</td>
</tr>
<tr>
<td>Vernon Regional</td>
<td>$14.30</td>
</tr>
</tbody>
</table>

*Source Data: BC Transit 2010/11 Year End*
What is a Transit Trip?
Elements of Transit-Friendly Design

• Density
• Land Use Mix
• Pedestrian Amenities
• Road/Street Network and Design
Urban Form

Walk  Bike  Transit

Automobile
Type of Dwelling

- Single Detached House: 72% TOTAL, 76% NORD, 70% CORD
- Apartment/Condo: 13% TOTAL, 11% NORD, 14% CORD
- Townhouse: 6% TOTAL, 4% NORD, 8% CORD
- Duplex: 4% TOTAL, 4% NORD, 4% CORD
- Mobile Home: 5% TOTAL, 6% NORD, 5% CORD
Change
Urban Movement Patterns: What Transit Can Do Well

Many Origins – Strong Centre

Many Origins – Weak Centre
Inter-City Transit
Maximum Transit Capacities – Pass/Hour*

Busiest Bus Route
In Kelowna approx. 300 pass/Hr

Highway 97 from N into Kelowna approx. 3000 cars/Hr

8,400
36,000
18,000
60,000

Bus on Street
Bus Rapid Transit
Light Rail Transit
Metro Rail

*Source: Professor Nigel Wilson, MIT: http://ocw.mit.edu/courses/civil-and-environmental-engineering/1-258j-public-transportation-systems-spring-2010/lecture-notes/MIT1_258JS10_lec03.pdf
Transit Outlook

• Significant potential for better local transit
  – Low ridership levels today
  – Requires increased focus on complete communities

• Limited role for inter-city transit
  – Demand would limit frequency of service

• Demand suited to Bus rather than Rail
  – Destinations are dispersed
  – Relatively low ridership & high costs
  – Preserve Rights-of-Way
# Roles and Responsibilities for Transit

**Key is Stable, Predictable and Appropriate Revenues/Funding**

<table>
<thead>
<tr>
<th>BC Transit</th>
<th>Local Government</th>
<th>Local Operating Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer contracts</td>
<td>Provide local funding</td>
<td>Deliver specified transit service</td>
</tr>
<tr>
<td>Set performance standards</td>
<td>Approve fares and service levels</td>
<td>Provide trained staff</td>
</tr>
<tr>
<td>Audit systems</td>
<td>Set system service/ridership objectives</td>
<td>Manage labour relations</td>
</tr>
<tr>
<td>Select operating company</td>
<td>Promote ridership</td>
<td></td>
</tr>
<tr>
<td>Provide professional services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning, marketing, asset management and financial services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table showing roles and responsibilities for BC Transit, Local Government, and Local Operating Company.*
Need for Multimodal Planning

• For Sustainability and Resilience
  – Modes are planned together: Pedestrian, Bike, Transit, Auto
  – Success depends on integration, especially for transit
  – Need to develop integrated multi-modal ‘transportation’ plans
  – Challenging with current roles/responsibilities

• Complex Funding/Institutional Arrangements
  – Between Province and Municipalities
  – Between local governments

Key is Stable, Predictable and Appropriate Funding
Synthesis

• Physical Structure
  – Low densities, dispersed destinations
  – Highly auto-dependent communities
  – Often pedestrian, bike and transit unfriendly
  – Communities have limited resilience today

• Demographics
  – Population is aging – needs will be significant
  – Lower growth in ‘traditional’ transit markets
Synthesis continued

• Trip Characteristics
  – Most trips remain local
  – Limited market for ‘regional travel’
  – Transit usage is low – significant potential for growth
  – Likely increase for medical/social trips with older pop’n

• Transit Modes
  – Much more can be done by bus
  – Keep options open for rail transit
Synthesis continued

- **Focus should be Urban/Sub-regional Transit**
  - Current services below threshold of utility for many people
  - Intra-regional demand is low
  - No present role for rail

- **Integrated Transportation Planning**
  - Essential to advance sustainability
  - Challenging under current structure
  - Problem of ‘who pays, who benefits’
  - Different governments/agencies, timescales, funding