



Pedestrian Planning Update



Topic: Walking



Goal: A Connected Nanaimo: Equitable Access & Mobility



City Plan Policies:

Make walking a safe, comfortable, convenient, accessible, and enjoyable experience for residents of all ages and abilities.



Action Plan Items:

Develop quality, accessible crossings

Focus sidewalk improvements in areas with high pedestrian demand and potential

Infrastructure Improvement Process



(Todd Sanderson, Nanaimo News Bulletin)

1. Strategic Planning
2. **Identification & Prioritization**
3. Selection of Treatment Options
4. Implementation
5. Monitoring & Evaluation
6. Communication, Engagement & Celebration



Overview

-  Background
-  Updated Process to Prioritize Improvements
-  Outstanding Issues
-  Next Steps



Identification & Prioritization



Pedestrian Collision Stats:

- 2016 - 39
- 2017 - 26
- 2018 - 25
- 2019 - 21
- 2020 - 15



Identification & Prioritization

$$\text{Total Risk/Generator Score} = \left(\text{Ped Trip Generator score} \times \text{Risk Output Score} \right) / 10$$

Pedestrian Outputs

Population density, amenities nearby, distance to transit stops, schools, hospitals and senior residences

Risk Outputs

Traffic speed & volume, block length, intersection density, quality and extent of existing pedestrian facilities nearby



Identification & Prioritization Recommendations

- Make the process transparent
- Use data that is available and comparable
- Use a process amenable to reactive and proactive planning



Bicycle counter,
Galloping Goose
Victoria, B.C.
(BCATDG)



Identification & Prioritization - Bellingham

Criterion	Max Points	Possible Points	Measurement
Safety	10	10	3 or more collisions
		6	2 collisions
		3	1 collision
Posted Speed	10	10	> 40 mph
		5	> 30 mph
		3	< 30 mph
Traffic Volume	10	10	Very High
		8	High
		6	Moderate
		4	Low
		2	Very Low
Economic Equity	34	0 - 34	High Scores for areas with subsidized rental housing. Low Scores for high end single family.

Identification & Prioritization - Nanaimo

Risk Factors

- Collisions
- Posted Speed
- Traffic Volumes
- Crossing Distance

Ped Trip Generators

- Proximity to Schools
- Access to Community Destinations
- Transit Connectivity
- Economic Equity
- Within a Mobility Hub



WalkScore

Input and Source:

- WalkScore Layer (Produced independently for the real estate industry and recorded periodically by Nanaimo staff)
- Crosswalk Locations (Nanaimo Data)

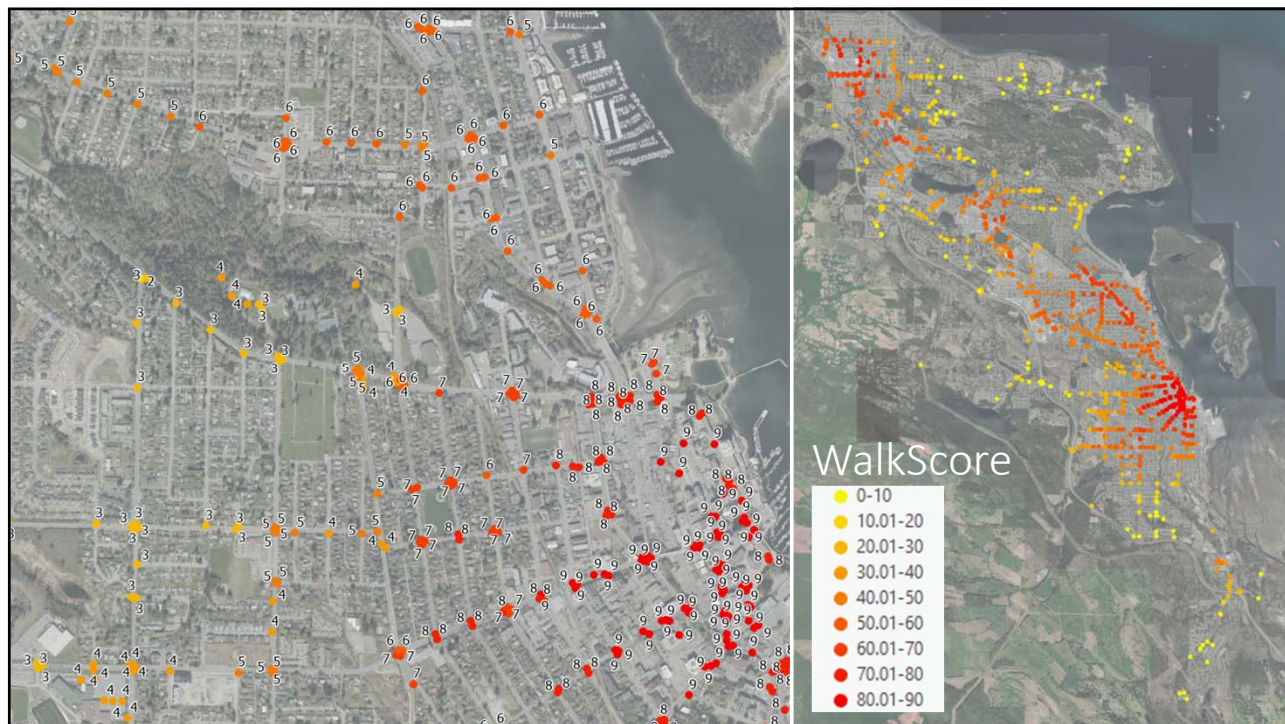
Logic:

- Crosswalks with a higher WalkScore will receive a higher score

Walkscore Value Score

- 0-10 1
- 10.01-20 2
- 20.01-30 3
- 30.01-40 4
- 40.01-50 5
- 50.01-60 6
- 60.01-70 7
- 70.01-80 8
- 80.01-90 9
- 90.01-100 10





Speed Score

Input and Source:

- DRA Layer (Provincial Roads Layer)
- Crosswalks Points (Nanaimo Data)

Logic:

- Roads with a higher speed limit are higher risk, and will be scored higher

Km/Hr

- 0-30
- 31-40
- 41-50
- 51-60
- Above 60

Score

- 0.5
- 2
- 5
- 8
- 10



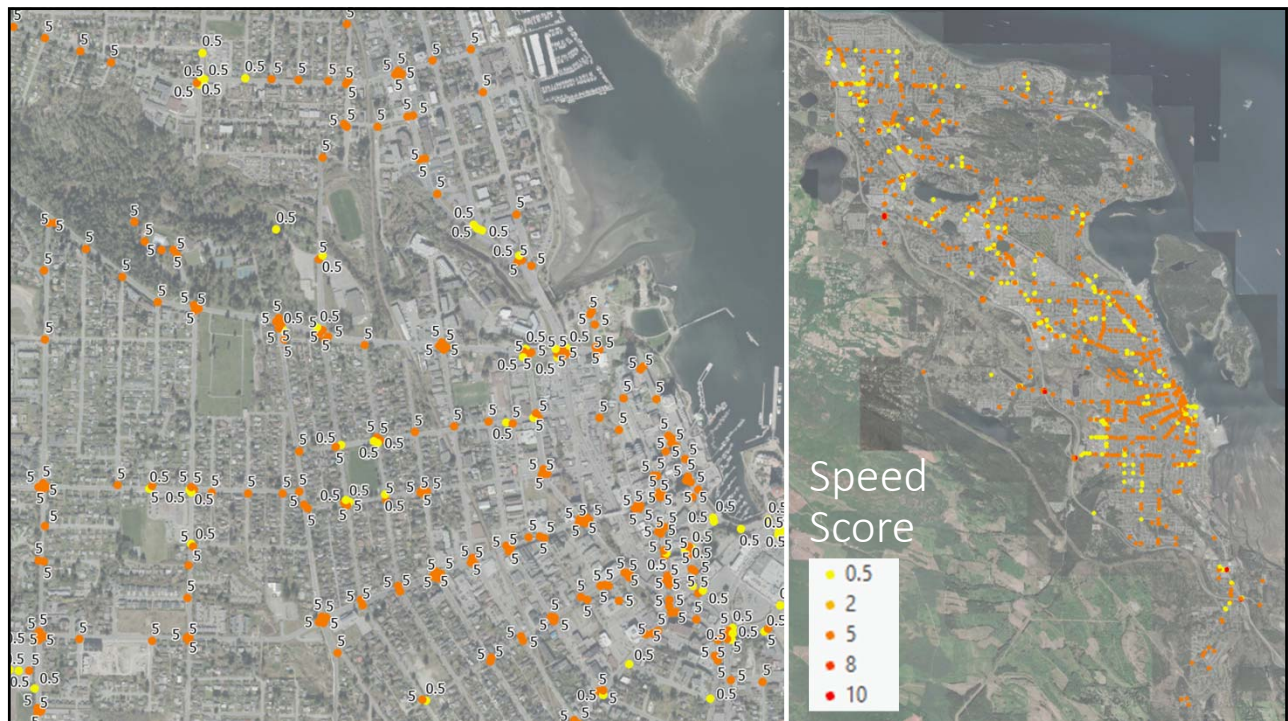
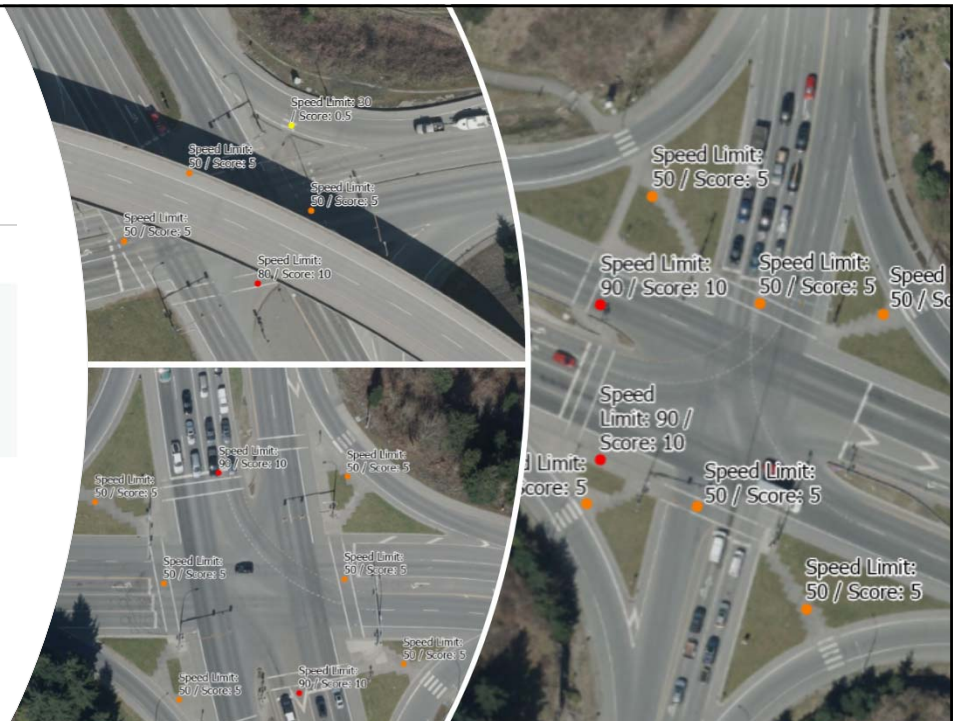
Additional Speed Score Examples

Km/Hr

- 0-30
- 31-40
- 41-50
- 51-60
- Above 60

Score

- 0.5
- 2
- 5
- 8
- 10



Volume Score

Input and Source:

- DRA Layer (Provincial Roads Layer)
- Crosswalks Points (Nanaimo Data)

Logic:

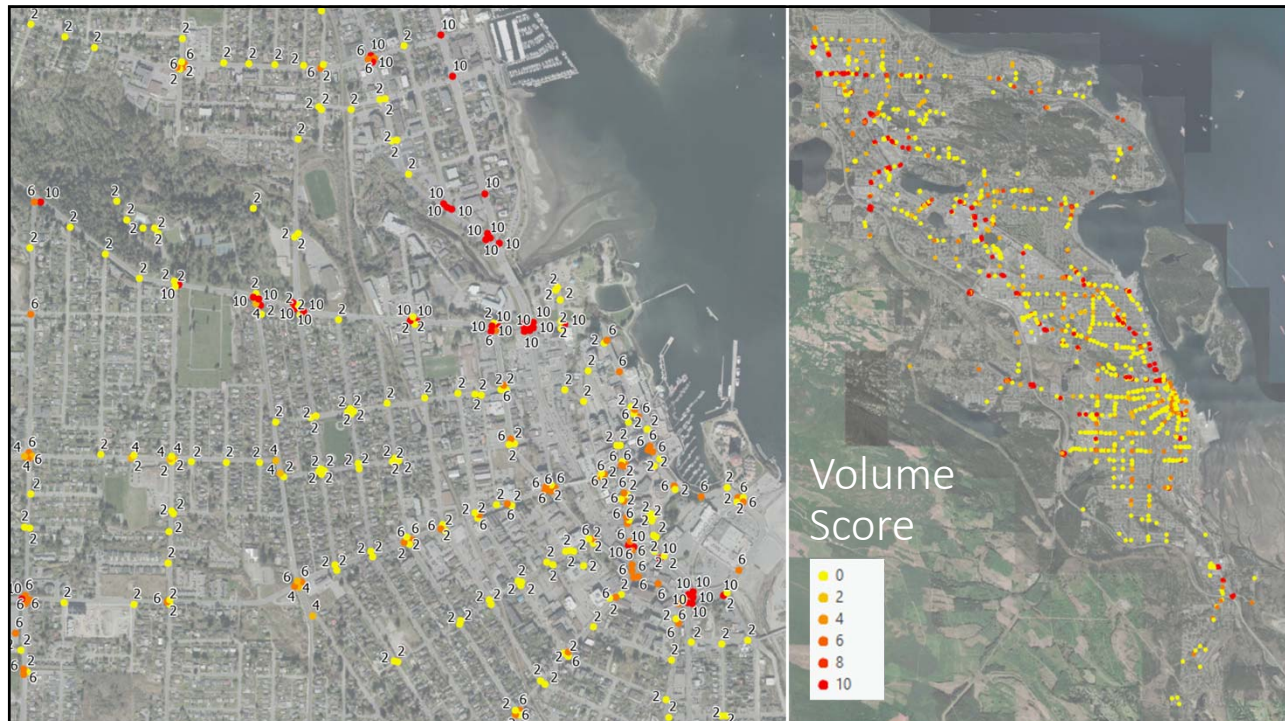
- Roads with a higher volume are higher risk, and will be scored higher

Road Type

- Highway
- Arterial 1
- Arterial 2
- Collector 1
- Collector 2
- Local
- Trail or Ped

Score

- 10
- 10
- 8
- 6
- 4
- 2
- 0



Safety (Collision) Score

Input and Source:

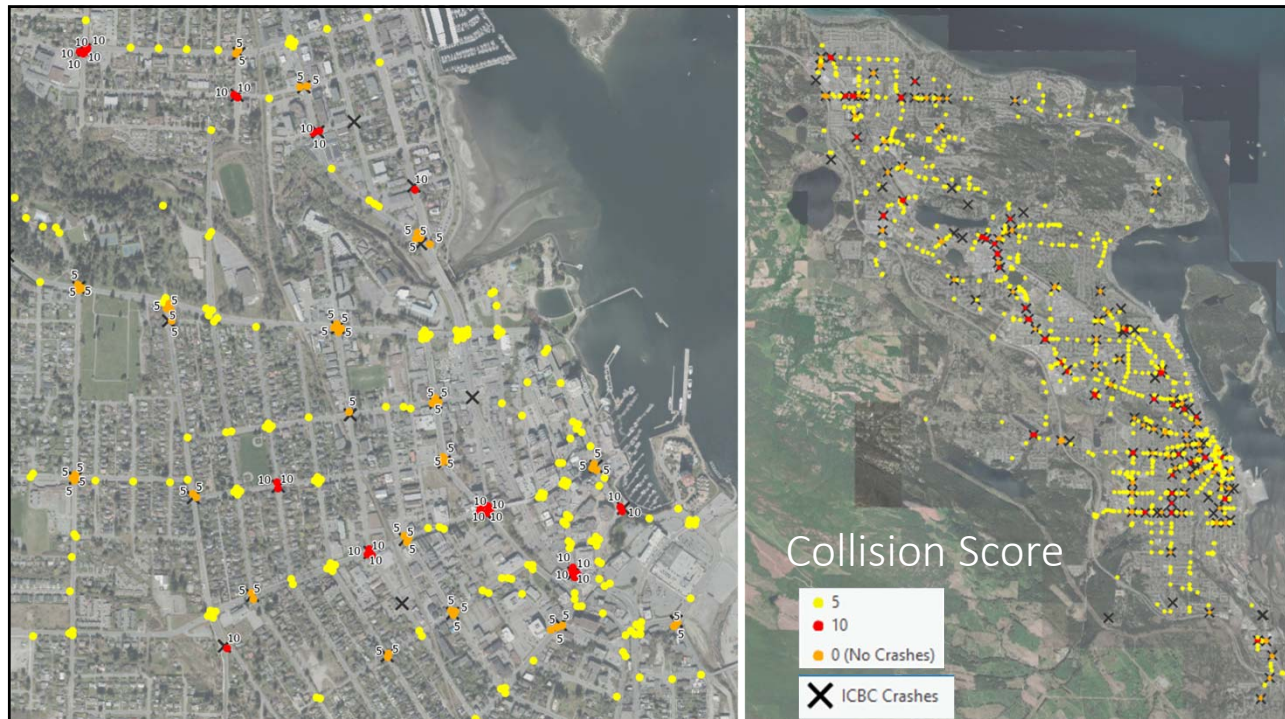
- ICBC Data – Collisions involving vulnerable road users (Requires manual manipulation of downloaded data)
- Crosswalk Points (Nanaimo Open Data)

Logic:

- Collisions involving pedestrians will be scored higher (higher risk)
- Any crashes within 30m of a crosswalk will be counted

Crash Incidents Score

- 0 0
- 1 5
- Over 1 10



Transit Score

Input and Source:

- BC Transit Data – Requires manual manipulation of data from Urban Logic site (or BC transit)
- Crosswalk Points (Nanaimo Open Data)

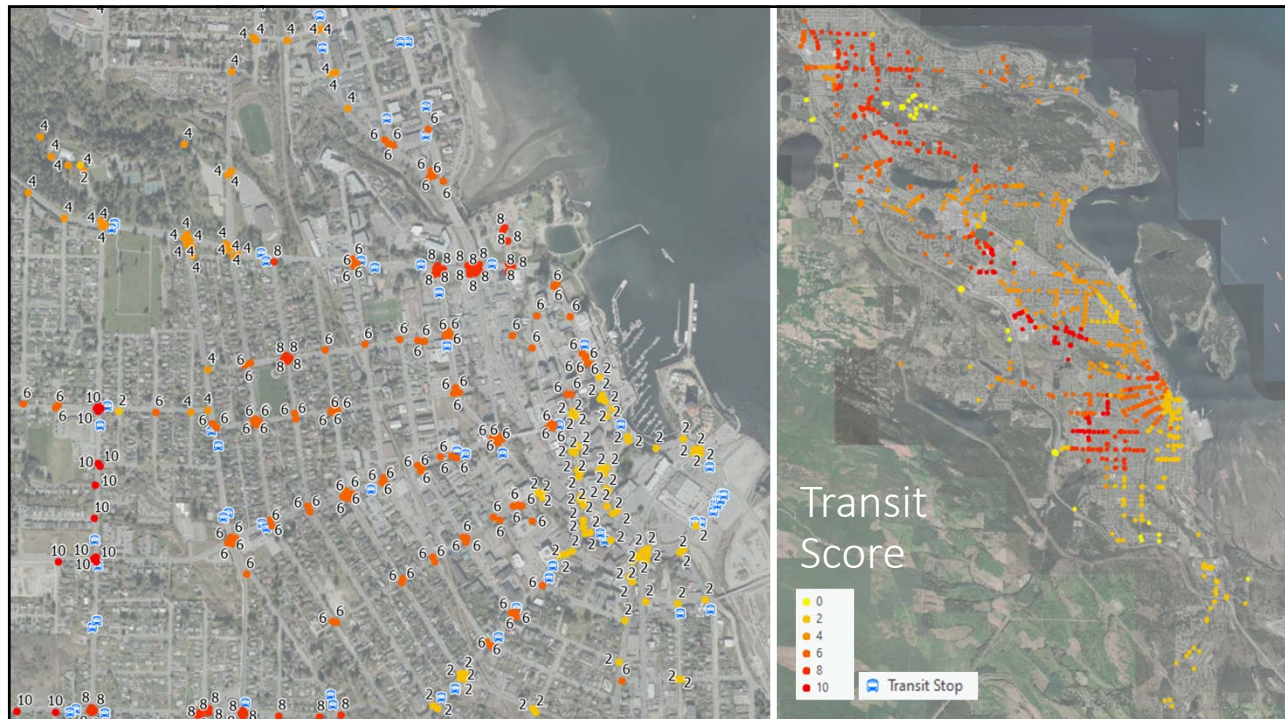
Logic:

- Crosswalks near high-traffic transit stops will be scored higher

$$\begin{aligned} &\text{Maximum OFF values} \\ &+ \text{Maximum ON values} \\ &= \text{Our Maximum Traffic Volume} \end{aligned}$$

Using a Natural Break method, we can determine break values based on data distribution (statistic method)

<u>Transit Stop (Max. Volume)</u>	<u>Score</u>
• No stop within 500m	0
• Highest Natural Break (270.01 - 630)	10
• 140.1 - 270	8
• 81.1 - 140	6
• 38.01 - 81	4
• Lowest Natural Break (0.01 - 38)	2



Mobility Hub

Input and Source:

- Mobility Hub Polygon Data – (Nanaimo Data)
- Crosswalks Points (Nanaimo Data)

Logic:

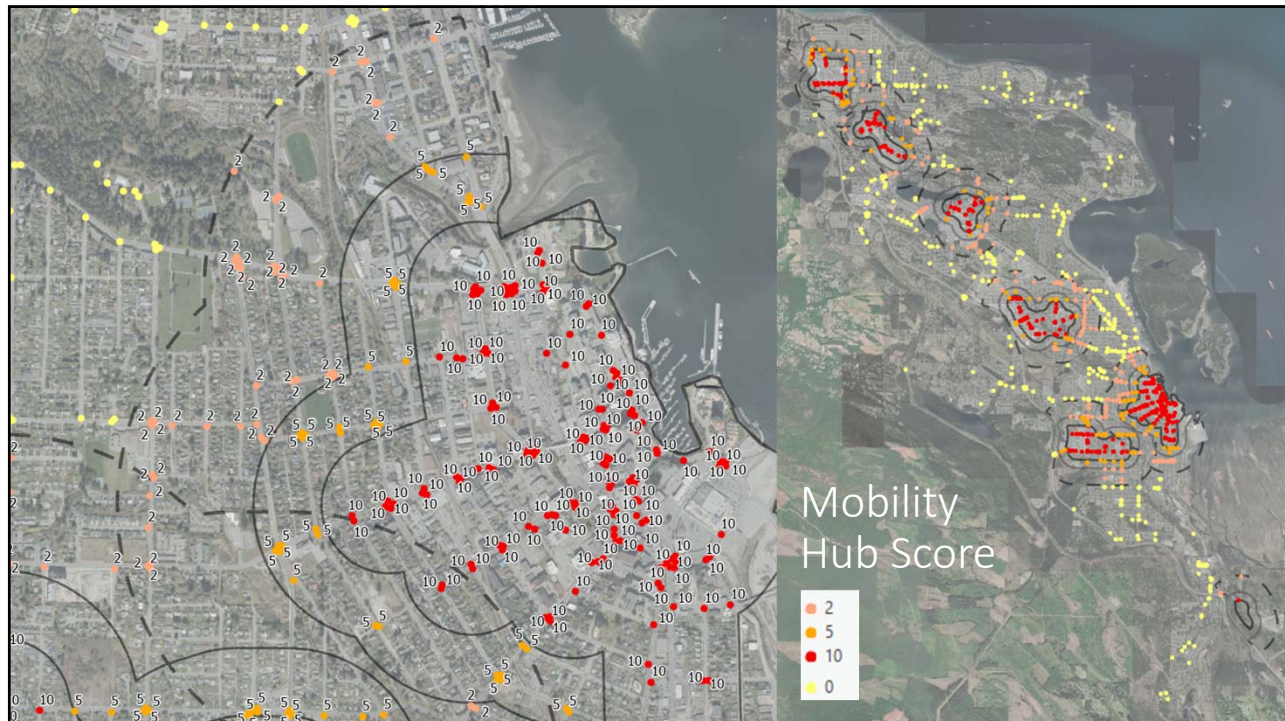
- Crosswalks within or near mobility hubs will be given a higher priority

Distance (Buffer)

- In or Within (200m)
- 400m
- 800m
- Beyond 800m

Score

10
5
2
0



Equity Analysis

Input and Source:

- Nanaimo Dissemination Areas (Census Data)
- Crosswalks Points (Nanaimo Data)

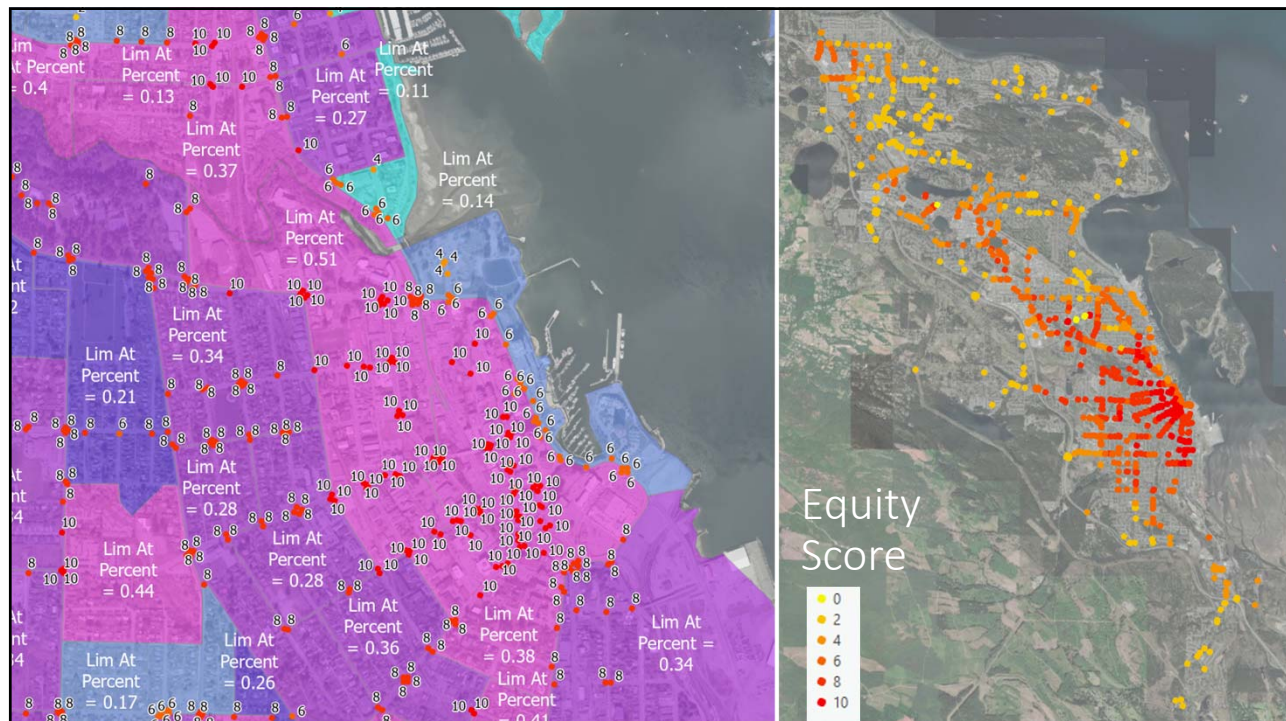
Logic:

- Crosswalks in lower income areas will be scored higher.

Crosswalks on the edge of multiple Dissemination areas are scored as to the combined % Low Income Population

Using a Natural Break method, we can determine break values based on data distribution (statistical method)

<u>Equity (% of Pop Low Income)</u>	<u>Score</u>
• Highest Natural Break (38-80%)	10
• 28-37%	8
• 21-27%	6
• 14-20%	4
• Lowest Natural Break (<= 14%)	2
• N/A	0



Crossing Distance

Input and Source:

- Crosswalk Lines (Nanaimo Data)

Logic:

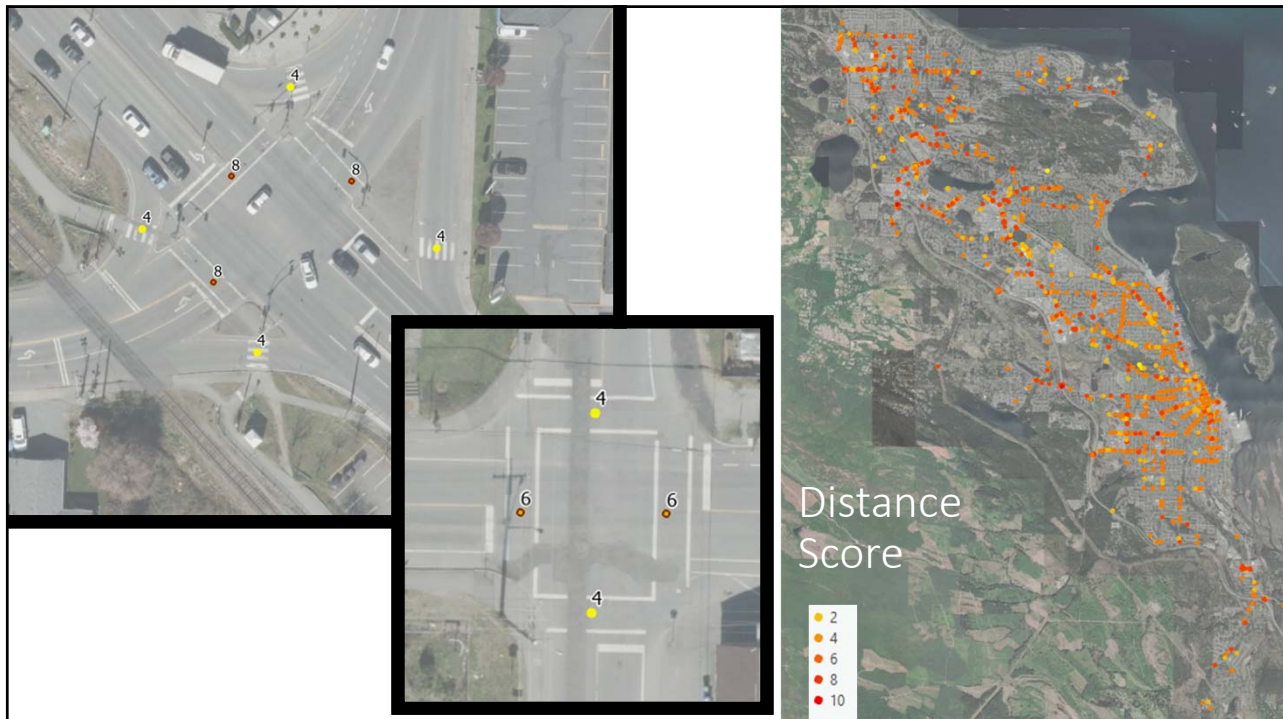
- Longer crosswalks will be scored higher, as they pose a higher risk

Distance

- 0-6m
- 6-12m
- 12-20m
- 20-40m
- 40-61m

Score

- 2
- 4
- 6
- 8
- 10



School Proximity

Input and Source:

- Crosswalk Lines (Nanaimo Data)
- Schools (Nanaimo)

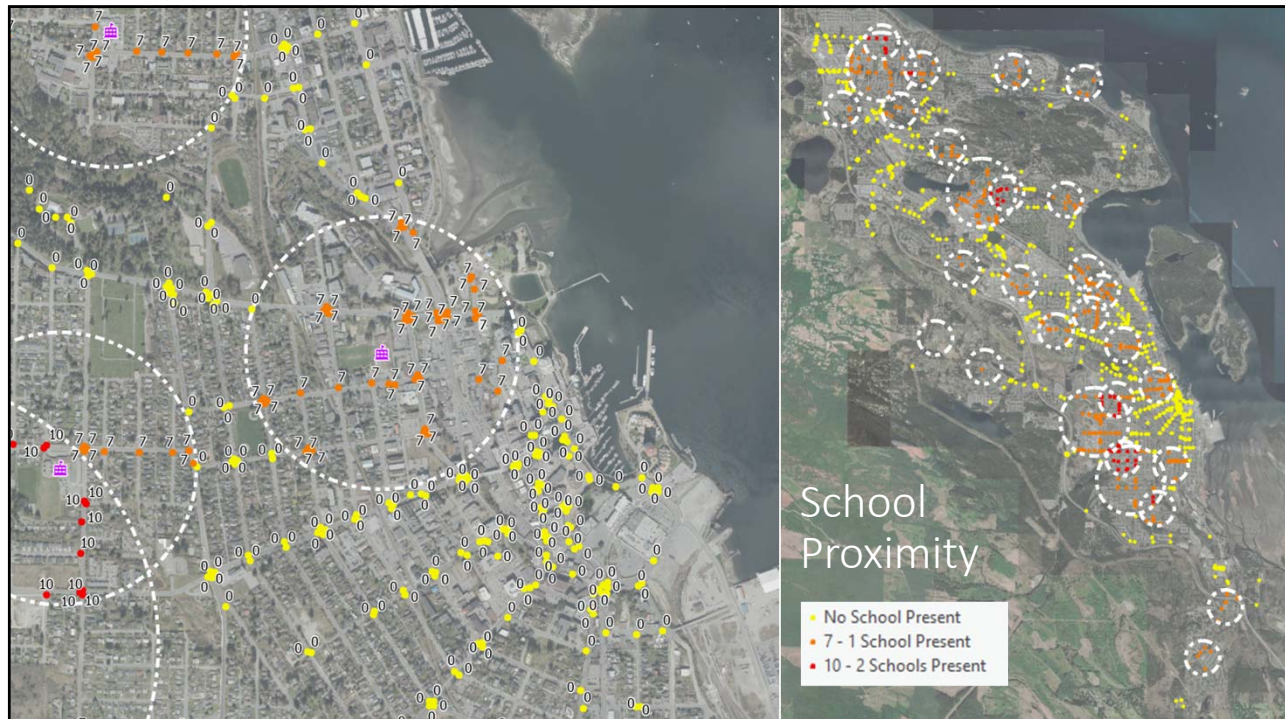
Logic:

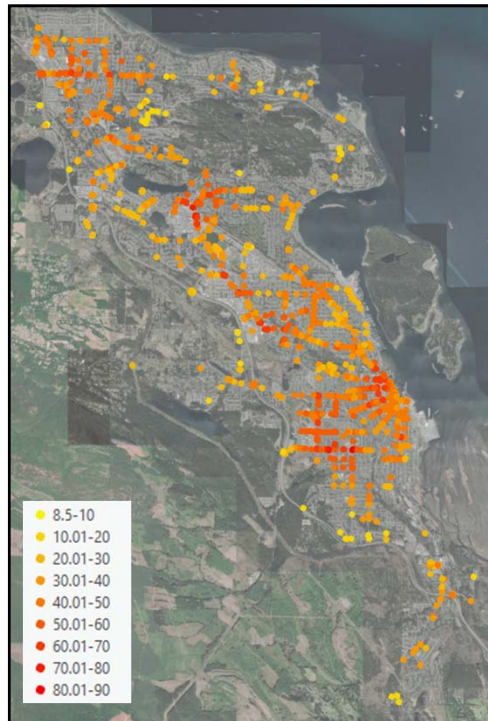
- Crosswalks in a 'walkable' distance to schools will be scored higher
- 'Walkable' to an Elementary school is 400m
- 'Walkable' to a Secondary school is 800m
- Unknown or 'other' types of schools also use 400m buffers

Distance

Score

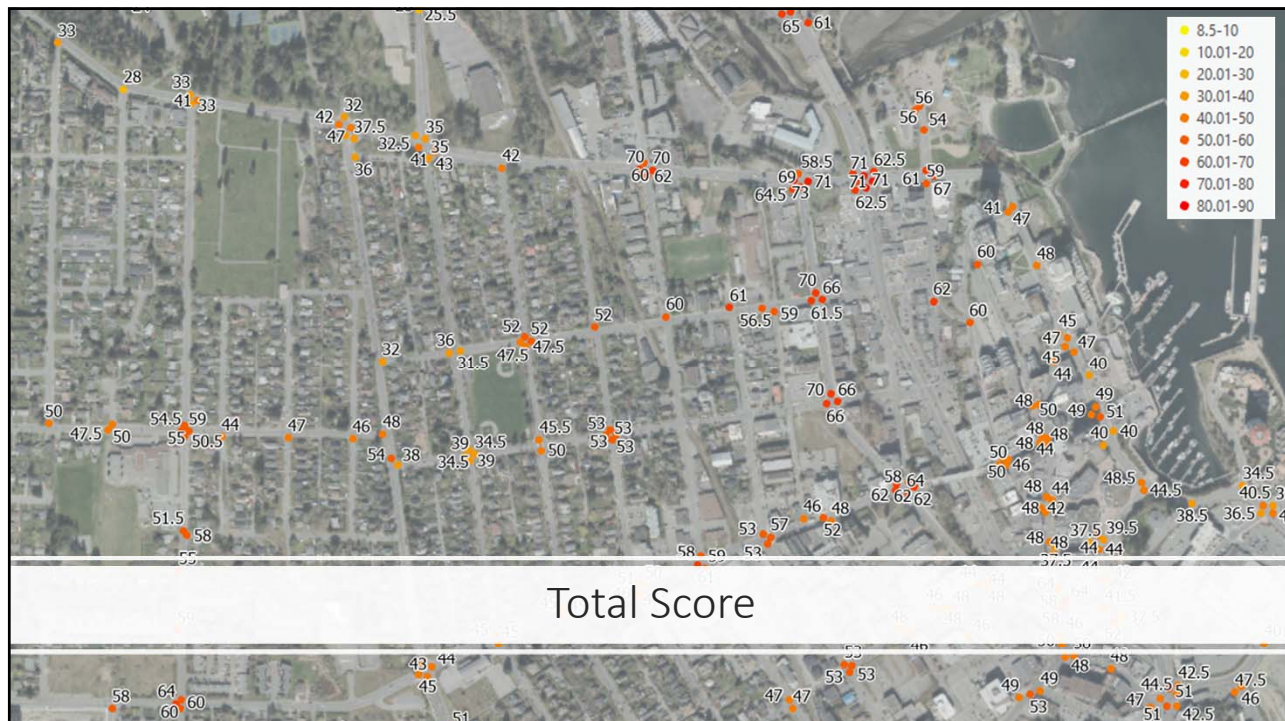
- No school walkable 0
- 1 school walkable 7
- 2 schools walkable 10





Total Score

- Sum all values up, giving us a total score
- Lowest Value is 8.5/90
- Highest Value is 81/90



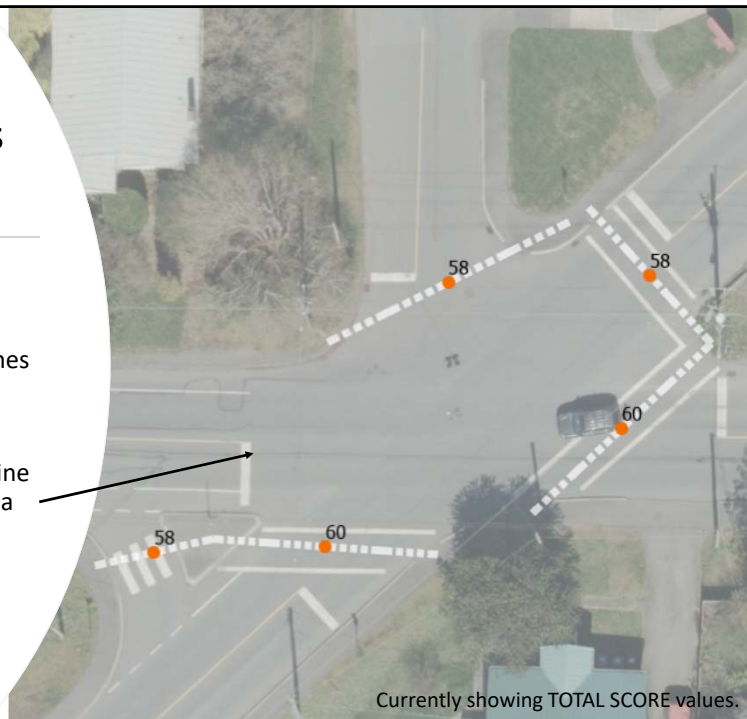
Benefits of Pedestrian Crossing Prioritization Tool

1. Allows staff to quickly and accurately assess whether a crossing location should be prioritized for pedestrian improvements
2. Supports a more transparent process (assessments can be reported regularly and for intersections throughout the community)
3. Model can be updated regularly as new data becomes available
4. Allows staff to respond to public enquiries more quickly and with more confidence
5. Allows for proactive planning and reactive responses



Issue 1: Scoring Crosswalks vs. Intersections

- The code currently runs on marked crosswalk features
- It does not score areas where crosswalk lines do not exist within the input dataset
- E.g. in this case, there was no 'crosswalk' line on this leg, so the model did not generate a score

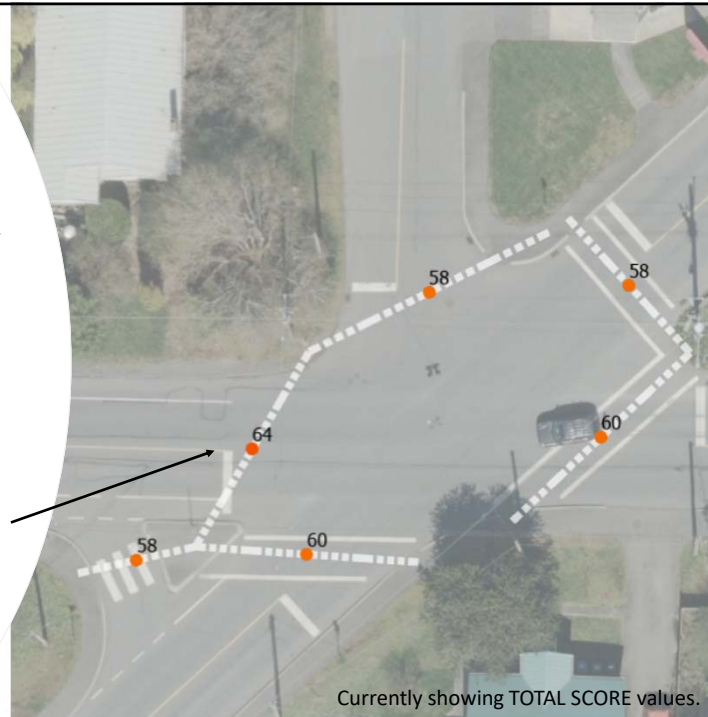


Currently showing TOTAL SCORE values.

Issue 1: Scoring Crosswalks vs. Intersections

- Workaround:
 - User must draw (digitize) a new line feature, and run the code
 - On all 1,318 features – the code takes 5 minutes to run

This leg receives the highest total score once included in the model (due to the length of this crossing).

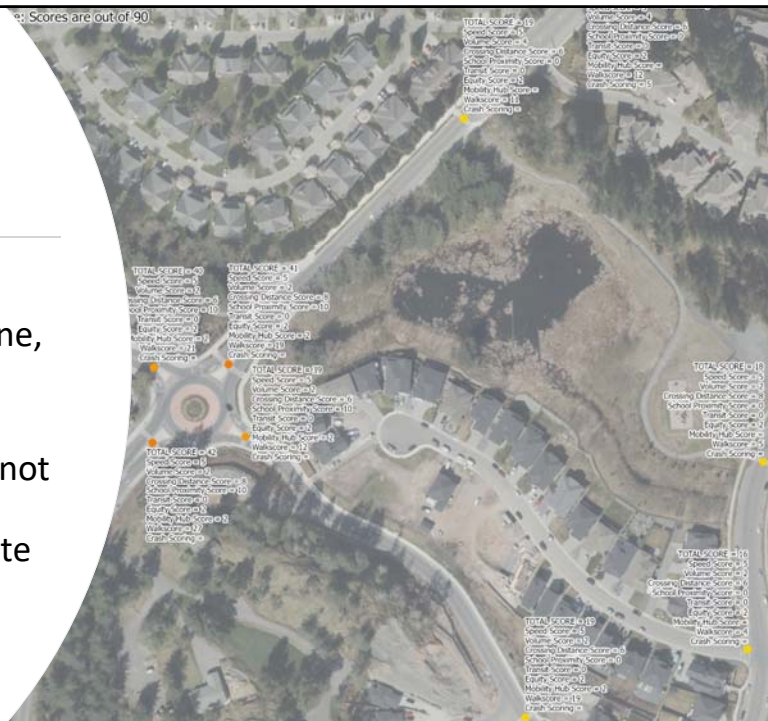


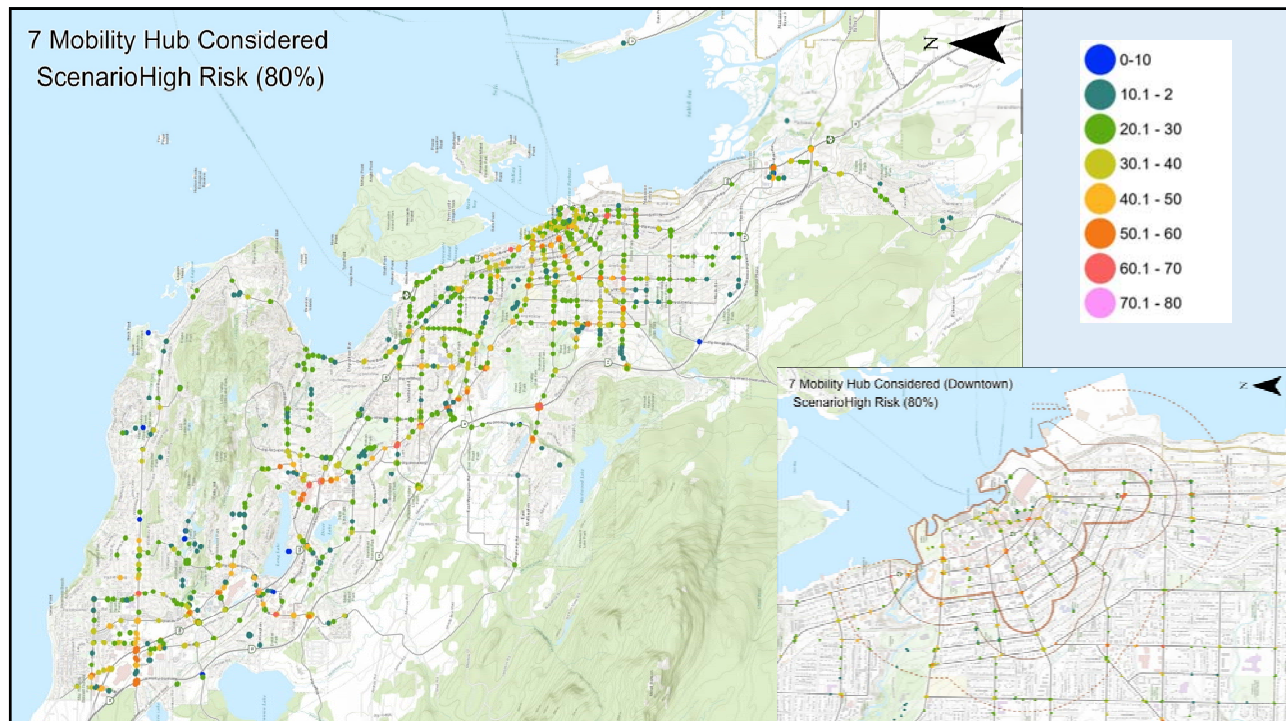
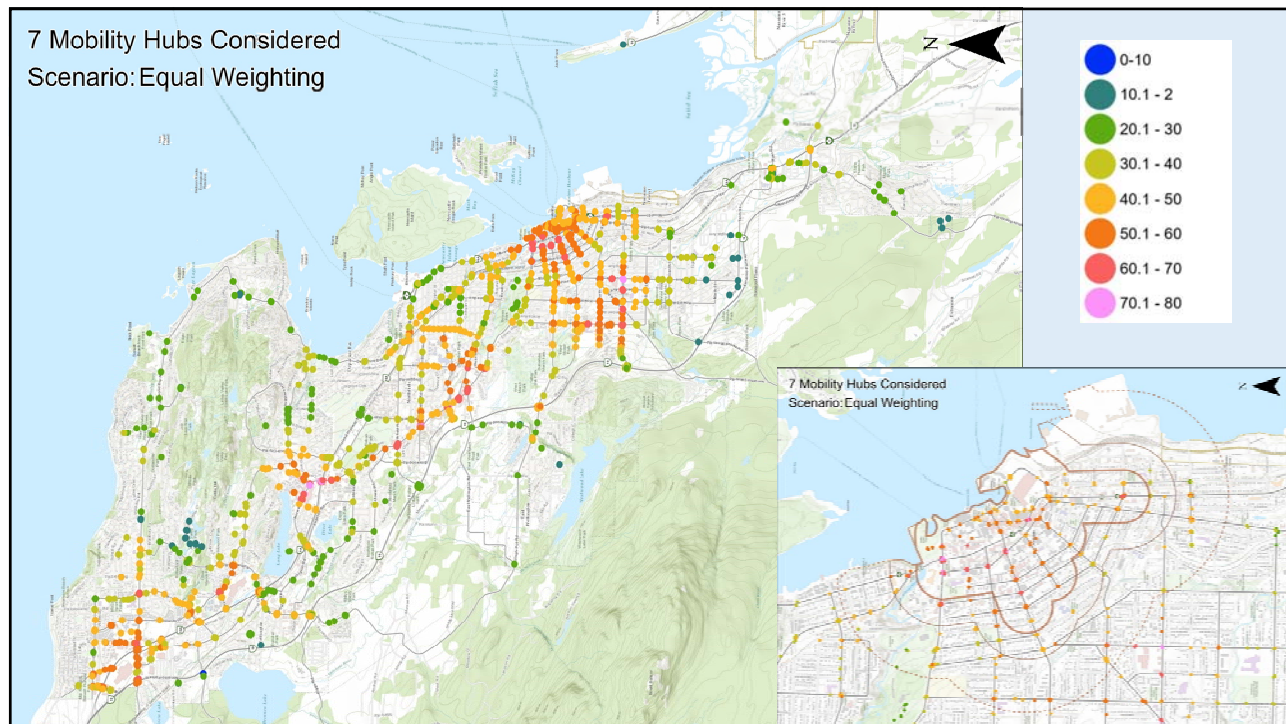
Issue 2:

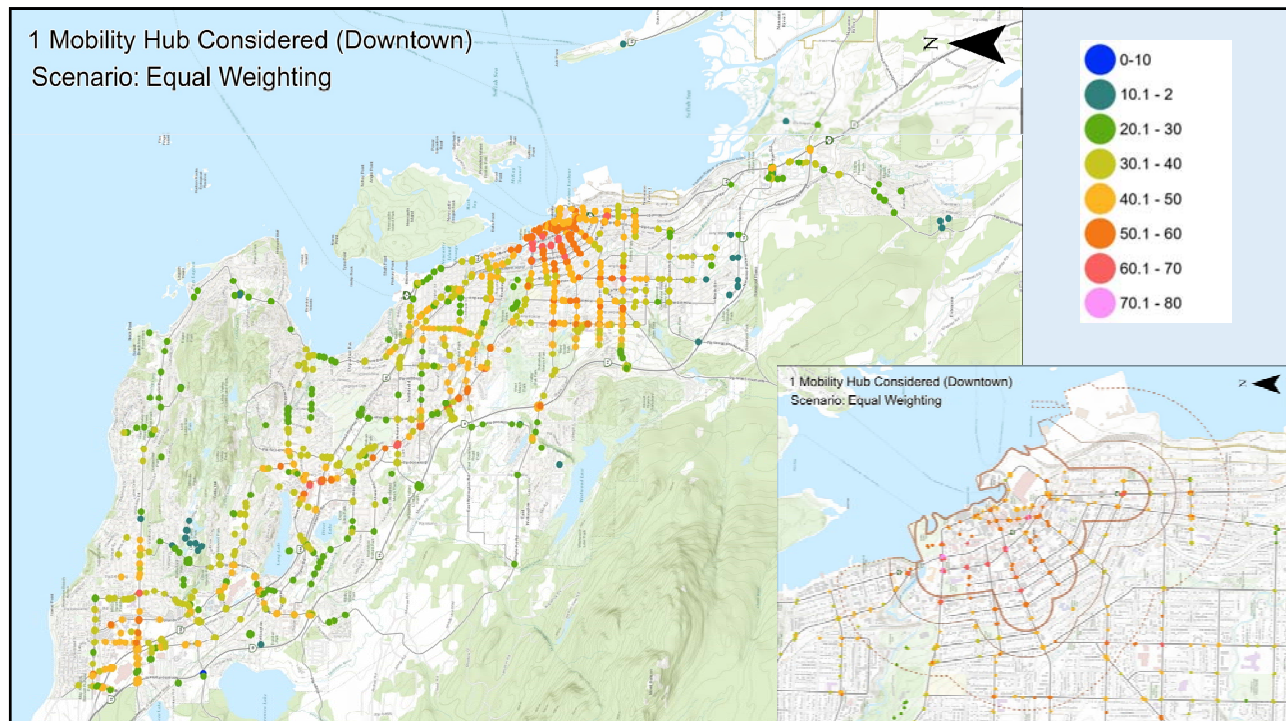
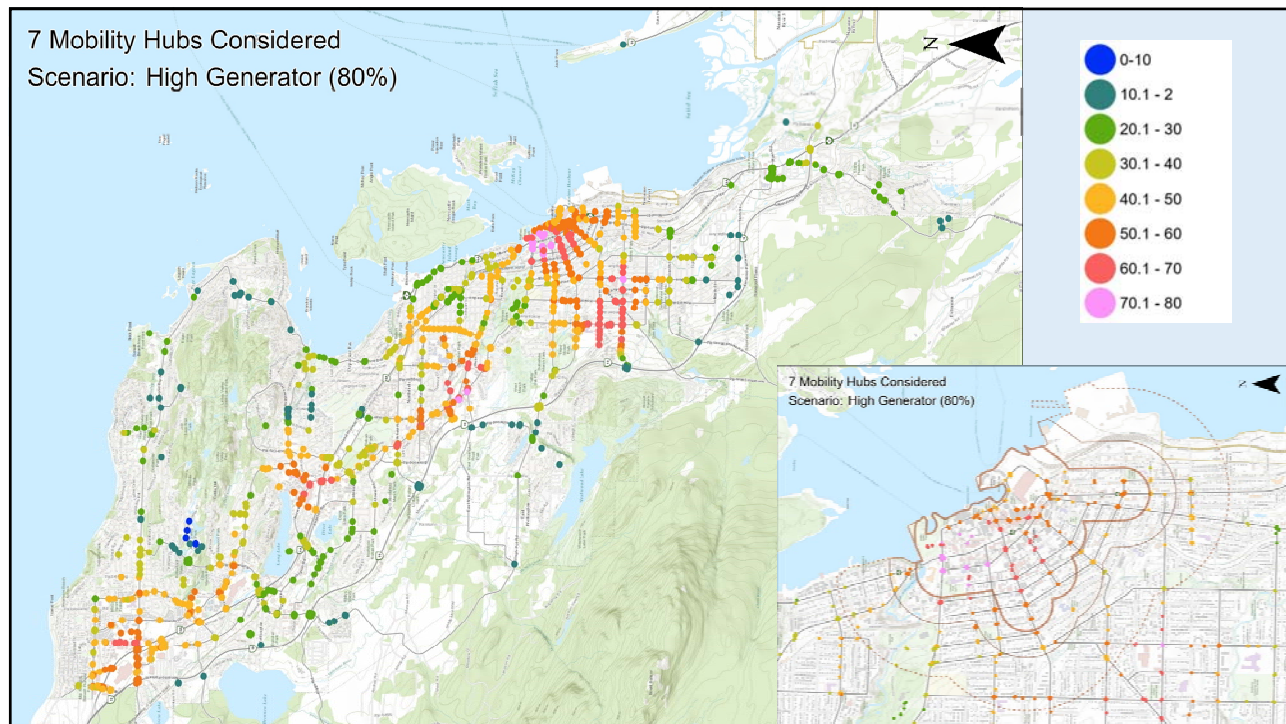
Ped or bike collision at intersection without any crossing treatment

Suggests the need for network improvements (which are unlikely to be revealed by running the model)

Highlights that considerations not coded or coded inconsistently may lead to faulty or incomplete assessments







Questions for Council

Do you have further questions about the prioritization tool and its potential challenges and benefits?

Do you have a preference for weighting of Risk and Trip Generation Factors?

Do you have thoughts on how the tool might be used to support improved pedestrian planning?



Next Steps

Update the model so that it can be used to assess the relative priority for pedestrian improvements at all crossing locations throughout Nanaimo

Adjust weighting of criteria, update and confirm outputs

Provide documentation of our methods

Train staff to run and check the model

Provide guidance for updating and improving the model

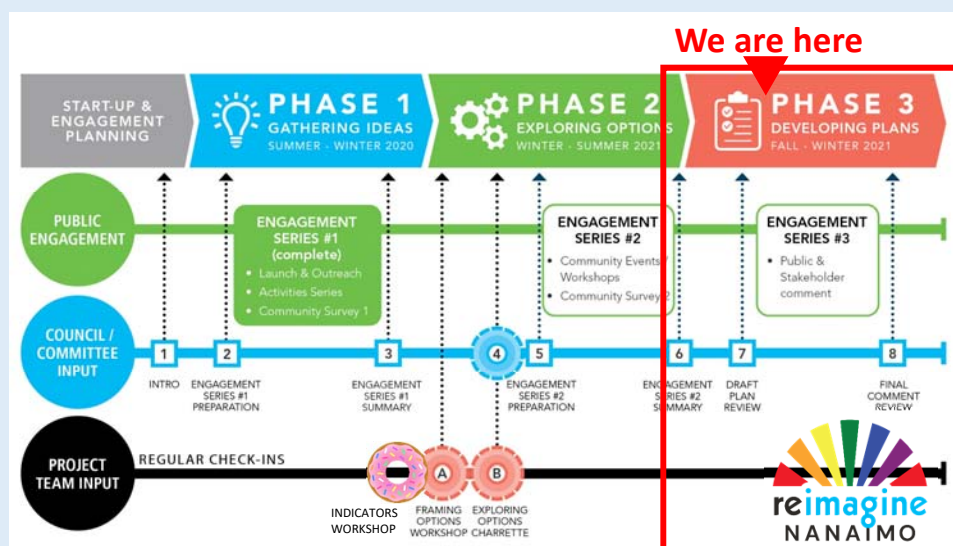
Support staff and Council in using the model to guide planning and decision making



REIMAGINE

Steering Committee feedback

- Feedback?
- Thoughts on next steps?
- Other comments?



REIMAGINE

Huy tseep q'u Siem

