

# RTM 3 – Corridor and Sub Area Modelling

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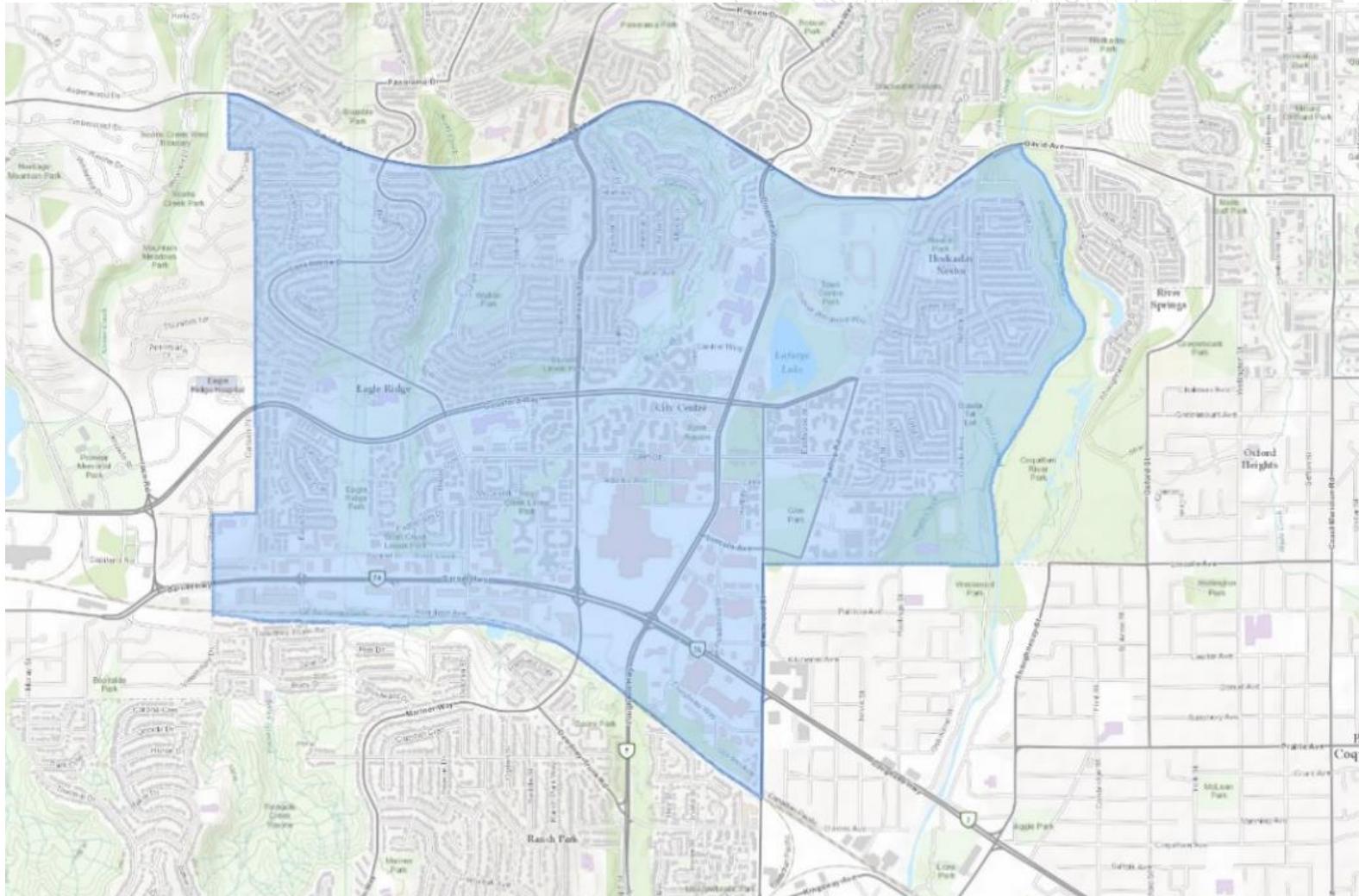
# Today's Presentation

- Purposes/ Use of a Subarea Model
- Subarea Model Development
- Benefits of Model Refinement
- Key Takeaways

# Purposes/ Uses of a Subarea Model

# Neighbourhood Planning

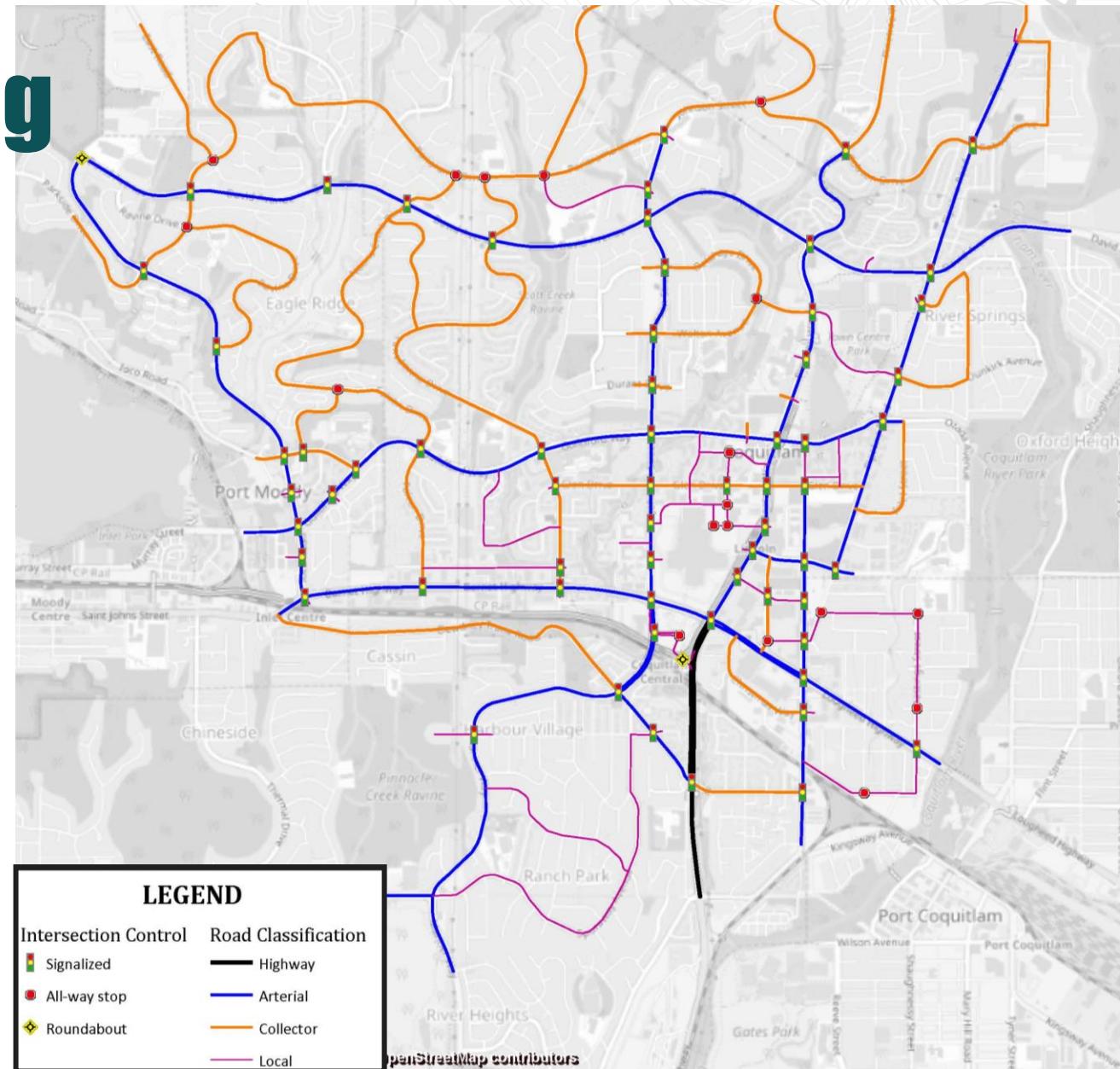
- City and Town Centre Modelling
  - Match Zone Details to Development Plans
  - Increase Road Network Details to Match



## *Coquitlam City Centre Area Plan Update: Study Area*

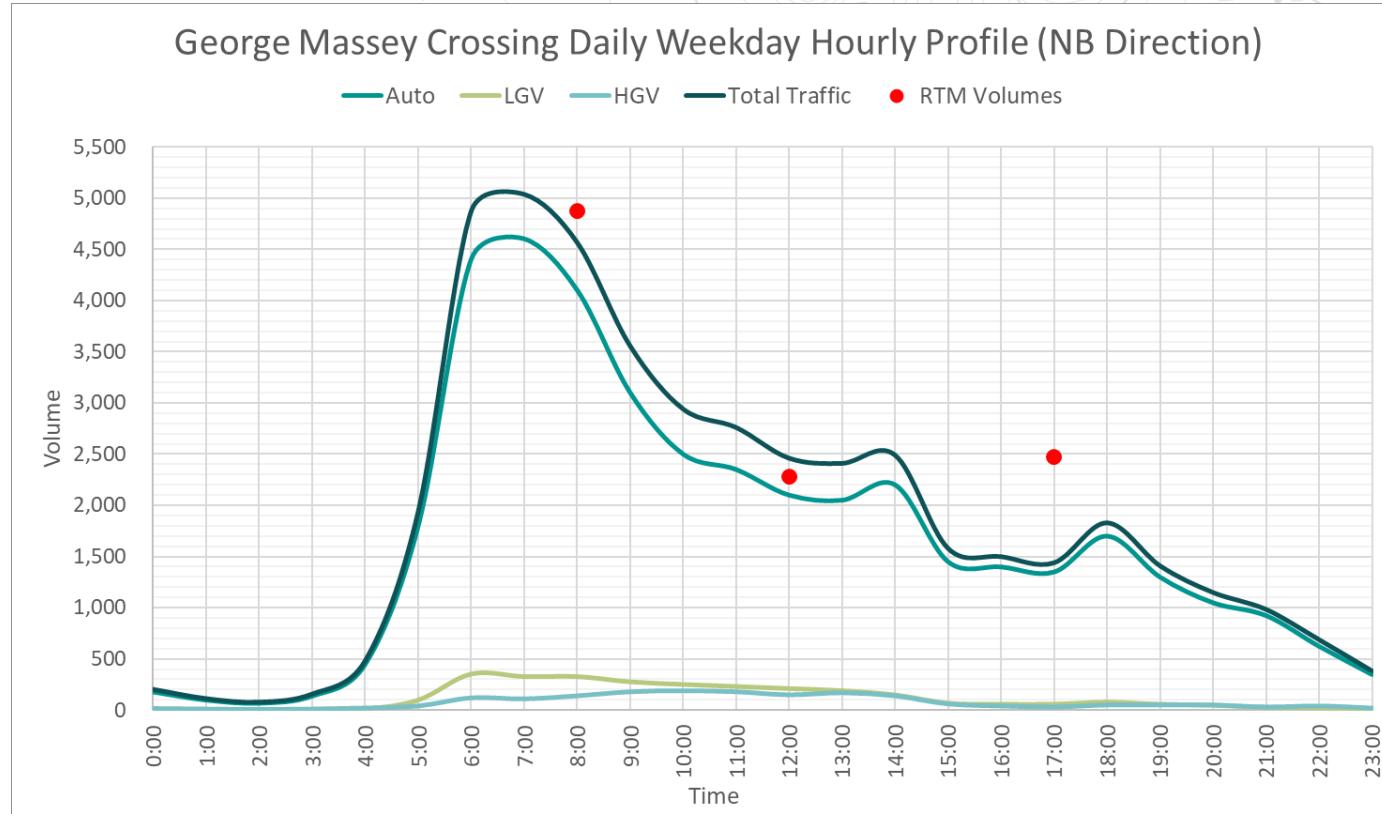
# Operational Modelling

- Matching Roadway Detail to Inputs to Meso/Microscopic Models
- Collective Traffic Impact Assessment



# Corridor Modelling / Project Evaluation

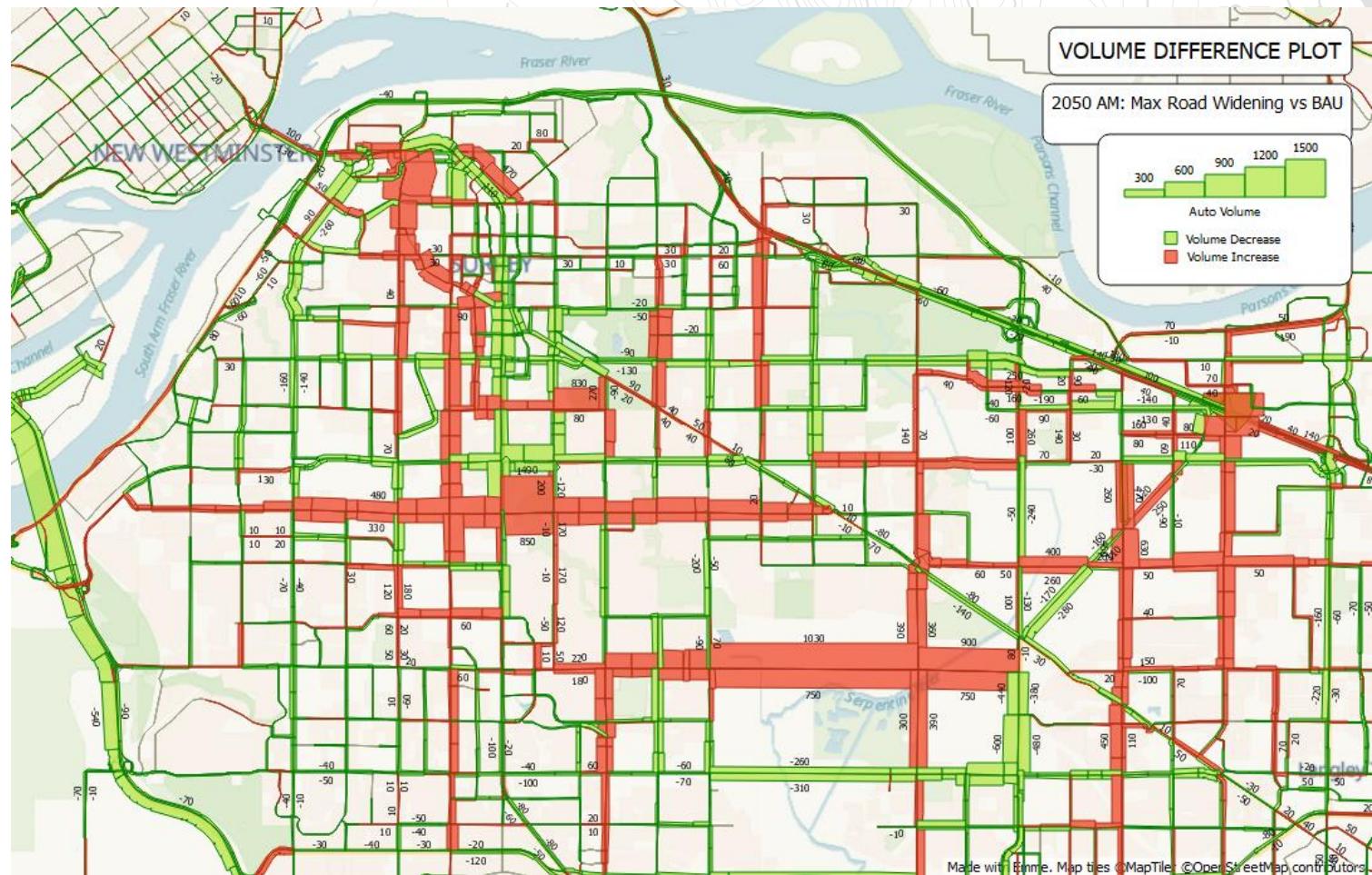
- Need for Localized Validation to Support Business Case Analysis
- Local Demand Patterns Shifted From the Regional Average
  - Corridor Peak Does Not Align With Regional Peak Hour
- Adjustments to Model Specification to Reflect Local Traffic Conditions
- Recent Corridor / Project Specific Models
  - George Massey Crossing
  - Lower Lynn Interchange Replacement
  - Surrey Langley SkyTrain
  - Rail To UBC
  - Burrard Inlet Rapid Transit (INSTPP)



George Massey Crossing: RTM Peak Period Volumes vs. Travel Demand Profile

# Investment Planning

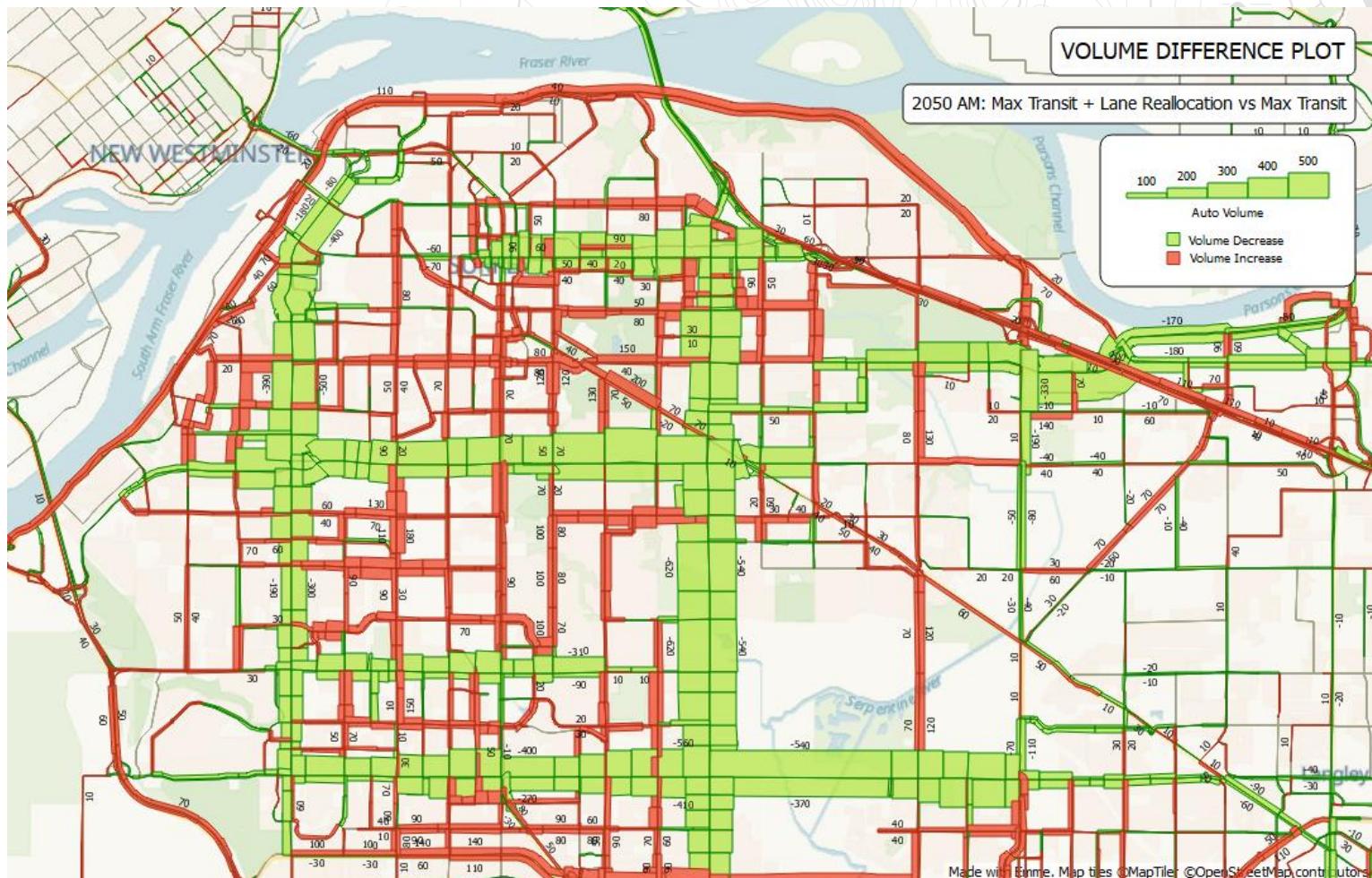
- Multiple Traffic Impact Assessments
  - South Surrey – Holistic Review
- Evaluate DCCs, Required Investments to Support Development
- Evaluate as a Collection of Road Improvements Rather Than Individual Projects



Surrey: Volume Difference Plot of Max Road Widening vs. BAU

# Policy Planning

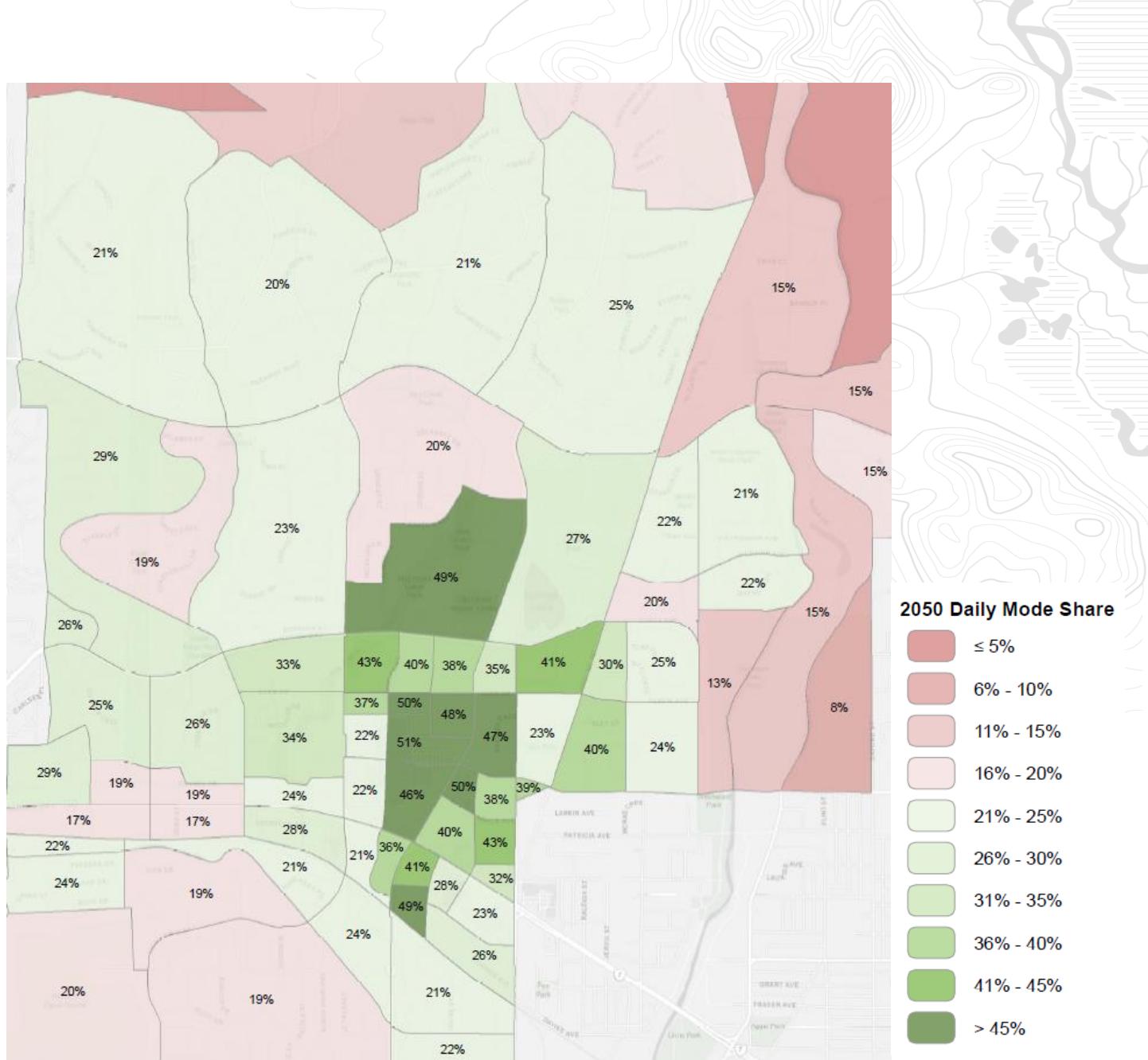
- Model Alternative Infrastructure Scenarios Such as Reallocation of Road Space to Transit
- Road Pricing, Bike Share, Car Share, Parking Policy



Surrey: Volume Difference Plot of Max Transit and Lane Reallocation vs. Max Transit

# Policy Planning

- Transit Oriented Development
- Mode Share Impacts
- Track Future Community Planning Targets



CCAPU: Daily Sustainable Mode Share

# **Subarea Model Development**



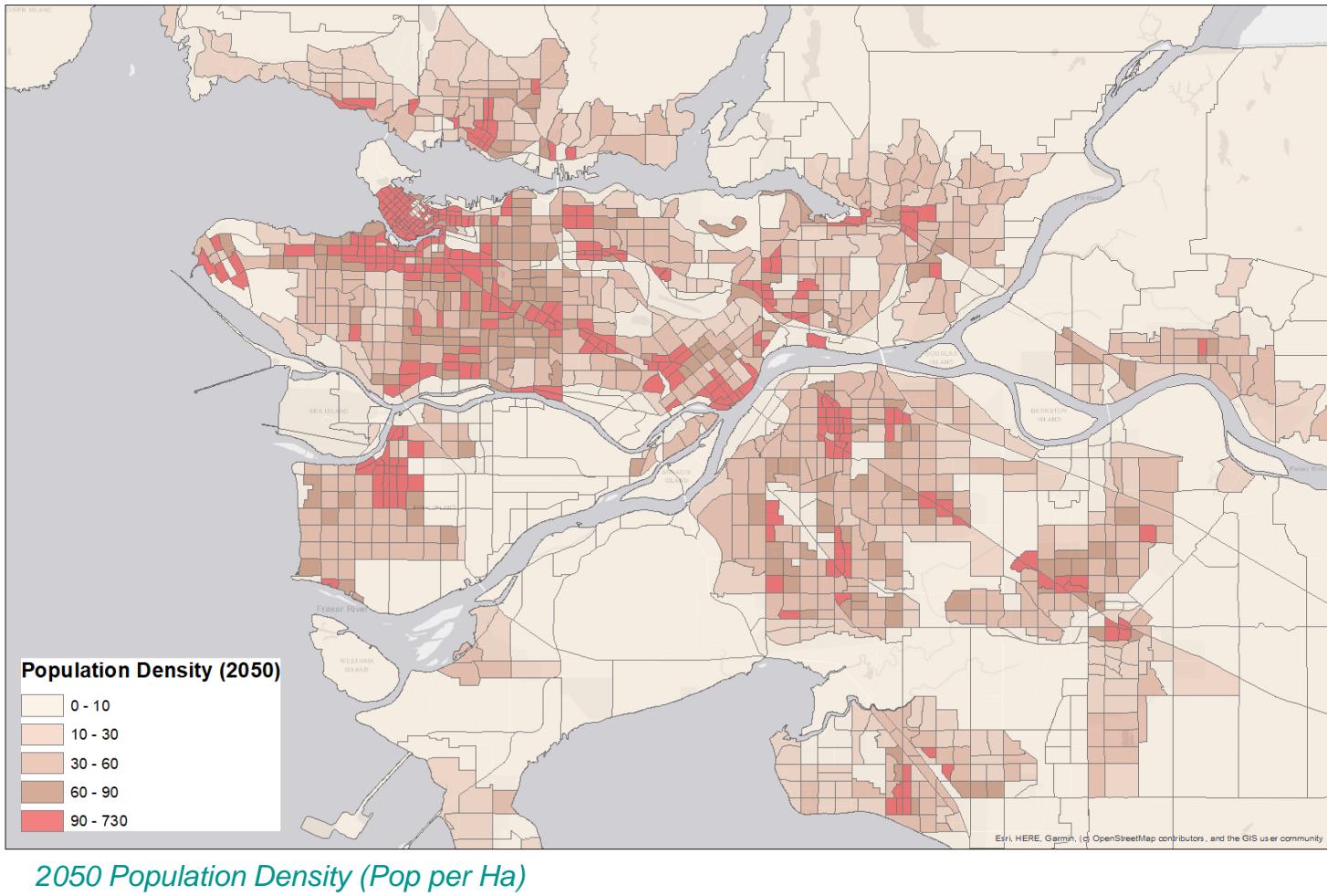
# Subarea Model Development

- Zone System
  - Splits Land Use Categories
  - Geographics Categories
  - Demand Categories
- Road and Transit Networks
  - Additional Centroids
  - Additional Municipal Facilities
  - Generally Transit Only Adjusted to Accommodate Additional Road Network
  - Additional New Services for Consideration (RapidBus Network Expansion, High Transit Priority Investment)
- Localized Validation
  - Model Parameters
  - Travel Times, Auto and Transit Volumes, Origin Destination Patterns

Data Types	Categories
Demographics	Pop by Age, Household Size, School Enrollment
Geographics	Bike Score, Parking Cost, Car Share
Demands	Trucks, Externals

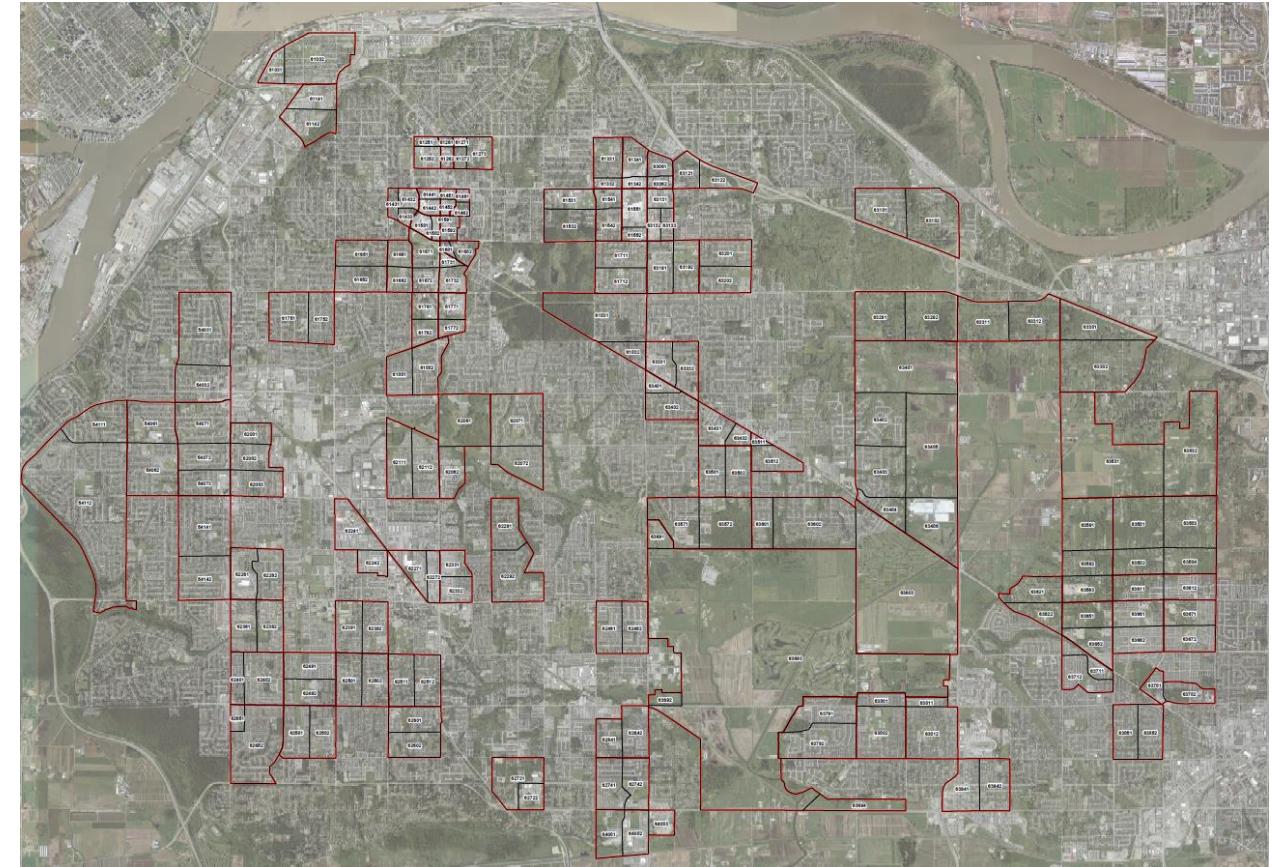
# Land Use Challenges

- Consistency of Population and Households
  - HH growth but Decreasing Pop
  - Average Household Size Over Time
- The Definition of Employment (Regular Place of Work and No Fixed Place of Employment)
  - Census has Regular Place of Employment
  - Regional Model and Metro Forecasts Include no Fixed Place Allocated to Zones
- Consistency with Municipal Development Plan and Regional Growth Strategy
- Coordination Between Community Planning and Transportation Planning



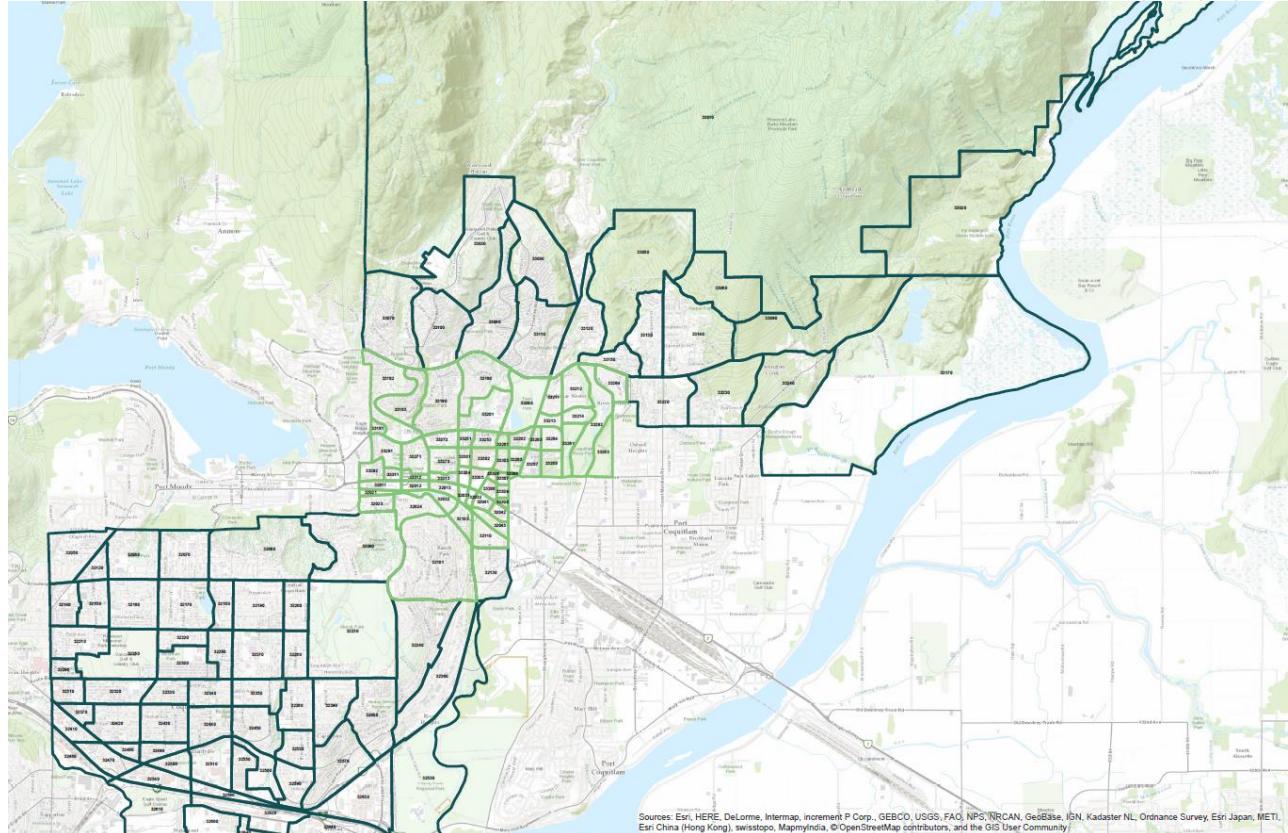
# Subarea Model Inputs

## Surrey



Surrey: Additional Zone Detailing

## Coquitlam



CCAPU: Additional Zone Detailing

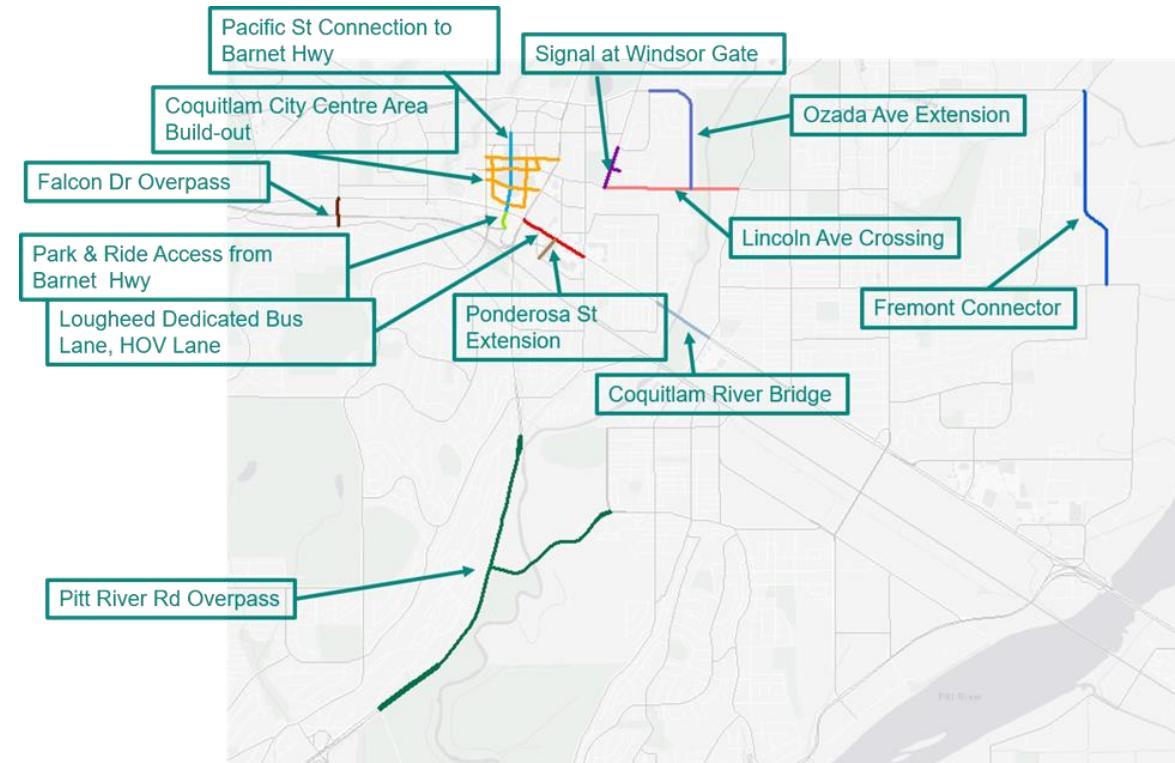
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCan, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, ©OpenStreetMap contributors, and the GIS User Community



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# Subarea Development Approach

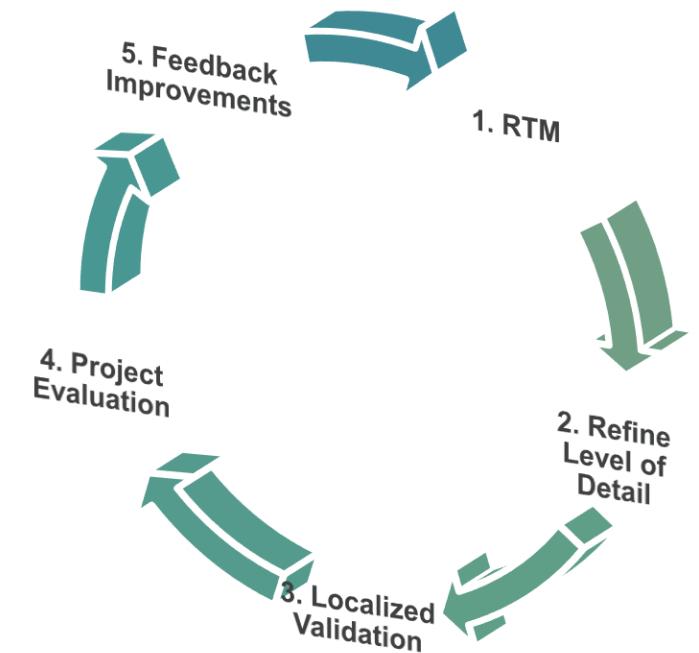
- Develop Additional Zone and Road Connections
  - Level of Detail for Each Should be Balanced
  - Geographic Scope Should Match Study Purpose
- Develop Land Use and Additional Infrastructure Assumptions
- Validate Model Base Condition



CCAPU: Future Projects with City of Coquitlam and Neighbouring Communities

# Subarea Development Approach

- Incremental vs Citywide
- Purpose Driven vs Anticipating Future Application
- Improvements in Local Validation
- Updating to Future RTM Updates
  - Previous Regional Models Proliferated Widely
- Consistency with RTM Base



# Subarea Modelling Considerations

Model Detail	Considerations	Example Projects
Regional Model (RTM)	<ul style="list-style-type: none"><li>✓ Available Off The Shelf</li><li>✓ Consistent Level of Regional Detail</li><li>✗ Local Travel Patterns May Not Be Fully Represented</li></ul>	Mobility Pricing, Regional Transportation Strategy
Citywide	<ul style="list-style-type: none"><li>✓ Level of Detail Consistent With Municipal Priorities</li><li>✓ Consistency Between Multiple Applications</li><li>✗ Significant Up Front Investment</li></ul>	Surrey Sub Area, Vancouver Sub Area North Shore Sub Area
Neighbourhood	<ul style="list-style-type: none"><li>✓ Consistency With Existing Planning Activities</li><li>✓ Level of Detail Chosen to Interact with Other Analysis Tools</li><li>✓ Explicitly Model Specific Developments</li><li>✗ Larger Effort Than Applying Regional Model</li></ul>	CCAPU, South Surrey, Lower Lynn
Corridor	<ul style="list-style-type: none"><li>✓ Lower Effort to Perform Localized Validation</li><li>✗ May Not Have Level of Desired Detail at Localized Level</li></ul>	Highway 99, Surrey Langley Skytrain, Rail to UBC

# Consistency with TransLink RTM

- Collective Improvements and Changes Contributed to TransLink
- Documentation within Git
- See the Changes in the RTM Official Release
- Understand Base Version of RTM and Specific Subarea Assumptions

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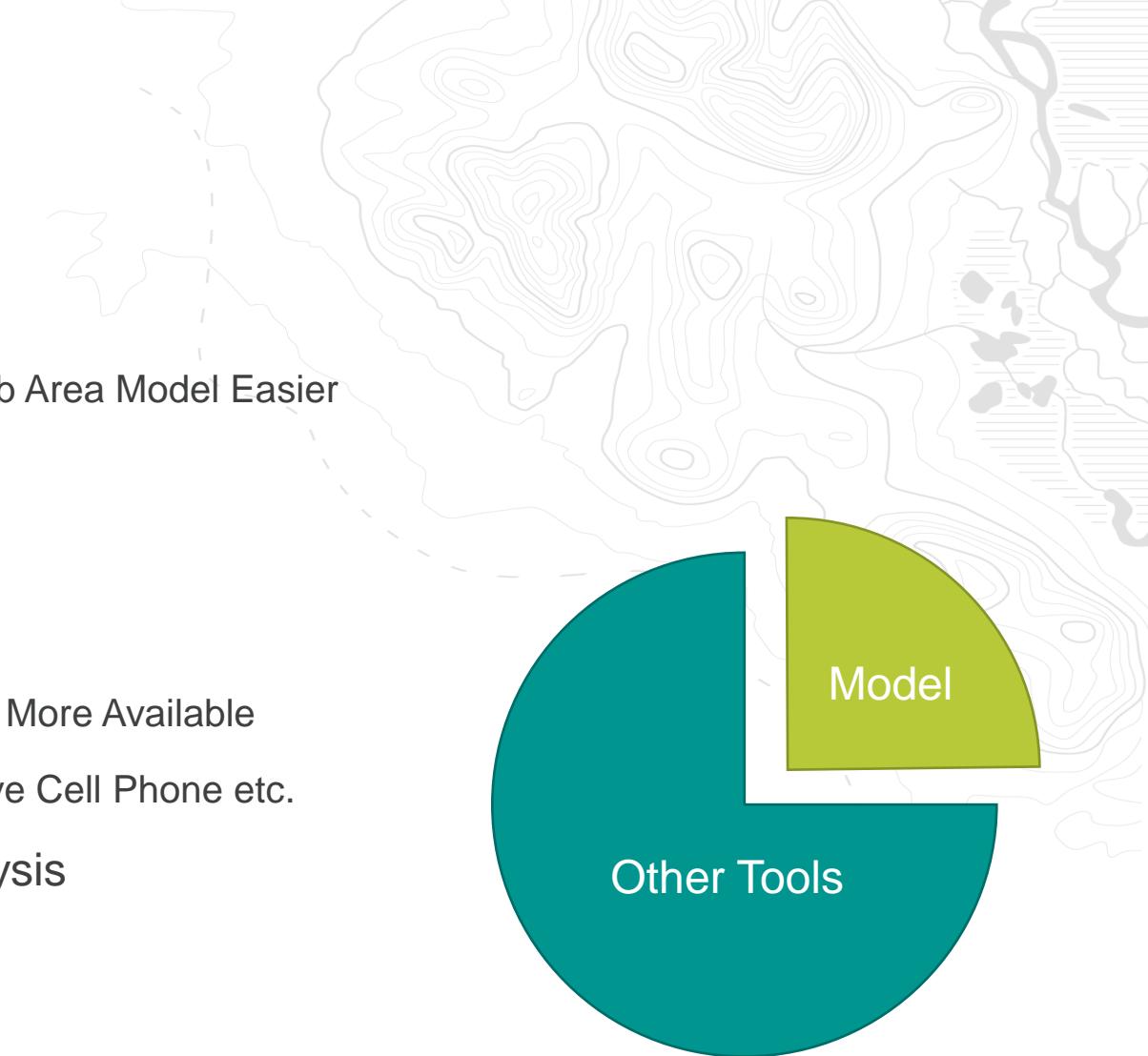
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Parent: b07831c865cabab553963952447f193dfc2541f9 (Merge pull request #142 from TransLinkForecasting/tollskim\_update)  
Parent: 93541811ab686fd1d5603623eee60658c5a9a98d (restore alighting at terminus)  
Child: 00000000000000000000000000000000 (Local uncommitted changes, not checked in to index)  
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Precedes:

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restore alighting at terminus

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# Takeaway Message

- Collective Improvements for Consistency
  - Shipping Fixes to TransLink Makes Future Updates to Sub Area Model Easier
- Text-Based Model Inputs
  - Additional Zones Easier to Add Than Previous Versions
- New Data Sources
  - Collating Data for Smaller Areas Has Become Easier and More Available
  - Google Maps API, TomTom, Streetlight, MioVision, Passive Cell Phone etc.
- Integration with other models (operation), other analysis
  - Operational Models
  - Sustainable mode share
  - GHG Emissions
- Coquitlam and Surrey models have already seen multiple updates (RTM 3.1, 3.2, 3.3 ...)



# Questions



**McElhanney**

