



Social Equity and Regional Growth Management Study

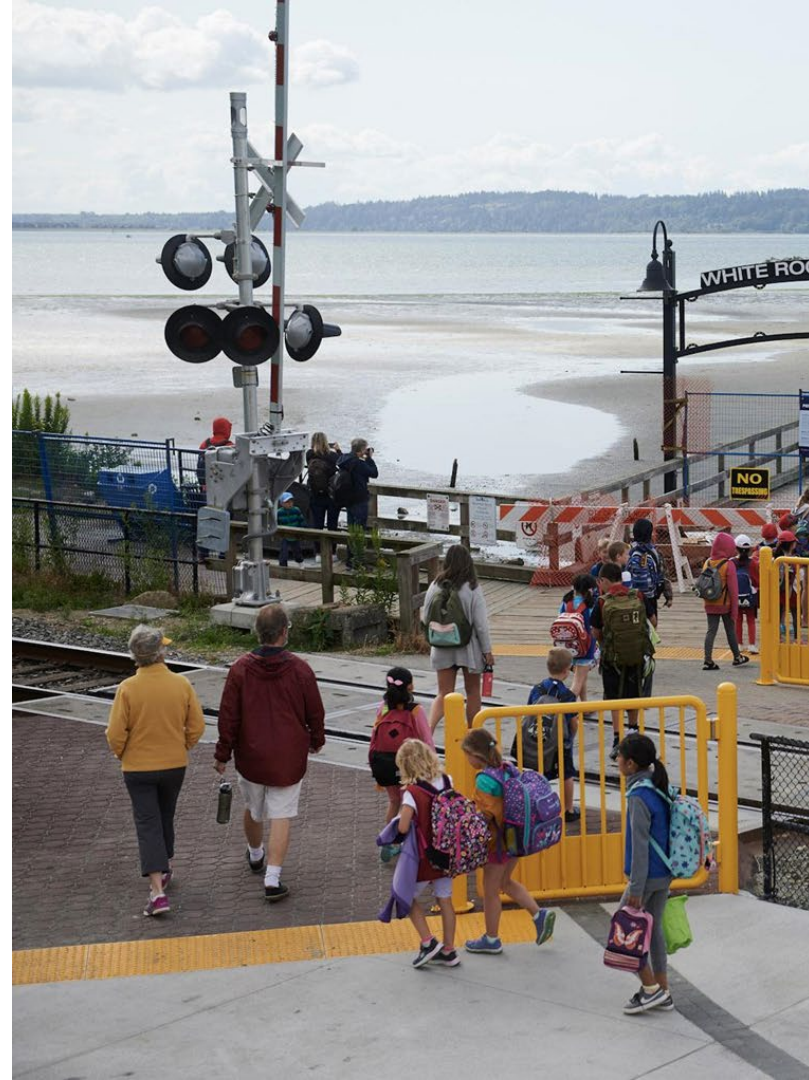
How can Regional Planners better consider social equity in analysis, engagement, and policy-making?

Eve Hou, Erin Rennie, Aaron Licker

Elevation 2.0 National Planning Conference | July 5, 2022 | 3:00-4:15 | Frontenac C

Outline

1. Introductions & Context
2. Project Overview
3. Stakeholder Engagement
4. Equity Baseline Data Report
5. Applications and Next Steps
6. Discussion: What should our next steps be?
7. Q&A



Who is in the Room?



Who are we?

Erin Rennie



Senior Planner

Regional Planning
and Housing
Services

**Metro Vancouver
Regional District**

Eve Hou



Manager

Policy
Development

TransLink

**Aaron
Licker**



Principal

**Licker
Geospatial
Consulting**

Keltie Craig



Luna Aixin



Kevin Kapenda



Austin Lui



**Additional
Collaborators**



23 MEMBER JURISDICTIONS



POPULATION: **2.7** MILLION

53% OF THE POPULATION
OF BC



61% OF BC GDP

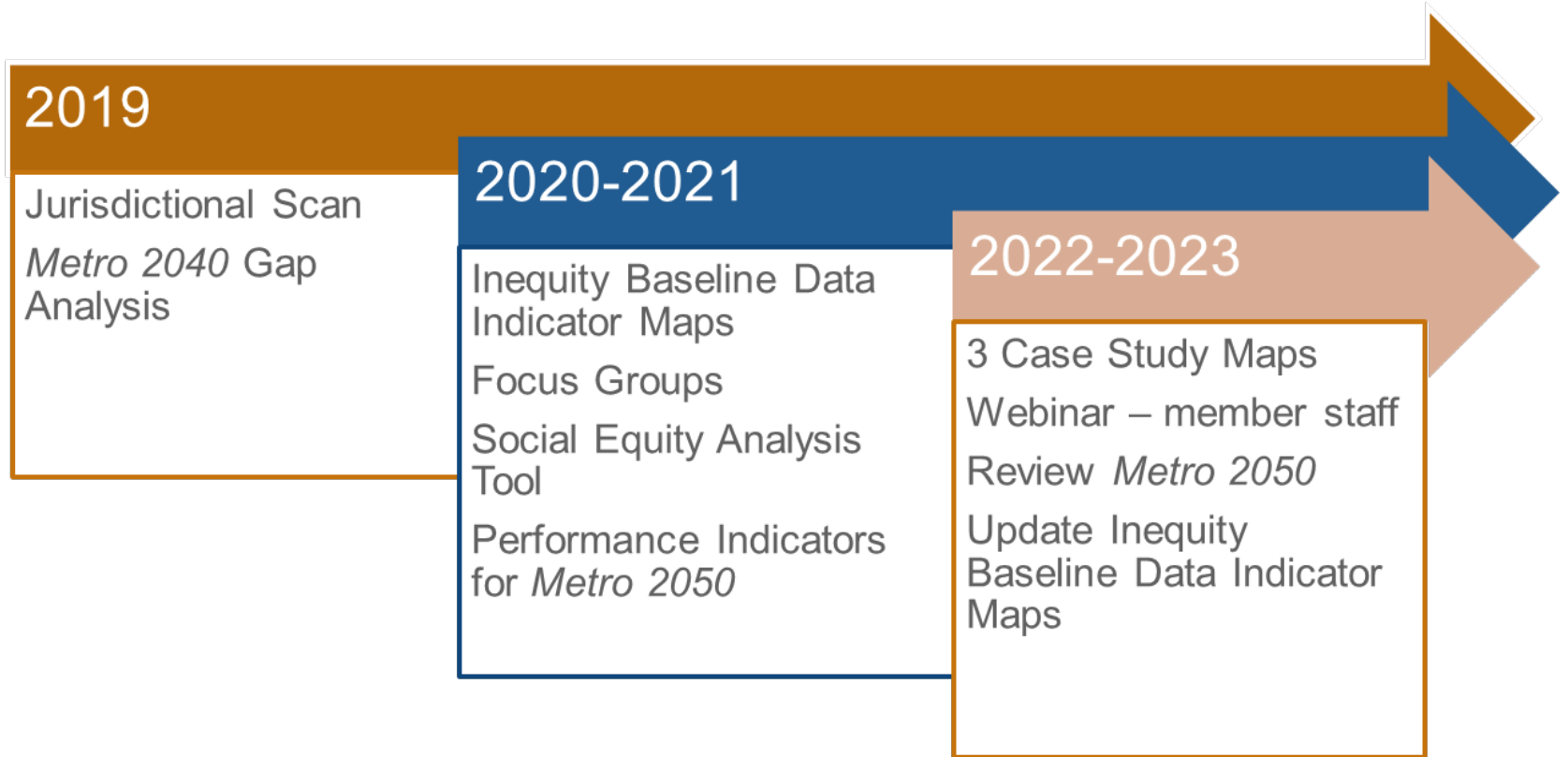
1.29 MILLION JOBS



Context: Metro Vancouver and TransLink planning for long-term regional growth and transportation



Project History



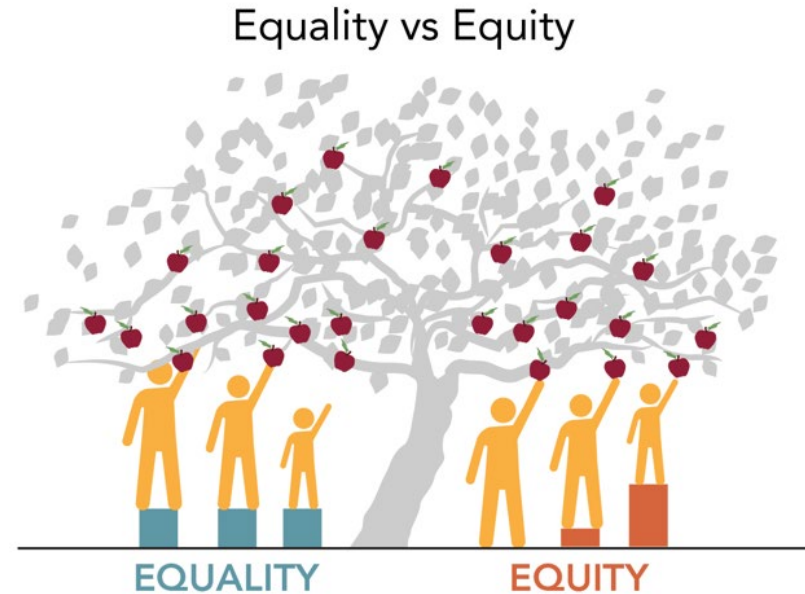
Phase 2: Project Objectives

1. **Qualitative** understanding of how social equity context experts would like to see **equity defined and addressed**
2. **Quantitative and spatial** understanding of the **existing inequities in the region**
3. Clear, actionable **recommendations for incorporating social equity** considerations into **policy** language and implementation practices



A Definition of Social Equity (*Metro 2050*)

The promotion of **fairness** and the **removal of systemic barriers** that may cause or aggravate disparities experienced by different groups of people. This can include the **many dimensions of identity**, such as socioeconomic status, ethnicity, race, sex, age, disability, gender, sexuality, religion, Indigeneity, class, and other equity related issues.



Qualitative Analysis



Qualitative - Stakeholder Interviews and Focus Groups

Engagement with “social equity context experts”

- Offered honoraria, translation, and other engagement supports
- Online focus groups and interviews with people with lived experience of inequity both:
 - Planning-related professionals
 - Members of the public



Stakeholder Engagement - Emerging Themes

- **Indigenous social equity** needs to be **treated distinctly** in recognition of Indigenous Rights and Title
- Support and opportunities are needed in order for equity-denied populations to **live and work within the same community**,
- The effects of **displacement threaten community connections**,
- There is a need for a **diversity of housing types** in neighbourhoods **across the region**,



Stakeholder Engagement - Emerging Themes

- **Retail space affordability and availability** impacts equity-denied populations,
- Patterns of **historical colonial displacement repeat** through contemporary **gentrification**,

“Who [which areas] suffers next for the greater good? ... I think it happens to marginalized people more, and in Canada, it happens to Indigenous people. It’s ‘this is for the greater good of everybody’. ...the stories in there are what’s important. The stories in there will get forgotten and will get paved over to build massive developments instead of a sort of diverse housing initiative.”

- INDIGENOUS PARTICIPANT, LIVING IN LANGLEY TOWNSHIP

Stakeholder Engagement - Emerging Themes

- **Transit-reliant populations face isolation, delays, and fewer opportunities** in parts of the region with lower transit frequency and connectivity between job centres,
- **Congested transit disproportionately impacts** riders with disabilities, medical concerns, or other mobility considerations,
- **Pedestrian health and safety** is concerning in areas with rising vehicle traffic.

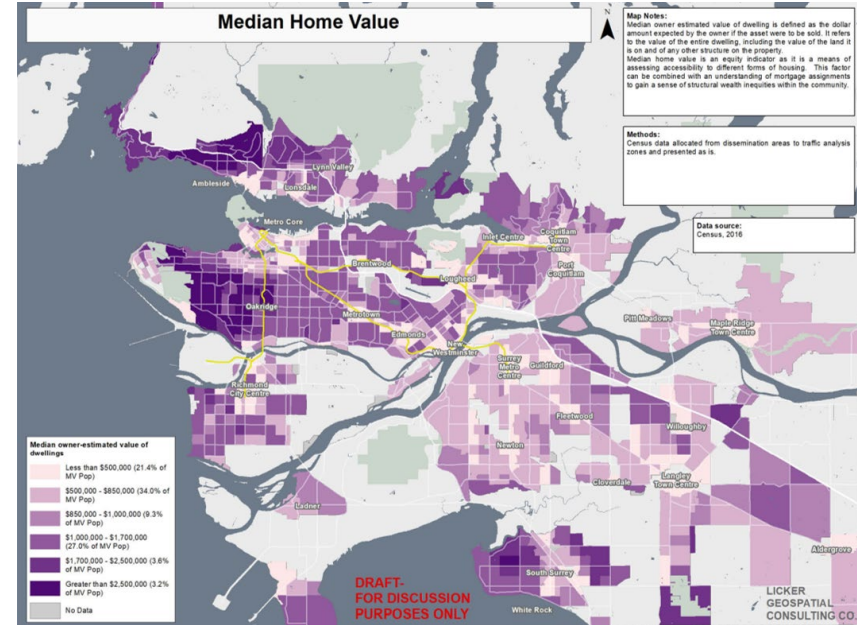


Quantitative Analysis



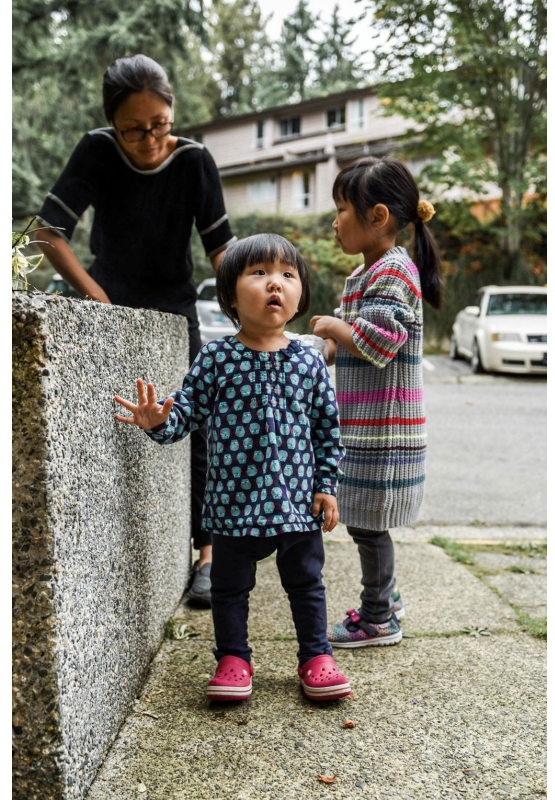
Qualitative - Developing a Regional Equity Baseline

- Visually present spatial data for 49 indicators relevant to the relationship between social equity and growth management
- Exploratory analysis
- Look at relationships between indicators to frame opportunities and limitations for investing in equity-building



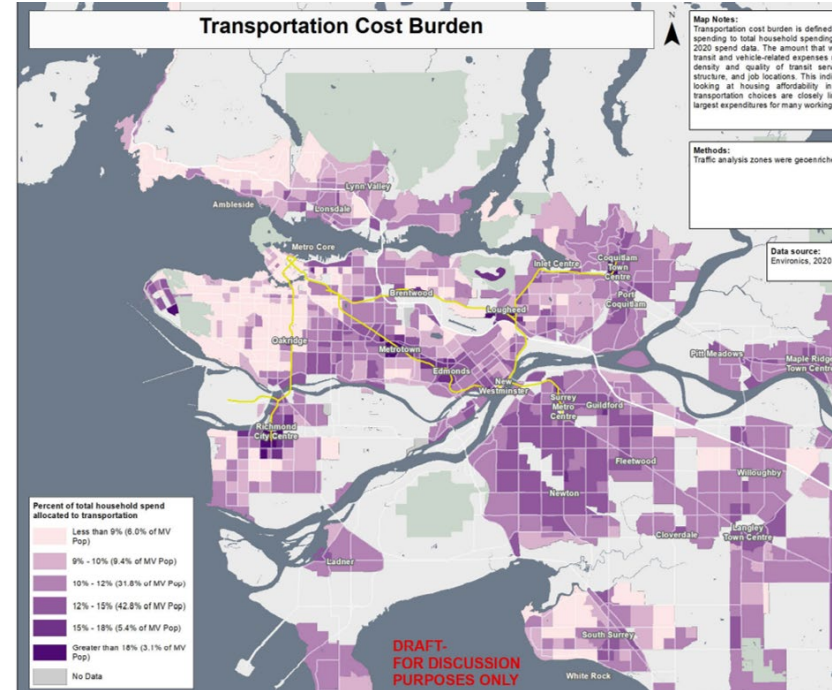
Developing a Regional Equity Baseline

- Indicators selected following comprehensive review of North American inequity baselines and indices
- Indicators refined using these criteria:
 - regularity of use elsewhere
 - applicability to Metro Vancouver
 - data availability
 - repeatability in the future
 - quality input from MVRD and Translink



Regional Equity Baseline

- Two indicator categories
 - Demographics (e.g. % of seniors)
 - Conditions (e.g. housing, poverty, natural hazards, transportation)
- Units: Traffic Analysis Zone
- Suppressed data for areas outside Urban Containment Boundary
- Darker Purple: higher inequity consideration





49 Indicators

Demographics-related Indicators	Conditions-related Indicators: Housing	Conditions-related Indicators: Environment	Conditions-related Indicators: Social Integration and Safety
1. Visible Minority (Racialized Persons)	16. Housing Cost Burden	28. Access to Parks and Open Space	40. Voter Turnout 2017
2. Indigenous Identity (Peoples)	17. Housing Tenure - Renters	29. Urban Tree Canopy	41. Youth Voter Turnout 2017
3. Seniors	18. Housing Tenure - Owners	30. Access to Grocery Stores	42. Four or More Persons to Confide In
4. Children	19. Median Home Value	31. Urban Heat Island	43. Strong Sense of Community Belonging
5. Single Parent Families	20. Housing Suitability (Overcrowding)	32. Flood Risk	44. Long Term Residency (Mobility Status)
6. Female-Headed Households	21. Gentrification Score	Conditions-related Indicators: Access and Transportation	45. Sense of Safety
7. Ethnic Diversity Index	22. Subsidized Housing	33. Relative Access to Transit	Conditions-related Indicators: Health
8. Median Age	23. Rate of Change - Demolitions by Replacement	34. Average Commute Time	46. Access to Primary Healthcare
9. No Knowledge of Official Languages	24. Rate of Change - Demolitions by Land Use Change	35. Transportation Cost Burden	47. General Health
Conditions-related Indicators: Economics	Conditions-related Indicators: Education	36. Average Transportation Spend	48. Mental Health
10. Median Household Income	25. No Post-Secondary Education	37. Jobs Accessible Within 45 Minutes by Car	49. Chronic Conditions (1+)
11. Poverty Ratio - Low Income Measure (LIM)	26. Language and Cognitive Development - Vulnerable Children	38. Jobs Accessible Within 45 Minutes by Transit	
12. Unemployment Rate	27. Early Childhood Development - Communication Skills - Vulnerable Children	39. Ratio of Employment Access Within 45 Minutes: Transit/Car	
13. High Paying Jobs Index			
14. Income Inequality Ratio			
15. Expected Employment Growth			

Identifying Disparities - Individual Indicators

- Systematic analysis of individual indicators supports understanding of distribution of inequities
- Regional variation in indicator data suggests potential locations for future study, concentrations of priority populations or key areas for investments to reduce disparity.
- Analysis should be objective and support research questions grounded in equity and social justice

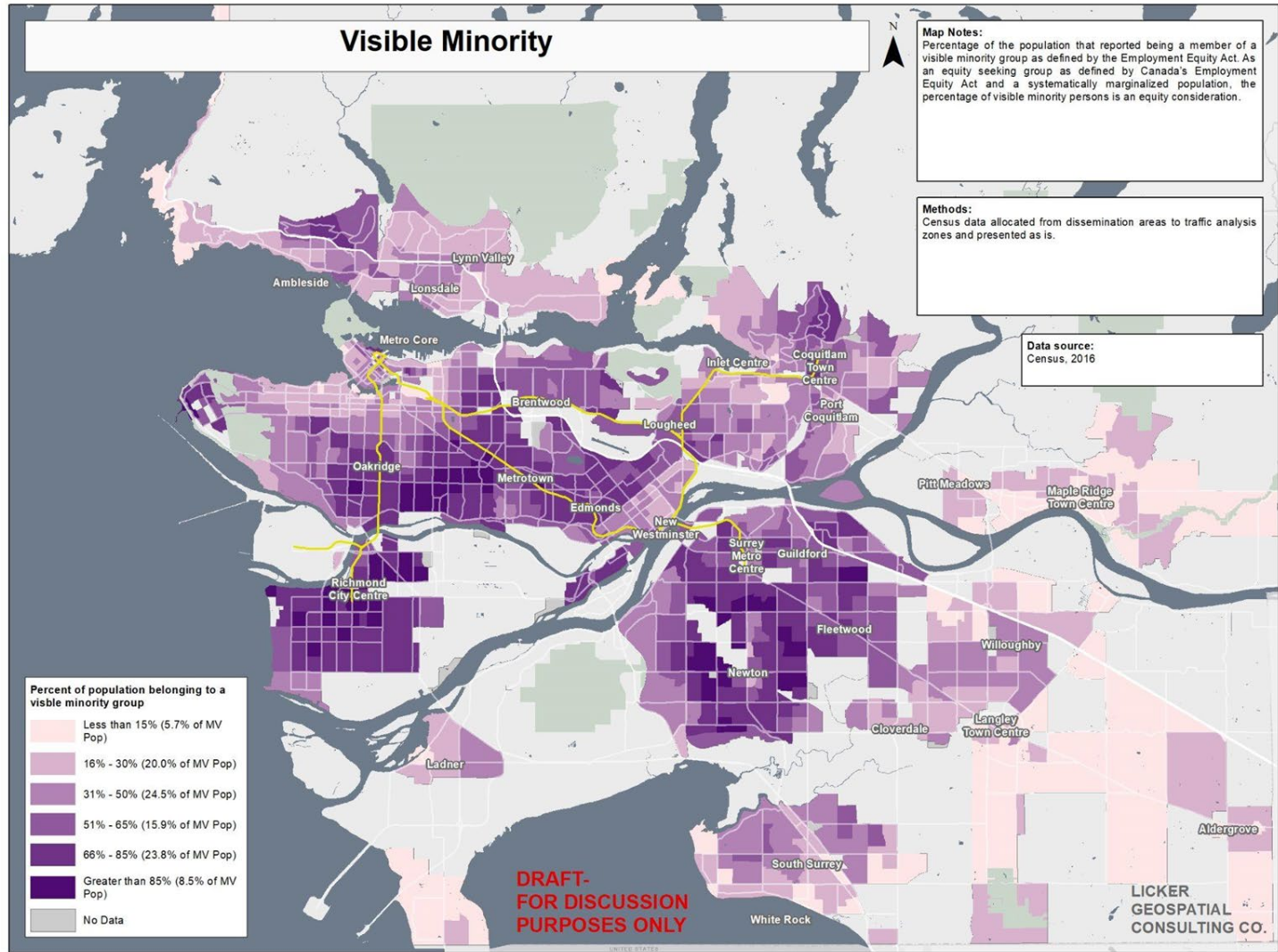
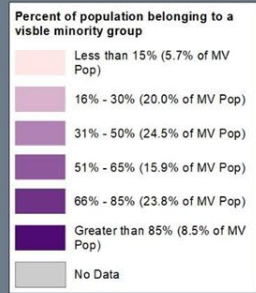


Visible Minority

Map Notes:
Percentage of the population that reported being a member of a visible minority group as defined by the Employment Equity Act. As an equity seeking group as defined by Canada's Employment Equity Act and a systematically marginalized population, the percentage of visible minority persons is an equity consideration.

Methods:
Census data allocated from dissemination areas to traffic analysis zones and presented as is.

Data source:
Census, 2016



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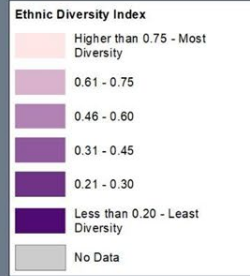
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Ethnic Diversity Index

Map Notes:
The ethnic diversity index is a measure of abundance and evenness among ethnic groups within a community. The diversity index ranges between 0 and 1, with 1 representing infinite diversity and 0 representing no diversity. Diversity is associated with a range of social outcomes and other equity indicators. In addition, diversity generally is associated with positive equity outcomes, though not always.

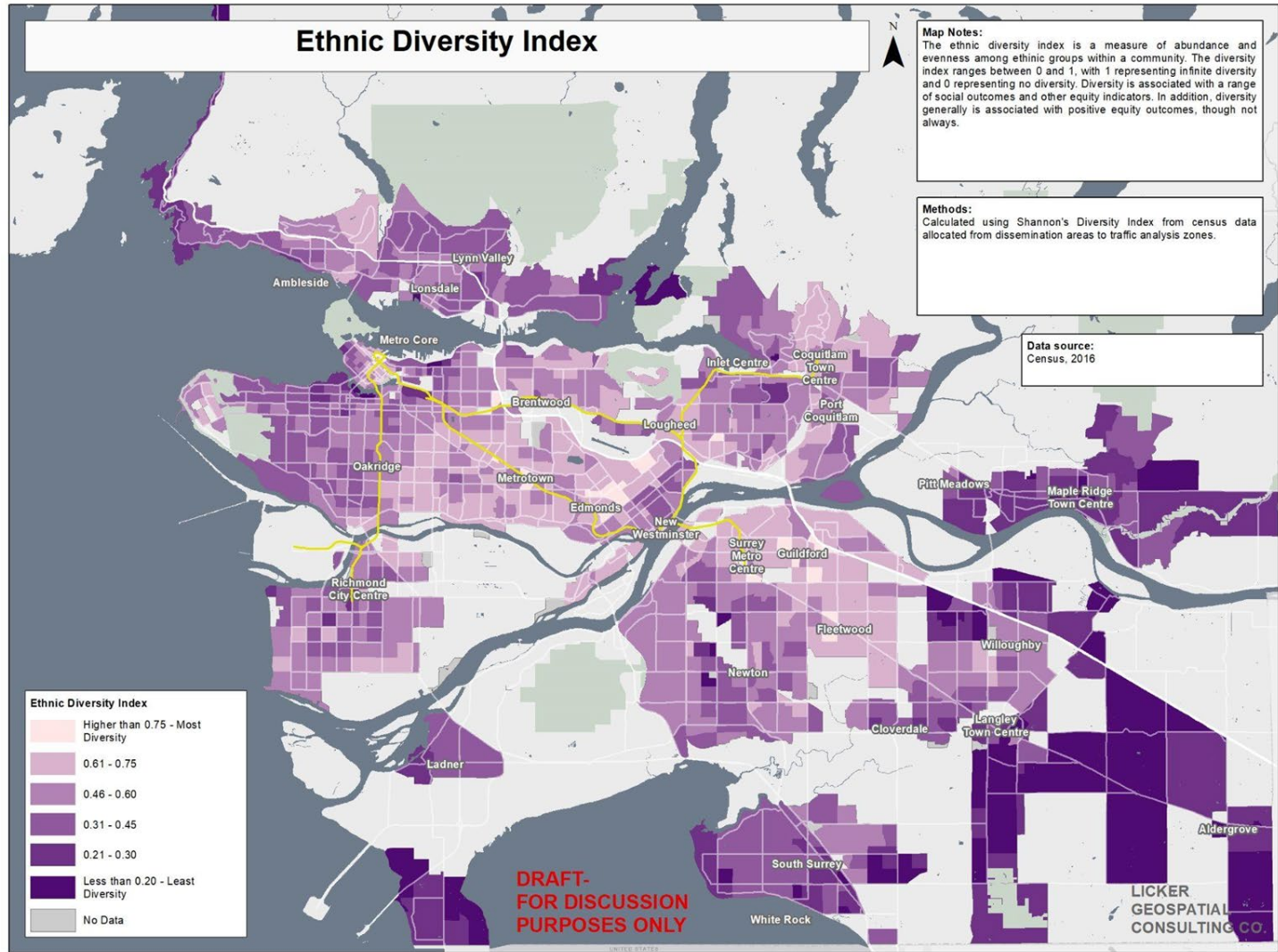
Methods:
Calculated using Shannon's Diversity Index from census data allocated from dissemination areas to traffic analysis zones.

Data source:
Census, 2016



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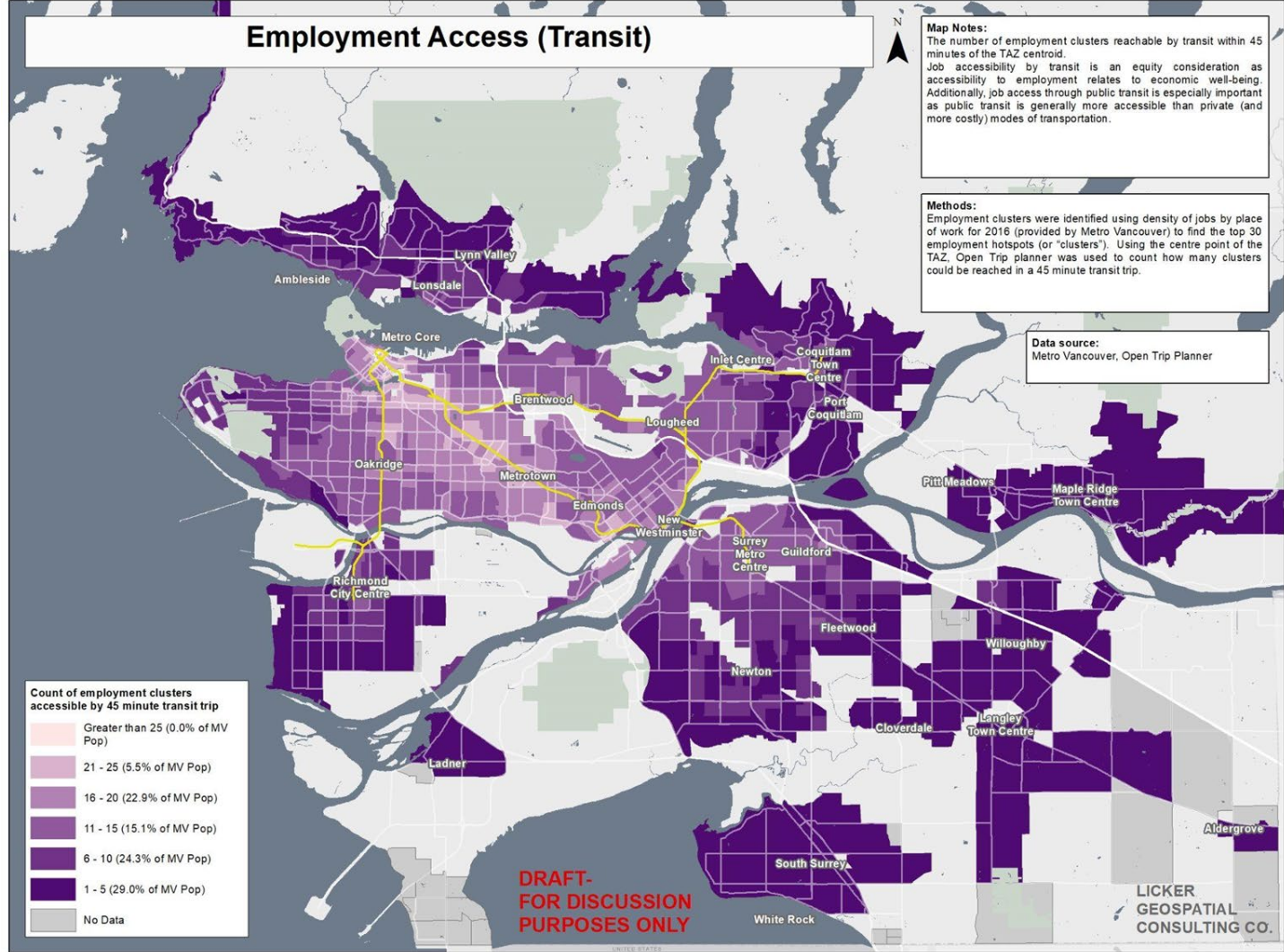
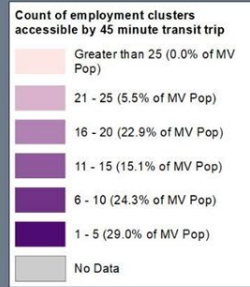


Employment Access (Transit)

Map Notes:
The number of employment clusters reachable by transit within 45 minutes of the TAZ centroid.
Job accessibility by transit is an equity consideration as accessibility to employment relates to economic well-being. Additionally, job access through public transit is especially important as public transit is generally more accessible than private (and more costly) modes of transportation.

Methods:
Employment clusters were identified using density of jobs by place of work for 2016 (provided by Metro Vancouver) to find the top 30 employment hotspots (or "clusters"). Using the centre point of the TAZ, Open Trip planner was used to count how many clusters could be reached in a 45 minute transit trip.

Data source:
Metro Vancouver, Open Trip Planner



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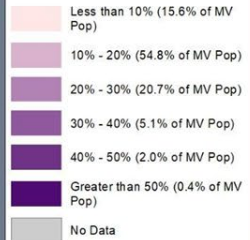
Poverty Ratio - Low Income Measure (LIM)

Map Notes:
LIM is a measure of income and living wage, which refers to thresholds below which a family would likely devote 20% more of their after-tax income than average to the necessities of food, shelter and clothing. The thresholds are adjusted to current dollars using the Consumer Price Index. LIM is adjusted for household size. This indicator can be used to assess and compare living standards and economic well being. This indicator can be used to reasonably locate concentrations of populations who may have reduced adaptive capacity and resilience and vulnerability to displacement.

Methods:
Census data allocated from dissemination areas to traffic analysis zones and presented as is.

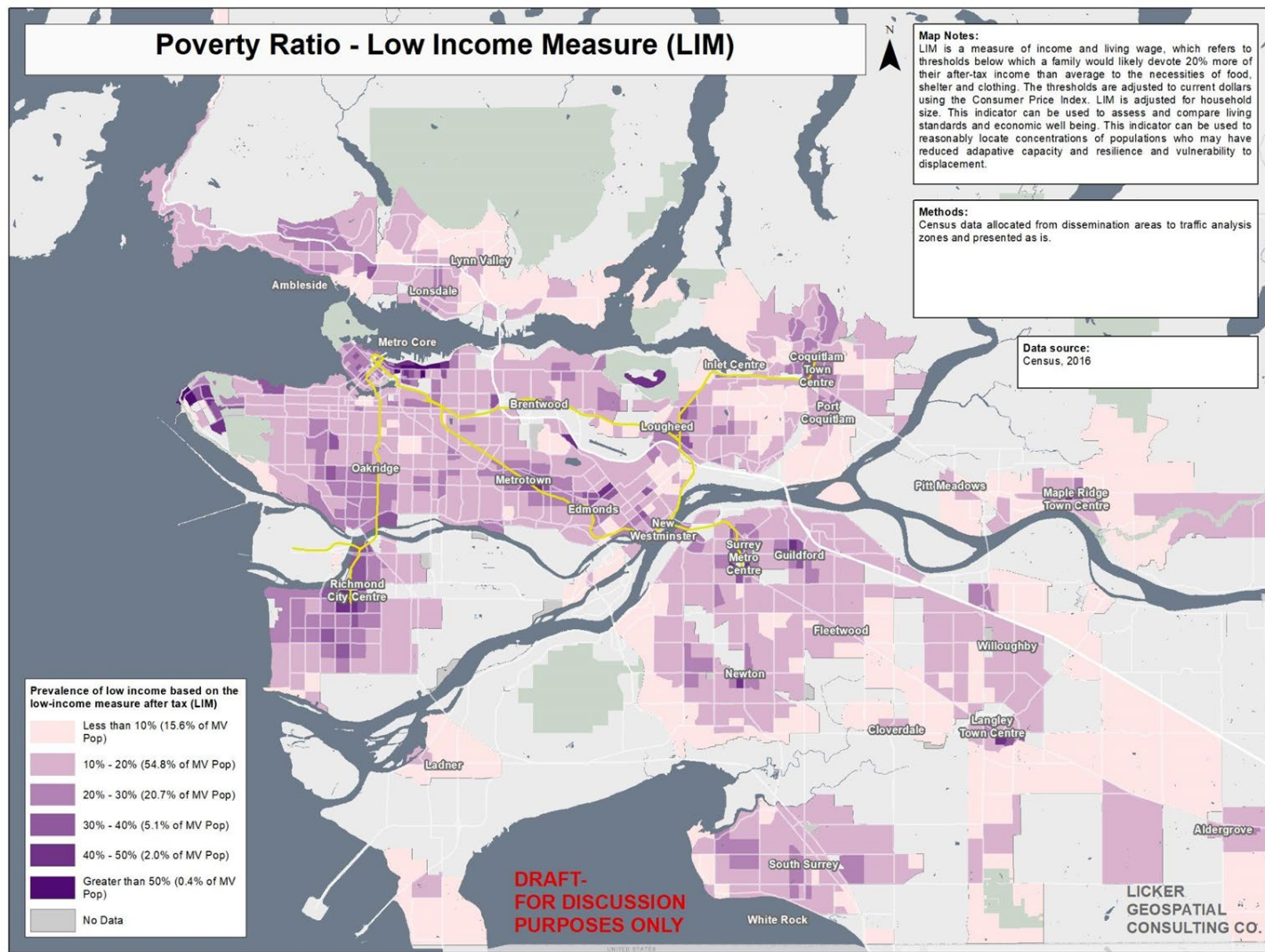
Data source:
Census, 2016

Prevalence of low income based on the low-income measure after tax (LIM)



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Access to Parks and Open Space

Map Notes:

This indicator presents access to parks as the average total park area accessible within a 10 minute walk from a 2016 dissemination block centroid.

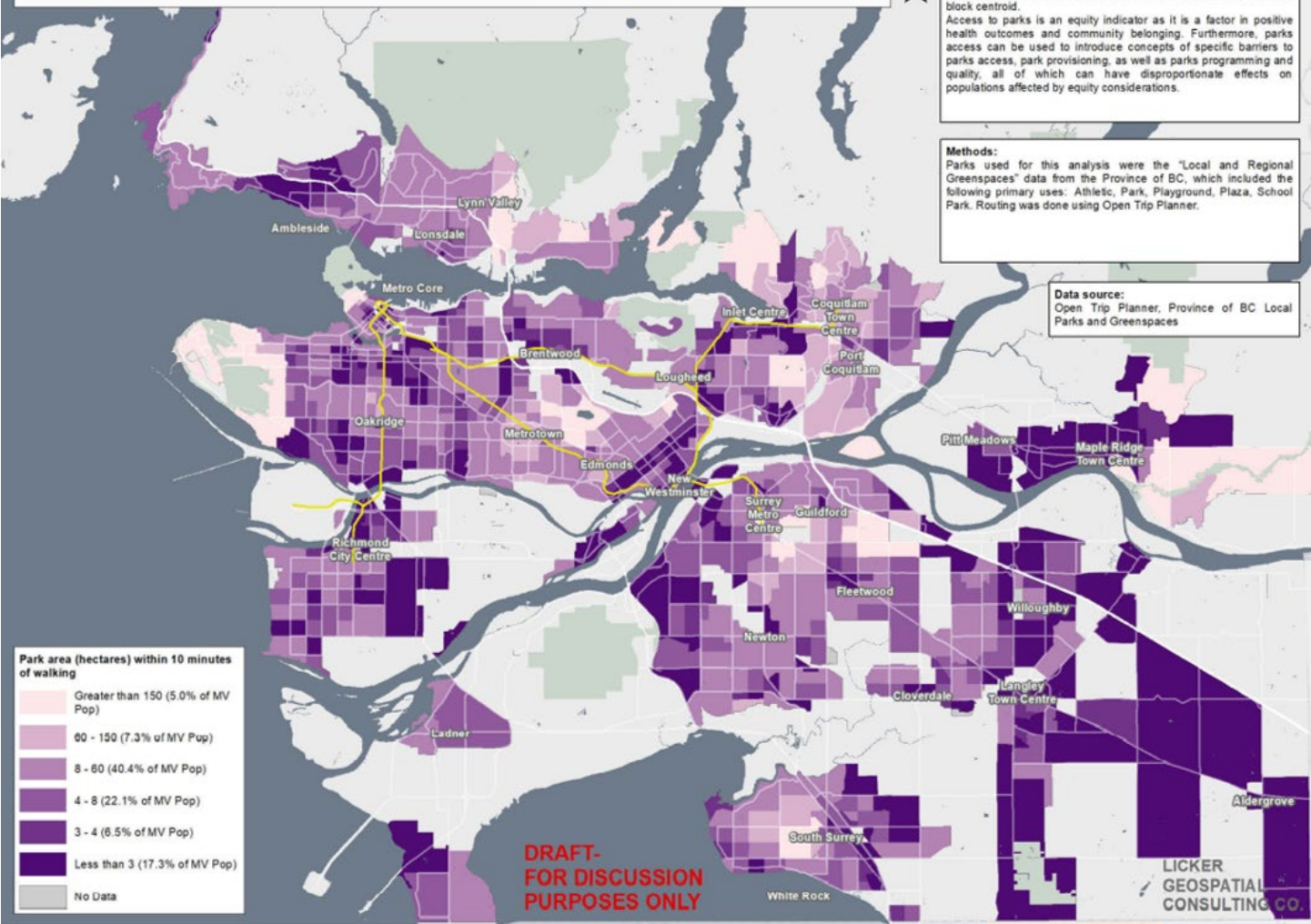
Access to parks is an equity indicator as it is a factor in positive health outcomes and community belonging. Furthermore, parks access can be used to introduce concepts of specific barriers to parks access, park provisioning, as well as parks programming and quality, all of which can have disproportionate effects on populations affected by equity considerations.

Methods:

Parks used for this analysis were the "Local and Regional Greenspaces" data from the Province of BC, which included the following primary uses: Athletic Park, Playground, Plaza, School Park. Routing was done using Open Trip Planner.

Data source:

Open Trip Planner, Province of BC Local Parks and Greenspaces



Park area (hectares) within 10 minutes of walking

Greater than 150 (5.0% of MV Pop)
80 - 150 (7.3% of MV Pop)
8 - 80 (40.4% of MV Pop)
4 - 8 (22.1% of MV Pop)
3 - 4 (6.5% of MV Pop)
Less than 3 (17.3% of MV Pop)
No Data

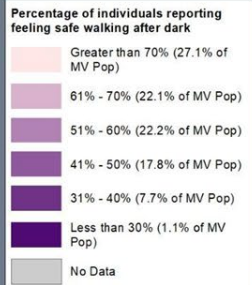
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Sense of Safety

Map Notes:
The percentage of respondents who reported feeling safe walking after dark, through the 2014 My Health, My Community survey. This is an equity consideration as it relates to the perception of neighbourhood built environment and sense of community belonging. This relates to community resilience and positive health outcomes. Additionally, it relates to transportation accessibility as individuals who do not feel safe walking home may make different and potentially more costly transportation choices (i.e. choose private transportation over public transit plus walking, or active transportation).

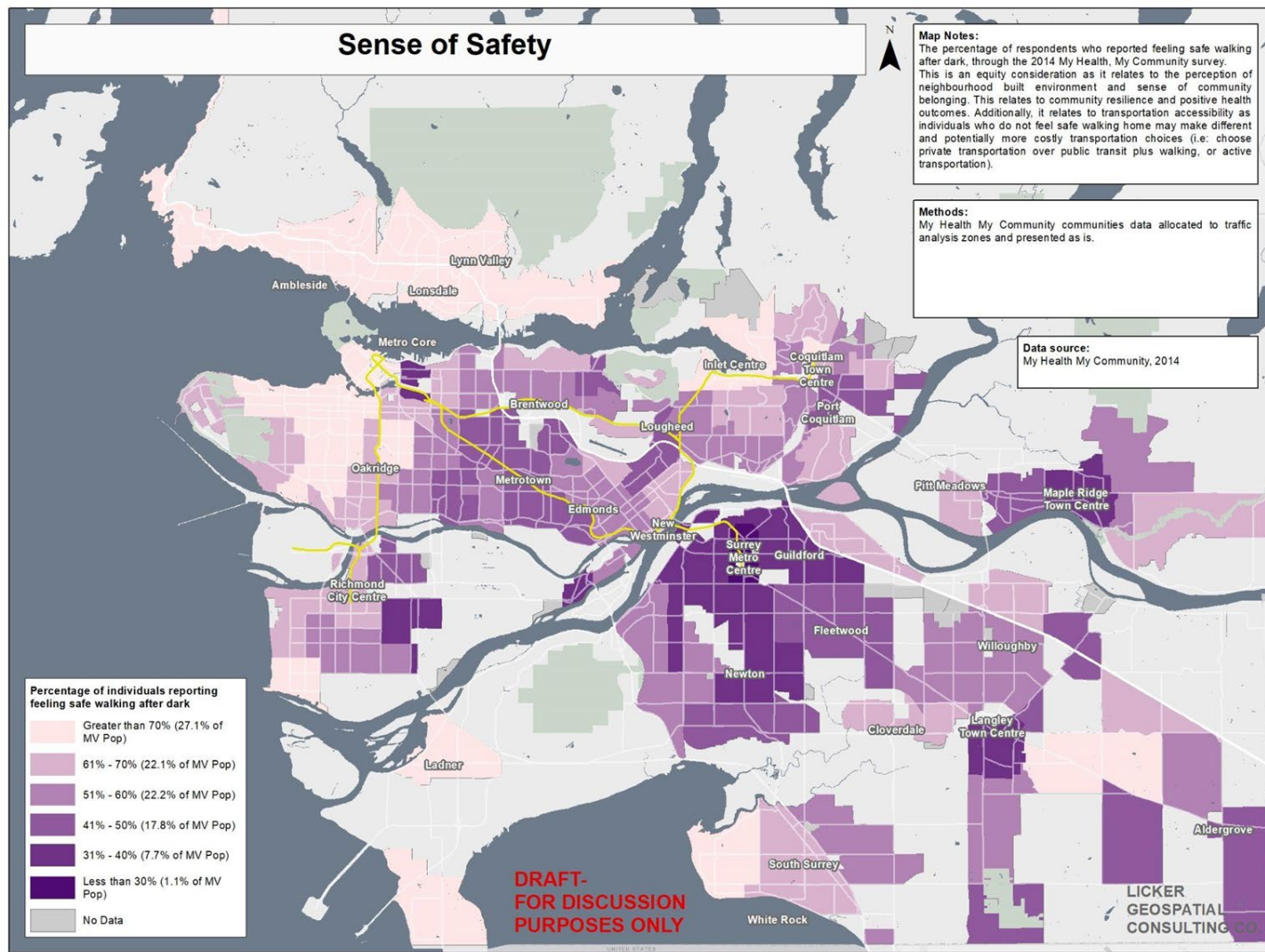
Methods:
My Health My Community communities data allocated to traffic analysis zones and presented as is.

Data source:
My Health My Community, 2014



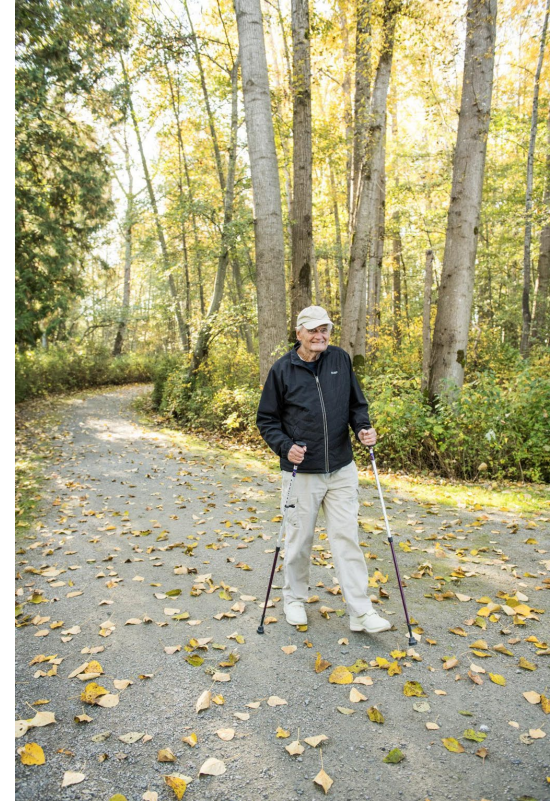
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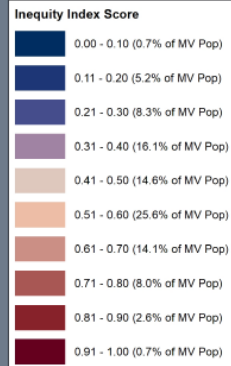
Identifying Disparities - Indices

- 49 indicators in the Equity Baseline combined into the Regional Inequity Index map.
- “Principle Component Analysis” (PCA)
- PCA groups and weighs data based on similarity in variation and the degree of correlation
- PCA can Identify patterns and consolidates large amounts of datasets
- Result of the PCA is an **Inequity Index Map**
- Highlights geographic areas with multiple, overlapping inequity concerns

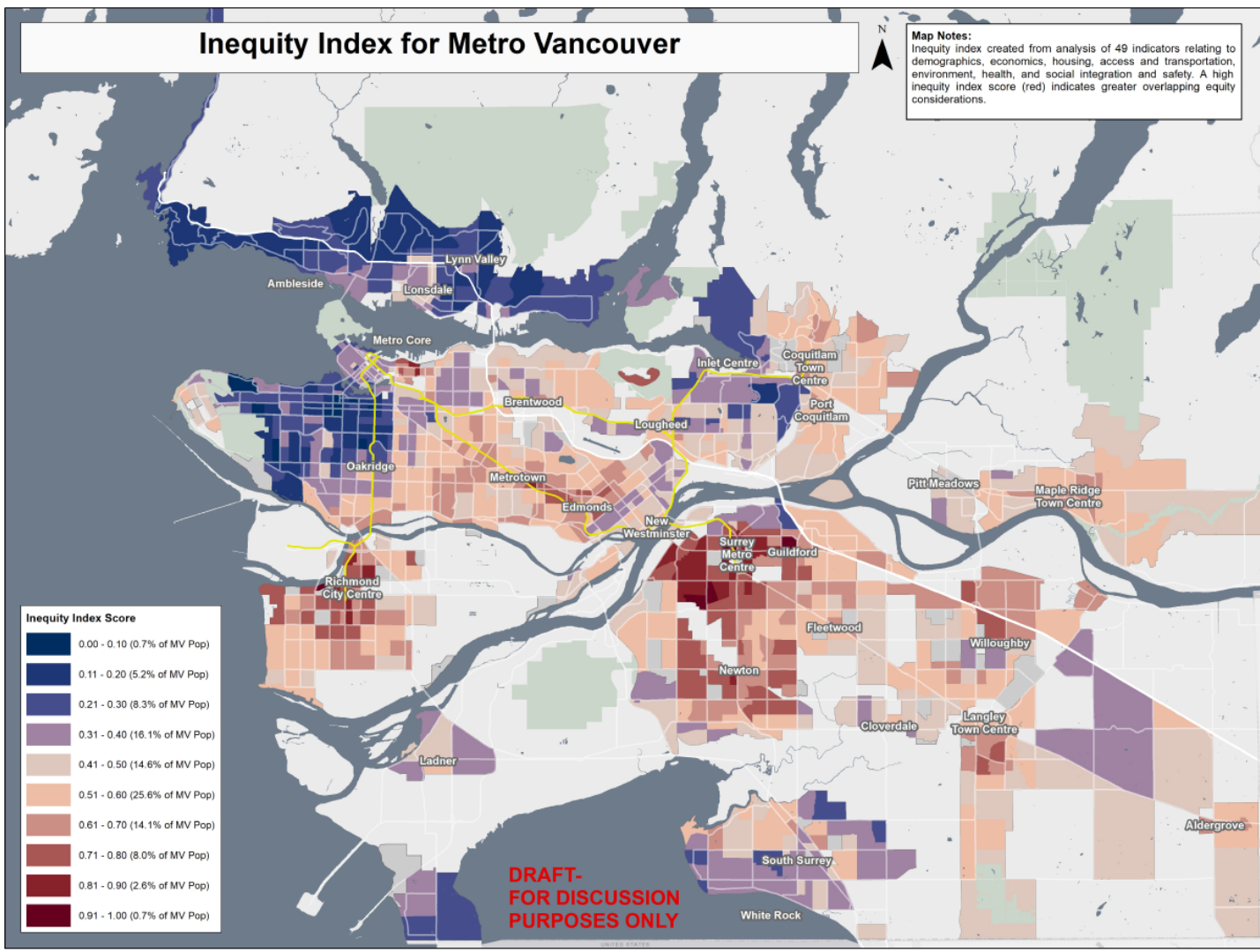


Inequity Index for Metro Vancouver

Map Notes:
Inequity index created from analysis of 49 indicators relating to demographics, economics, housing, access and transportation, environment, health, and social integration and safety. A high inequity index score (red) indicates greater overlapping equity considerations.

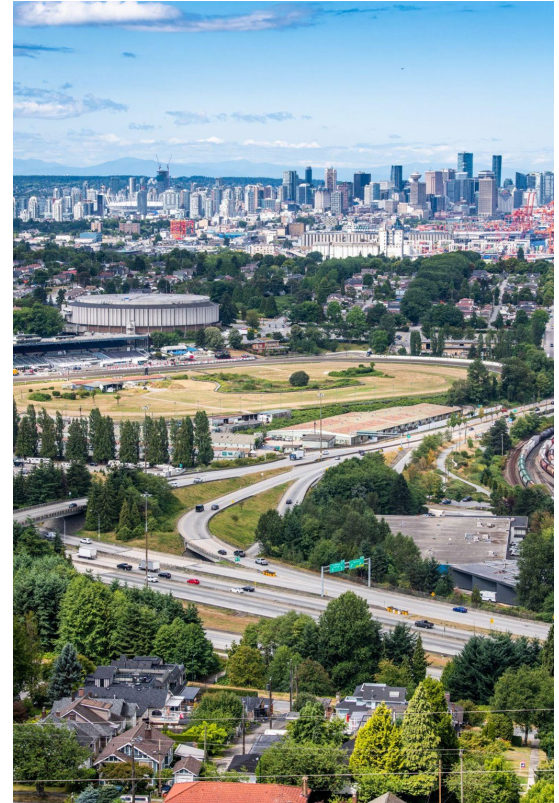


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Uses of an (in)Equity Index

- Prioritize locations for action / intervention
- Identify vulnerable populations who *may* have lower adaptive capacity and higher sensitivity to environmental hazards (COVID-19, extreme heat, air pollutants, sea-level rise)
- Identify the presence or determinants of social hazards such as racism, gender discrimination, physical safety, displacement and gentrification, rapid urban change, capricious economic systems



Inequity Index

Key Factors Identified Through the PCA:

Component	Input Variables	Loadings (e)
Component 1	Non-movers, Children, LIM, Median Household Income, Transit Access, Ethnic Diversity Index	4.2
Component 2	Healthcare Access, 4 people to confide in or turn to for help, Feel Safe walking after dark, General Health (excellent)	3.5
Component 3	Total Visible Minority Population, Indigenous Identity, Median Value of Dwellings, Knowledge of Official Languages	2.2
Component 4	Seniors, Median Age	2.0
Component 5	Mean Surface Temperature, Parks Area, Youth Voter Turnout (2017), Employment Access (Drive)	1.5

Inequity Index for Metro Vancouver - Annotated

Map Notes:
A high inequity index indicates greater overlapping equity considerations. The inequity index is representative of multiple data sources, which include socio-economic, demographic, health- and access-related data. Callout boxes list the top five equity considerations for the highest scoring areas.

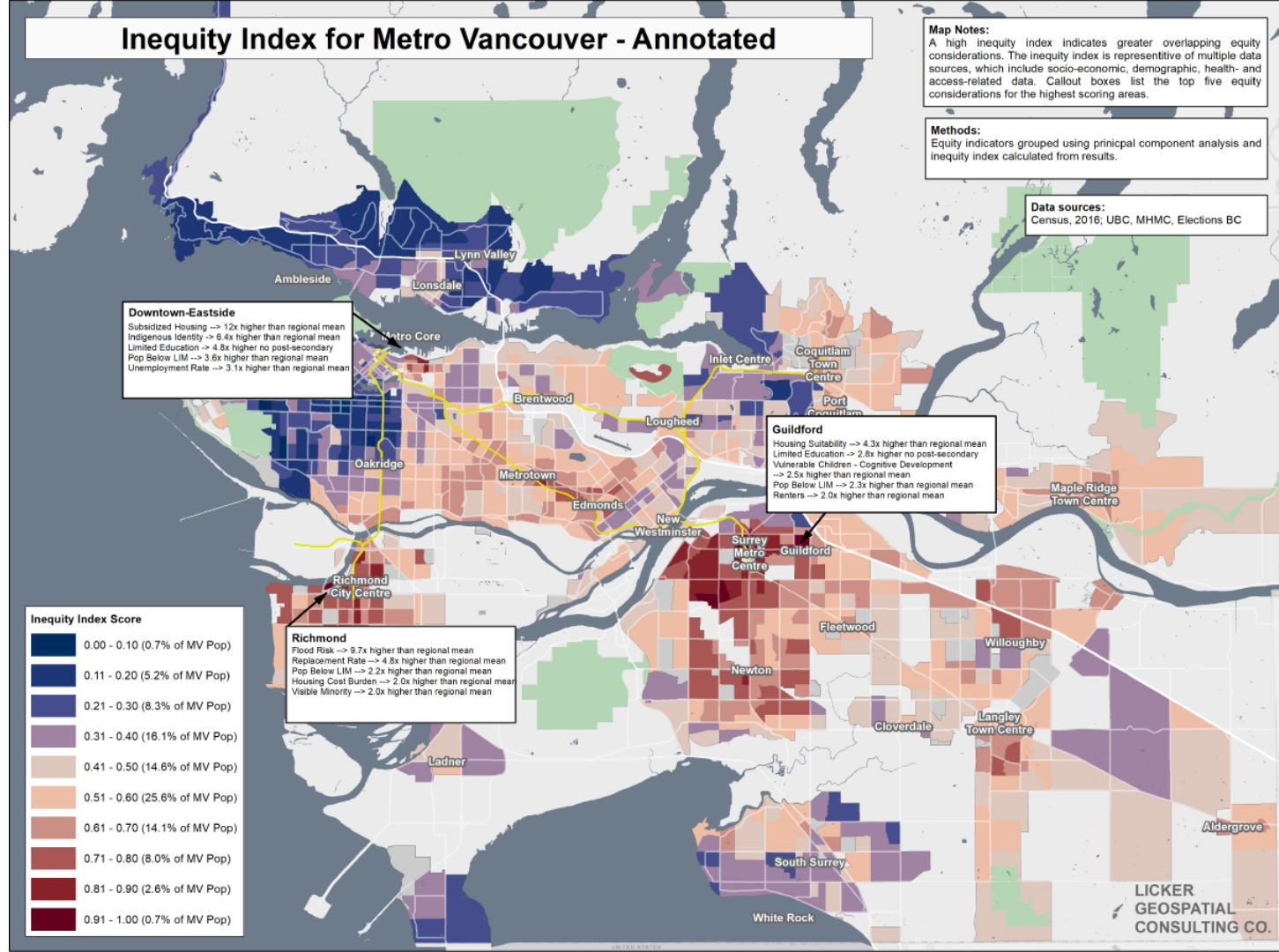
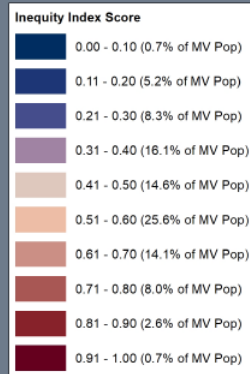
Methods:
Equity indicators grouped using principal component analysis and inequity index calculated from results.

Data sources:
Census, 2016; UBC, MHMC, Elections BC

Downtown-Eastside
Subsidized Housing -> 12x higher than regional mean
Indigenous Identity -> 6.4x higher than regional mean
Limited Education -> 4.8x higher no post-secondary
Pop Below LIM -> 3.6x higher than regional mean
Unemployment Rate -> 3.1x higher than regional mean

Guildford
Housing Suitability -> 4.3x higher than regional mean
Limited Education -> 2.8x higher no post-secondary
Vulnerable Children - Cognitive Development -> 2.5x higher than regional mean
Pop Below LIM -> 2.3x higher than regional mean
Renters -> 2.0x higher than regional mean

Richmond
Flood Risk -> 9.7x higher than regional mean
Replacement Rate -> 4.8x higher than regional mean
Pop Below LIM -> 2.0x higher than regional mean
Housing Cost Burden -> 2.0x higher than regional mean
Visible Minority -> 2.0x higher than regional mean



Identifying Disparities - Bivariate Analysis

- Bivariate analysis: how two specific equity considerations intersect in space
- Provides insight into where there may be concentrations of high priority populations
- Helps identify areas with significant regional disparities which can, inform regional growth planning



Low Income and Urban Tree Canopy

Map Notes:

Population Below LIM: Calculated as the percentage of the population below the federal poverty level (the amount of pretax cash income considered adequate for an individual or family to meet basic needs).

Urban Tree Canopy: Calculated as the ratio of canopy cover, or the layer formed by the branches and crowns of trees, to total TAZ area. Canopy cover is an equity indicator as it relates to health outcomes as well as community well-being. For example, canopy cover relates to the mitigation of extreme heat, improves air quality and mitigates flood risk.

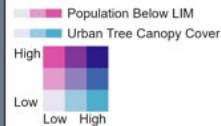
Methods:

Census Canada data presented as is and Metro Vancouver tree canopy as a ratio of TAZ area.

Data source:

Census, 2016; Metro Vancouver

Low Income Measure and Tree Canopy



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White Rock

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Visible Minority and Vulnerable Children - Communication

Map Notes:

Visible Minority: Percentage of the population that reported being a member of a visible minority group as defined by the Employment Equity Act.

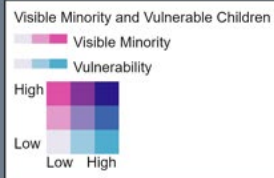
Vulnerability in Communication Skills: This indicator shows the percentage of children entering Kindergarten that showed a vulnerability when assessed for communication skills, including English language skills.

Methods:

Census Canada and Human Early Learning Partnership (UBC) data presented as is.

Data source:

Census, 2016 and Human Early Learning Partnership (UBC), 2016-2019



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White Rock

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Percent of Owner Households and Median Home Value

Map Notes:
Pale orange areas, outlined by a red box in the legend, indicate locations with few owned homes and low home values, which can translate to reduced wealth. These locations can be compared with areas with high percentages of owners and high home values (dark brown), which would indicate significant concentrations of real estate wealth. Through this rubric, we deduce concentrations of wealth in the west side of Vancouver and West Vancouver and a stark absence of real estate wealth in the West End and Downtown Eastside neighbourhoods of Vancouver, as well as many town centres clustered along the Expo skytrain line.

Methods:
Percentage of owners and median home value are Census variables allocated from the 2016 dissemination area level to traffic analysis zones and displayed as it.

Data source:
Census, 2016; Metro Vancouver



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Limitations

- Top-down, built by individuals with privilege
- Inequity Baseline should be validated, questioned, and refined through input from priority populations
- Only one form of quantitative analysis: spatial distribution
 - Some inequities will not show up on a map; not every form of oppression can be represented spatially
 - Spatial distribution does not indicate disproportionate distribution of benefits and harms according to other dimensions.

Limitations

- Data gaps:
 - Health outcomes, mental health, and wellbeing
 - Environmental considerations (air contaminants, noise pollution, and nuisance areas)
 - Personal safety, crime, collisions, and policing
 - Universal accessibility and ability (scale of data)
 - Wealth and political power
- The assessment of displacement and gentrification could have been strengthened

Reflection Questions

- How does this mapping reflect your understanding of regional inequalities?
- How can we ensure that this mapping is used for ethical purposes?



Applying the Findings to Regional Policy



Applying the Results - *Transport 2050*

- *Transport 2050* takes two-pronged approach to social equity:
 - Equity lens to all actions
 - Specific actions to advance social equity
- Social equity study fed into both processes through:
 - Applying what we heard in qualitative portion of social equity study
 - Hosting additional workshops



Applying the Results - Ten Year Priorities (TYP)

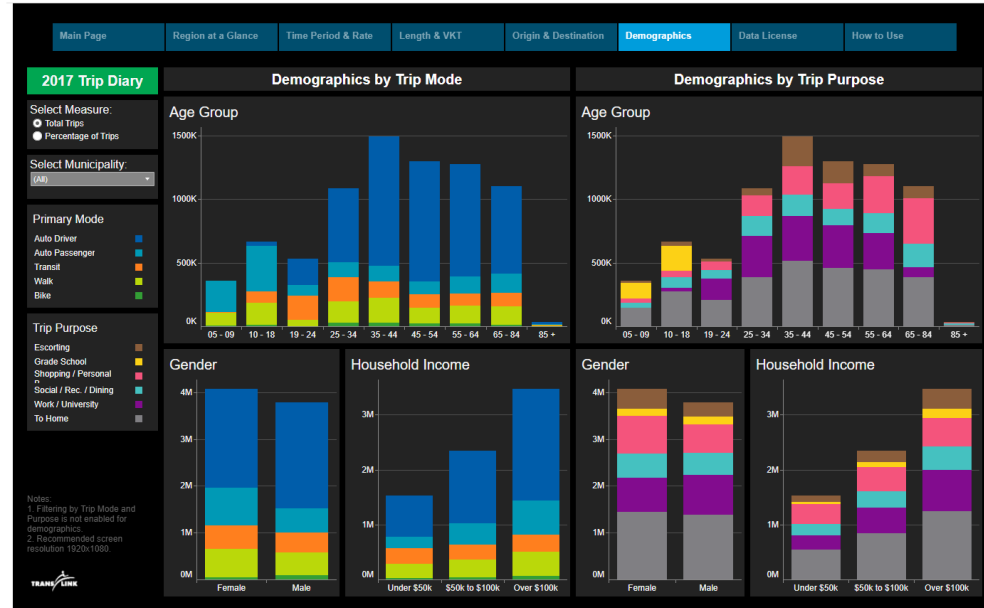
- Focus groups: community organizations
 - Concerns: safety and security, basic accessibility support (e.g. Lighting)
- Quantitative Evaluation:
 - Modelling exercise considering access and cost of different policies segmented by demographic groups
 - Groups included visibility minorities, seniors, low income, Indigenous, general population



Applying the Results - Social Equity Data Baseline

- TL Developing a Social Equity Data Baseline
- Sources:
 - Social equity study and TYP
 - Census custom database
 - Customer satisfaction data
 - Trip Diary exploring equity characteristics
- Identifying data gaps and developing a strategy to address

Trip_Diary_2017 by TransLink



Applying the Results - Metro Vancouver and *Metro 2050*

- Definition of Social Equity
- Context language linking social equity to all policy areas
- Performance Measures
- Policy Improvements
 - Metro Vancouver research role
 - Tenant protections
 - Housing policy expansions
 - Tree canopy targets
 - Nature protection targets
 - Social connections



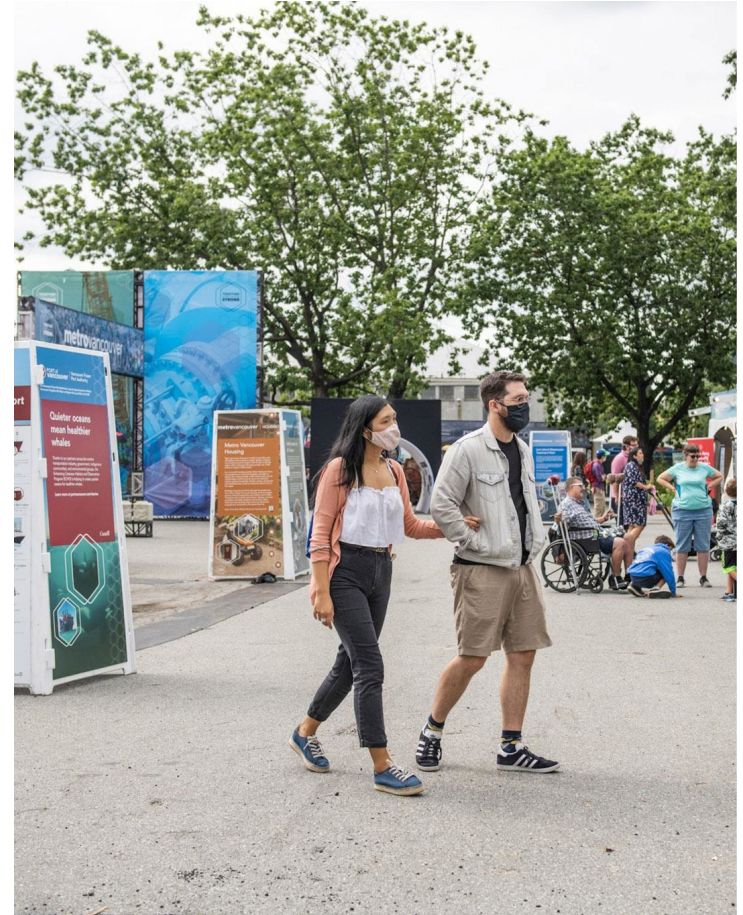
Applying the Results - Phase 3

- Pilot social equity analysis – case study maps
- Raise awareness about equity analysis methods and data
- Support the implementation of *Metro 2050* more equitably
- Share lessons learned



Questions for Discussion

1. How would you apply these findings?
2. How does this mapping reflect your understanding of regional inequalities?
3. How can we ensure that this mapping is used for ethical purposes?



Questions?

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