A Chicagoan’s Transportation Odyssey:

Adventures in Planning for Automated Trains, Electric Buses and Smart Roadways in Metro Vancouver

Michael J. Shiffer
August 2, 2010
Presentation Outline

1. TransLink and the Metro Vancouver Region
2. Recent Developments
3. Transit-Oriented Communities in Metro Vancouver
4. The Land Use & Transportation Connection
5. Station Area Approaches
6. Steps Taken to Leverage Existing Resources
7. Concluding Thoughts
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TransLink & the Metro Vancouver Region
2010 BUDGETED REVENUE

- Transit Fares: $413m (36%)
- Fuel Tax: $319m (28%)
- Property & Replacement Tax: $289m (25%)
- Parking Sales Tax: $47m (4%)
- Other: $49m (4%)
- GEB Tolls: $29m (3%)

Total approx. $1,146 Million

TransLink & the Metro Vancouver Region
2010 BUDGETED EXPENDITURE

- **Total Transit Operations (Bus, Rail)**: $843m (69%)
  - **Bus**: $625m (51%)
  - **Rail**: $218m (18%)
- **Debt Service**: $251m (20%)
- **TransLink**: $45m (4%)
- **Total Roads & Bridges**: $48m (4%)
- **Contingency**: $10m (1%)
- **Police**: $28m (2%)
TransLink & the Metro Vancouver Region

Capital Expenditures 2011-2013
(in millions)

- Roads and Bridges: $49.706 million (4%)
- Bridge Program: $2.4 million (0%)
- Major Road Network: $94.4 million (11%)
- SeaBus: $23.5 million (3%)
- Bus Replacement and Transit Infrastructure: $431.7 million (52%)
- Operating Subsidiaries and Contractors Minor Capital: $134.0 million (16%)
- Rapid Transit: $129.2 million (16%)

- Capital program total: $828 million
- Provincial & Federal Government contributions: $245 million
Together Creating a Sustainable Future

BC Government
Provincial Transit Vision and Plan

TransLink
Transport 2040 30-Year Strategy
Updated every 5 years

Metro Vancouver
Livable Region Plan Regional Growth Strategy

Municipalities & Other Partners
Official Community Plans

TransLink
Rolling 3-Year Plans Outlook for Years 4 to 10

2011
2020
Over 1 million more people by 2040

2040
3.4 million

2009
2.3 million

100,000 people =
Projected population and employment

Note: these projections are currently being reviewed as part of Metro Vancouver’s regional growth strategy review process.

Source: Metro Vancouver
TransLink & the Metro Vancouver Region

Regional Travel patterns

Traditional suburb to Downtown Travel
(latter half of 20th Century)

Modern region to region Travel (21st Century)
TransLink & the Metro Vancouver Region

Journey-to-Work, 2006 Census
TransLink & the Metro Vancouver Region

Metro Vancouver Annual Transit Ridership

- Ridership increased 52% between 1998 and 2009
- Population increased by 15%

1998: 124 million transit trips
2009: 188 million transit trips
TransLink & the Metro Vancouver Region

Annual Transit Trips per Capita & Transit Service Hours per Capita (2002 to 2010)
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Recent Developments: Roads Projects

1. Golden Ears Bridge
2. Pattullo Bridge Upgrade
3. North Fraser Perimeter Rd.
4. North Vancouver – Dollarton Bridge Replacement
5. Coast Meridian Overpass
6. Fraser Highway expansion & upgrade
7. Murray-Clarke Connector
8. Coquitlam – David Ave Connector
9. Main St upgrade and improvements
10. Langley – 204th St. Overpass
11. Overpass – 64th Ave @ Mufford Cres
12. Overpass – 152nd St & 64th Ave
Recent Developments: Roads Projects

The 6-lane **Golden Ears Bridge** and its supporting 14 kilometre road network opened June 16th, 2009.

Using a private financing strategy for construction meant:

- No increase in our legislated borrowing limit
- No reliance on senior government funding
- Measurable benefits for the citizens and businesses of Metro Vancouver and across British Columbia
Recent Developments: Fleet Renewal
Recent Developments: Facilities
Recent Developments: Canada Line
Recent Developments: Canada Line
Recent Developments: Canada Line

Canada Line

• Canada's first rapid transit line to connect downtown with the airport
• Enabled by private-public partnership
• Completed under budget
• Opened 3 months ahead of schedule

Canada Line Ridership
Aug 17, 2009 to Mar 10, 2010

Note: The data presented is for total ridership and includes Airport Connector and Special Event riders.
Recent Developments: Winter Olympics
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### Recent Developments: Winter Olympics

<table>
<thead>
<tr>
<th>Line</th>
<th>Total Boardings (17-day)</th>
<th>Olympic Weekday Average</th>
<th>% change from normal (weekday)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>13,938,000</td>
<td>896,000</td>
<td>8%</td>
</tr>
<tr>
<td>Skytrain</td>
<td>7,223,000</td>
<td>393,800</td>
<td>64%</td>
</tr>
<tr>
<td>Canada Line</td>
<td>3,880,950</td>
<td>228,190</td>
<td>118%</td>
</tr>
<tr>
<td>SeaBus</td>
<td>757,700</td>
<td>43,780</td>
<td>119%</td>
</tr>
<tr>
<td>Commuter Rail</td>
<td>236,725</td>
<td>17,415</td>
<td>58%</td>
</tr>
<tr>
<td>HandyDART (paratransit)</td>
<td>57,175</td>
<td>4,590</td>
<td>(10%)</td>
</tr>
<tr>
<td><strong>Total System</strong></td>
<td><strong>26,095,000</strong></td>
<td><strong>1,583,775</strong></td>
<td><strong>31%</strong></td>
</tr>
</tbody>
</table>
Recent Developments: Winter Olympics
Recent Developments: Winter Olympics

Success Factors

- Fleet Renewal
- Preventive Maintenance
- New Lines
- Enhanced Staffing
- Augmented Schedules
- Transit Priority
- Park and Rides
- Communications Strategy
- Travel Demand Management
- Crowd Management
- Venue Siting
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Transit-Oriented Communities: 

- are places that facilitate a decreased reliance on driving by focusing:
  - higher-density development,
  - diversity of uses, and
  - pedestrian-friendly design,
  - within walking-distance of frequent transit
- are really pedestrian-oriented communities connected by transit!
What are the Benefits?

- More **cost-effective** transit service
- **Higher quality** transit service
- Improved **public realm & livability**
Building Transit-Oriented Communities: the 5 “D”s

1. **Destination** Accessibility (Be on the Way!)

The best transportation plan is a **land use** plan.
2. **Distance** to Transit

Within **5-10 minute walk** of frequent transit service
3. Density

 Highest densities should be adjacent to the station area with densities stepping down to match the scale of buildings at the periphery.
4. Diversity

Provide a rich mix of complementary uses and a diversity of housing types
5. **Design**

Streets and public spaces should:

- Be lively and **vibrant**
- Be **pedestrian/bike**-friendly
- Be well-**connected**
- Minimize negative impacts of **motor traffic** on other modes
Building Transit-Oriented Communities: the 5 “D”s

1. Good **Destination** accessibility
2. Short walking **Distance** to transit
3. **Density** of jobs & residents
4. **Diversity** of uses
5. Pedestrian-friendly **Design**

Need all FIVE “D”s together!
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The Land Use & Transportation Connection

More strategic approach to land use and transportation

1) Supply-side (transit provision)
   • Frequent Transit Network (FTN)

2) Demand-side (land use shaping)
   • Partnerships w/ municipalities on transit-oriented land use planning and development
The Land Use & Transportation Connection
The Land Use & Transportation Connection

Frequent Transit Network (FTN)

- At least every 15 min throughout the day; 7 days/week
- Framework for a conversation around transit and land use coordination
The Land Use & Transportation Connection

Frequent Transit Network

<table>
<thead>
<tr>
<th>Transit Service Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTN Limited Stop w/exclusive ROW</td>
<td>Fixed Guideway Rapid Transit Lines, Nodal Development, 800M (half mile) Catchment</td>
</tr>
<tr>
<td>FTN Limited Stop</td>
<td>Limited Stop Bus Lines, Nodal Development, 600M (3 block) Catchment</td>
</tr>
<tr>
<td>FTN Local Stop</td>
<td>Trunk Line Frequent Bus Routes, Linear Development, 400M (2 block) Catchment</td>
</tr>
<tr>
<td>Local Stop</td>
<td>Local Bus Routes, No Specific Development, 400M (2 block) Catchment</td>
</tr>
</tbody>
</table>
The Land Use & Transportation Connection

8:31 am
The Land Use & Transportation Connection
The Land Use & Transportation Connection

Rapid Transit Studies

Needs careful analysis:

• Long lead times
• Capital intensive

Conversation about regional priorities:

• Advancement criteria to consider transit-supportive land-use potential
Defining Problems

Existing transit services in the Corridor do not provide sufficient capacity or a reliable service

- Frequent pass-ups
- Unpredictable journey times
- Passenger experience
# The Land Use & Transportation Connection

<table>
<thead>
<tr>
<th>Land Use Feature</th>
<th>Possible</th>
<th>Challenging</th>
<th>Unlikely</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-street reserved lane</td>
<td><img src="bus.png" alt="Possible" /></td>
<td><img src="lightrail.png" alt="Possible" /></td>
<td><img src="railrapid.png" alt="Possible" /></td>
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<td>Physically reserved in-street</td>
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<td><img src="lightrail.png" alt="Possible" /></td>
<td><img src="railrapid.png" alt="Possible" /></td>
</tr>
<tr>
<td>Private at-grade right-of-way</td>
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<td>Underground</td>
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<td><img src="railrapid.png" alt="Possible" /></td>
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</tbody>
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The Land Use & Transportation Connection

Alternatives Analysis of the rapid transit options

SCOPE OF ANALYSIS
In the initial phases of the study, many alternatives are subject to a high-level analysis.

- high-level analysis
- many alternatives
- shortlist alternatives
- preferred alternative
- high-level design and detailed analysis
- design

As the study progresses, the number of alternatives reduces as the level of analysis increases.
The Land Use & Transportation Connection
The Land Use & Transportation Connection
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Passenger Facility and Community Design Guidelines
The Land Use & Transportation Connection

Strategic approach to land use and transportation

- Frequent Transit Network Policy
- Rapid Transit Advancement Policy
- Land Use Performance Thresholds
- Municipal Agreements
- Station Area Plans
- Design Guidelines
- Infrastructure Capital Cost-Sharing
- Municipal Agreements
- Design Guidelines
- Real Estate Development
- Joint Development Policy/Program
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Station Area Approaches

Station Area Program

• Partnerships with municipalities to:
  
  • Better integrate our transit infrastructure into the community
  
  • Develop transit-oriented station area plans; and
  
  • Build station area infrastructure improvements
Station Area Approaches

Surrey Central Transit Village Plan

- Surrey Central SkyTrain Station
- Existing land consumed by surface parking
Station Area Approaches

Commercial-Broadway Transit Village Plan
Station Area Approaches

Plaza 88 Development, New Westminster
Station Area Approaches

Plaza 88 Development, New Westminster
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By using tools that suit our customer base, we make it easier for more people to choose transit more often.
Steps Taken to Leverage Existing Resources

Telework
The ultimate commute is no commute.
Work from home...

Ride-Sharing
A smart travel option when getting out of the car isn’t one.
Find a ride...

Guaranteed Ride Home
Have an emergency but took transit to work? We’ll help.
Find out more...

Active Transportation
Good for your wallet. Good for your waistline.
Get moving...

Employer Pass Program
Discounted transit pass for companies with 25 or more employees...
Learn more...

Car Sharing
Access to a car when you need it.
Car share today...

TravelSmart.ca
Steps Taken to Leverage Existing Resources

- Buses serve as important data collection devices.
Steps Taken to Leverage Existing Resources

APC equipped buses record passenger activity by stop, trip, time period, etc...
Evidence-based planning through a strengthened information infrastructure.

Application of data visualization in Vancouver.
Steps Taken to Leverage Existing Resources
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Areas Transit Plans

- Created with the formation of TransLink
- Provides more local involvement in transit planning
- Recognizes regional differences and informs regional plans
- Creates a vision for the future
- Answers the question: How will future growth patterns and demographic changes impact transit and transportation?
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1. Land-use and multimodal transportation are interdependent.

2. Weaving the elements of an effective land-use transportation plan requires careful coordination at multiple scales.

3. Conversations on expansion are well supported if you can demonstrate efficiency and effectiveness.

4. Dynamic illustration, solid evidence and careful conversation can support an effective planning process.
Brief Digression
Brief Digression
Brief Digression
Thank you.

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