

Where Matters: Health, Environmental, & Economic Impacts of Transportation and Land Use Actions

September 7, 2018

**Lawrence Frank^a, Jat Sandhu^b,
Andy Hong^a, Binay Adhikari^a, Ellen Demlow^c, Yumian Hu^c**

^a Health and Community Design Lab
School of Population and Public Health
University of British Columbia

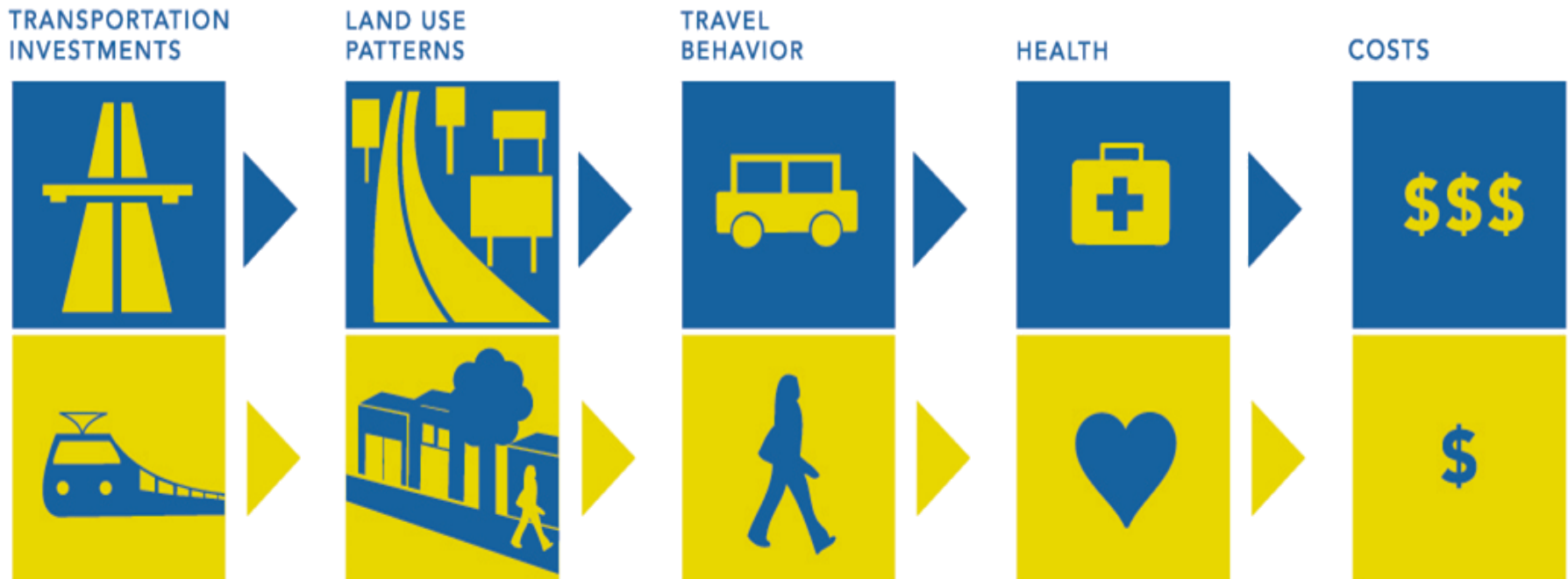
^b Data Analytics and Decision Support

^c Public Health Surveillance Unit
Vancouver Coastal Health



APPROACH OVERVIEW: DECISION-MAKING

HOW TRANSPORTATION IMPACTS HEALTH COSTS



Source: "The Hidden Health Costs of Transportation"
Frank et al 2010, American Public Health Association

3 Policy Levels

Regional Accessibility



Walkable, Complete
Neighborhoods

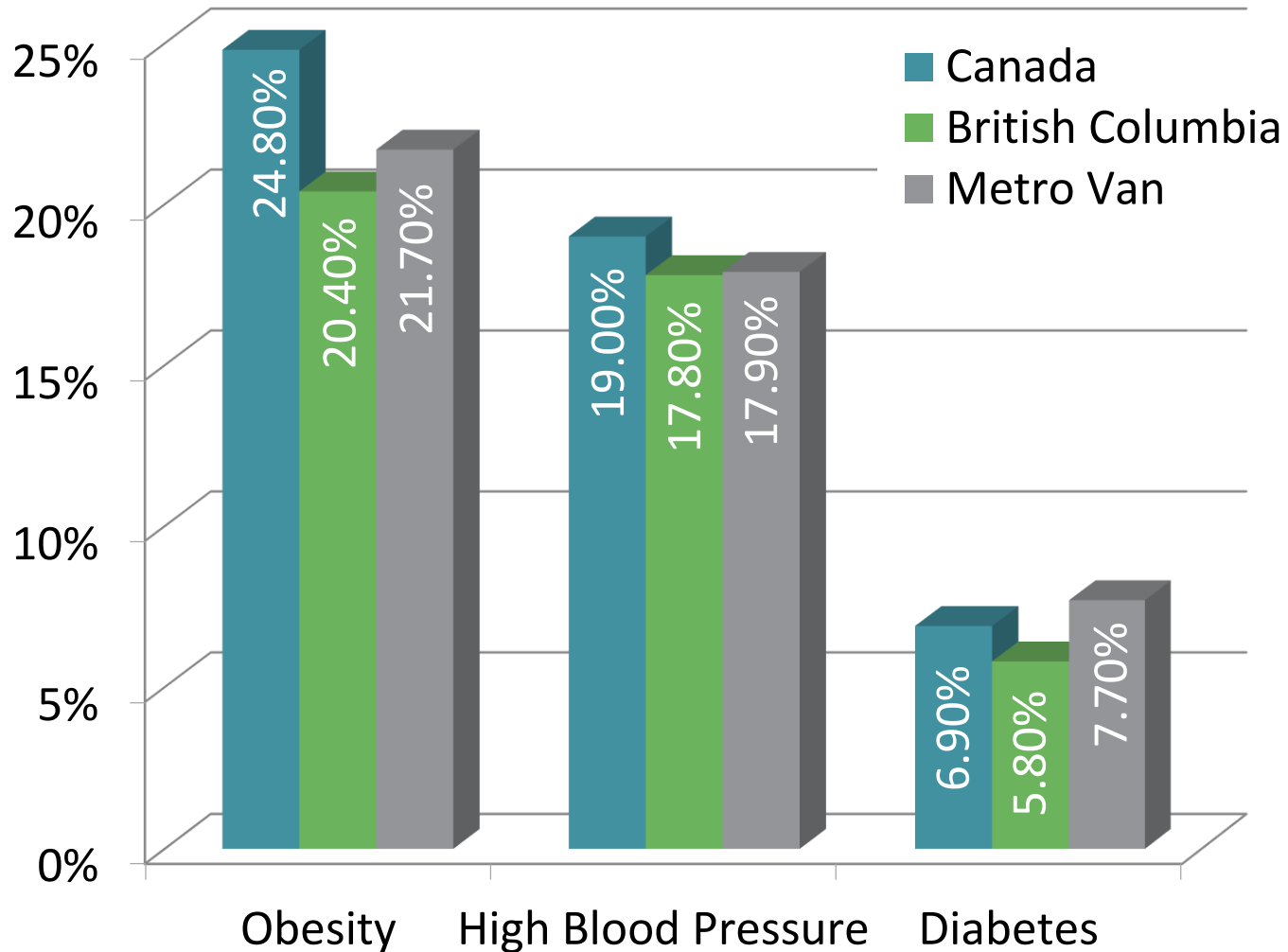


Pedestrian Environment
(Micro-scale)

Forthcoming



Health Context

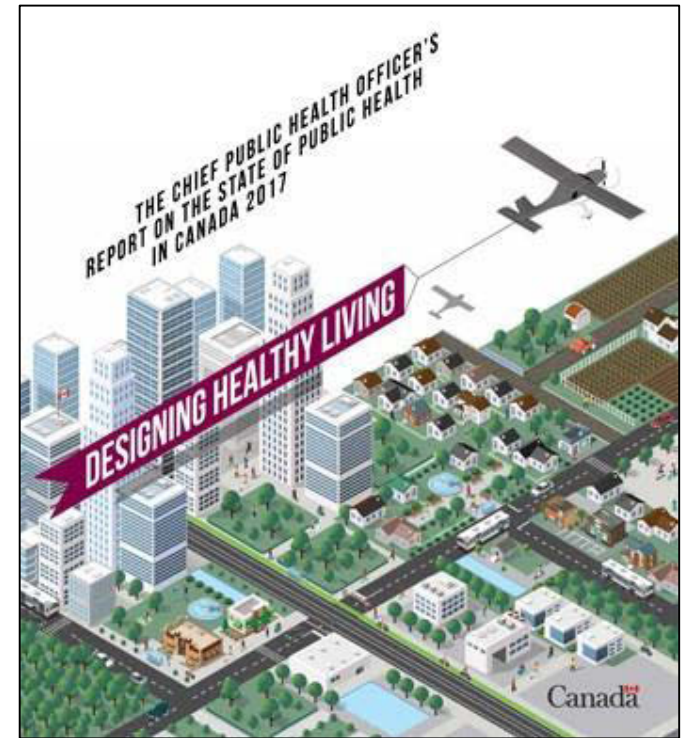


Policy Background (National)

2017 Designing Healthy Living

“Our neighbourhoods and how they are built influence how healthy we are.”

Dr. Teresa Tam
Canadian Chief Public Health Officer

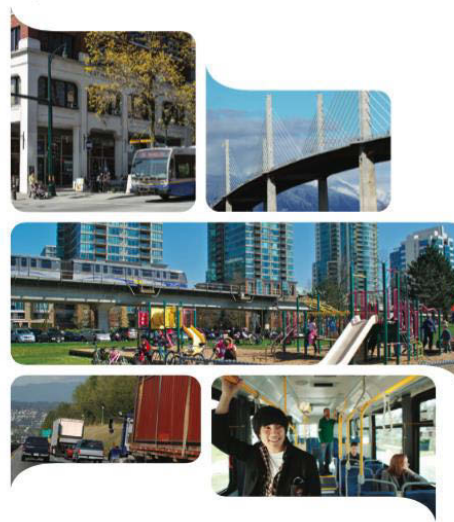


Policy Background (Region/Local)

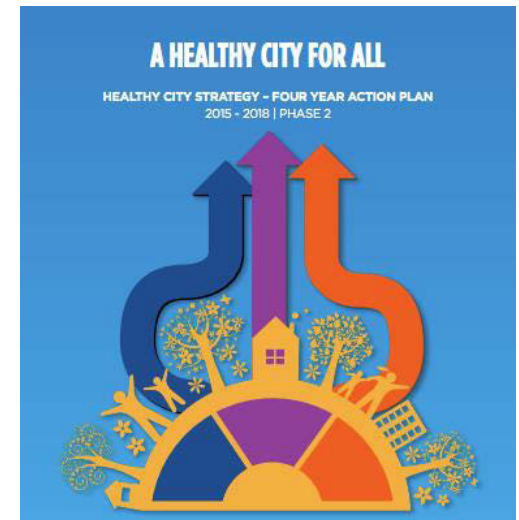
- Metro 2040 (Metro Vancouver)
- Regional Transportation Strategy (TransLink)
- Healthy City Strategy (City of Vancouver)



Metro 2040



Regional Transportation Strategy



Healthy City Strategy

Project Charter

| |
|--|
| ing Health and Economic Benefits of Sustainable ment and Transport Investment in the Lower Mainland |
| r 2016 |
| r 2018 |
| of British Columbia and Metro Vancouver |
| e project objectives, scope, deliverables, partners, budget and responsibilities; provide a mechanism for the transfer of funds ro Vancouver to UBC. |

| |
|---|
| 3C, in partnership with Vancouver Coastal Health Authority Metro Vancouver, TransLink and the City of Vancouver) is it documents health and financial benefits of sustainable rtation investment in the lower mainland. |
| inity Survey with a highly detailed walkability, land use, and will support the evaluation and documentation of itures and health outcomes in the Lower Mainland for igs will be applicable, and can be tailored, to assist planners mbia. The project also builds on an already funded unique research (CHIR) to monetize the health care cost savings of The study fills a critical gap in the availability of locally-based sion making around land use and transportation investments anywhere linking built environment decision making with ific age and income groups. |
| e density, land use mix, connectivity of street networks, and mprovements in the levels of service for transit, pedestrian, ysical activity, type II diabetes, cardiovascular disease, es in the BC Generations Study (n=13,000) and the My Health etailed models to be developed for specific age and income aged into an easy to understand format to support direct health impact assessment efforts. This study responds to a its and increasing rates of chronic disease from sedentary apital Region District there is the additional concern about st walkable parts of the region. The study will help to show onments can help to offset health care costs and promote |

Project Charter Signed by Four Agencies:

Conducted by UBC's Health and Community Design Lab and Vancouver Coastal Health Authority with Support from Fraser Health

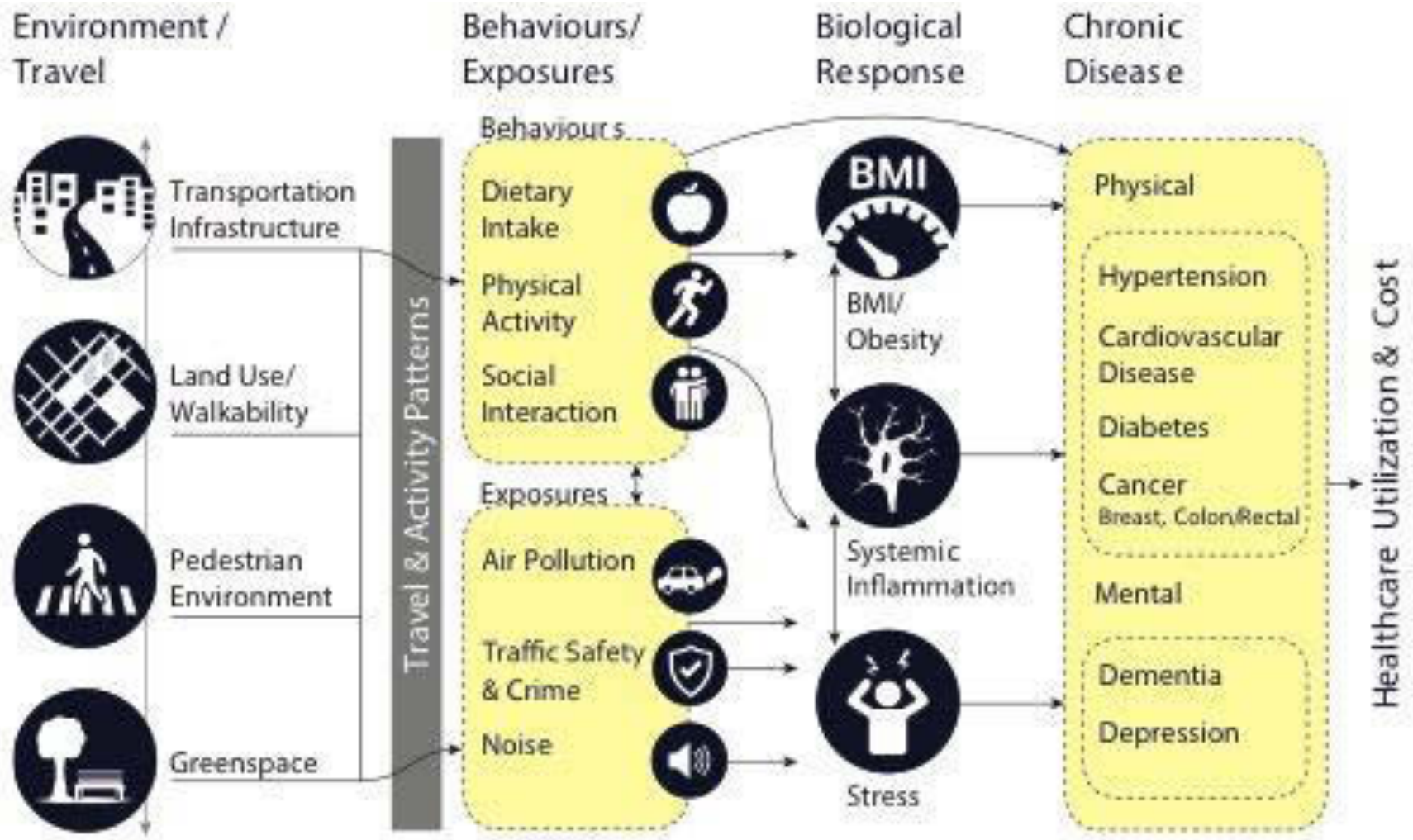


Study Goals

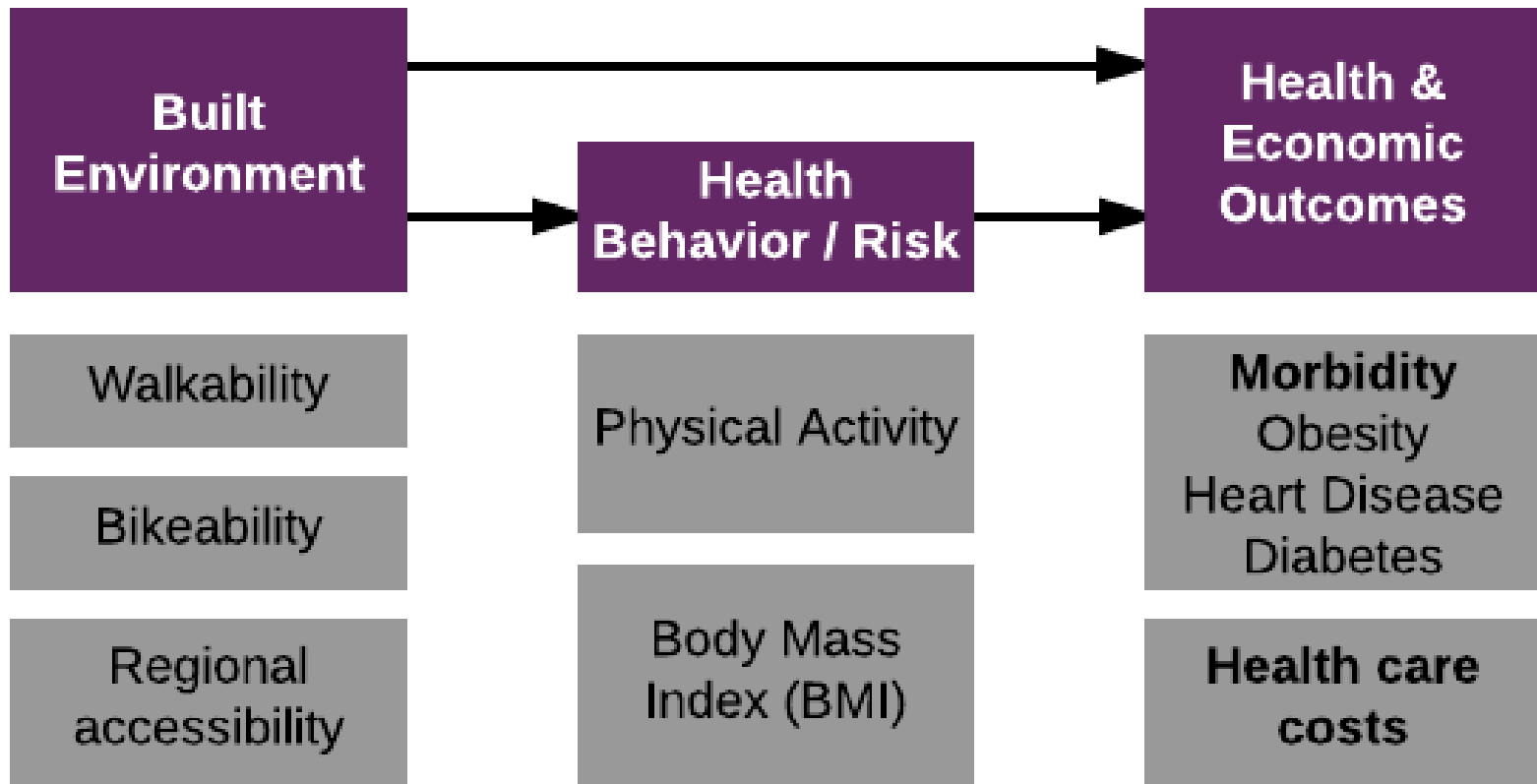


- 1) To investigate the relationship between built and natural environment and health
- 2) To investigate how the relationships between built and natural environment and health vary across income and age groups
- 3) To investigate the extent to which walkable environments can reduce health care costs

Causal Pathways



Research Framework



Unique Research Platform

Database development

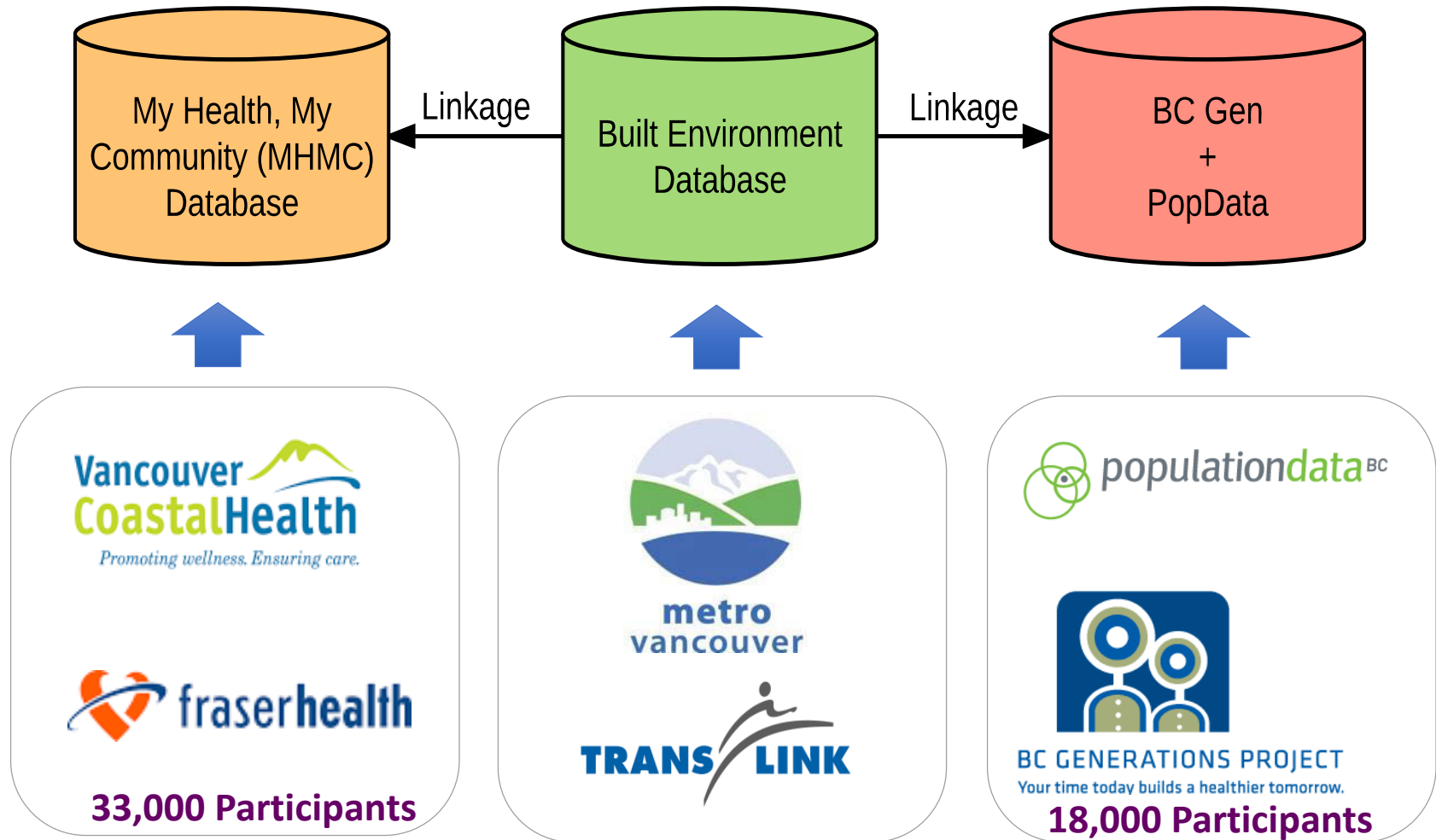
Data analysis & outreach

Policy application & innovation



- 1) Health Cost Savings from Transit Investment
- 2) Social Equity – Integrating health, transportation, and housing costs
- 3) Health Benefits of Pedestrian Amenities

Unique Research Partnerships



Comparable Walkability Databases

- Building on 20+ years of Experience
- Validated by 100s studies
- 2016 Database Funded by Metro Vancouver and Translink
- Detail postal code / parcel level information for lower mainland

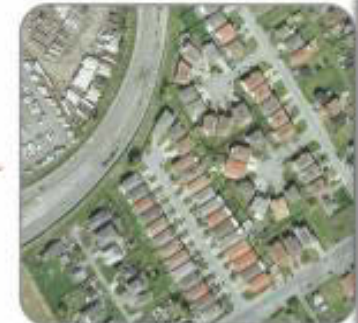
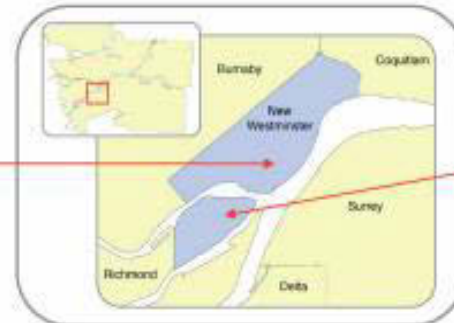


- Natural environment
- Regional accessibility

- Additional built environment variables
- Alternative buffer sizes
- Natural environment
- Sidewalk continuity
- Regional accessibility

Provides Dynamic Detailed Performance Measures to Support Local and Regional Planning Purposes

Local Walkability – “How”



**Uptown
Moody Park**

Queensborough

Net Residential Density
(dwelling units/acre)

40.29

Mixed Use Index
(range 0 – 1)

0.58

Intersection Density
(per square km)

70.12

Retail Floor
Area Ratio

0.64

Overall Walkability

4.26



7.73

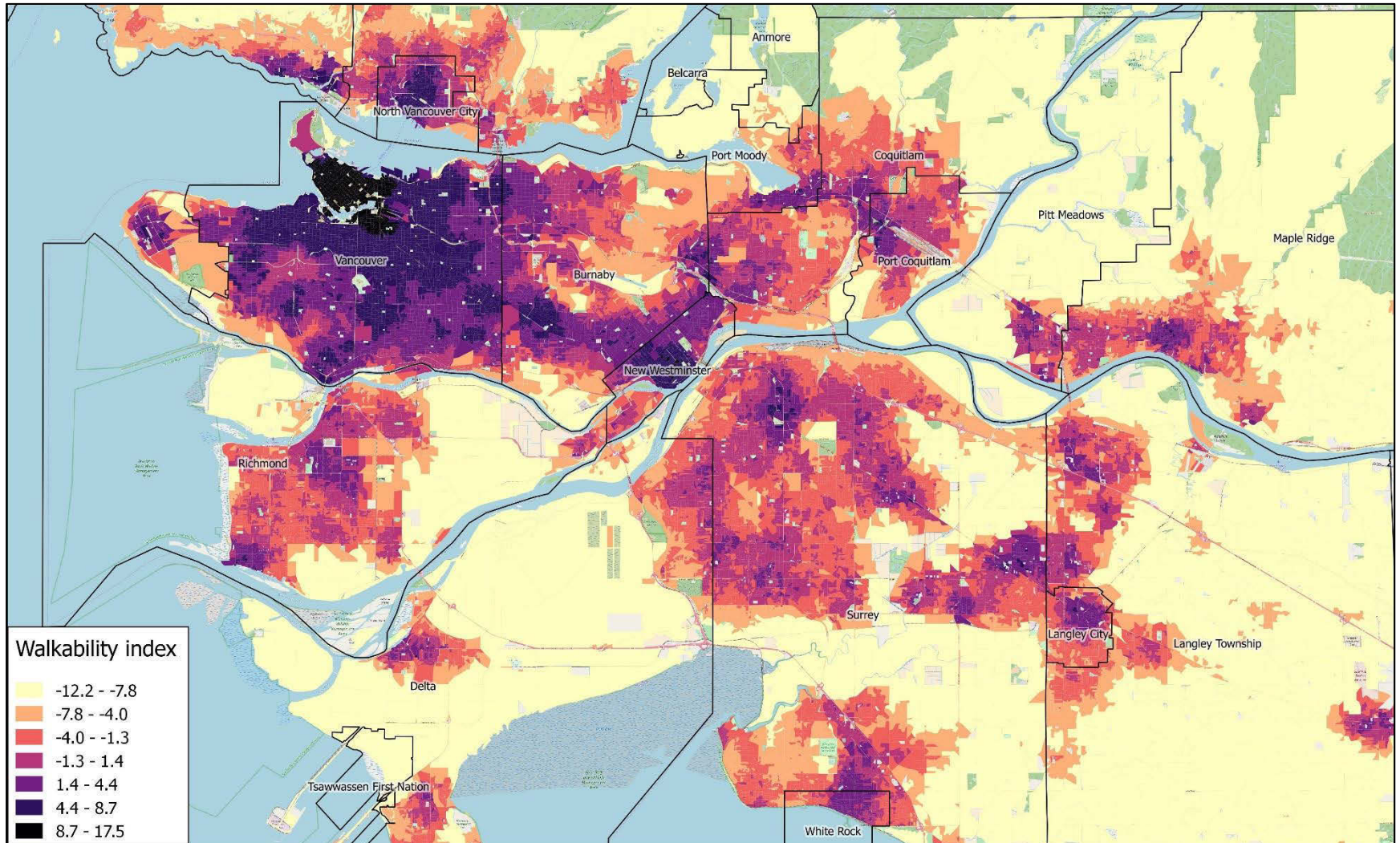
0.09

27.91

0.30

-3.74

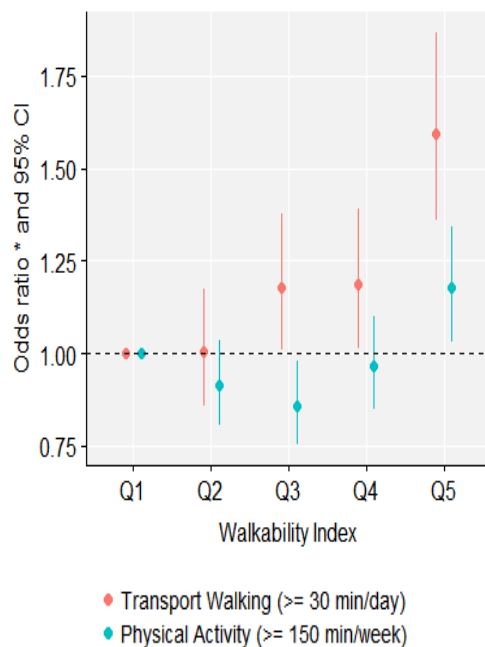
Walkability Surface 2016



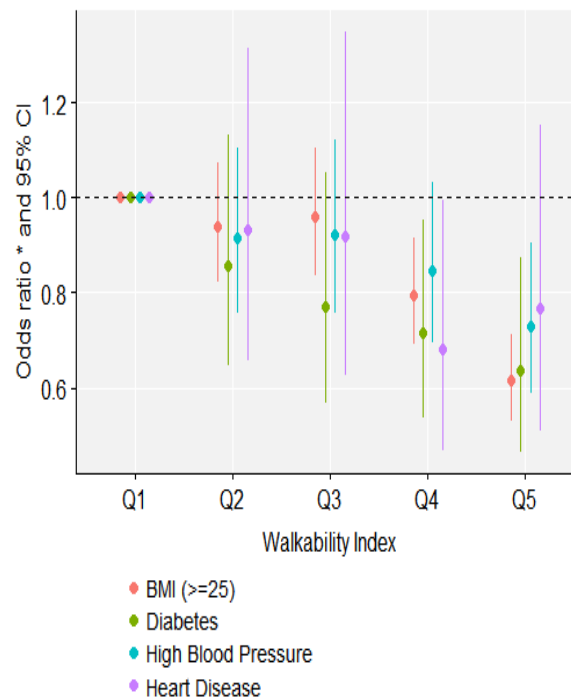


MY HEALTH MY COMMUNITY DATA

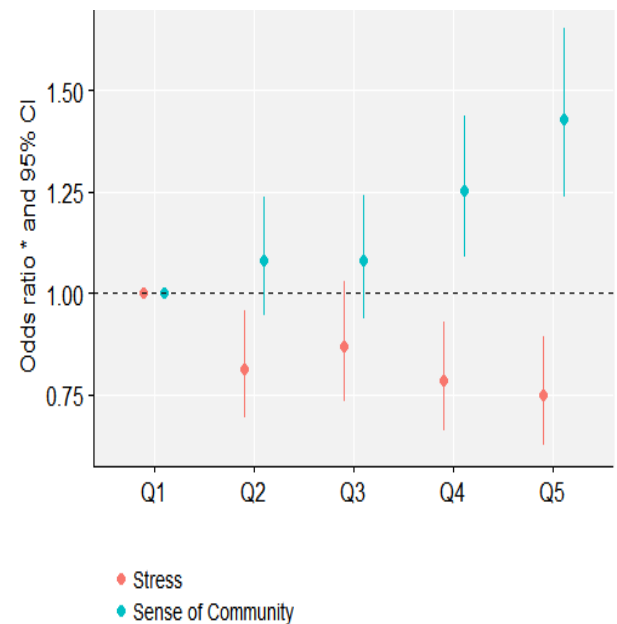
Behavior



Chronic Disease



Social & Mental Health



Behavior models controlled for income, age, gender, education, and regional accessibility

Chronic disease models extra controlled for time in neighborhood

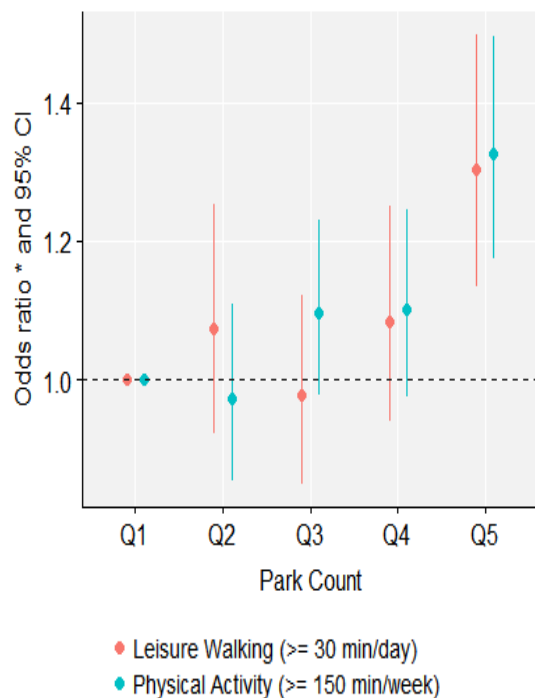
Stress and Community belonging models extra controlled for home ownership

Responses were weighted using 2011 National Household Survey data by age, gender, education and neighborhood.

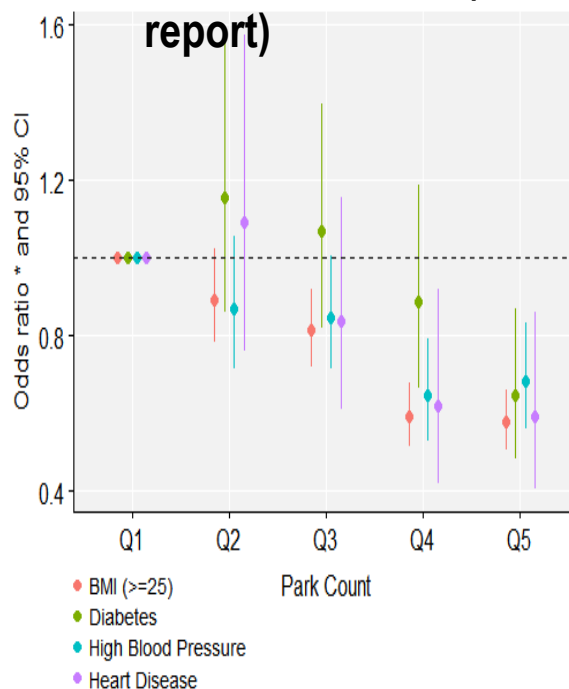


MY HEALTH MY COMMUNITY

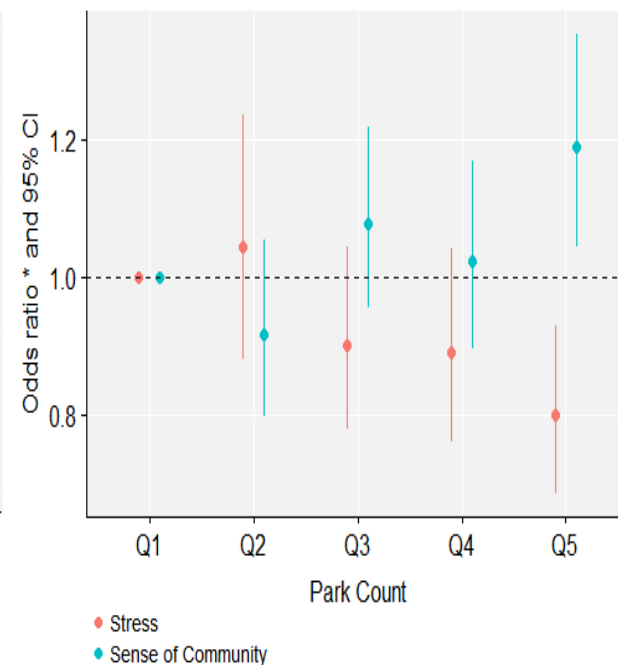
Behavior



Chronic Disease (self report)



Social and Mental Health



Behavior models controlled for income, age, gender, education, and regional accessibility

Chronic disease models extra controlled for time in neighborhood

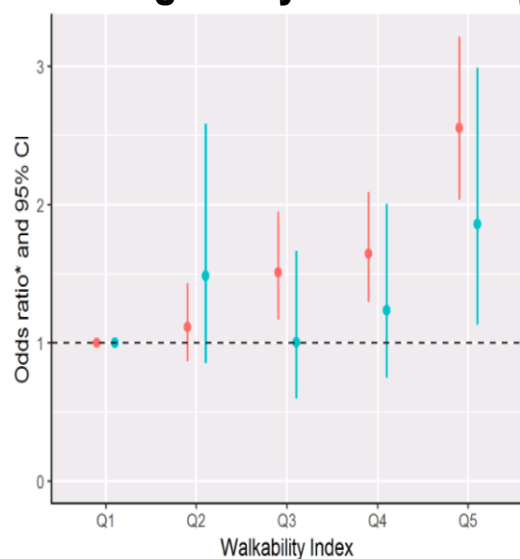
Stress and Community belonging models extra controlled for home ownership

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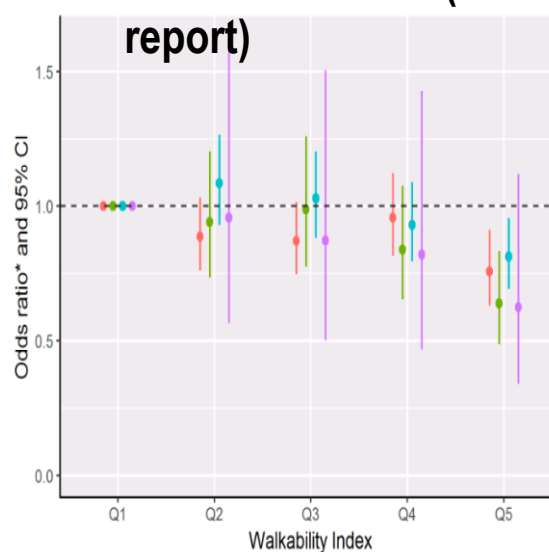
BC GENERATIONS

Walking & Physical Activity



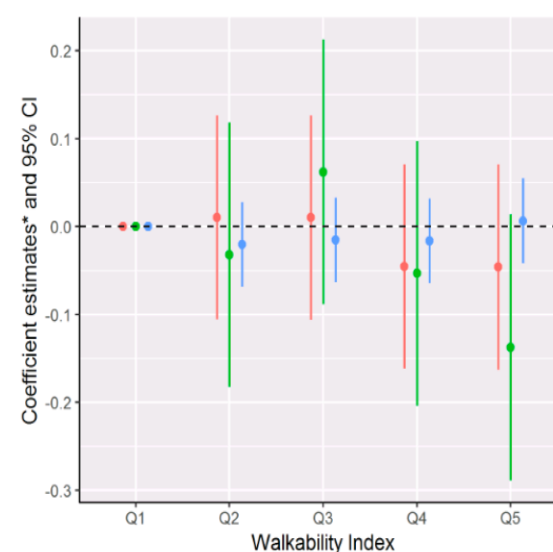
- Transport Walking (≥ 30 min/day)
- Physical Activity (≥ 150 min/week)

Chronic Disease (self report)



- BMI (≥ 25)
- Diabetes
- High Blood Pressure
- Heart Disease

Health Care Costs



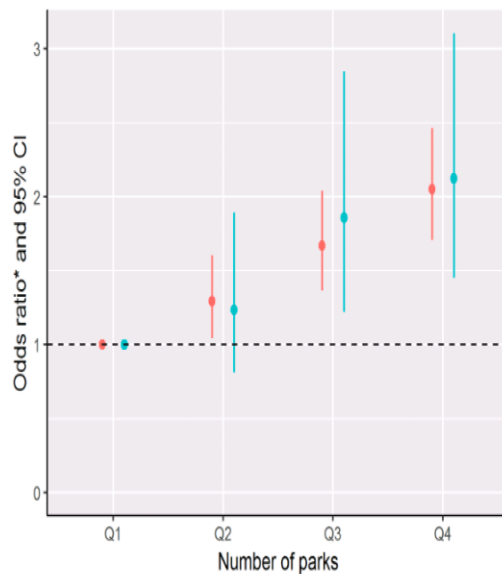
- Health care costs for diabetes
- Health care costs for high blood pressure
- Health care costs for heart disease

All models controlled for income, age, gender.



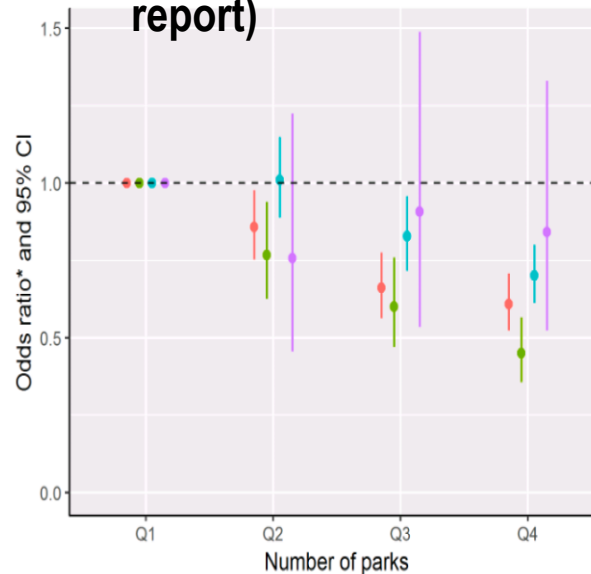
BC GENERATIONS

Behavior



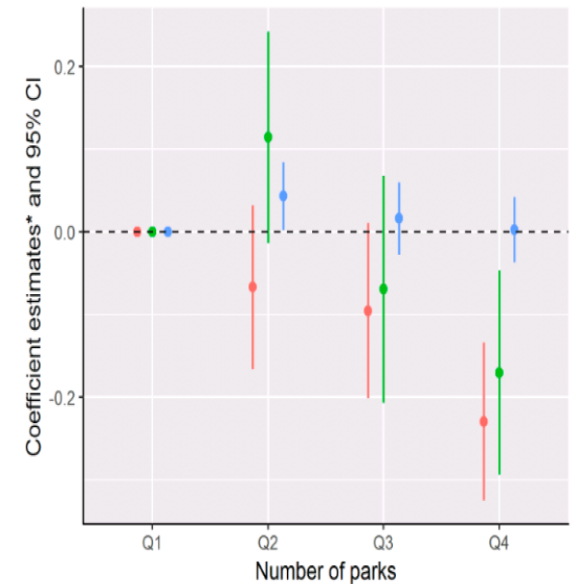
- Leisure Walking (≥ 30 min/day)
- Physical Activity (≥ 150 min/week)

Chronic Disease (self report)



- BMI (≥ 25)
- Diabetes
- High Blood Pressure
- Heart Disease

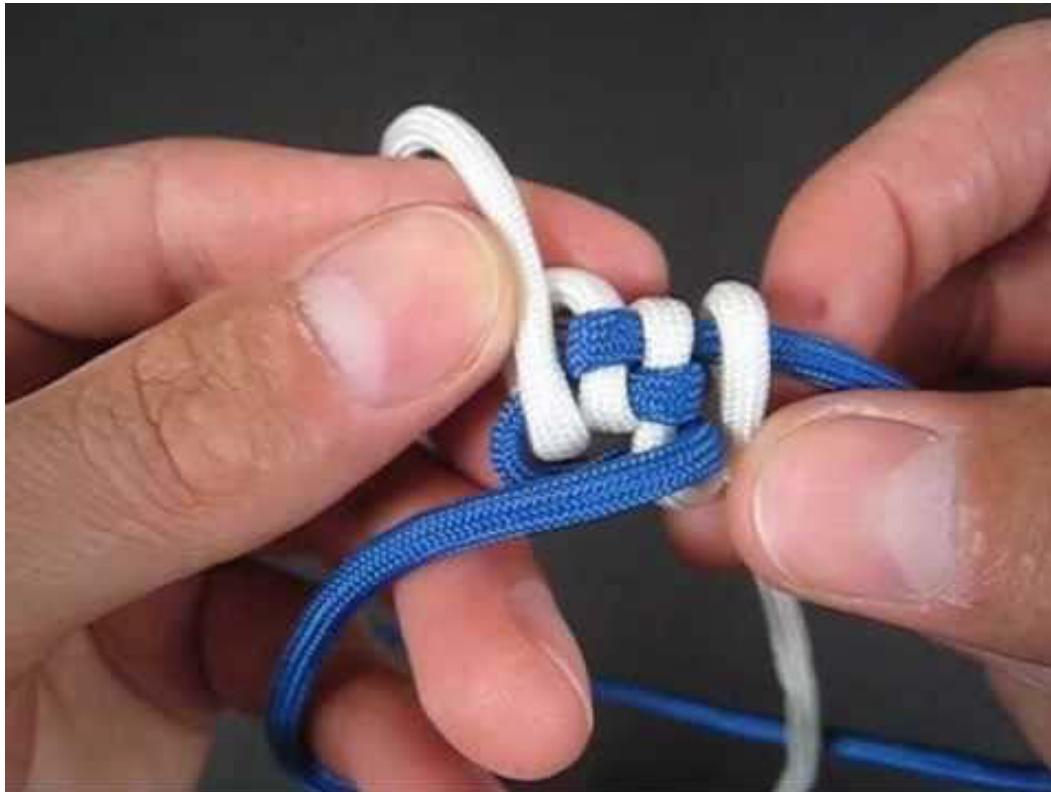
Health Care Costs



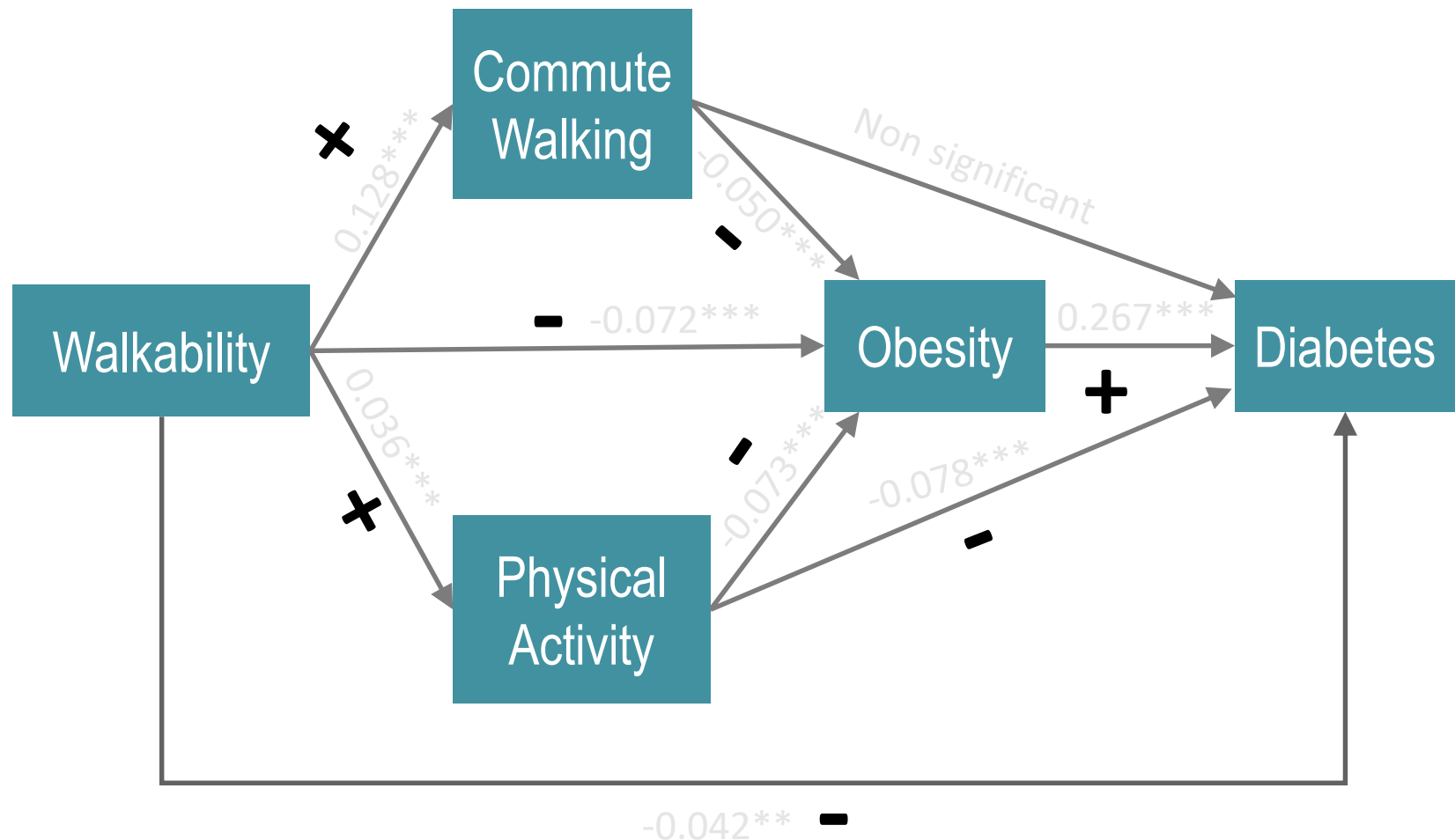
- Health care costs for diabetes
- Health care costs for high blood pressure
- Health care costs for heart disease

All models controlled for income, age, and gender

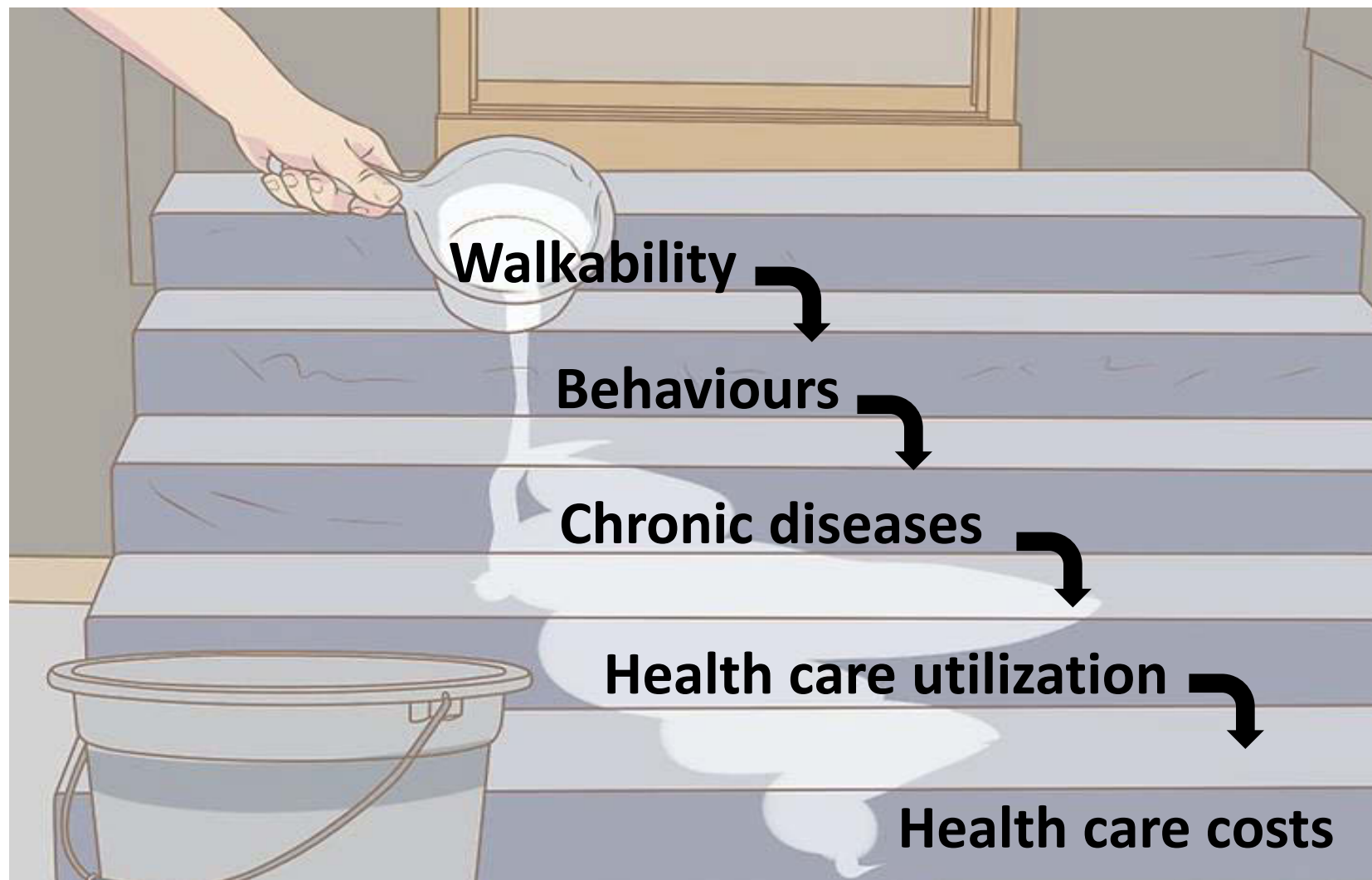
Tying It All Together



Walkability > Behaviour > Health



Sequencing the Outcomes



Summary and Policy Implications

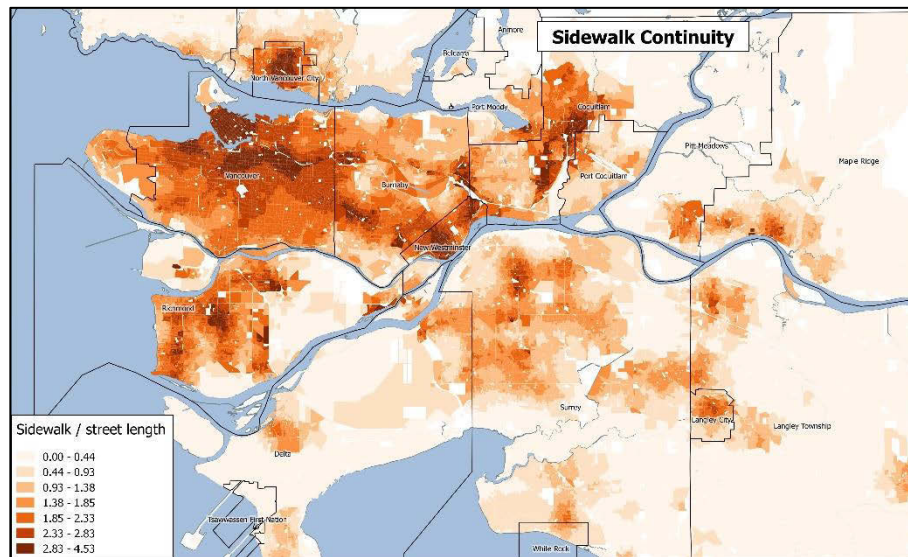
- Walkability is related with higher rates of active transportation and lower rates of most forms of chronic disease
- Some results show that the highest levels of walkability may have some reduced health benefits relative to more moderate increases in walkability
- Research is required to develop strategies to offset the negative impacts of the most compact walkable environments on mental and respiratory health
- Mental health relationships with walkability is complex and further investigation is needed
- Health related costs of walkability is still being investigated but preliminary results show trends in the expected directions
- As expected - High walkability neighborhoods generally overlap with Metro Vancouver's Urban Centers and Frequent Transit Development Areas

Next Steps

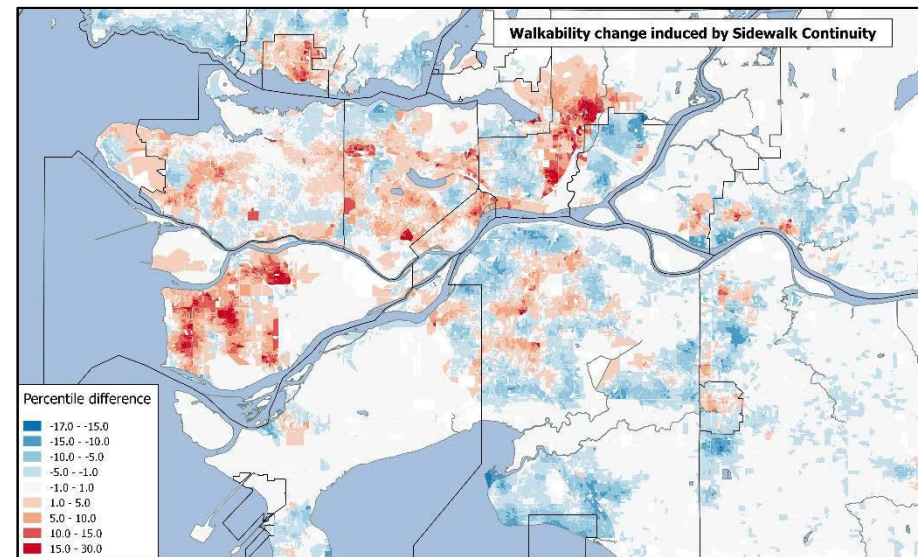
- Completion of analysis on economic impacts
- Application of results to case study locations
- Creation of policy summary report
- Convene event and release report and discuss implications of results
- **Future Research**
 - *Integrate housing and displacement cost into project*
 - *Integrate pedestrian environmental features into project*
 - *Assess causal impacts of built environment on health outcomes by using second waves of data from both surveys*
 - *Create an evidence based health impact assessment tool*

Effect of Sidewalk Continuity

Sidewalk Continuity



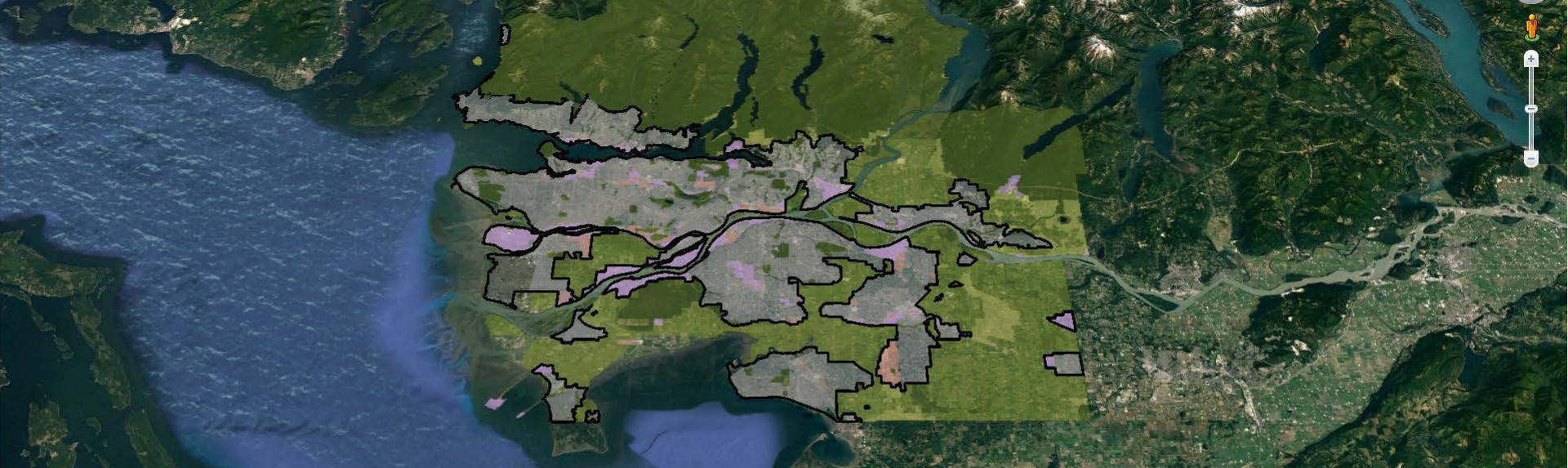
Effect of Sidewalk Continuity on walkability



Red = improved Walkability

Blue = Reduced Walkability

THANK YOU



Long Range Regional Growth Scenarios

REGIONAL AND MUNICIPAL COLLABORATION

Terry Hoff

SENIOR REGIONAL PLANNER

Regional Planning Committee – September 7, 2018



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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Long Range Growth Scenario Process



Anticipating Regional Growth

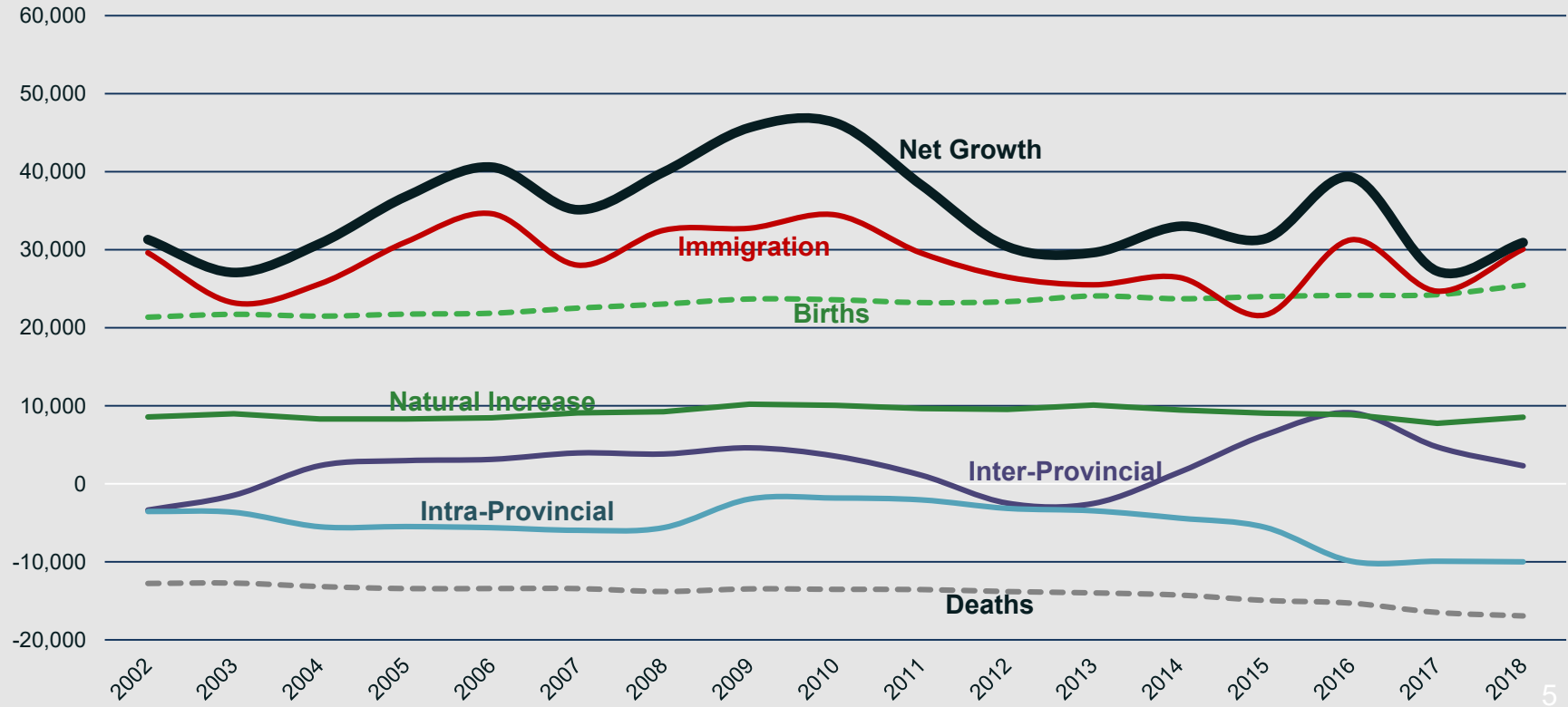
- Metro Vancouver prepares regional population, dwelling, land use and employment projections — Metro 2040, Regional Utilities, TransLink
- Coordination with member jurisdictions on subregional growth — local plans, policies and development trends
- Major review of future scenario assumptions and projections

Review of Baseline Projections

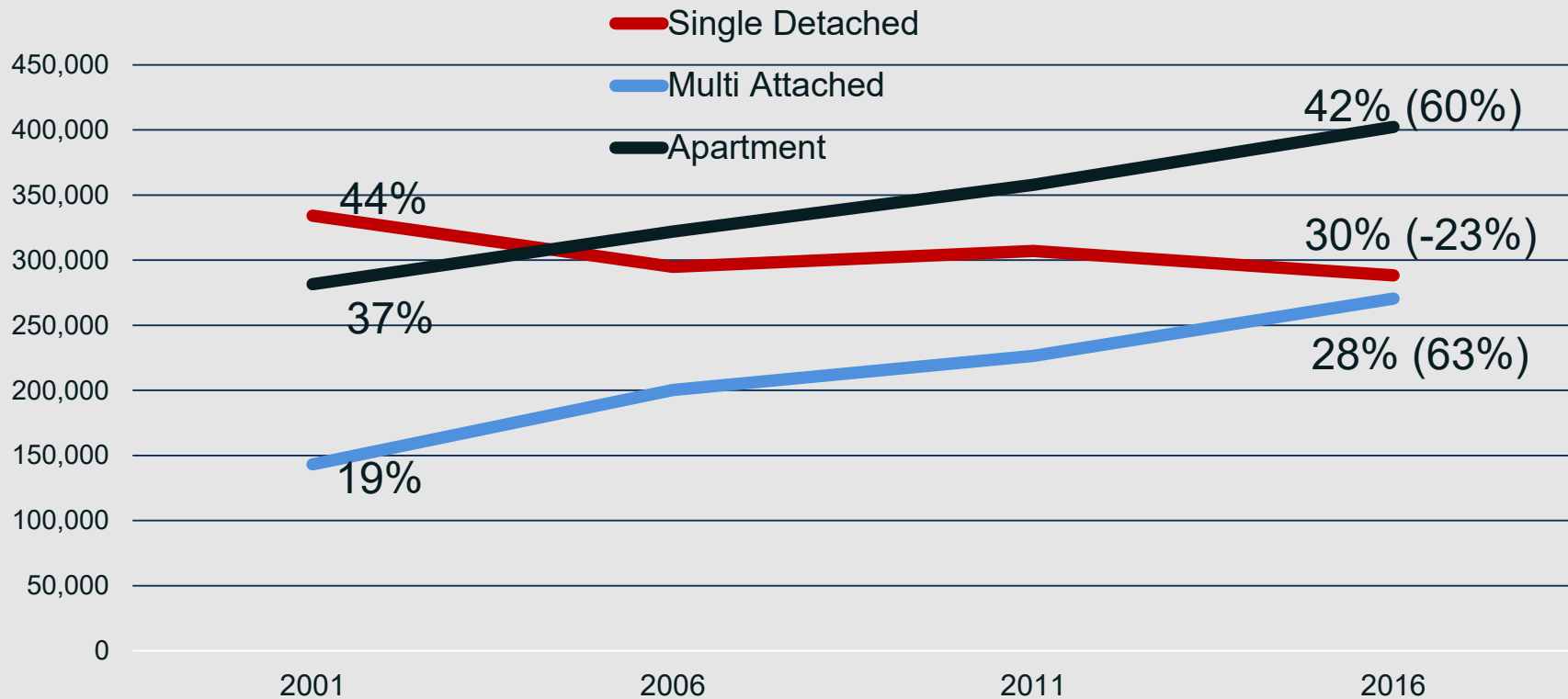
Coordinate 2016 baseline for population, dwellings and employment

- Discuss 2016 Census results and compare with local data
 - Undercounts, anomalies
- Coordinate our 2016 estimates for population, dwellings and employment
 - Diversity of sources – Municipal, Metro Vancouver, BC Stats, Consultants

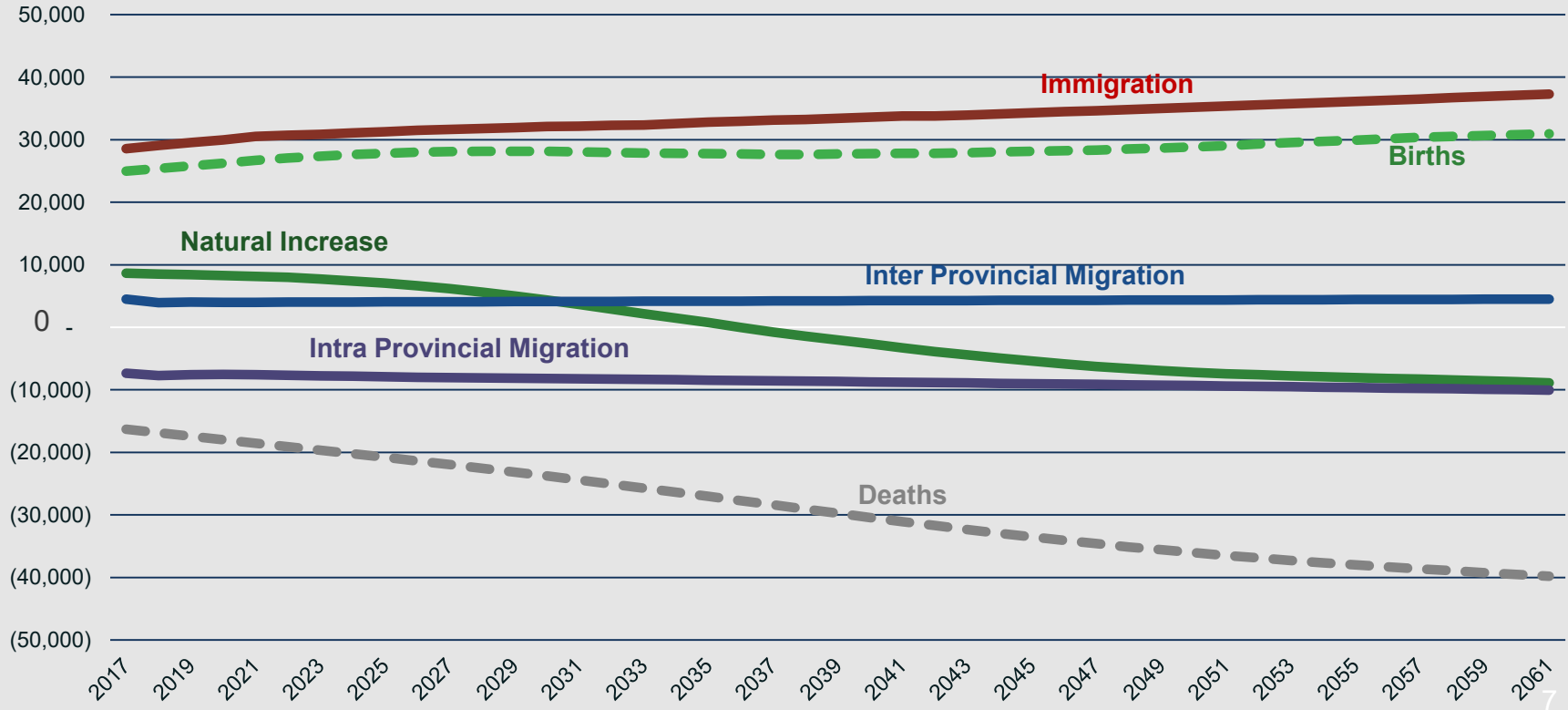
Metro Population Growth – Demographic Components



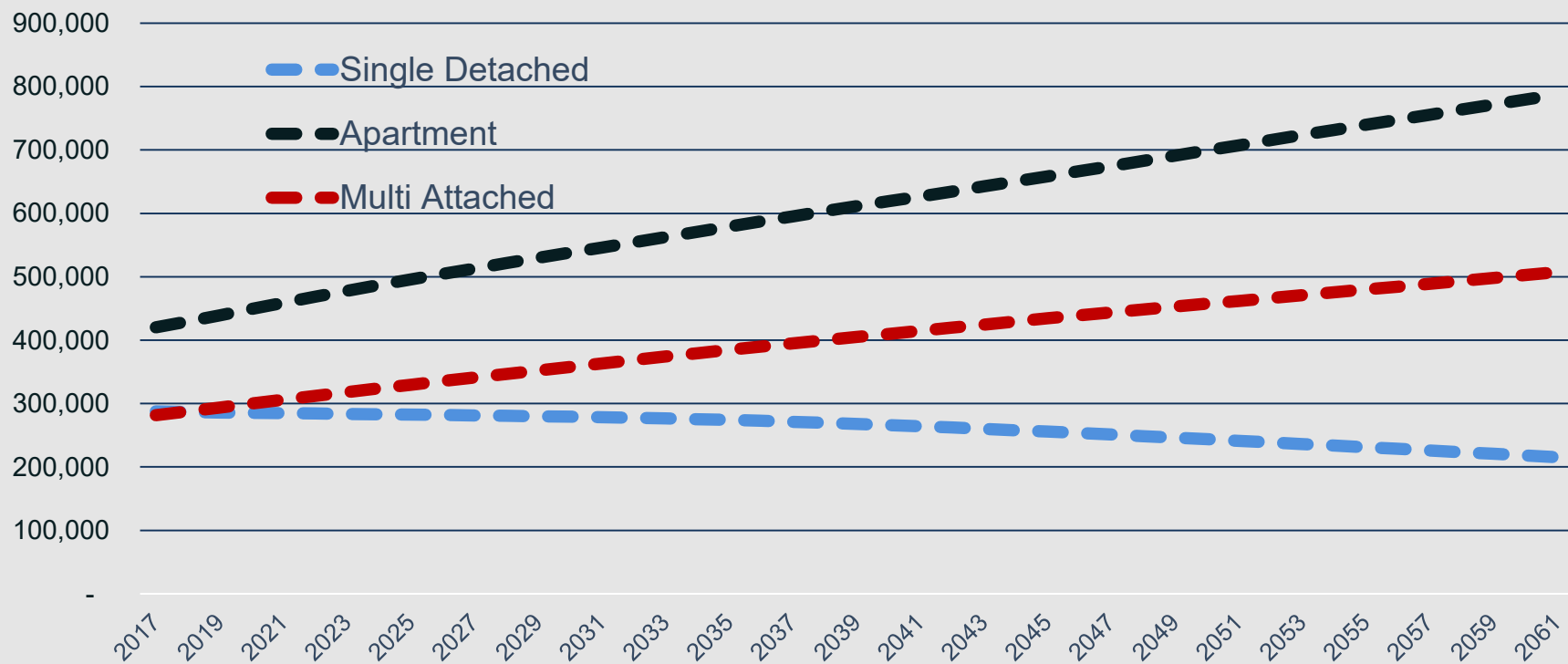
Metro Vancouver Housing Trends (Census)



Projected Metro Population Growth Components



Projected Metro Housing Stock



Review of Regional & Municipal Growth Projections

Coordinate potential adjustments to current regional and municipal growth projections

- Reconcile regional and municipal assumptions and projections
- Planned development capacity, development activity and expectations for population growth
- Prepare draft *Baseline Scenario* projections

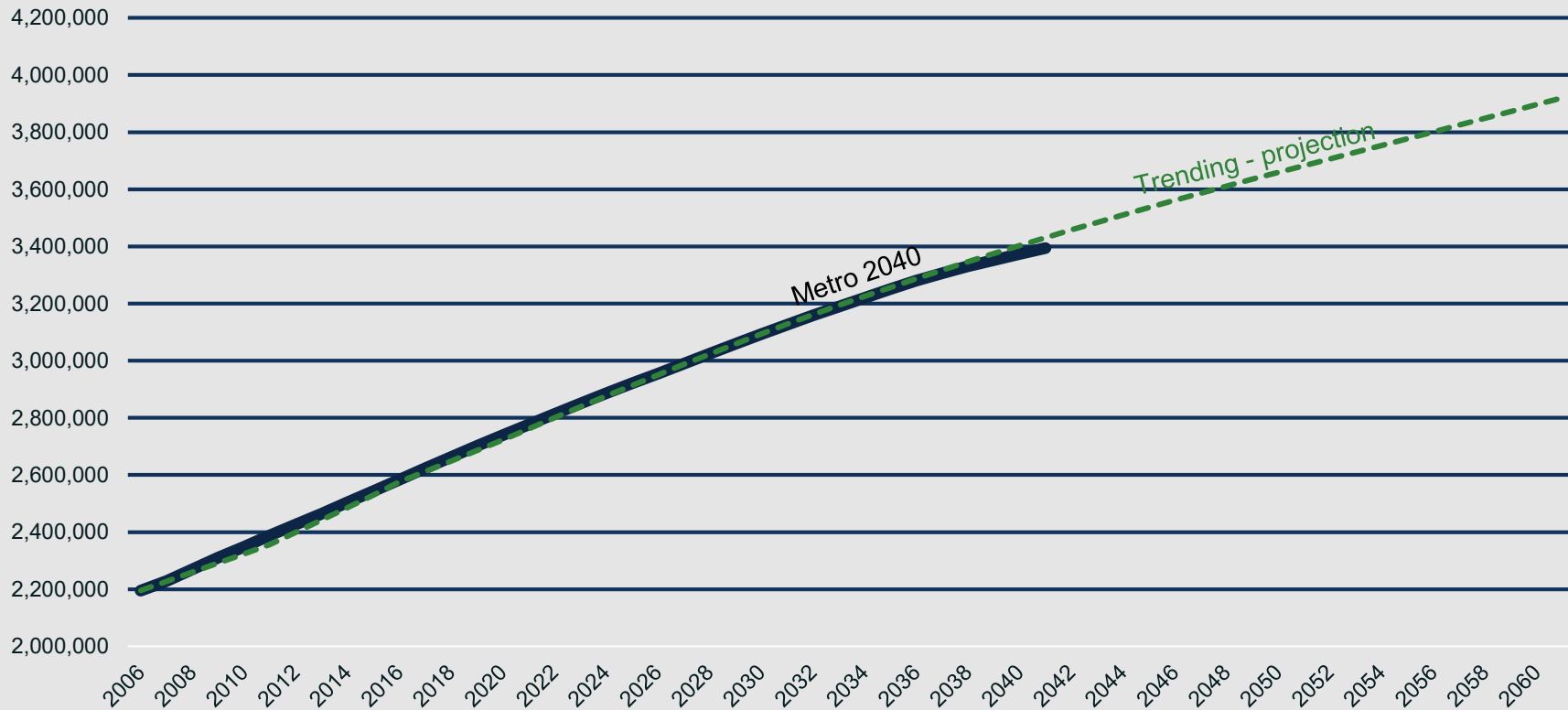
Themes Emerging from Municipal Visits

Review regional and municipal growth policies and trends, land use and infrastructure implications

- Housing supply and affordability a primary issue
- Current high number of approvals and applications in process
- Progressive plans and policies to support intensification capacity
- Increasing variety and diversity of housing development options
- Infrastructure improvements required to support development

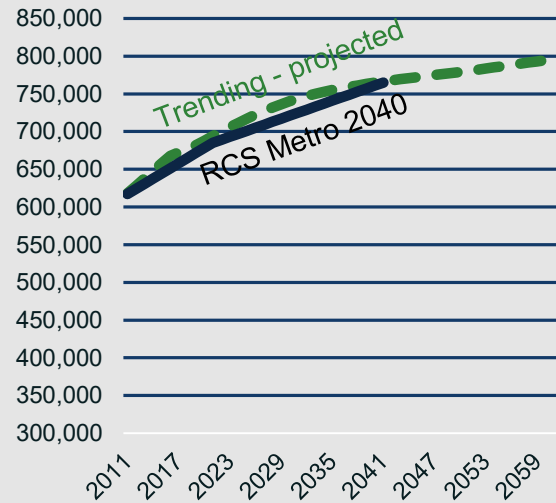
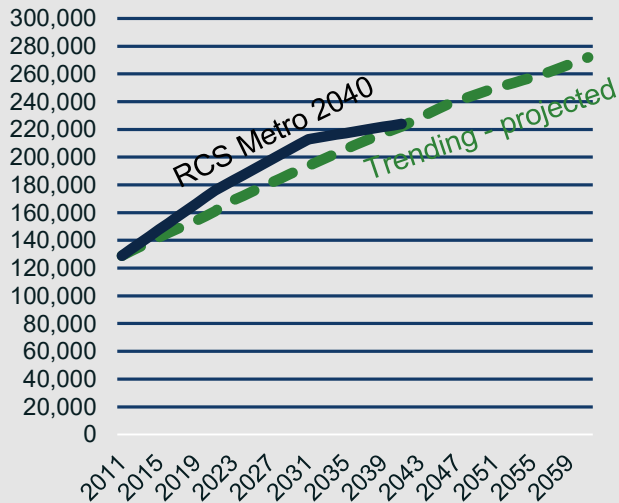
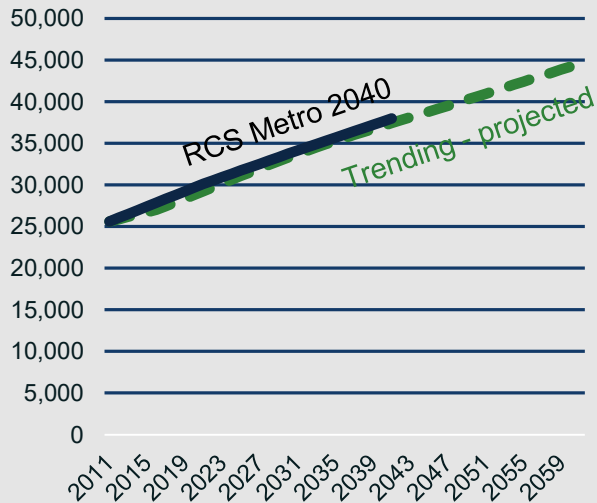
Regional and Municipal Population Projections

Trending and Projected



Regional and Municipal Population Projections

Trending and Projected



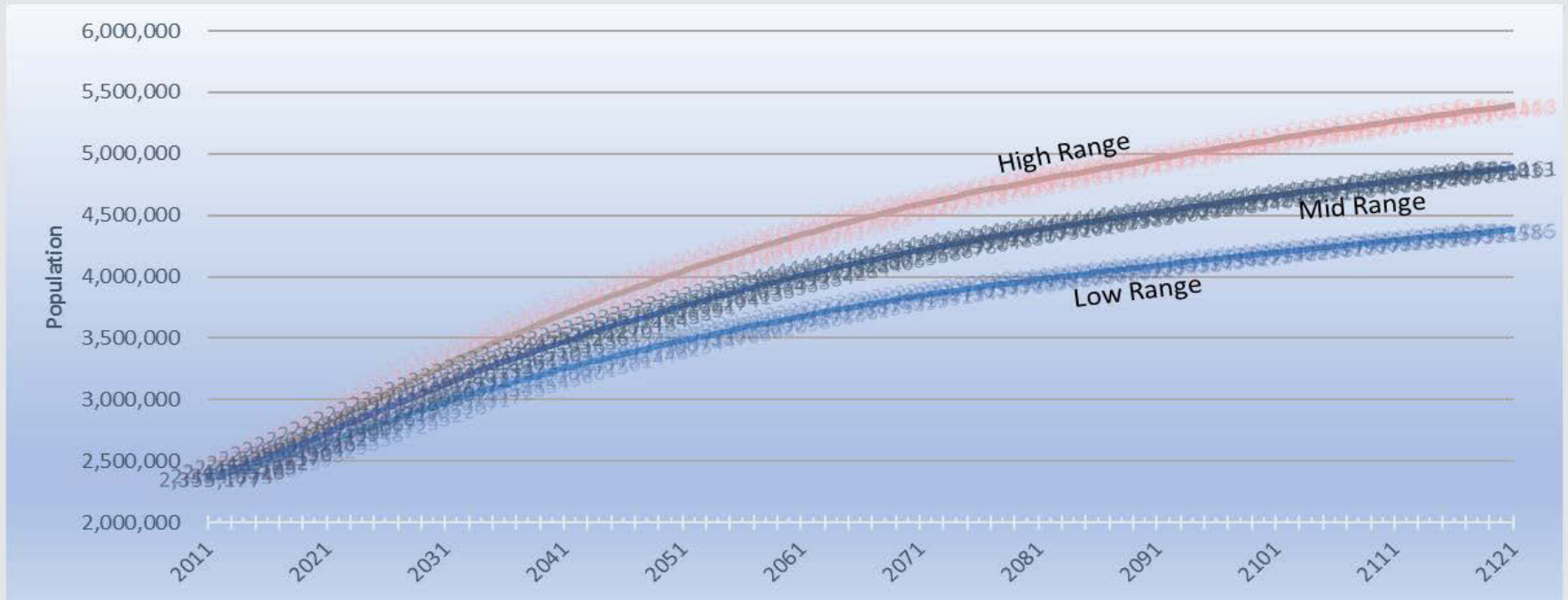
Review of Regional & Municipal Growth Projections

Anticipating long term regional growth scenarios

- Future growth scenarios and regional growth strategy
- Doubling regional population to 5 million – 2021 - 2121
- Consider implications for land use, housing form and density, and other related factors
- Stress test the resilience of existing growth policies, land capacity and infrastructure

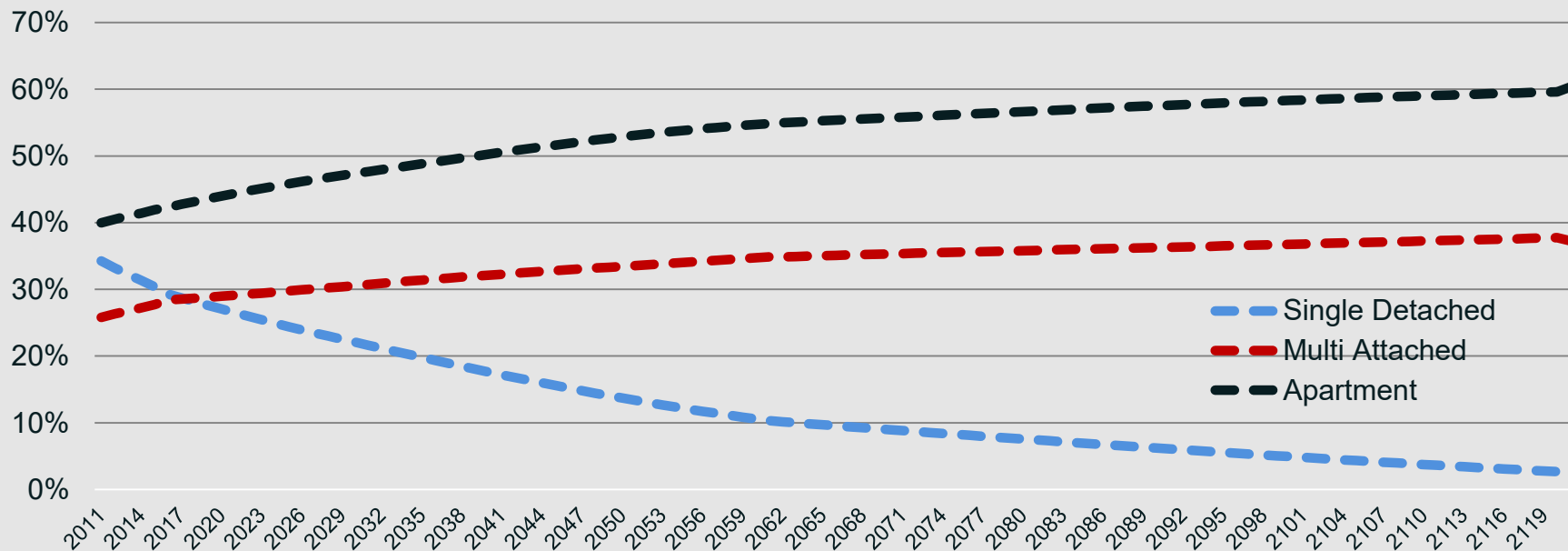
Metro Vancouver Population - Baseline Scenario

| | 2016 | 2041 | 2061 | 2121 |
|------------|-----------|-----------|-----------|-----------|
| Population | 2,575,000 | 3,400,000 | 4,000,000 | 5,000,000 |



Metro Vancouver Housing Stock – Baseline Scenario

| | 2016 | 2041 | 2061 | 2121 |
|-----------|---------|-----------|-----------|-----------|
| Dwellings | 975,000 | 1,350,000 | 1,600,000 | 2,000,000 |





Thank you



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Regional Parking Study | Street Parking Survey

Raymond Kan

SENIOR REGIONAL PLANNER

Regional Planning Committee – September 7, 2018



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Preliminary Observations

1. Parking Facility Survey

- May 11: RPAC
- June 8: Regional Planning Committee
- June 21: City of Burnaby planning staff
- June 27: RTAC

2. Street Parking Survey

- July 13: RPAC
- July 26: RTAC
- Sep 7: Regional Planning Committee

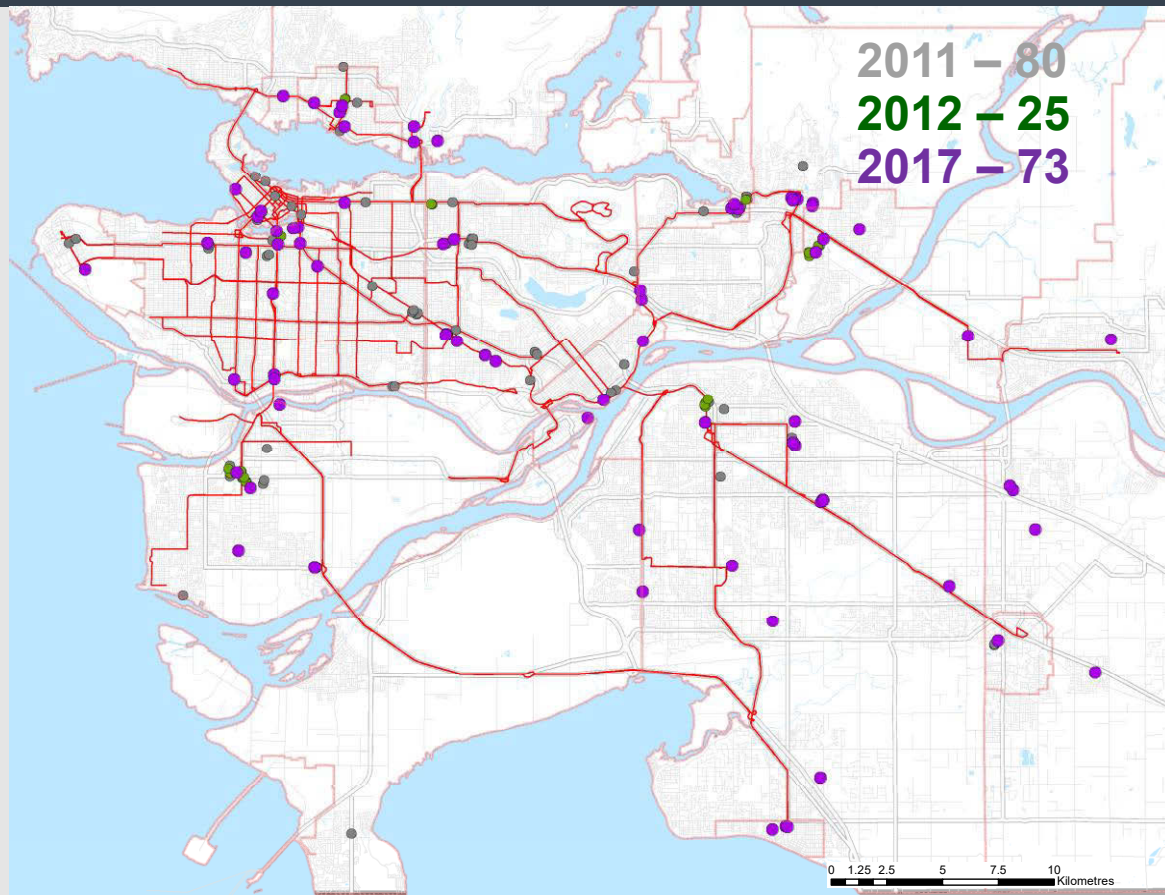
3. Household Survey – Fall 2018

A. Study Objectives

1. Expand on the knowledge base about parking supply and demand for a representative sample of apartment sites throughout the region.
2. Document and report out in a user-friendly way that clearly communicates the key findings, potential trends and patterns, and opportunities to inform local practices, in particular for new developments in transit-oriented locations.
3. Use the study dataset and analytics to set the stage for potential additional phases of applied policy research or pilot initiatives in the region.

B. Methodology

B. Apartment Sites



B. Street Parking Survey

- **Purpose:** To capture nearby street parking supply and utilization in relation to surveyed apartment sites
- Three time periods:
 - Weekday evening ~6:30PM
 - Weekday late night ~11:00PM
 - Saturday evening ~6:30PM
- No restriction, metered, time restricted, permit

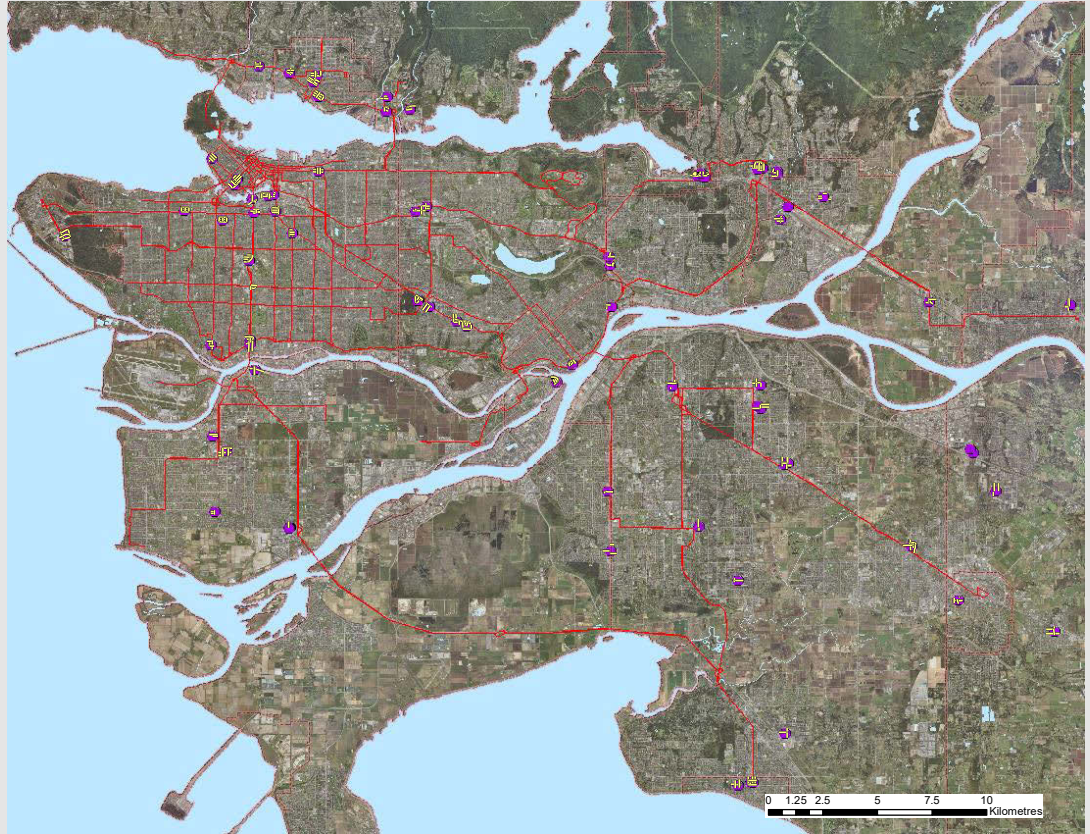
The screenshot shows a mobile application titled "On-Street Parking Survey". The interface includes the following fields and controls:

- Street Name:** A text input field.
- Street Side:** A dropdown menu currently showing "--Select--".
- Street-Side ID:** A text input field.
- Apartment ID:** A text input field.
- Vehicle Type:** A dropdown menu currently showing "--Select--".
- Parking Type:** A dropdown menu currently showing "--Select--".
- Other Parking Type Descip:** A text input field (note the typo in the label).
- Multiplier:** A numeric input field with the value "1" displayed.
- Record Observation:** A button with the text "Record Observation:" and a counter showing "0".
- Undo:** A button with a blue circular arrow icon and the text "Undo".
- Done:** A button with the text "Done".

The bottom of the screen shows a standard Android navigation bar with icons for home, back, and recent apps.

B. Street Parking Survey

- Curbside segments within 150-200m of sites
- 65 street network clusters
- Cumulative 156 km curbside segments surveyed

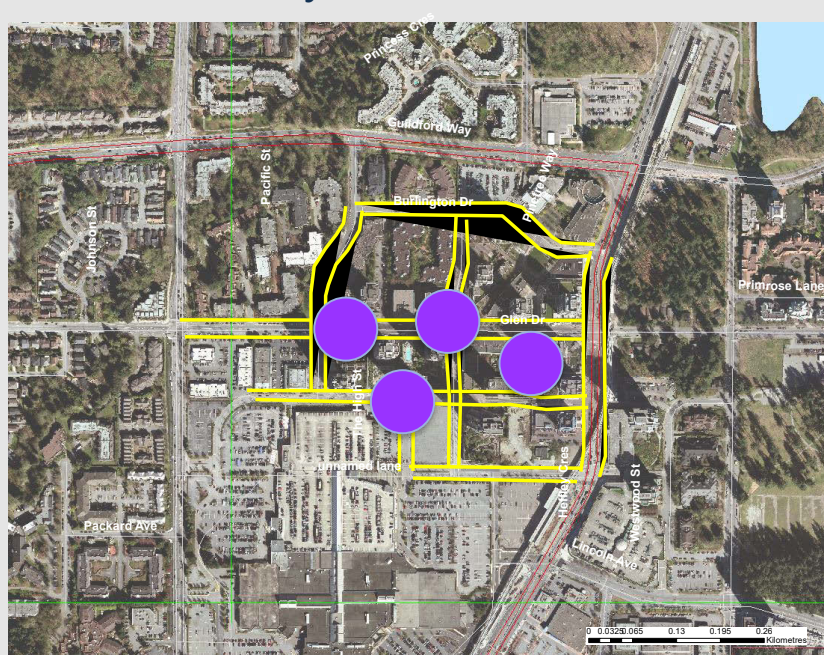


B. Street Network Clusters

Metrotown Regional
City Centre area



Coquitlam Regional
City Centre area



C. Preliminary Observations

Street Parking Survey

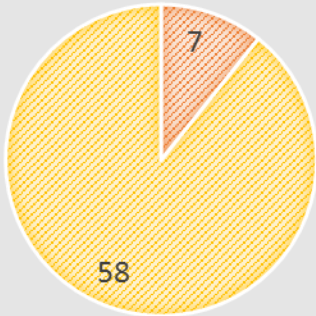
C. Initial Research Questions

- When do surveyed street networks experience 'high' parking utilization?
- Which surveyed street networks experience persistently 'high' parking utilization?
- What is the relationship with apartment parking utilization?

C. When does 'high' parking occur?

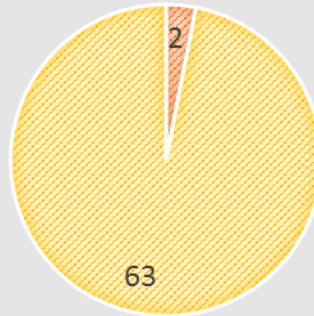
WEEKDAY EVENING

85% or greater Less than 85%



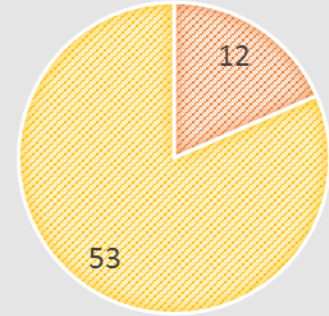
WEEKDAY LATE NIGHT

85% or greater Less than 85%



SATURDAY EVENING

85% or greater Less than 85%



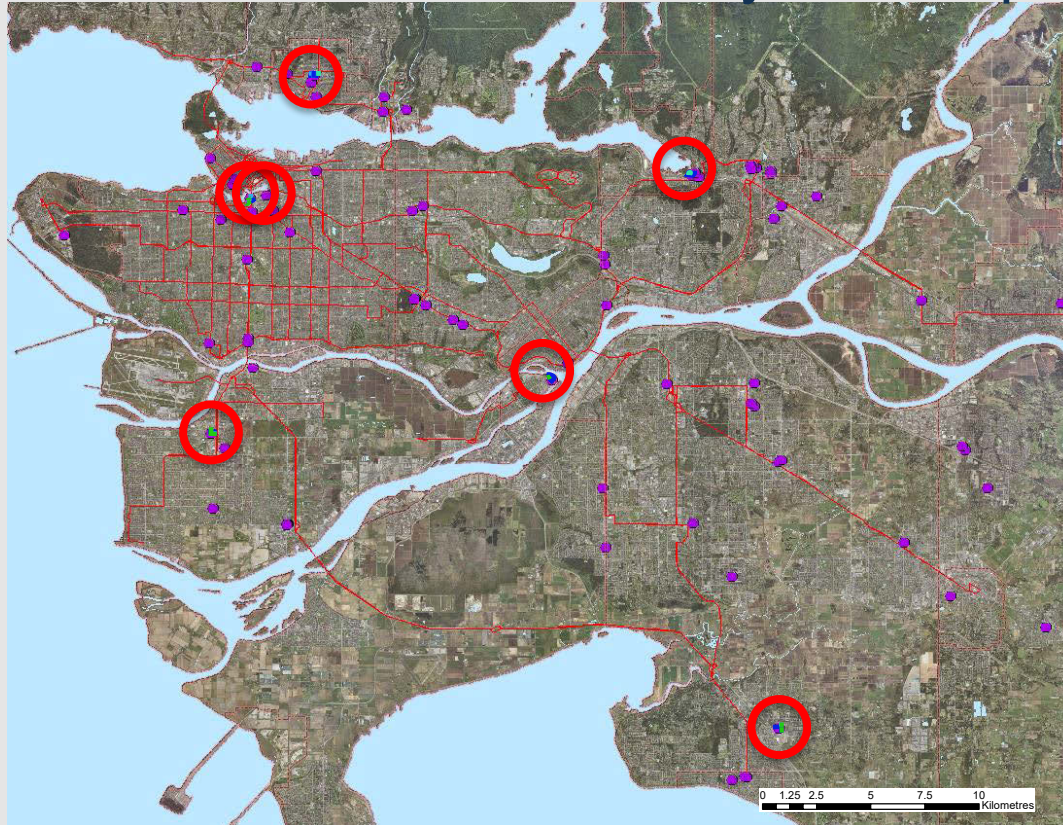
1. Majority of surveyed street networks experienced less than 85% parking utilization in any of the three survey time periods.
2. Street parking exceedances generally occurred in the evenings, not late night.

C. Persistently high street parking utilization

| Criteria | Street Networks | Time Period of Exceedance |
|---|-----------------|--|
| +85% in <u>2 or 3 surveyed time periods</u> | 7 | 6 weekday evenings 2 weekday late nights 7 Saturday evenings |
| +85% in 1 surveyed time period only | 6 | 1 weekday evenings 0 weekday late nights 5 Saturday evenings |
| <85% in all surveyed time periods | 52 | N/A |

C. Surveyed Outliers

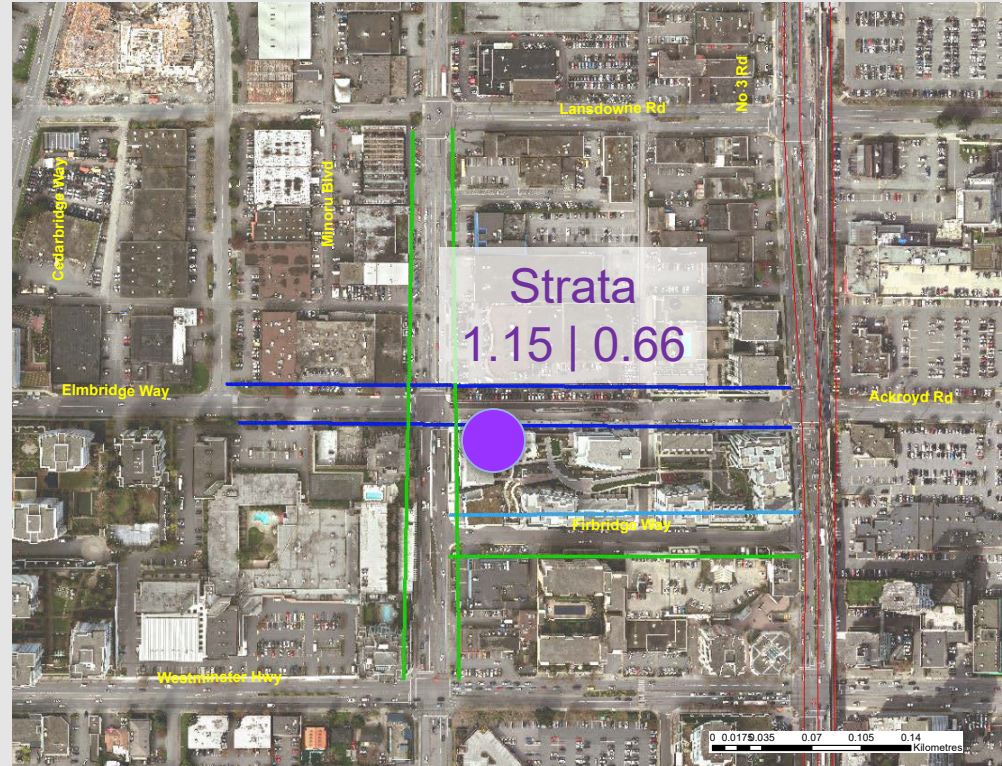
+85% Utilization in 2 or 3 surveyed time periods



C. Surveyed Outliers

Street Network #51

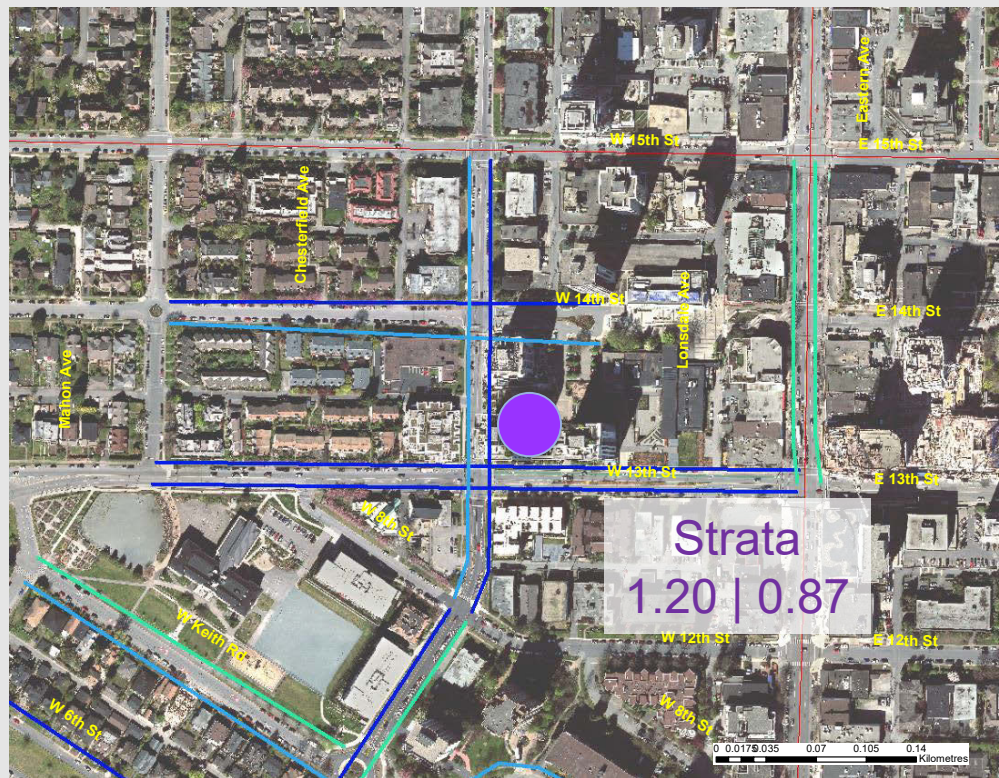
- Richmond Regional City Centre area
- High density residential, post-sec school, hotels, commercial
- Street inventory: 43
- Evenings: 100%
- Parkade: 57%



C. Surveyed Outliers

Street Network #28

- Lonsdale Regional City Centre area, North Vancouver
- Residential, city hall, hospital, commercial
- Street inventory: 150
- Evenings: 85-88%
- Parkade: 73%



C. Street Parking v. Apartment Parking

| Street Parking Utilization | Apartment Parking Facility Utilization | |
|---|--|----------------------|
| | HIGH 75% or higher | LOW Less than 75% |
| HIGH +85% in two or three surveyed periods | | |
| LOW +85% in one surveyed period at most | | |

C. Street Parking v. Apartment Parking

| Street Parking Utilization | Apartment Parking Facility Utilization | |
|---|--|----------------------|
| | HIGH 75% or higher | LOW Less than 75% |
| HIGH +85% in two or three surveyed periods | H-H | H-L |
| LOW +85% in one surveyed period at most | L-H | L-L |

C. Street Parking v. Apartment Parking

| Street Parking Utilization | Apartment Parking Facility Utilization | |
|---|--|----------------------|
| | HIGH 75% or higher | LOW Less than 75% |
| HIGH +85% in two or three surveyed periods | H-H 0 network | H-L 7 networks |
| LOW +85% in one surveyed period at most | L-H 9 networks | L-L 49 networks |

Associated Apartment Locations:

New Westminster, North Vancouver City, Port Moody, Richmond, Surrey, Vancouver

Associated Apartment Locations:

Langley Township, North Vancouver City/District, Port Coquitlam, Coquitlam, Vancouver

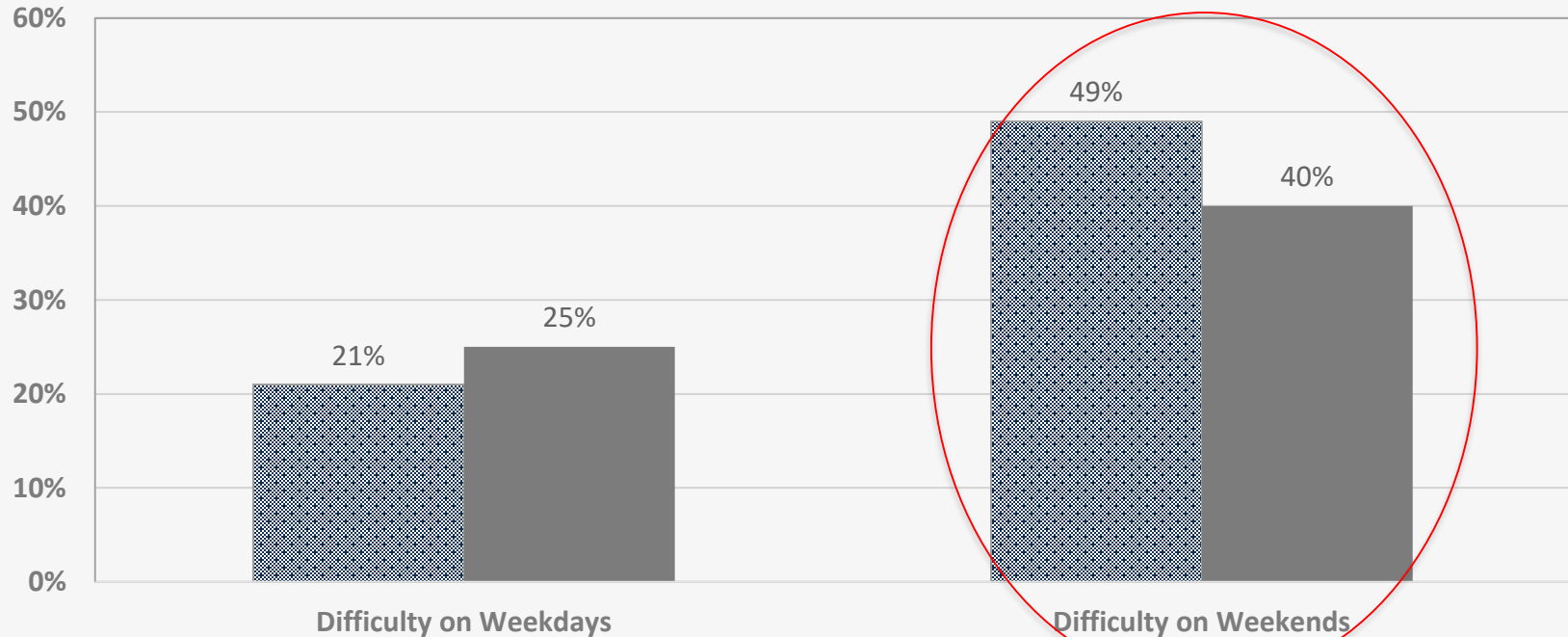
C. Preliminary Observations

1. Majority of surveyed street networks experienced less than 85% parking utilization in any of the three surveyed time periods.
2. Street parking exceedances generally occurred in the evenings, not late night.
3. 7 out of the 65 surveyed street networks experienced persistently high parking utilization.
 - Located across the region
 - Non-residential trip generators appear to be one factor (also, apartment visitors)

C. Apartment Visitors (Household Survey)

When do Visitors have difficulty finding parking?

■ Visitors who typically park in the apartment parking facility ■ Visitors who typically park on a nearby street

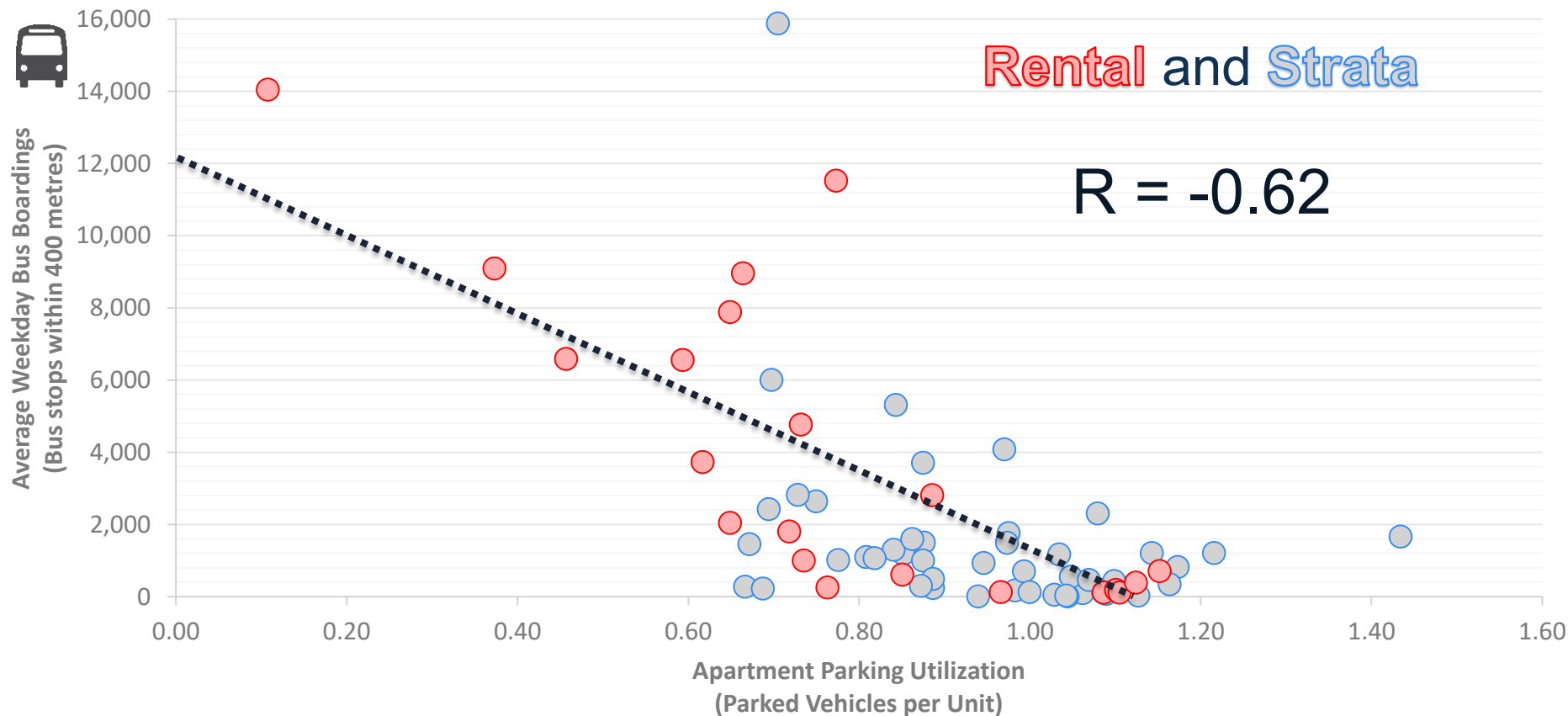




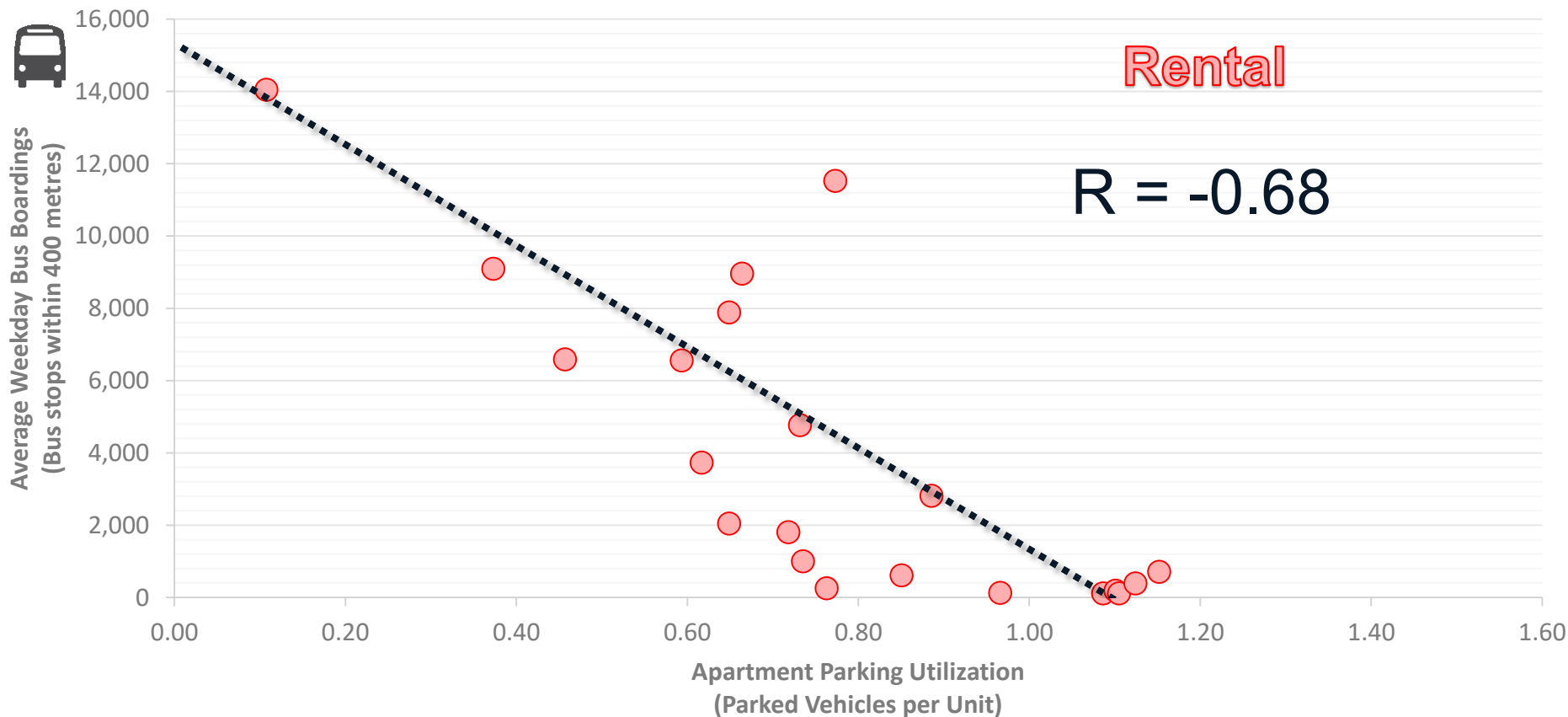
D. Follow-Up

Parking Facility Survey

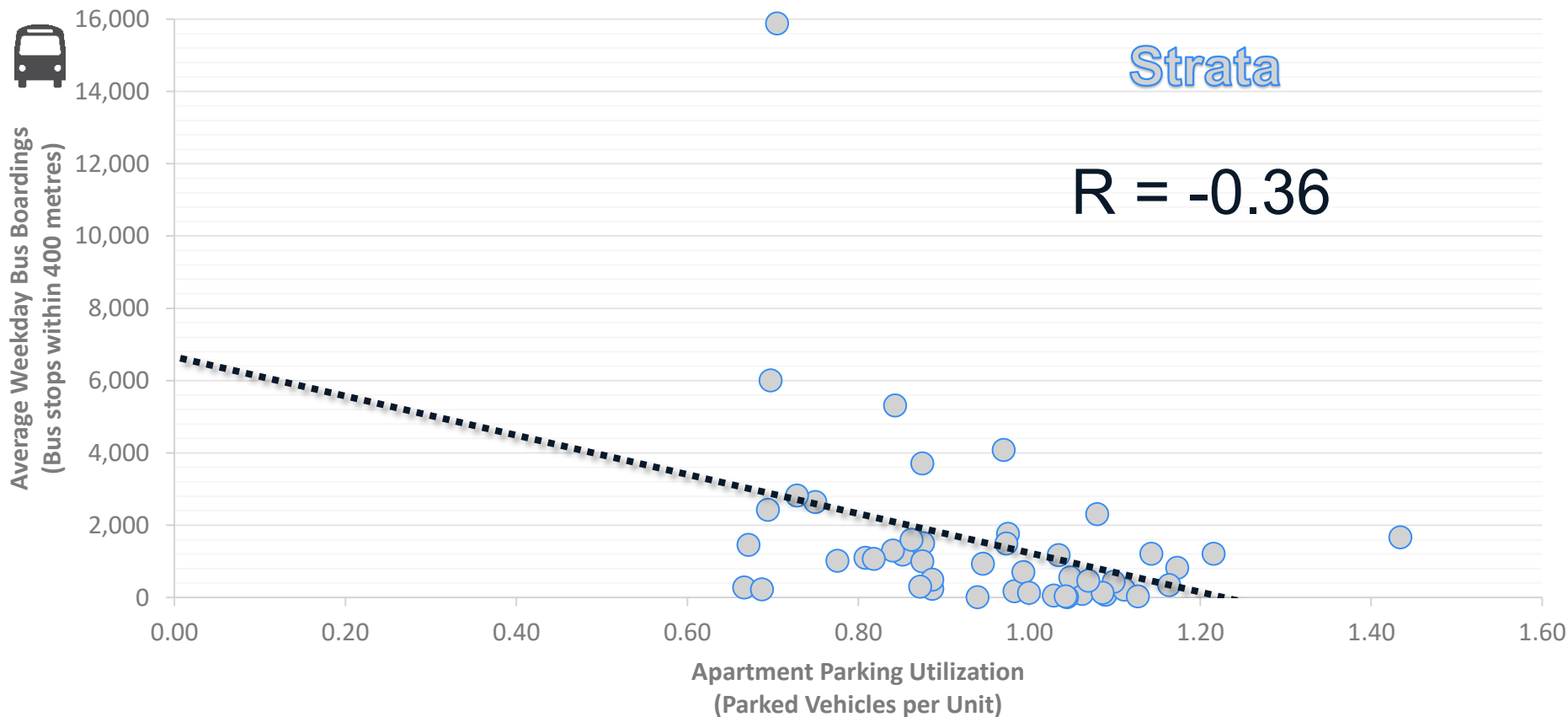
D. Apartment Parking v. Transit Usage



D. Apartment Parking v. Transit Usage



D. Apartment Parking v. Transit Usage



E. Next Steps

E. Timeline

| | 2017 | | | | 2018 | | | | 2019 |
|--------------------|------|----|----|----|------|----|----|----|------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 |
| Project Definition | | | | | | | | | |
| Data Collection | | | | | | | | | |
| Analysis | | | | | | | | | |
| Communication | | | | | | | | | |

- Complete data analysis
- Prepare key findings
- Prepare documentation

Thank you!

Apartment Sites by Subregion

| Subregion | Sites | Strata | Market Rental | Mixed Tenure | Mixed Rental | Non-Market Rental |
|-------------------|-----------|-----------|---------------|--------------|--------------|-------------------|
| South of Fraser | 19 | 14 | 4 | - | 1 | - |
| Vancouver/UBC | 15 | 2 | 4 | 7 | 1 | 1 |
| Northeast Sector+ | 14 | 13 | - | - | 1 | - |
| Burnaby/NW | 10 | 10 | - | - | - | - |
| North Shore | 8 | 6 | 2 | - | - | - |
| Richmond | 7 | 5 | 2 | - | - | - |
| Total | 73 | 50 | 12 | 7 | 3 | 1 |

Apartment Sites by FTN Proximity

| Year Built | Sites | Strata | Market Rental | Mixed Tenure | Mixed Rental | Non-Market Rental |
|--|-------|--------|---------------|--------------|--------------|-------------------|
| Within 800 m of a rapid transit station | 30 | 22 | 3 | 4 | 1 | - |
| Within 400 m of a frequent bus corridor only | 28 | 20 | 3 | 3 | 1 | 1 |
| Away from FTN | 15 | 8 | 6 | - | 1 | - |
| Total | 73 | 50 | 12 | 7 | 3 | 1 |

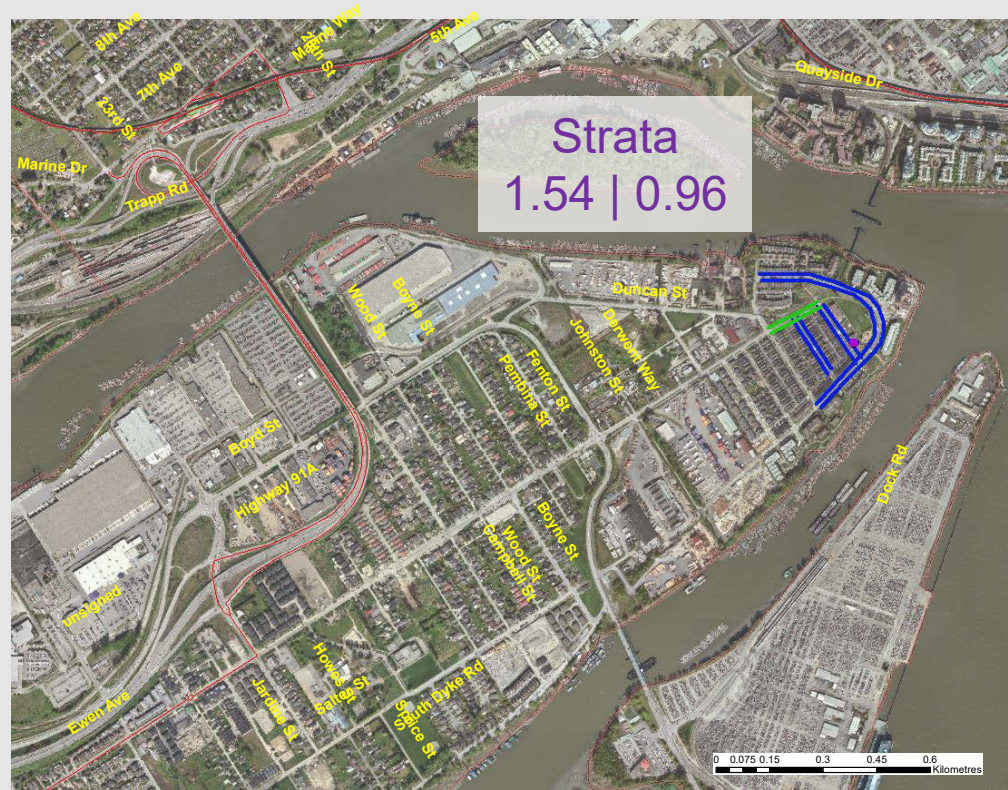
Apartment Sites by Year Built

| Year Built | Sites | Strata | Market Rental | Mixed Tenure | Mixed Rental | Non-Market Rental |
|------------|-------|--------|---------------|--------------|--------------|-------------------|
| 1976-1993 | 4 | - | 1 | - | 3 | - |
| 2005-2009 | 22 | 19 | 3 | - | - | - |
| 2010-2013 | 19 | 14 | 3 | 1 | - | 1 |
| 2014-2017 | 28 | 17 | 5 | 6 | - | - |
| Total | 73 | 50 | 12 | 7 | 3 | 1 |

C. Surveyed Outliers

Street Network #23

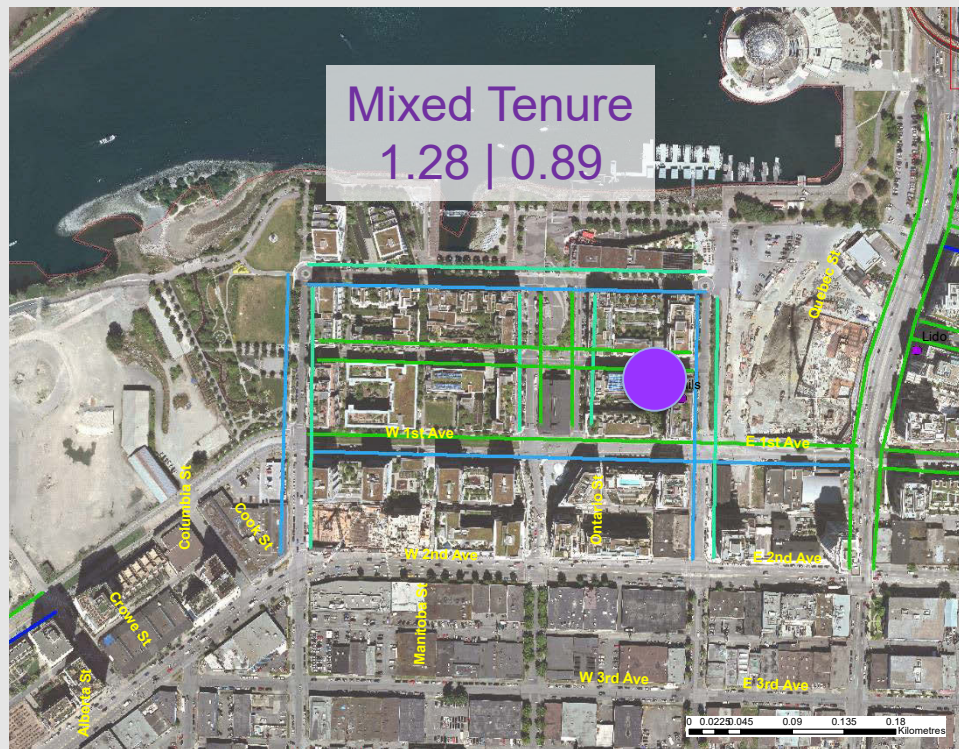
- Queensborough, New Westminster
- Primarily residential neighbourhood, destination recreation (Port Royal Park)
- Street inventory: 194
- All periods: 90%
- Parkade: 62%



C. Surveyed Outliers

Street Network #75

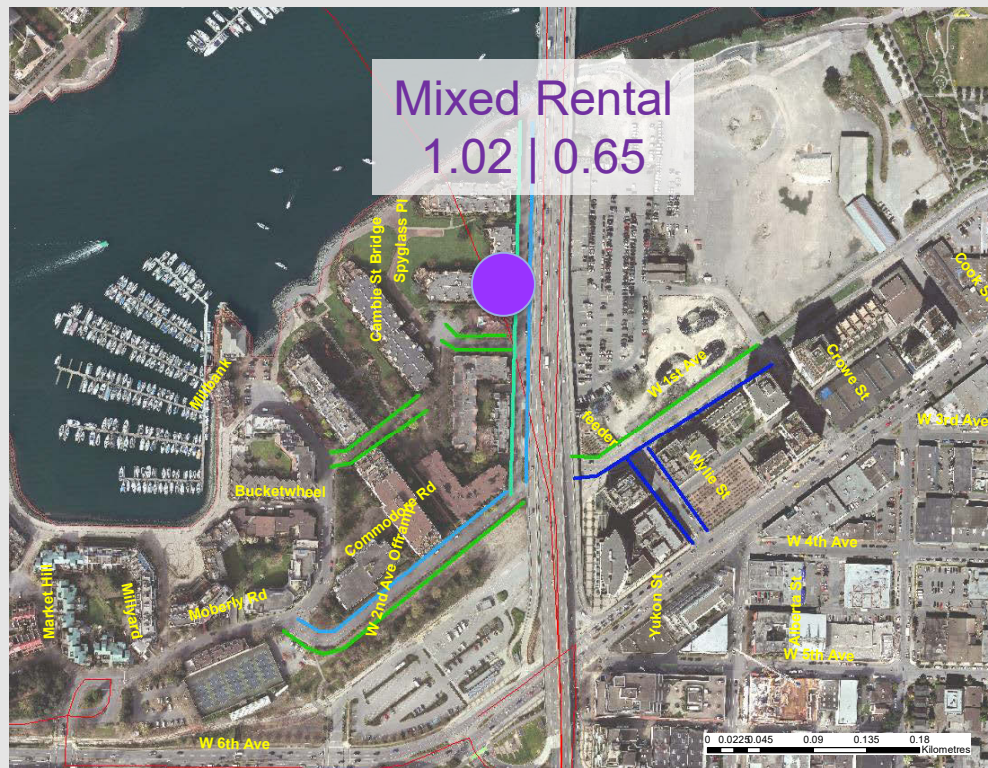
- Metro Core
- High density residential, destination outdoor recreation, entertainment, restaurants
- Street inventory: 163
- Evenings: 93%
- Parkade: 70%



C. Surveyed Outliers

Street Network #79

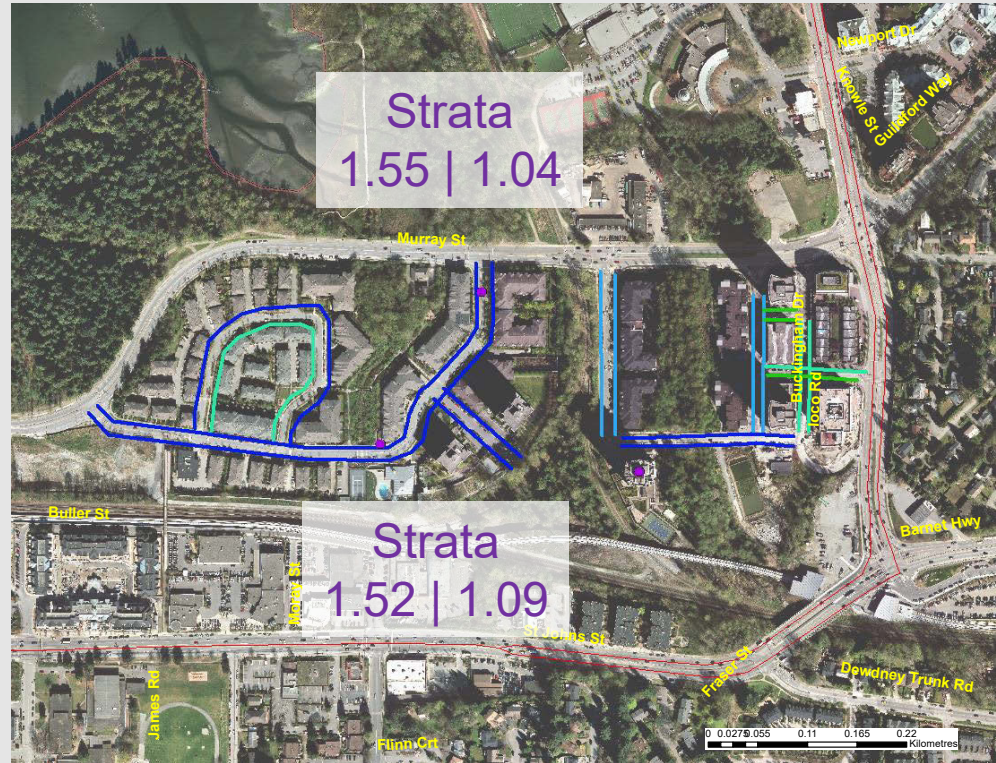
- Metro Core
- High density residential, destination outdoor recreation, entertainment, Olympic Village
- Street inventory: 69
- Evenings: 90%
- Parkade: 64%



C. Surveyed Outliers

Street Network #42

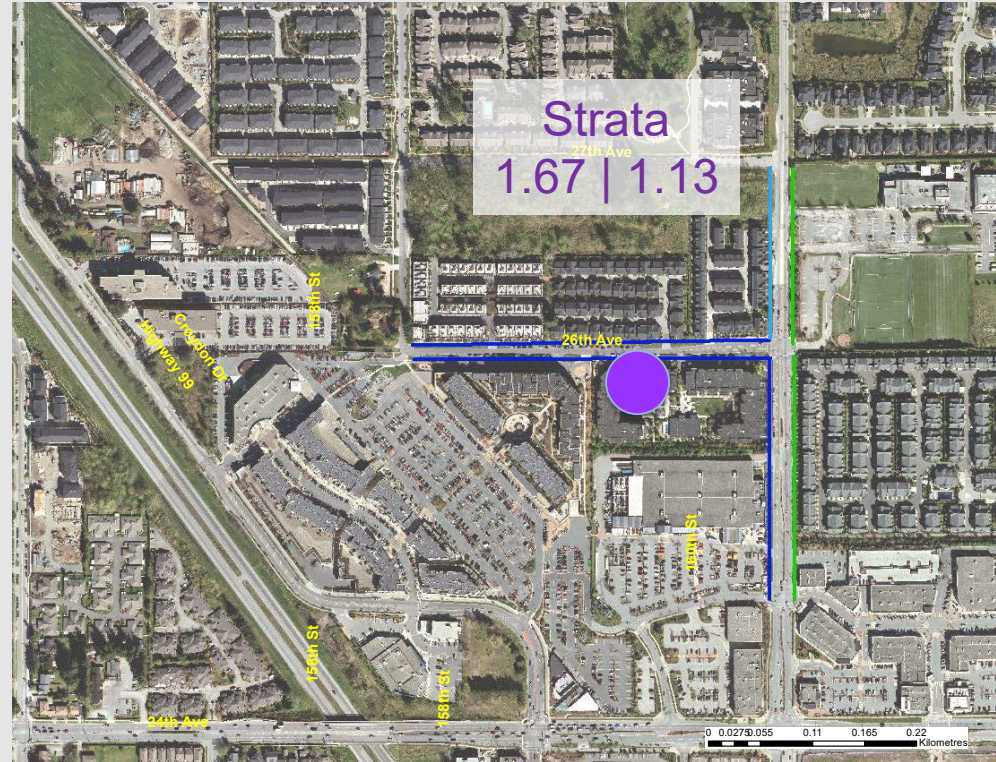
- Inlet Municipal Town Centre area, Port Moody
- Primarily high density residential, local serving retail, outdoor recreation
- Street inventory: 112
- All periods: 83-99%
- Parkade: 67-71%



C. Surveyed Outliers

Street Network #59

- South Surrey
- Medium density residential
- Morgan Crossing mall
- Street inventory: 73
- Evenings: 90%
- Parkade: 68%





Advancing Land Use and Transportation Integration and the Development of Complete Communities

Erin Rennie

SENIOR REGIONAL PLANNER

PARKS, PLANNING, AND ENVIRONMENT

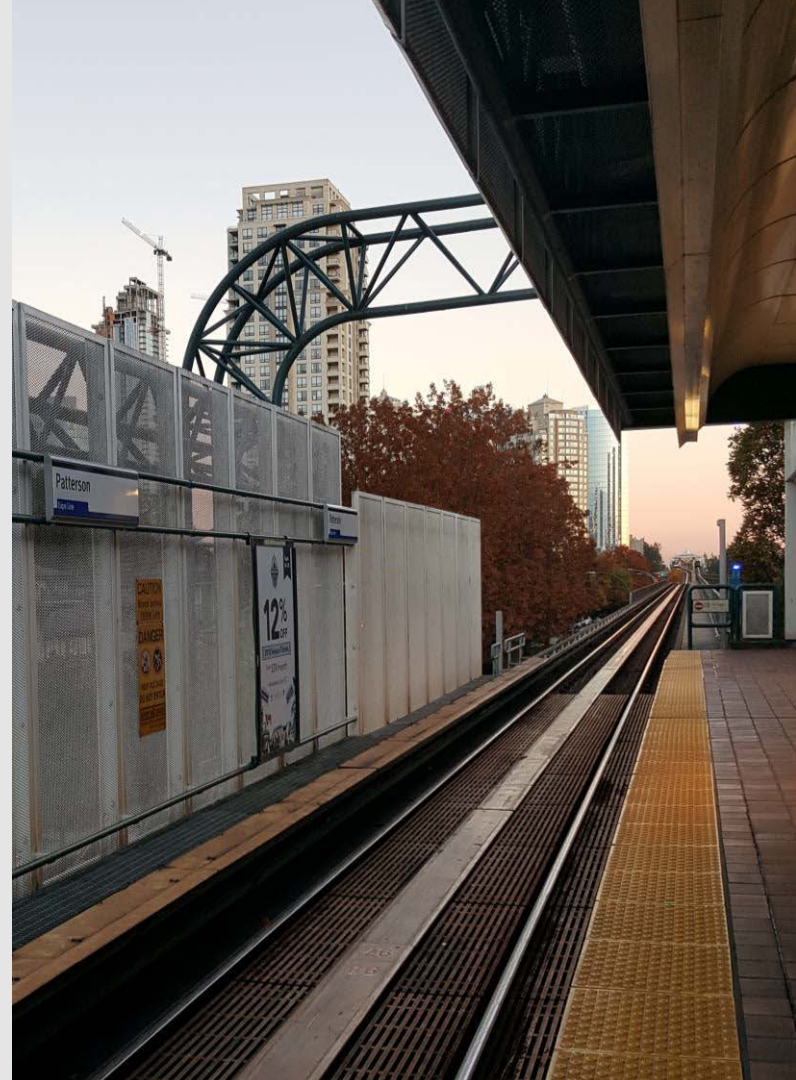
Regional Planning Committee, September 7, 2018



metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

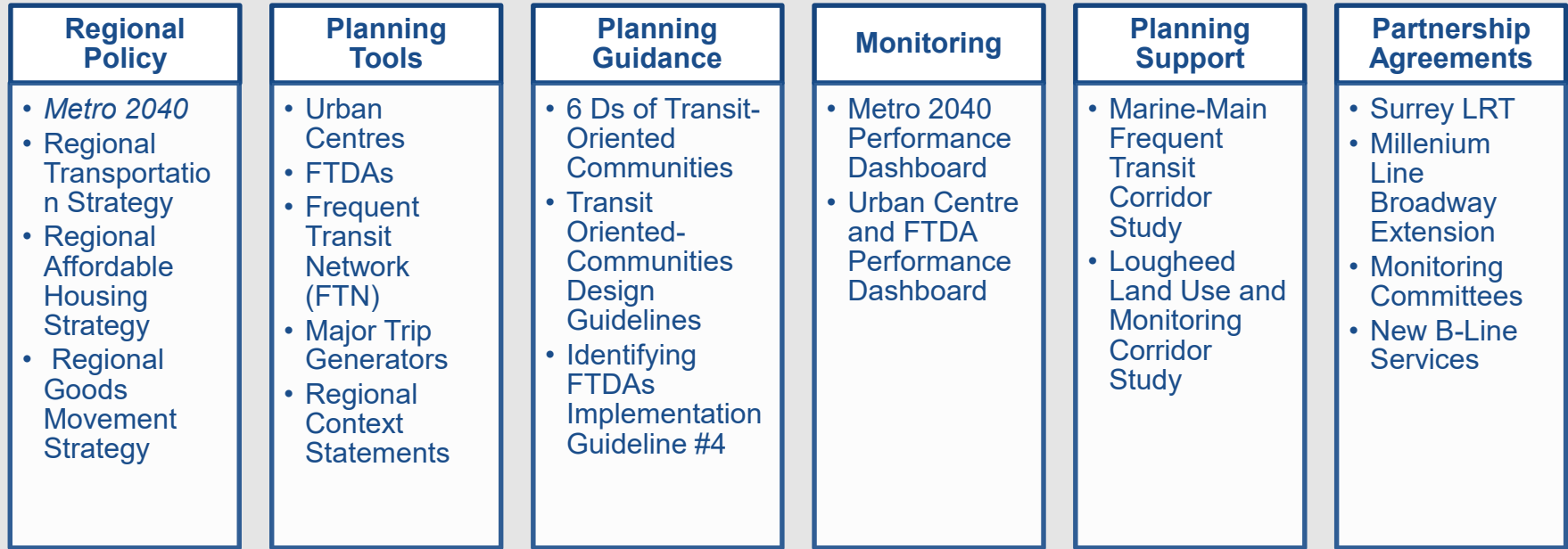
Recent work to integrate land use and transportation in the region:

- 1) TransLink Supportive Policies Agreements (SPAs)
- 2) Marine-Main Frequent Transit Corridor Study
- 3) Lougheed Corridor Land Use and Monitoring Study
- 4) Urban Centres and FTDA Dashboard



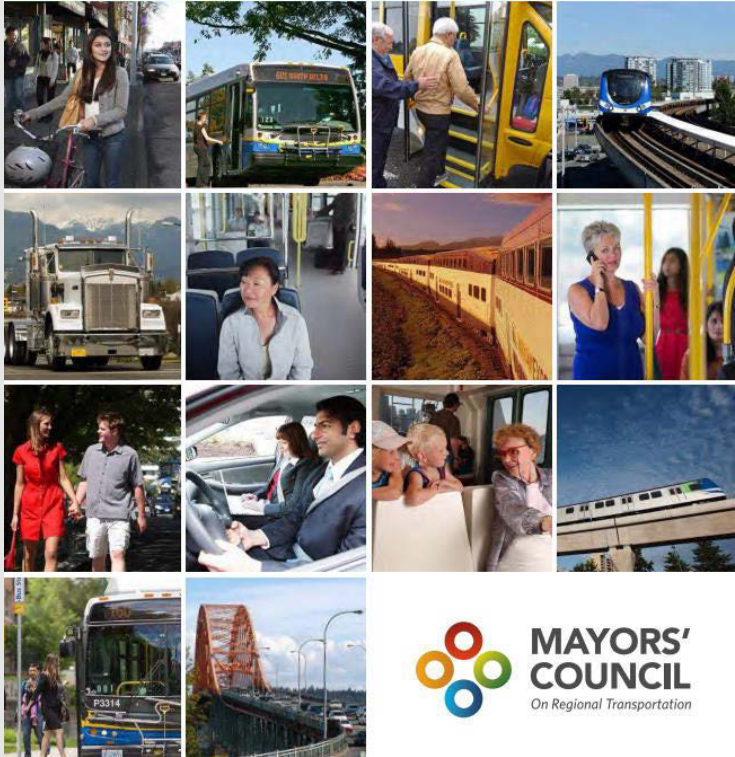


Integrative Land use and Transportation Planning supports livability, sustainability, prosperity, and certainty.



Continuum of strategies for integrating land use and transportation planning

Regional Transportation Investments
a Vision for Metro Vancouver



TransLink Partnership Agreements

- 10-Year Vision
- TransLink and municipality are signatory (Surrey and Vancouver)
- Multiple sub-agreements including:
 - Supportive Policies Agreements (SPAs)



250 Vancouver
To Park Royal:
251 252 256
253 Park Royal
Some trips operate as
253 Vancouver
255 Capilano
University

258 UBC
When UBC in session
Cemetery
2nd Sunday of each
month

For most bus stops, the stop number & route number is 5333.
Exceptions: 250-253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

BLUE BUS 604-985-7777
Contact Blue Bus for more information and bus routes.

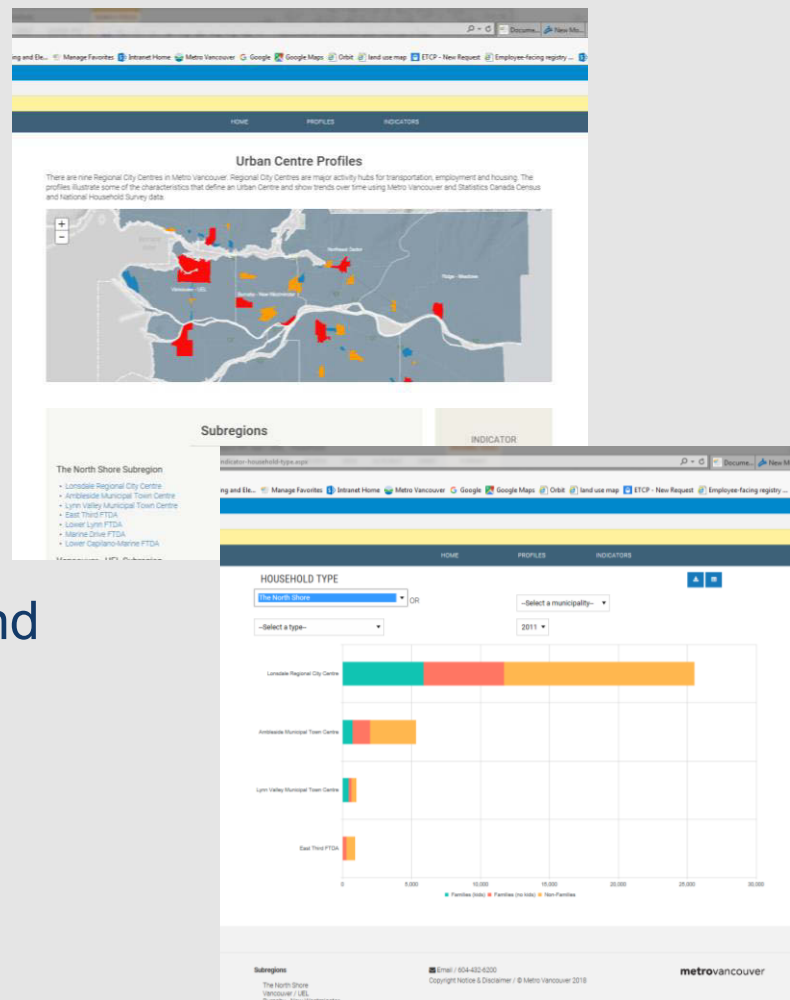
Marine-Main Frequent Transit Corridor Study



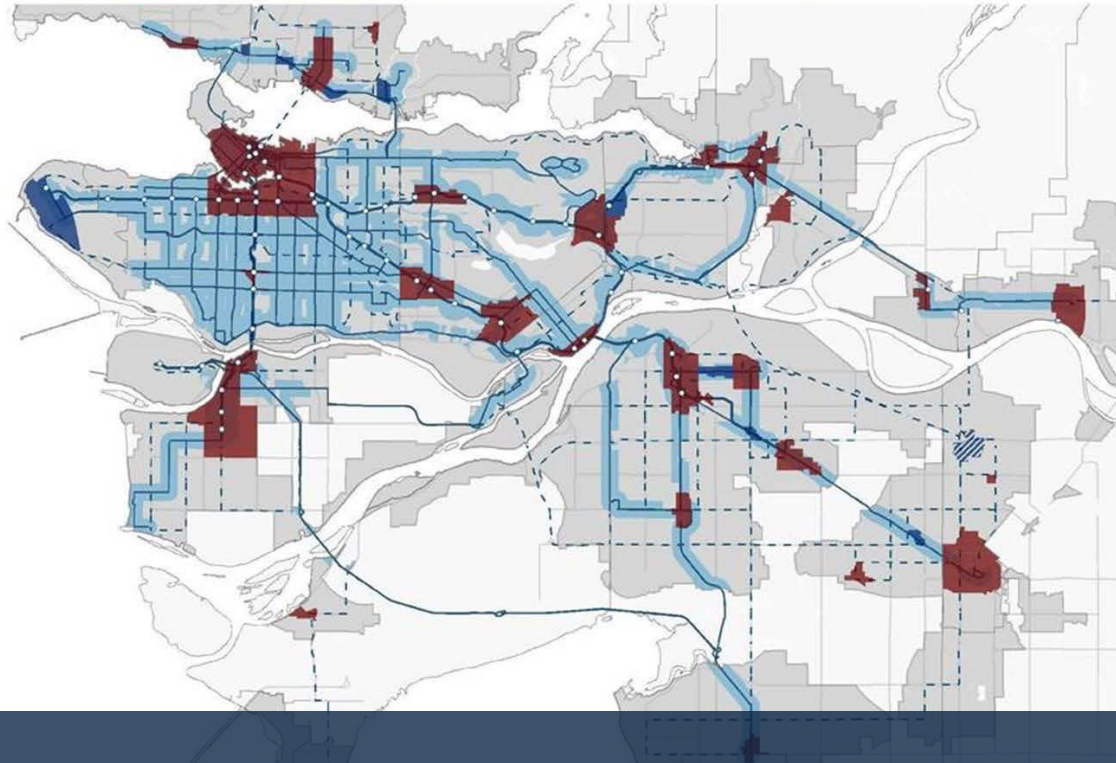
Loughheed Land Use and Monitoring Study

In Development: Urban Centre and FTDA Dashboard

- Online interactive portal
- Custom census data for each Urban Centre and FTDA geography
- Observe growth and change over time
- Designed with municipal planners in mind
- Supports data-driven decision-making and continuous improvement



Urban Centres, Frequent Transit Development Areas and the Frequent Transit Network



Transportation
Frequent Transit Network (FTN)
Rapid Transit Lines and Stations

Land Use
Urban Containment
Boundary

Frequent Transit Development Area (FTDA)
Proposed FTDA

Implications for Urban Centres and FTDA Review



Thank you