

Transportation in Nanaimo



April 29, 2019



Overview of Session

Introduction to Session - Bill

- *Overview of Transportation

- *Partnerships

- *Planning, Education, and Marketing

- *Asset Management

- *Specific Topics

- *Capital Projects and Studies



Authority and Legislation

- Local Government Act
- Motor Vehicle Act
- Transportation Act
- Traffic and Highways Regulation ByLaw 1993 No. 5000
- Governing Bodies
 - Engineers and Geoscientists of BC
 - Transportation Association of Canada



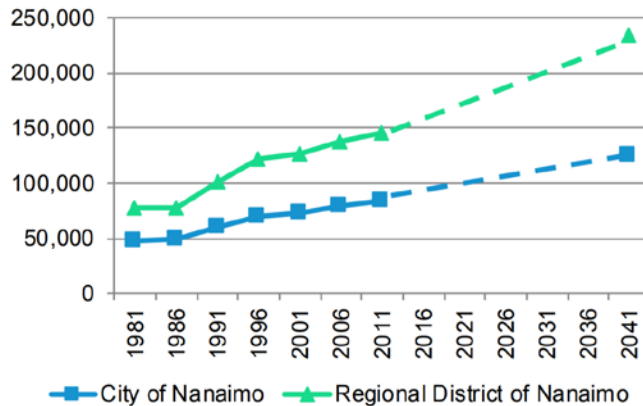
Governance and Priorities - Transportation Workshop

- Transportation Planning and the Nanaimo Transportation Master Plan
- Education and Marketing
- Partnerships (i.e. RDN, RCMP)
- Asset Management and Capital Projects
- Parking
- Traffic Calming

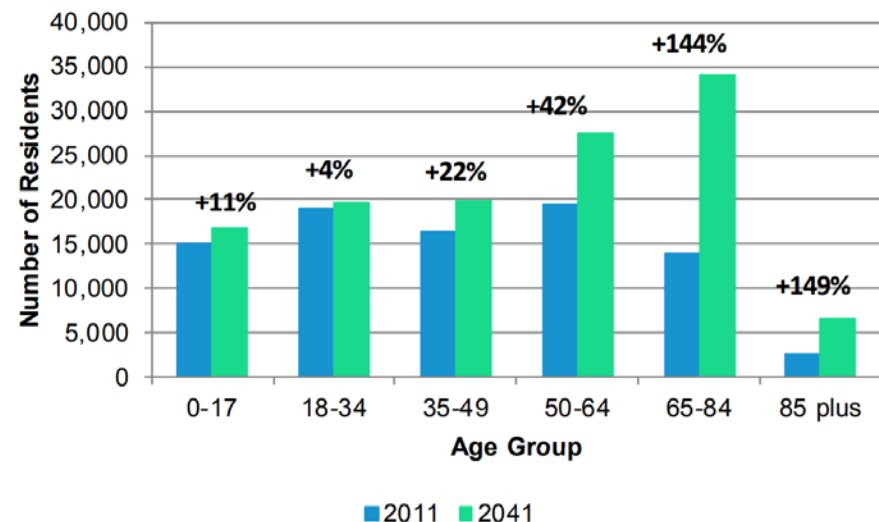


City of Nanaimo - Demographics

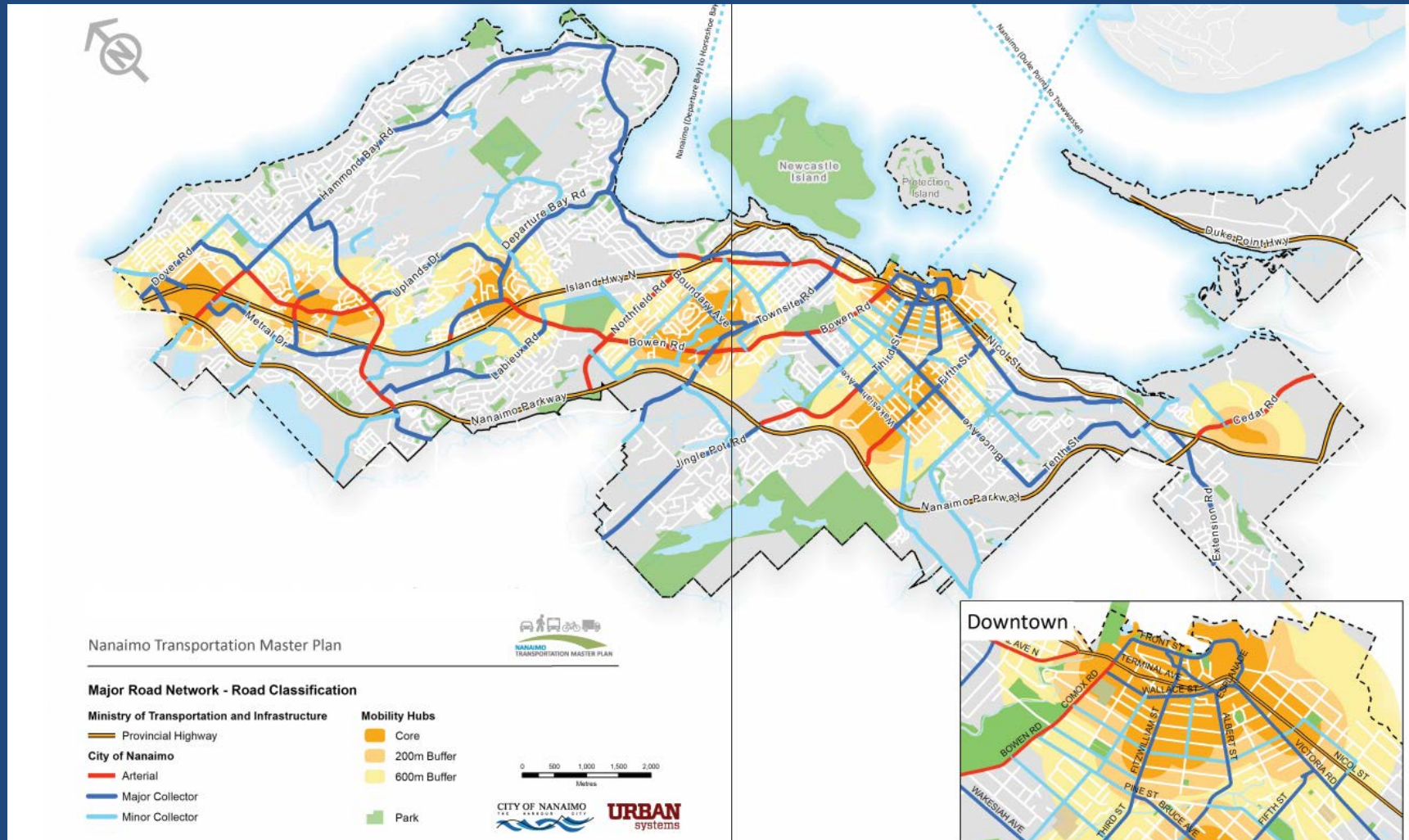
City & Regional Population (1986 - 2041)



Population by Age Group (2011/41)

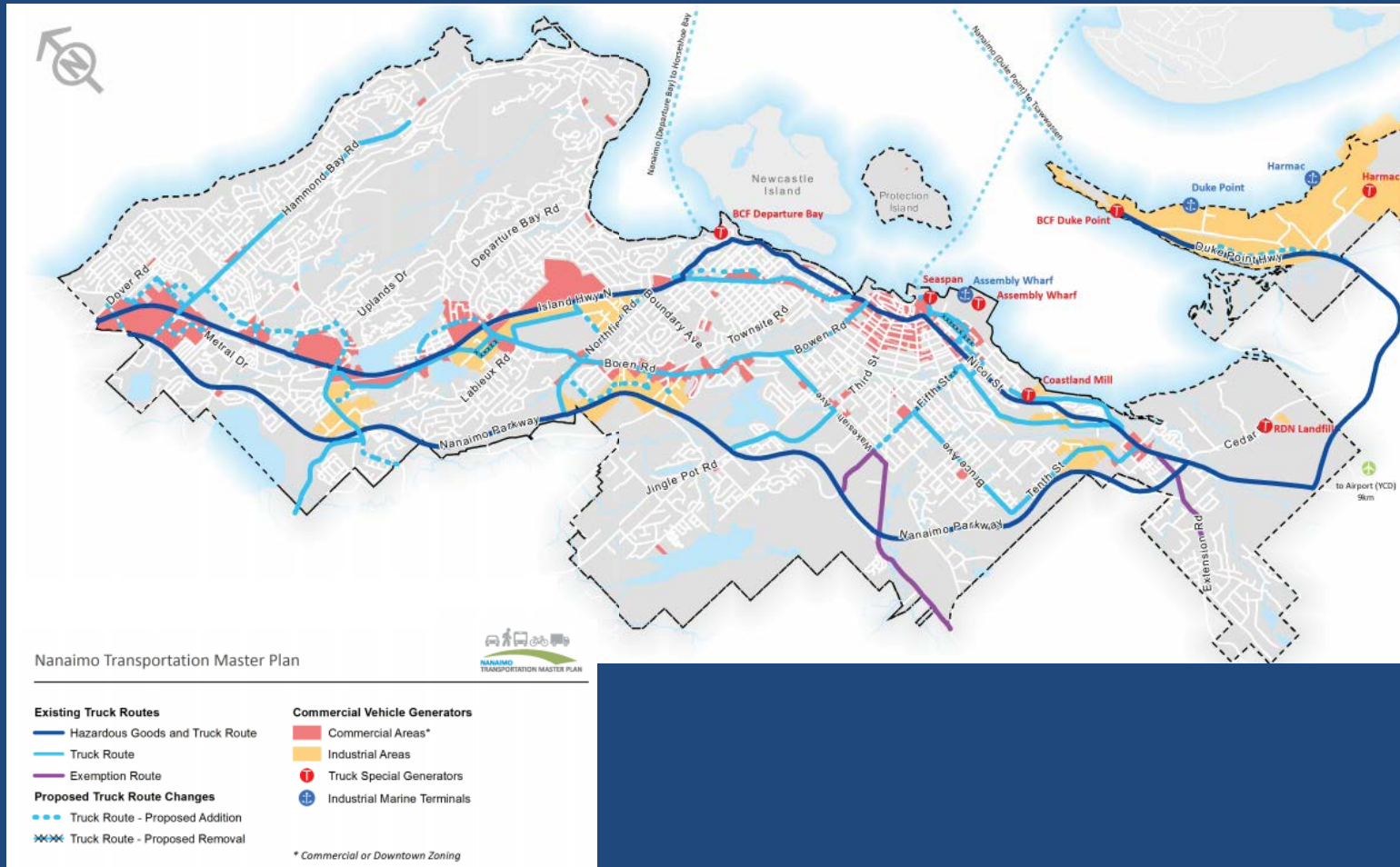


Functional Road Classification Plan (OCP)





Truck routes



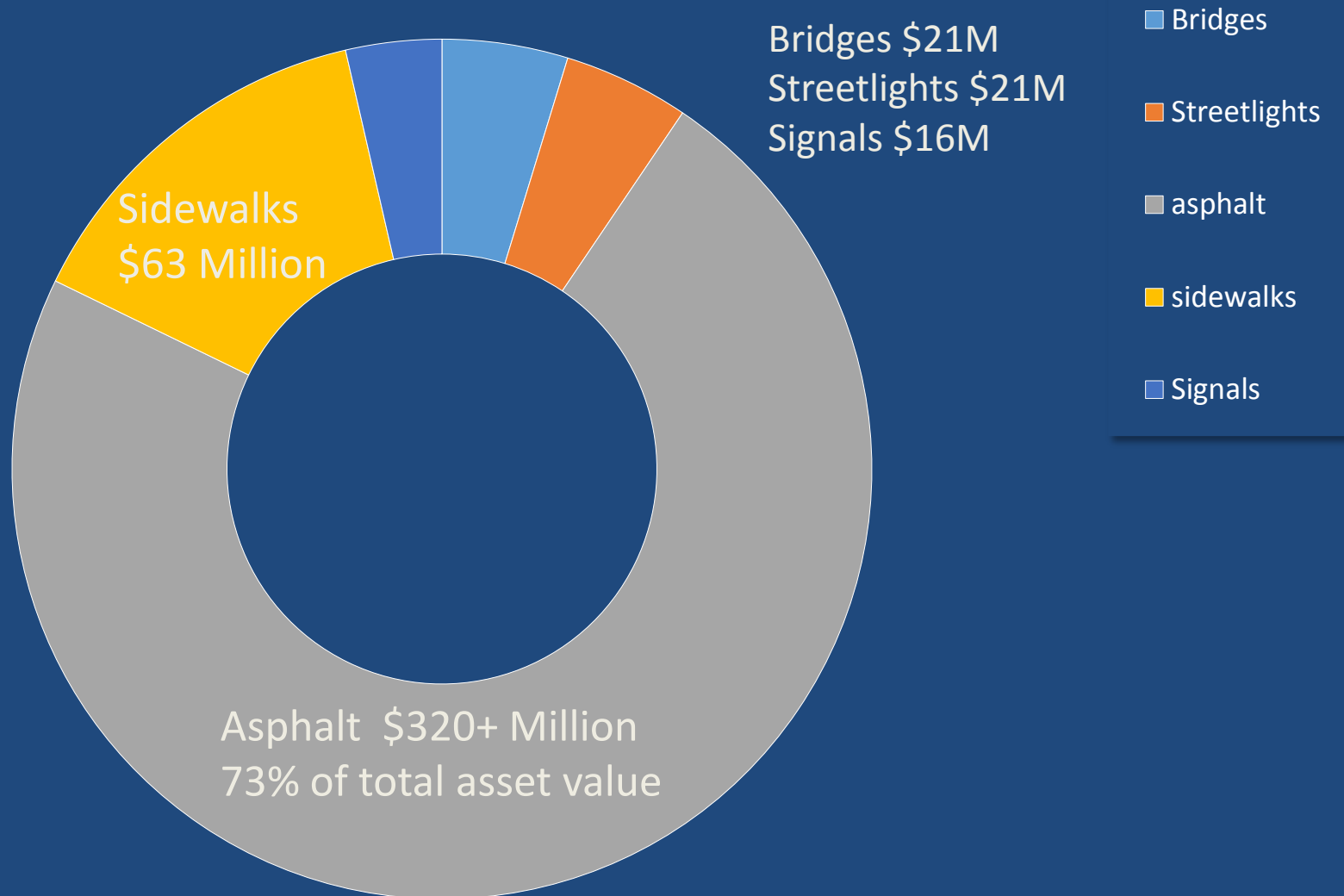


Transportation Assets

- 517 km of Roads, 434 km of sidewalks, 94 km of bike lanes
- 52 signalized intersections, three roundabouts, 19,000 signs
- 1576 pay parking spaces
- 18 bridges, 29 railroad crossings
- 4255 City owned streetlights, 4258 lease lights from BC Hydro
- 1293 marked crosswalks, 50 ped activated crosswalk warning beacons
- Current Asset Value \$441M



Transportation Asset Value





History of Transportation

Amalgamation - 1975

- Harewood Improvement District
- North Wellington Waterworks District
- Departure Bay Waterworks District
- Parkway 1996
- Development and System Fragmentation





Example of fragmentation



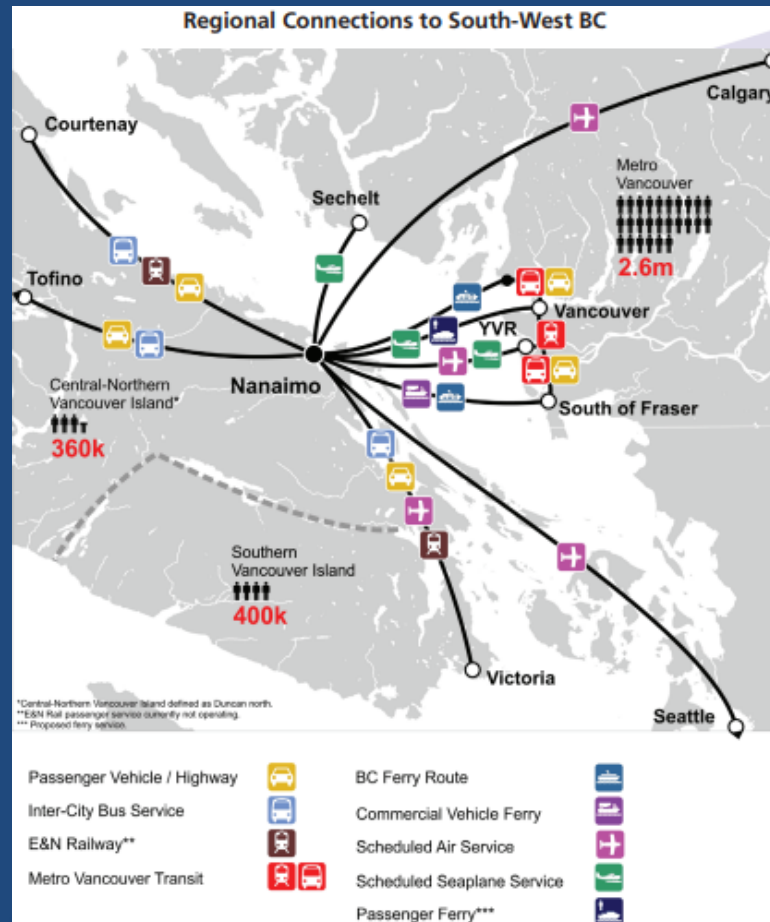


Example of fragmentation





The HUB of the Island



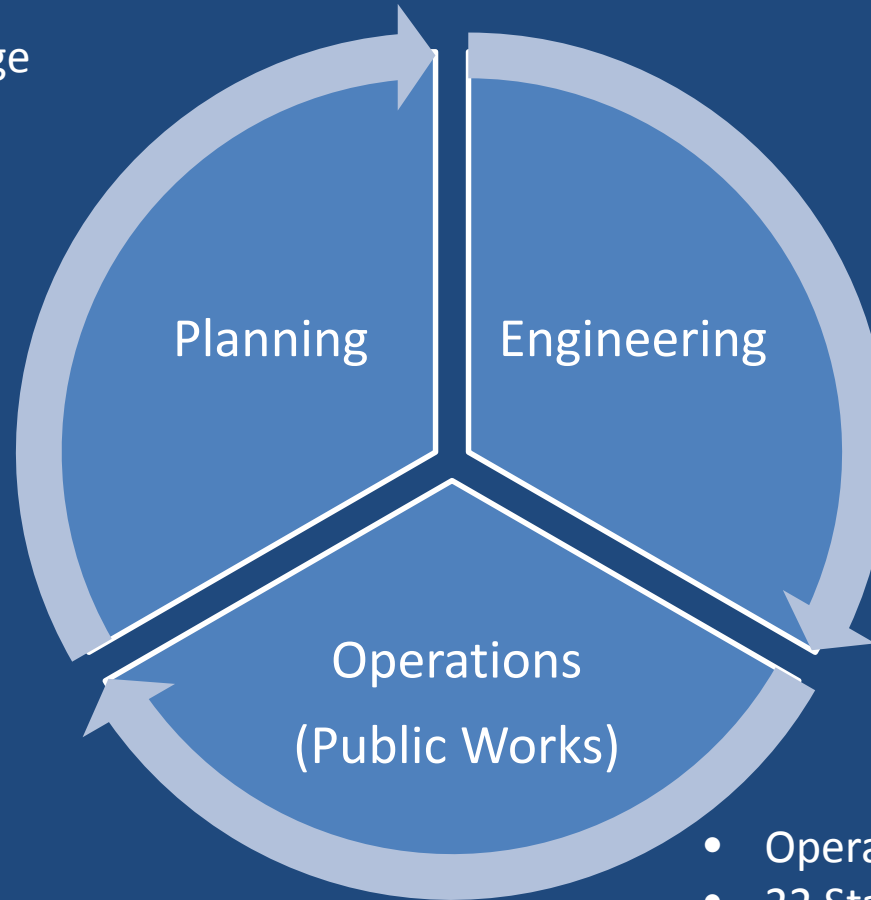


Roles and Responsibilities of Various Agencies

- City of Nanaimo –infrastructure and operations
- MoTI – infrastructure and operations
- RDN – Transit
- RCMP - Enforcement
- SD68
- BC Ferries
- E&N, SVI
- Seaplanes, Helijet, cruise ships
- Working harbour
- Private Businesses, etc.

City of Nanaimo Transportation Overview

- Long Range
- 3 Staff

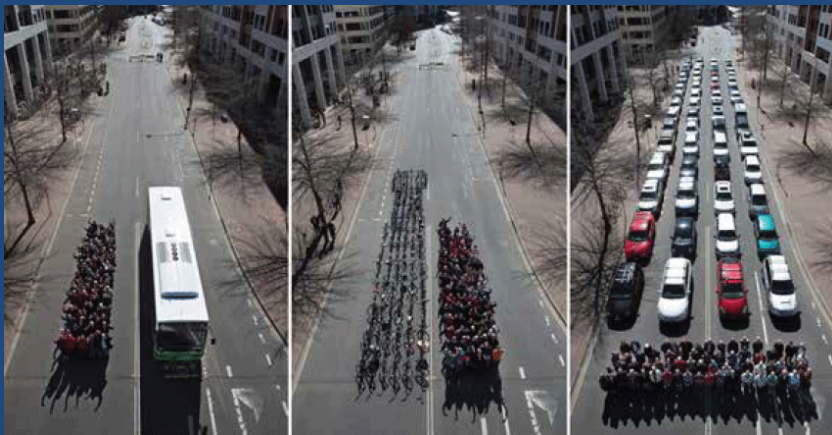
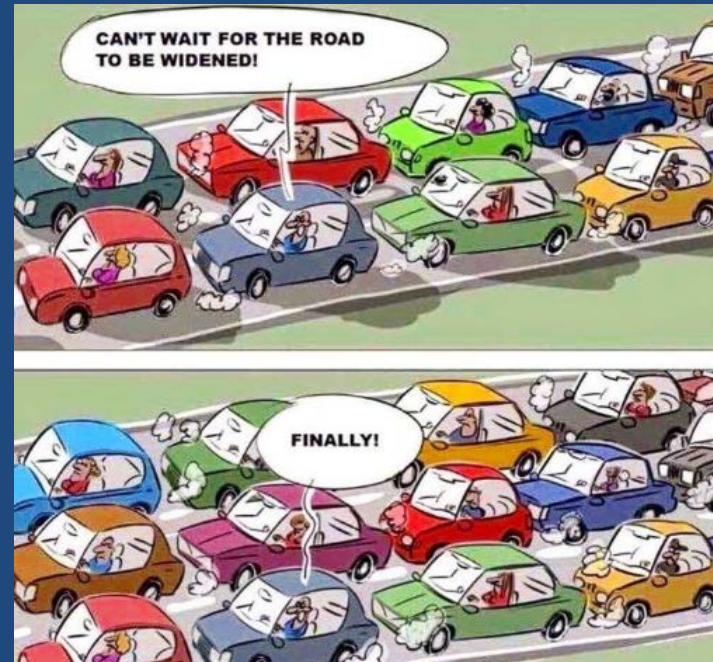


- Day to Day
- 3 Staff

- Operators
- 22 Staff

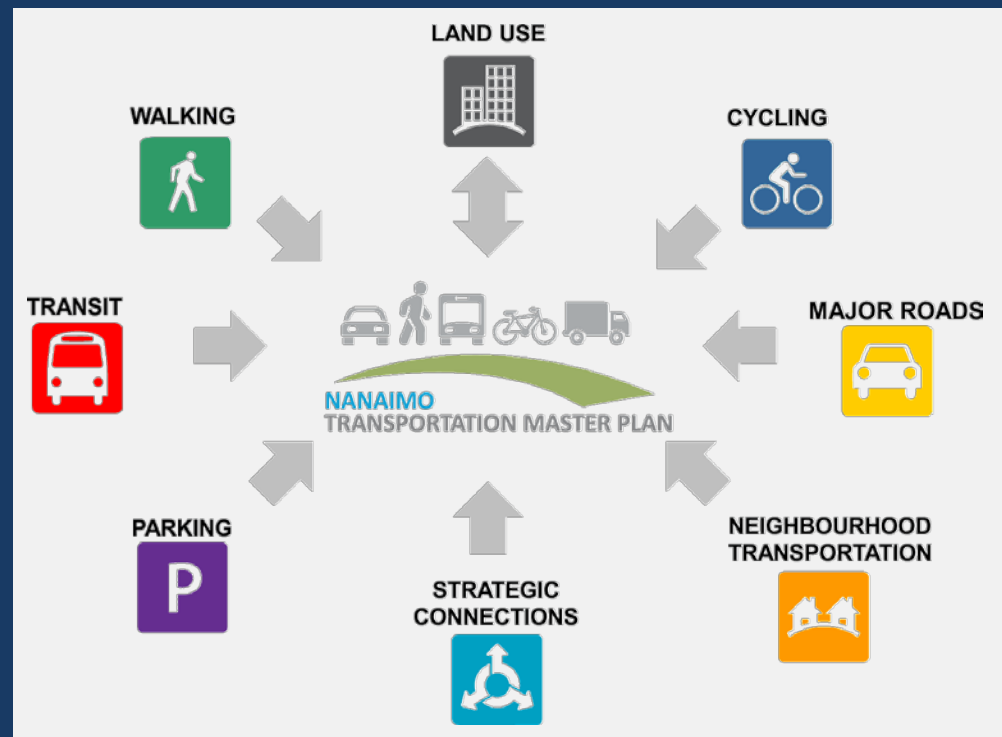
Transportation Planning

- What are we trying to do?
- Growth vs Development



the Nanaimo Transportation Master Plan is...

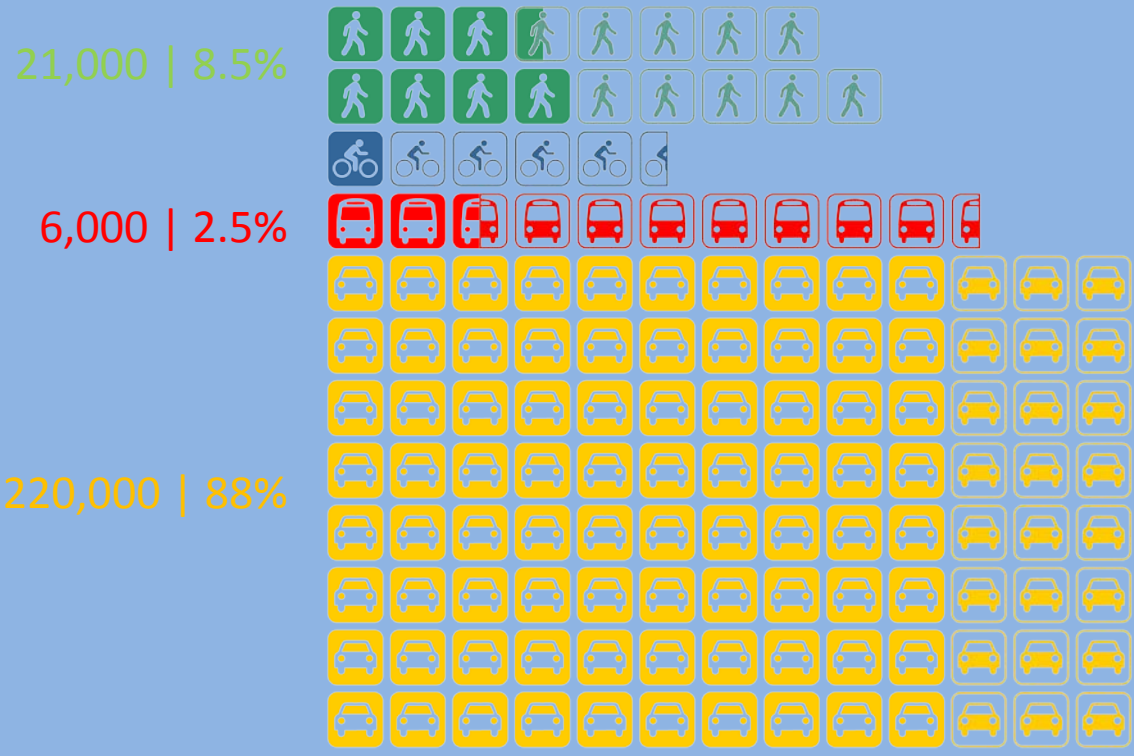
- the City's first **comprehensive multimodal transportation plan**.
- a strategic plan, that will **guide transportation choices over the next 25+ years**.



TARGET 1: Double the proportion of trips (12 to 24%) made by sustainable / active travel modes (i.e. walking, cycling and transit) by 2041.

Existing Conditions

Future Targets

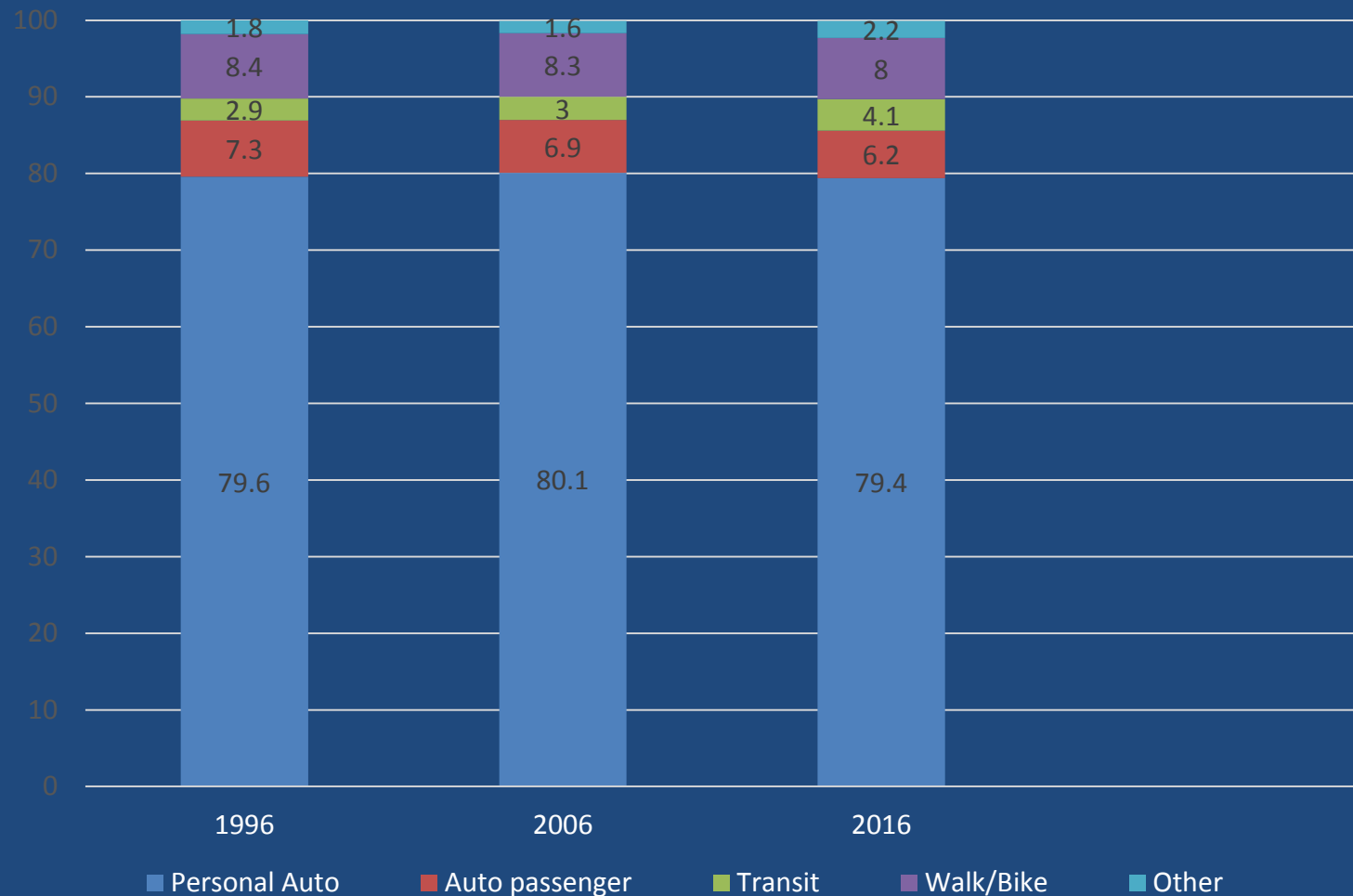


251,000/day | 100%

365,000/day | 100% | 1.5x

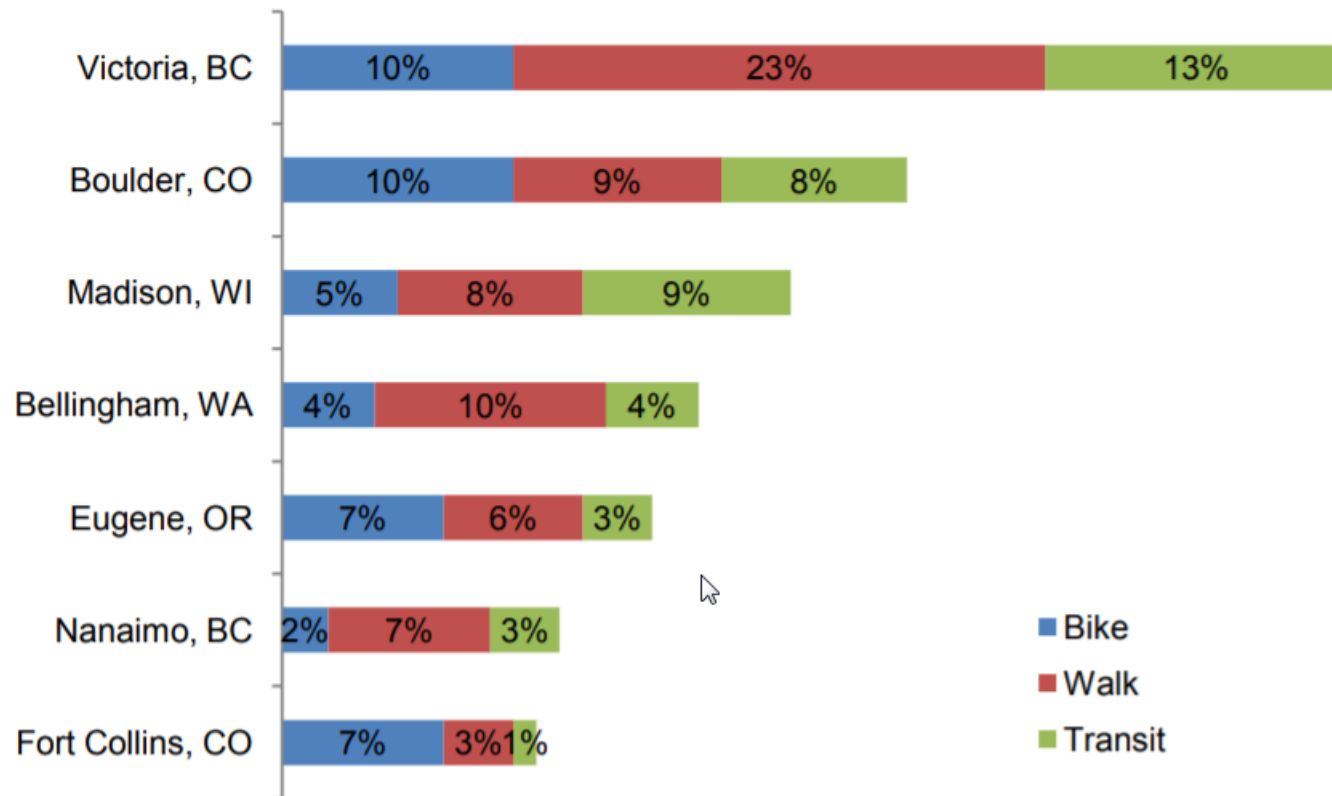


1996-2016 Census – main mode of commuting





Peer City Comparison of Non-Automobile Mode Shares





2006 Census – Non-Auto Travel to/from Work

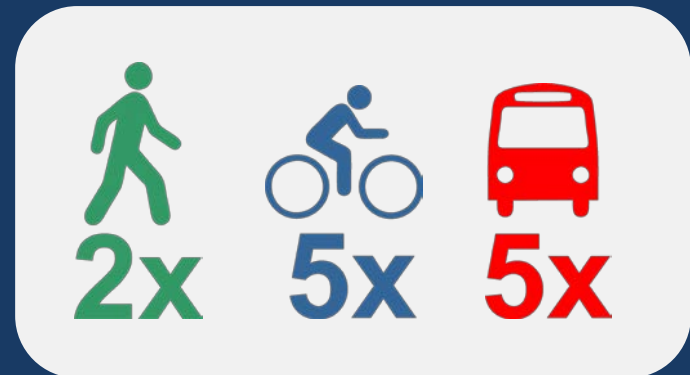


Notes: Protection Island part of Downtown Census Tract, New Castle Island part of Newcastle / Brechin Hill Census Tract



the Nanaimo Transportation Master Plan is...

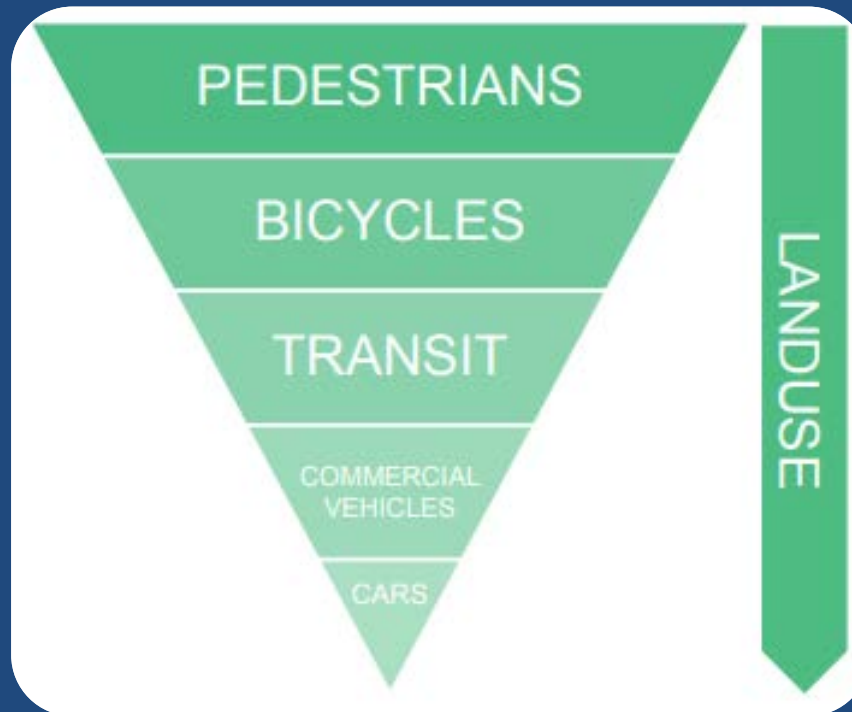
-shift towards less vehicle use and a **more sustainable transportation mix** while supporting future growth and a vibrant economy.



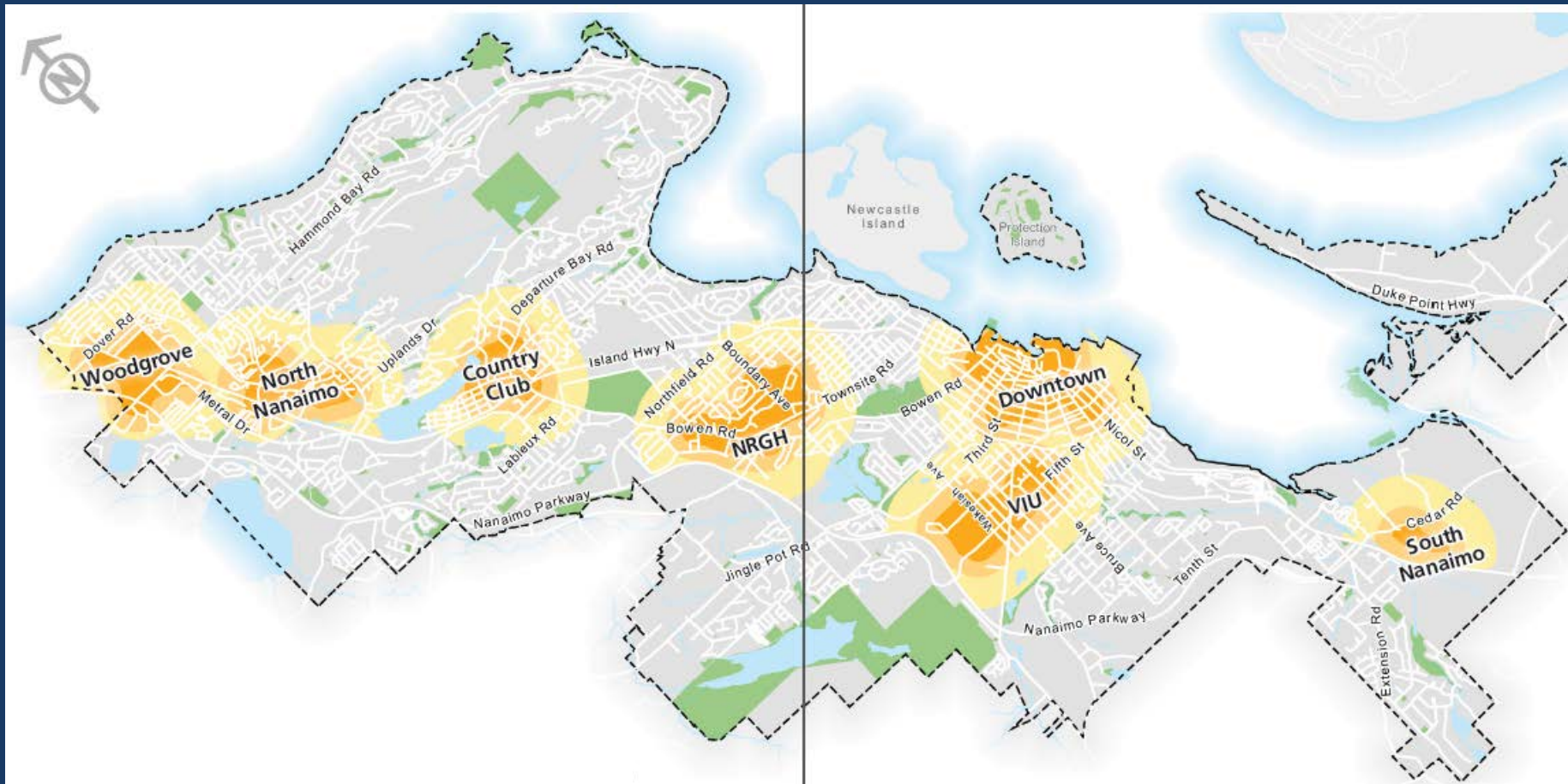
-supports **planNanaimo (OCP)** and the draft **Strategic Plan** in creating a **more livable Nanaimo for everyone.**



Approach to Mobility

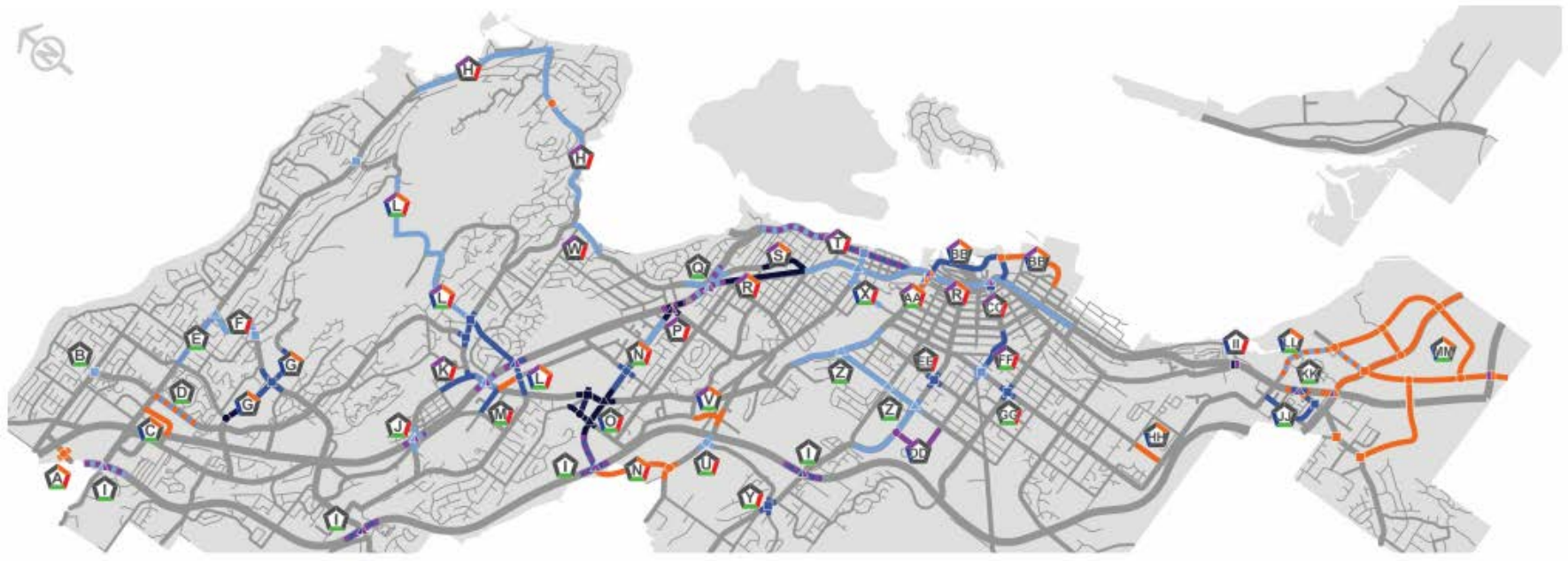


Land Use - Mobility Hubs



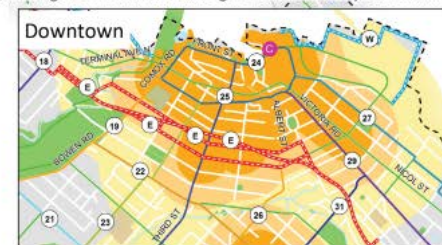
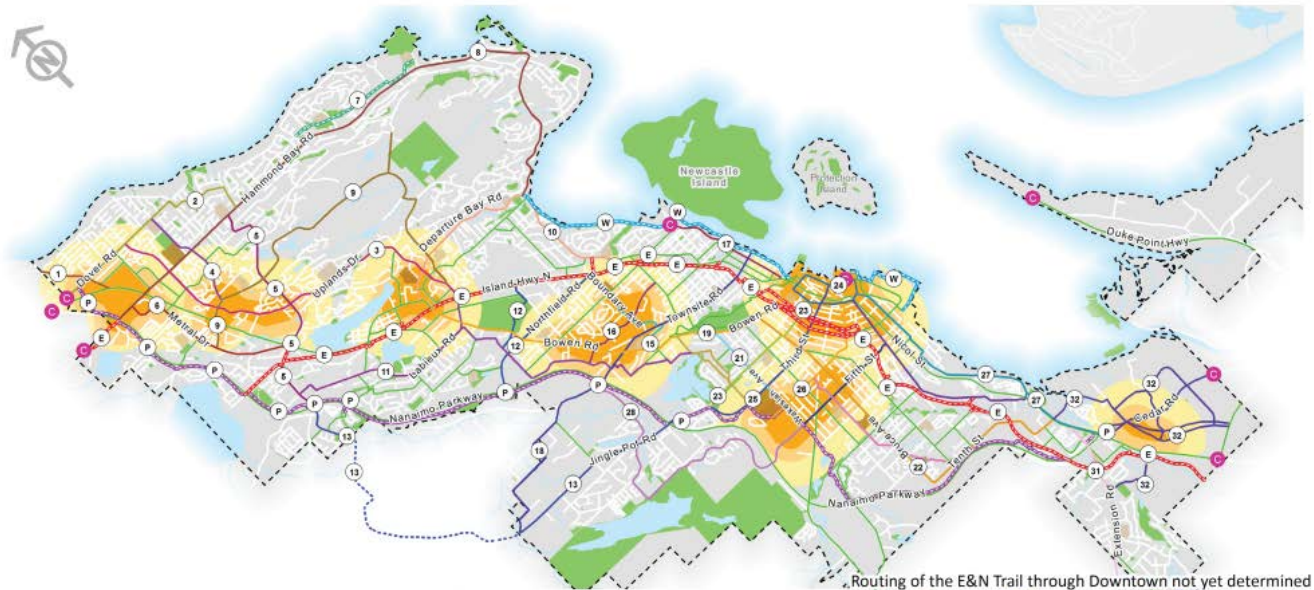
Future Major Road Improvements

Map A2 - Future Major Road Network Improvement Projects



Long Term Cycling Network

Map A1 - Long-Term Bicycle Network Plan





TARGET 2: Reduce average distance driven per resident by 25%.

Shorter trips = less driving



14km
/person
/day



10km
/person
/day

***Fewer driving trips
per capita over
shorter distances will
help reduce traffic
growth in the future.***

Complete Streets

Streets should be good places to walk, bike, catch a bus, drive a bus, truck or car. They need to be designed to suit the land around them.

Traditional Street

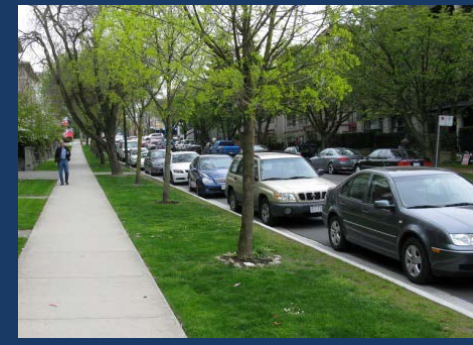


Complete Street



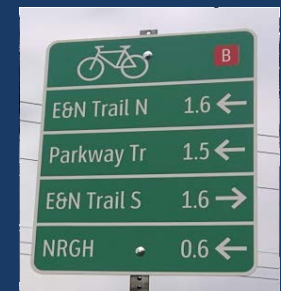
Walking

Encourage walking with better infrastructure and neighbourhood design.

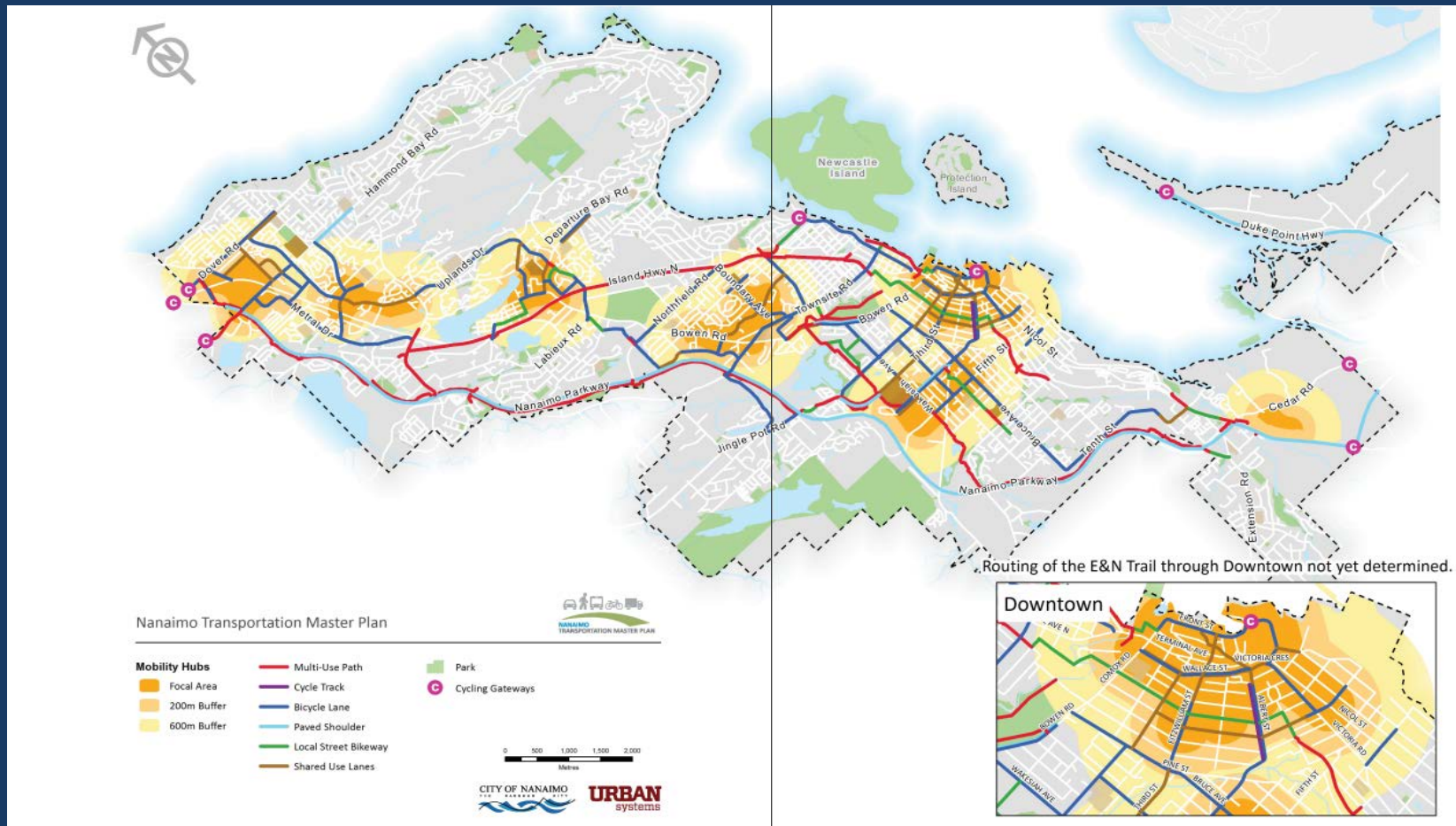


Cycling

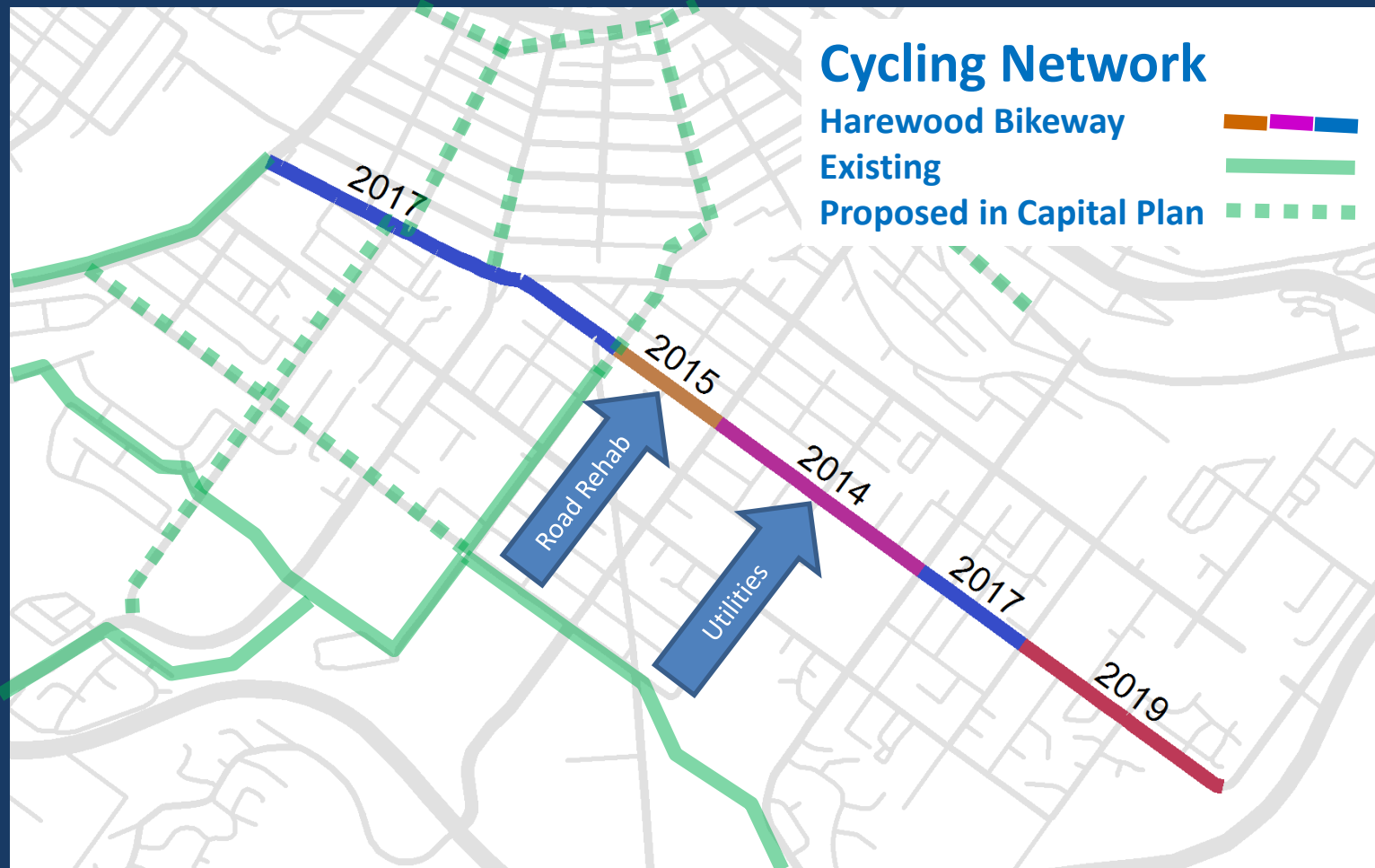
Create a network that makes cycling a practical way to move throughout the City.



Planning Cycling – Short Term



Example of Planning a Cycling Corridor



Transit

Grow transit ridership, attracting choice riders, and make transit more competitive in areas with the highest transit potential.



5x



Nanaimo Frequent Transit Network



**15 min
between buses**



**15 hours
per day**

Regional District of Nanaimo Transit

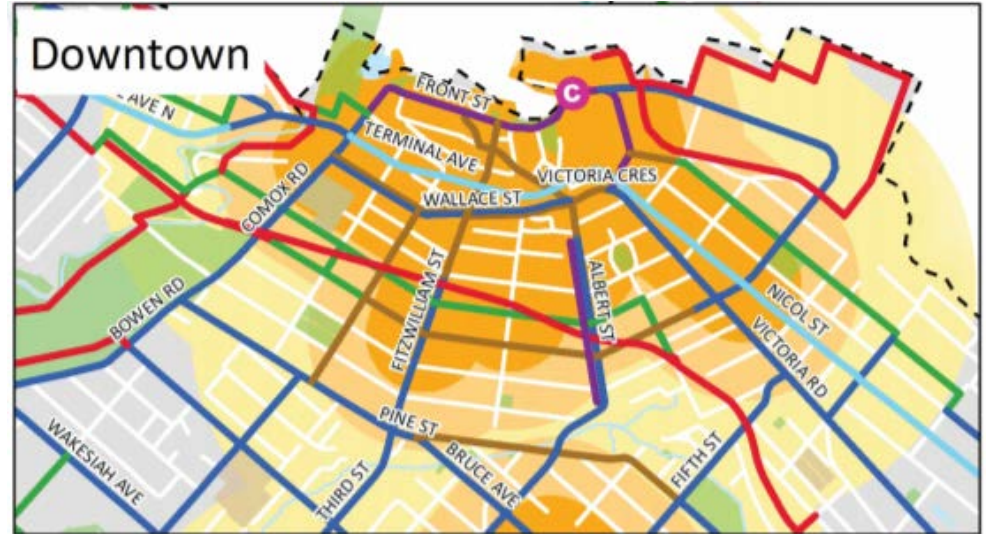


Presentation Overview

- **Transit Exchange Study**
- **Express Bus Route – Infrastructure Upgrades**
- **Service Expansions – 3 Year Provincial Budget**
- **Transit Infrastructure Upgrades**

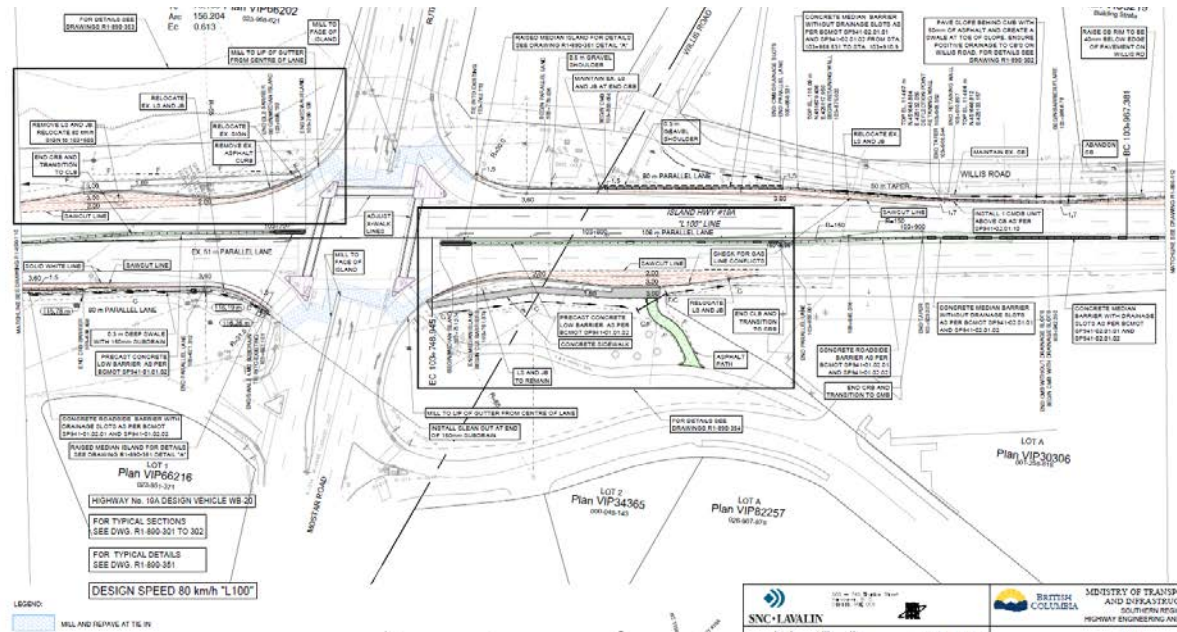
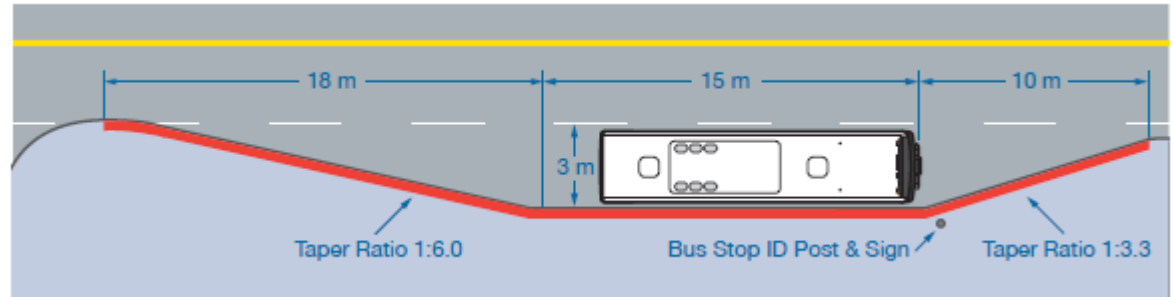
Transit Exchanges

- **RDN Transit Exchange Upgrades**
 - **Downtown Nanaimo**
 - **Country Club**
 - **North Nanaimo**
- **Pedestrian and other transportation mode linkages**
- **Safe and designed for transit operational efficiency**



Rapid Bus Route

- Linking South RDN to North RDN
- RDN and MOTI partnership
- Two bus pull offs on Highway 19A at Rutherford and Mostar Road.



Transit Planning and Expansion's

- **South Nanaimo Local Area Transit Plan**
- **Study of routes 5, 6, 7, 30 and 40**
- **Draft to the RDN Board in September 2019**
- **North RDN Local Area Transit Plan**
- **Study of North Nanaimo transit routes and the 91 intercity**
- **Public engagement over 2019**
- **BC Transit 3 year budget**



The Regional District of Nanaimo Transit Future Plan envisions the transit network long-term and describes the services, infrastructure and investments that are needed to get there.

South Nanaimo Area Transit Plan

Your input will shape the Local Area Transit Plan for South Nanaimo. This plan will:

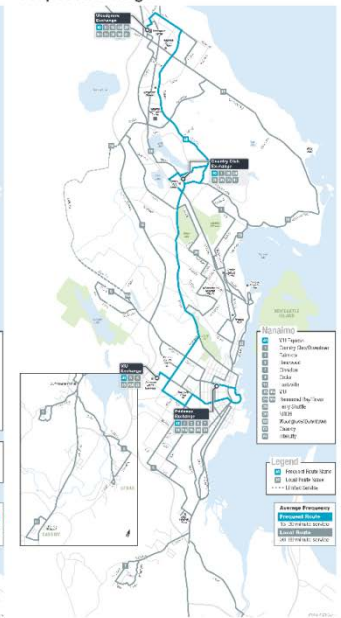
- Determine transit service and infrastructure priorities over the next 1–7 years.
- Support the Regional District of Nanaimo's Transit Future Plan goal to increase the transit mode share to 5%.



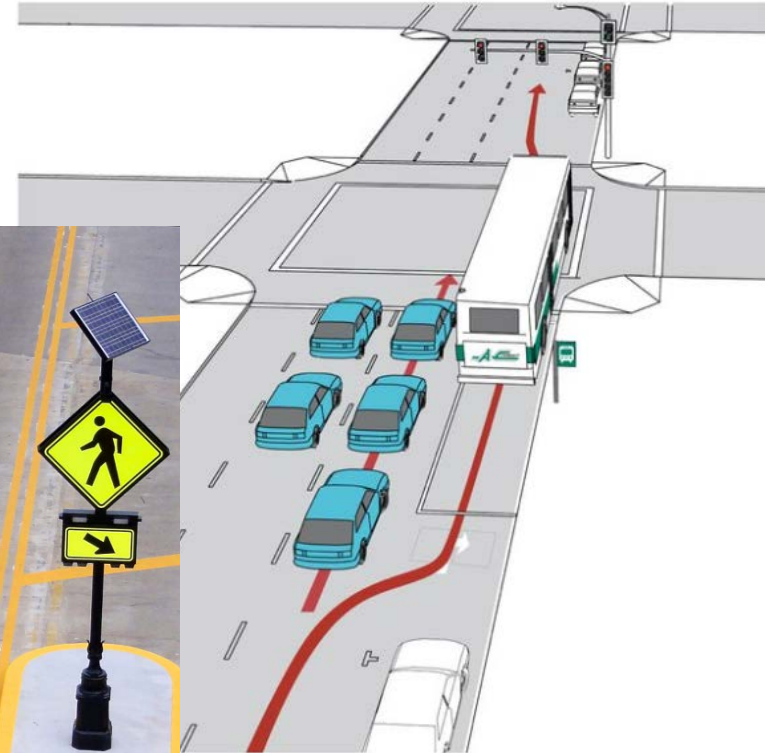
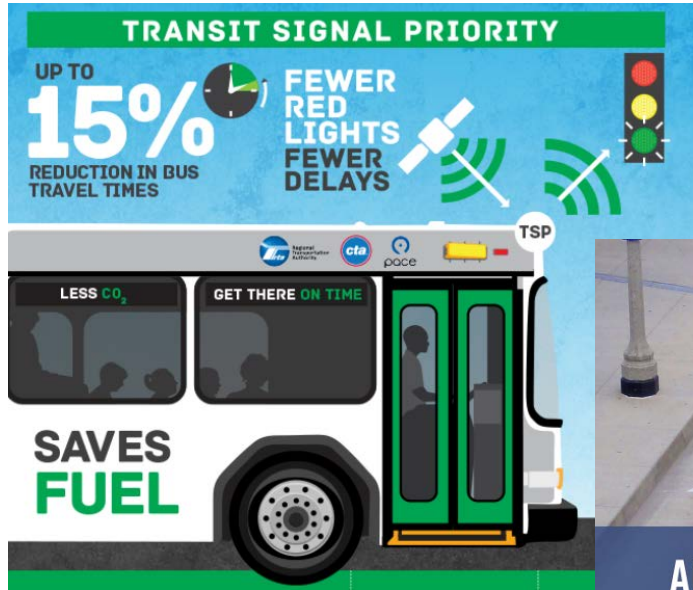
Current Transit Network



Proposed Changes



Infrastructure Upgrades



www.bctransit.com

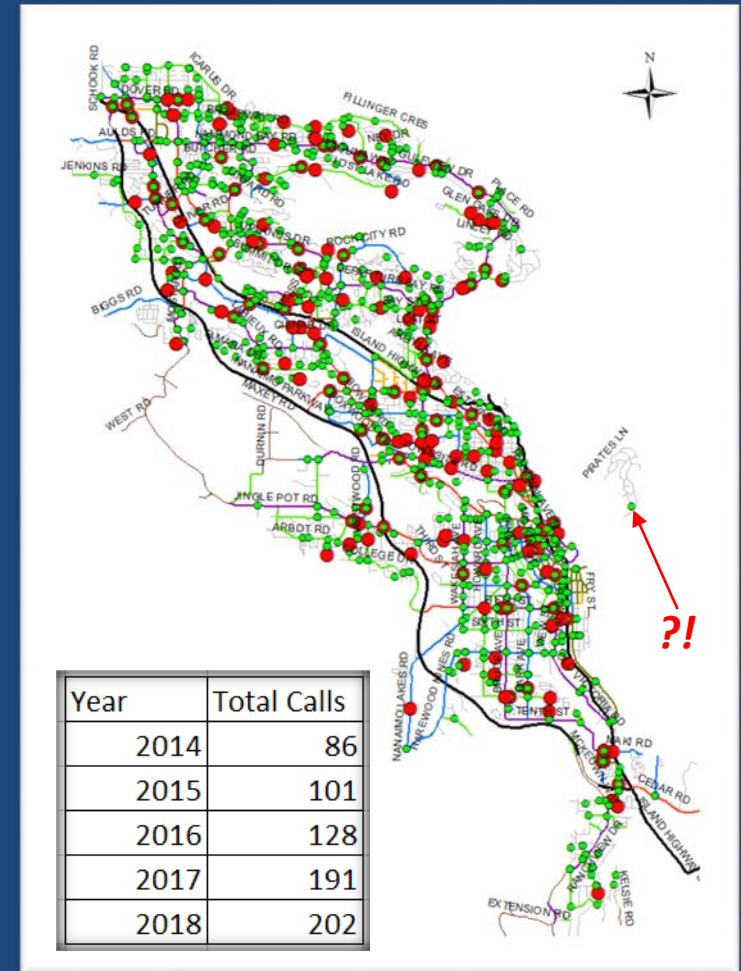
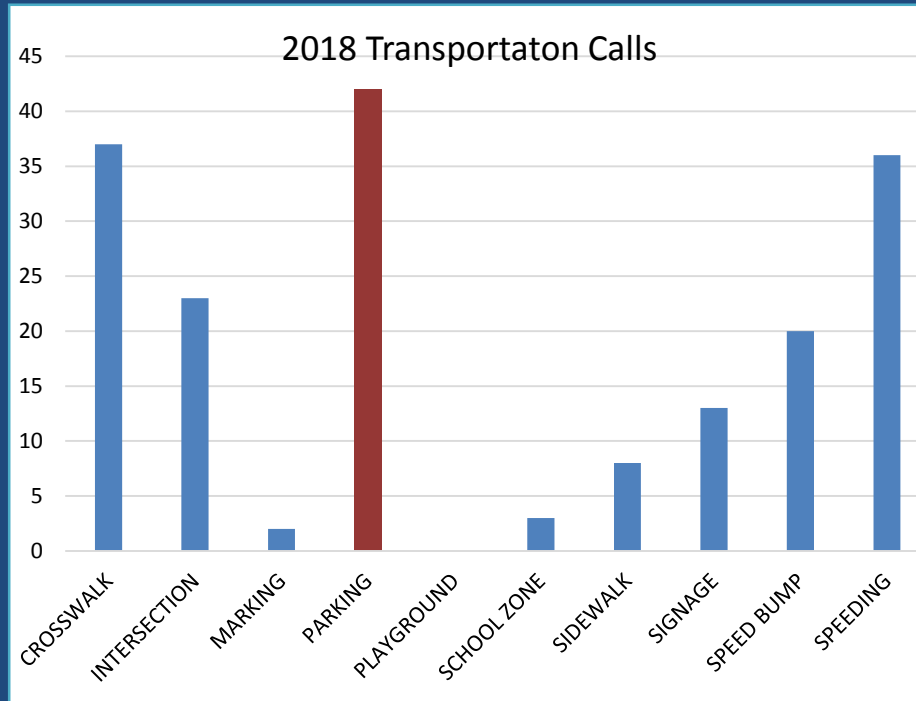
RDN Transit

Thank you!

nsit

www.rdn.bc.ca

Calls from the Public





Transportation Chart toppers!

- Parking
- Speeding – Traffic calming
- Pedestrian or Cyclist safety
- Traffic, delay, safety
- Goods movements – truck routes



Transportation safety – the three E's

- Engineering
- Education
- Enforcement

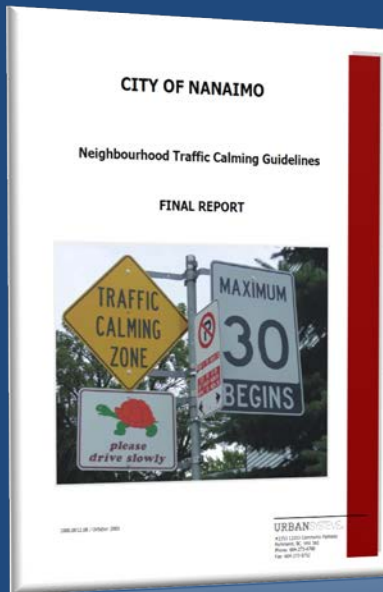


Kungsgatan in Stockholm on Dagen H.

5:00am September 3, 1967

Traffic Calming

Why?
Where?
How?



Opal Road 2019

Vancouver V1.0

Education and Enforcement





Parking...

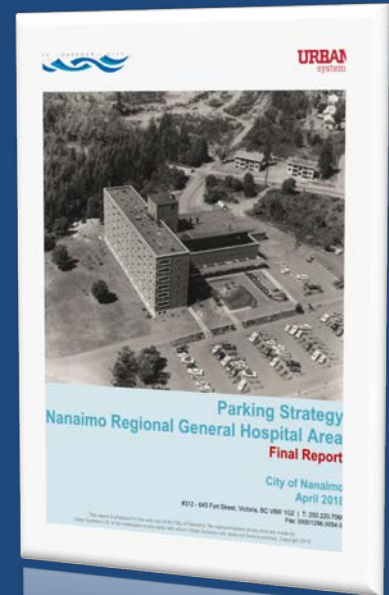
Why?!

What has changed?

What do people want?

How are we moving forward?

Quote: "I had to park a block away from the gym...what are you going to do about it?"





Parking Favorites...

Just another day on Protection

and

If I can, I will...





ByLaw Review and Update

- Traffic and Highways Regulation Bylaw ByLaw (ByLaw 5000)
- Crossing Control ByLaw (ByLaw 5174)
 - Regulates driveway access to property



INDEX - TRAFFIC AND HIGHWAYS BYLAW

| | | |
|---|--|--|
| <p>All signs to Apply - 58</p> <p>Alter Sign - 50</p> <p>Amend Order - 49</p> <p>Angle Parking - 4(19) (40), 47(23)</p> <p>Appeal Order - 64</p> <p>Applications:</p> <ul style="list-style-type: none"> • Extraordinary Traffic - 25 • Safety - 30 • Director Permission - 32 • Traffic Control Devices - 46 • General Vehicle Regulations - 54 <p>As-Built Plans - 39</p> <p>Bonding:</p> <ul style="list-style-type: none"> • Against Damage to Highway - 34 • Building Permit holder - 24(2) • Work within City Streets - 38 <p>Bridge - 4(13)</p> <p>Bridges (Weight) - 59</p> <p>Building Permits - 34(2)</p> <p>Bus Stop - 4(32), 17(1), 47(18)</p> <p>Closing Street Temporarily - 51</p> <p>Commercial Vehicles (Parking) - 7</p> <p>Compensation (Extraordinary Traffic) - 27</p> <p>Condition of Director Permission - 35-45</p> <p>Construction - 3(9)</p> <p>Construction Zone (Signs) - 47(6)</p> <p>Control - 50</p> <p>Corner Lots - 3(13)</p> <p>Crosswalk - 4(8), 47(22)</p> <p>Cutting Timber - 33(1)</p> <p>Cycles or Pedestrian Zones - 4(27)</p> <p>Damage (Extraordinary Traffic) - 26</p> <p>Damage to Boulevards - 33(2), 34</p> <p>Debris - 3(3)</p> <p>Default - 14, 34(4), 41</p> <p>Deposit:</p> <ul style="list-style-type: none"> • Bonding - 34(1)(2) • Irrevocable Letter of Credit - 38 <p>Designated Parking Area - 4(25)</p> <p>Dimensions:</p> <ul style="list-style-type: none"> • Maximum Width - 56(1) • Maximum Height - 56(2) (3) <p>Disabled Parking Permits - 8</p> <p>Disposal of Vehicle - 18(2)</p> <p>DIRECTOR PERMISSION REQUIRED: 33</p> <ul style="list-style-type: none"> • Excavations, Cutting Timber - 33(1) • Construction - 33(10) • Damage to Boulevards - 33(2) • Defacing - 33(6) • Effluent from Drains - 33(5) • Signs - 33(7) • Stopping Water - 33(3) • Structures - 33(4) • Tracked Vehicles - 33(8) • Vehicles and Animals - 33(9) | <p>Disobey Direction of Peace Officer - 3.1</p> <p>Distance from Curb - 4(18), 33(8)</p> <p>Ditches (Water Flow) - 3(17)</p> <p>Double Parking - 4(12)</p> <p>Do Not Enter - 47(10)</p> <p>Do Not Pass - 47(13)</p> <p>Drag or Skid - 3(11)</p> <p>Drive Contrary to Signs - 3(26)</p> <p>Drive on Sidewalk or Boulevard - 3(1)</p> <p>Drive with Person in Cargo Compartment - 3(45)</p> <p>Drive over Newly-Painted Lines - 3(34)</p> <p>Driveway - 4(2)</p> <p>Earth - 3(12)</p> <p>Effluent from Drains - 33(5)</p> <p>Election Signs - 23</p> <p>Enforcement (Peace Officer) - 61.1, 61.2</p> <p>Excavations:</p> <ul style="list-style-type: none"> • Open - 3(4) • Cutting Timber - 33(1) <p>Exemptions (Size and Weight) - 57(1)</p> <p>Exit - 4(8)</p> <p>Extraordinary Traffic - 24-28</p> <p>Fail to Stop for Peace Officer - 3.2</p> <p>Fail to Yield/Disobey Green Arrow - 3(32)</p> <p>Fees/Removal of Vehicle or Chattel - 19(3)</p> <p>Fire Hose - 3(44)</p> <p>Fire Zone - 4(33), 17(2), 47(30)</p> <p>Garbage on Highway - 3(15)</p> <p>GENERAL: 62 - 65</p> <p>Guideposts - 50</p> <p>Hazards (on Sidewalk) - 22(2)</p> <p>Highway Closure (Extraordinary Traffic) - 25</p> <p>Highway Divider - 3(38)</p> <p>Highway Signs - 52</p> <p>Hotel Loading Zone - 4(36)</p> <p>Hydrant - 4(5)</p> <p>Incorporation of Existing Regulations - 63</p> <p>Inspection - 15</p> <p>Insurance - 43</p> <p>Interpretation:</p> <ul style="list-style-type: none"> • General - 2 • Extraordinary Traffic - 24 <p>Intersection - 4(4)</p> <p>Jay Walking - 3(20)</p> <p>Keep Right - 47(14)</p> <p>Lane - 3(8), 4(3) (23)</p> <p>Leaflets - 3(18)</p> <p>Littering - 3(23)</p> <p>Load - 55(7) (8), 61.4</p> <p>Loading Zone - 4(30), 7(2), 47(15)</p> | <p>Location of Traffic Control Devices - 47</p> <p>Logging Truck - 55(6)</p> <p>Market Value less than \$100 - 21</p> <p>Materials - 44</p> <p>Maximum:</p> <ul style="list-style-type: none"> • Height - 56(2) (3) • Weight - 3(19), 47(16), 59.2, 61.4 • Speed - 3(8), 3(9), 47(17) • Speed/Load Tires - 55(4) • Speed/Unloaded Pole Trailer - 55(6) • Width of Vehicle - 55(1), 56(1) <p>Men Working (Signs) - 47(5)</p> <p>Motorcycle Parking - 4(26)</p> <p>Merchandise Left on Highway - 3(10)</p> <p>Motor Vehicle Act Regulations - 53</p> <p>Noise - 3.3, 29</p> <p>NO PARKING: 4</p> <ul style="list-style-type: none"> • 24 Hours Maximum - 4(21) • Angle parking - 4(19) • Angle parking (on Highway) - 4(40) • Bridge - 4(13) • Bus Stop - 4(32) • Crosswalk - 4(5) • Cycle or Pedestrians - 4(27) • Designated Parking Area - 4(25) • Distance from Curb - 4(18) • Double Parking - 4(12) • Driveway - 4(2) • Exit - 4(8) • Fire Zone - 4(33) • Hotel Loading Zone - 4(36) • Hydrant - 4(5) • Intersection - 4(4) • Lane - 4(3) (23) • Loading Zone - 4(30) • Motorcycle Parking - 4(26) • Obstruct (Traffic or Pedestrian) - 4(24) • Obstruct Visibility - 4(16) • Obstruction - 4(11) • Off-Street Parking Facility - 4(29) • Overnight Abode - 4(37) • Overtime Parking - 4(28) • Parking Lots - 4(29) • Prohibited by Sign - 4(14) • Railway - 4(9) • Reserved Parking - 4(20) • Residential Areas Sales - 4(10) • Restricted Zone - 4(41) • School Ground - 4(31) • Sidewalk - 4(1) • Stop Sign - 4(7) • Taxi Zone - 4(34) • Trailers - 4(39) • Trucks - 4(22) • Unlicensed Vehicle - 4(38) • Violation of Traffic Control Device - 4(15) |
|---|--|--|



Transportation YouTube Videos

- LED Streetlights
- Cycling series:
 - Cycling with Traffic
 - 2-4-1 Helmets
 - Cycling and Route Planning
 - Cycling and Changing Weather
 - GoByBike 2018
- Roundabouts
- Bike to Work Week 2018
- Project 529 (Protect Your Bike)
- Pedestrian Safety
- Snowplow Ride-along
- Snow & Catchbasins
- And more...at <https://www.youtube.com/user/CityOfNanaimo>

| <i>Video</i> | <i>Views</i> |
|------------------------------|---------------------|
| LED Street Lights | 75 |
| Cycling with Traffic | 138 |
| 2-4-1 Helmets | 125 |
| Cycle and Route Planning | 51 |
| Cycling and Changing Weather | 81 |
| Go By Bike 2018 | 111 |
| Roundabouts | 419 |
| Bike to Work Week 2018 | 28 |
| Project 529 | 258 |
| Pedestrian Safety | 105 |
| Snowplow Ride Along | 362 |
| Snow and Catchbasins | 215 |

Nanaimo RCMP Road Safety 2018-2019



Nanaimo Detachment
April 2019

2018 Annual Ticket Stats

- 2735 Traffic Tickets
- 843 Traffic Warnings or Vehicle Safety Violations.
- 668 Park Bylaws
- 283 Bylaws
- 213 Liquor Bylaws or Violation Tickets
- 509 Seatbelt Violations
- 249 Electronic Device Violations
- 11 Cannabis Tickets
- TOTAL – 5511 Offences

2018 Annual Impaired Driving Stats

- 70 Suspension (24hr) by alcohol or drug
- 34 Three day (3) IRP
- 4 Seven day (7) IRP
- 2 Thirty day (30) IRP
- 157 Ninety (90) day IRP / Refusal
- 2 Criminal Impaired Crashes
- 2 Criminal Impaired by Drugs
- 271 Total Alcohol Related Investigations

Serious and Fatal Crashes

- 6 Serious or Fatal MVI's this year as of April, 2019.
- There have been 12 fatal collisions in the last 12 months.
- 8 of these occurring over the last 4 winter months of 2018/2019.

2018/2019 School Year Enforcement

- Over 95 School Zone enforcement operations – typically conducted before or after school in school zones.
- HASTe program “Think of Me Campaigns”, with ICBC, RCMP Traffic and Youth, City Engineering.
- Input and resulting from various School Admin requests as well as PAC requests.

Streets; more than roads...

- Making Streets Places...
- Using Streets to support Business





Road and Traffic Services

Snow and Ice Control

Maintenance of:

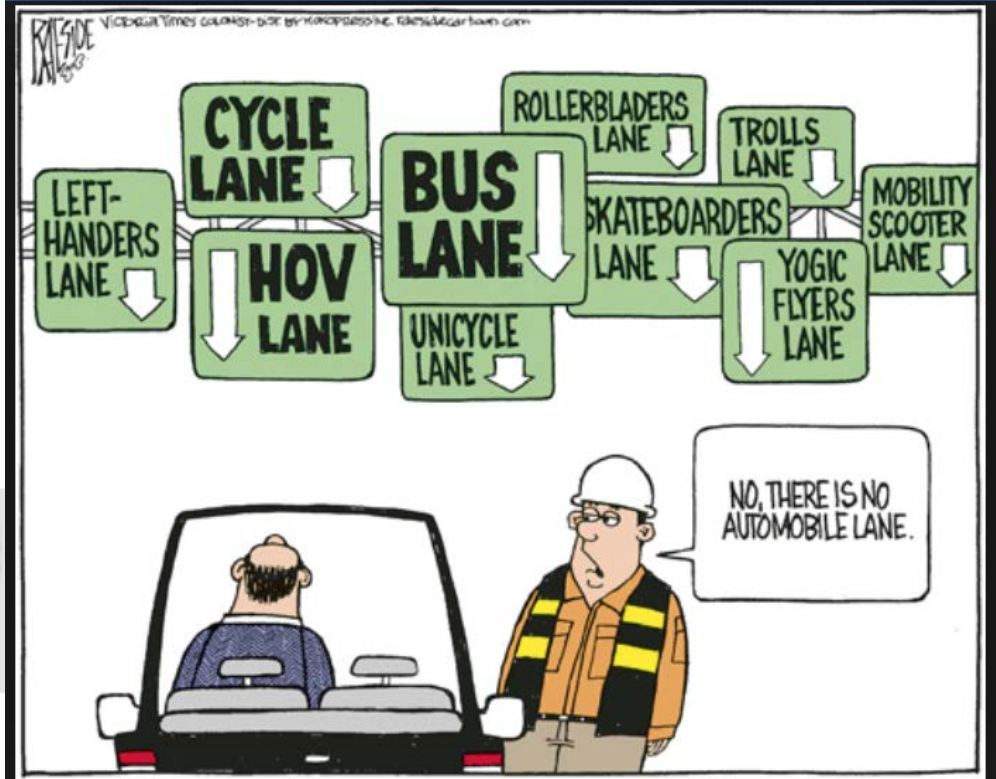
- Roads
- Bridges
- Signals
- Sidewalks
- Signs and Lines



Take a break – mid point



"It's a very short cycle lane but I'm determined to use it."





Asset Management

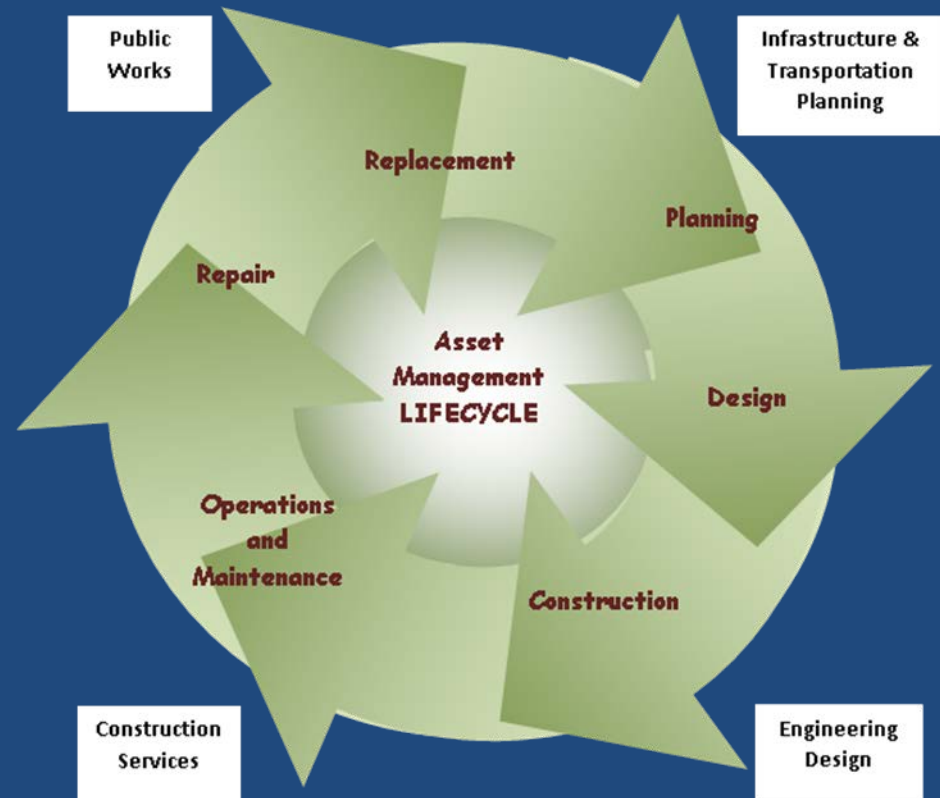
Sustainable Service Delivery

Funding levels

- Road Rehab (repaving)
- Street lights
- Bridges

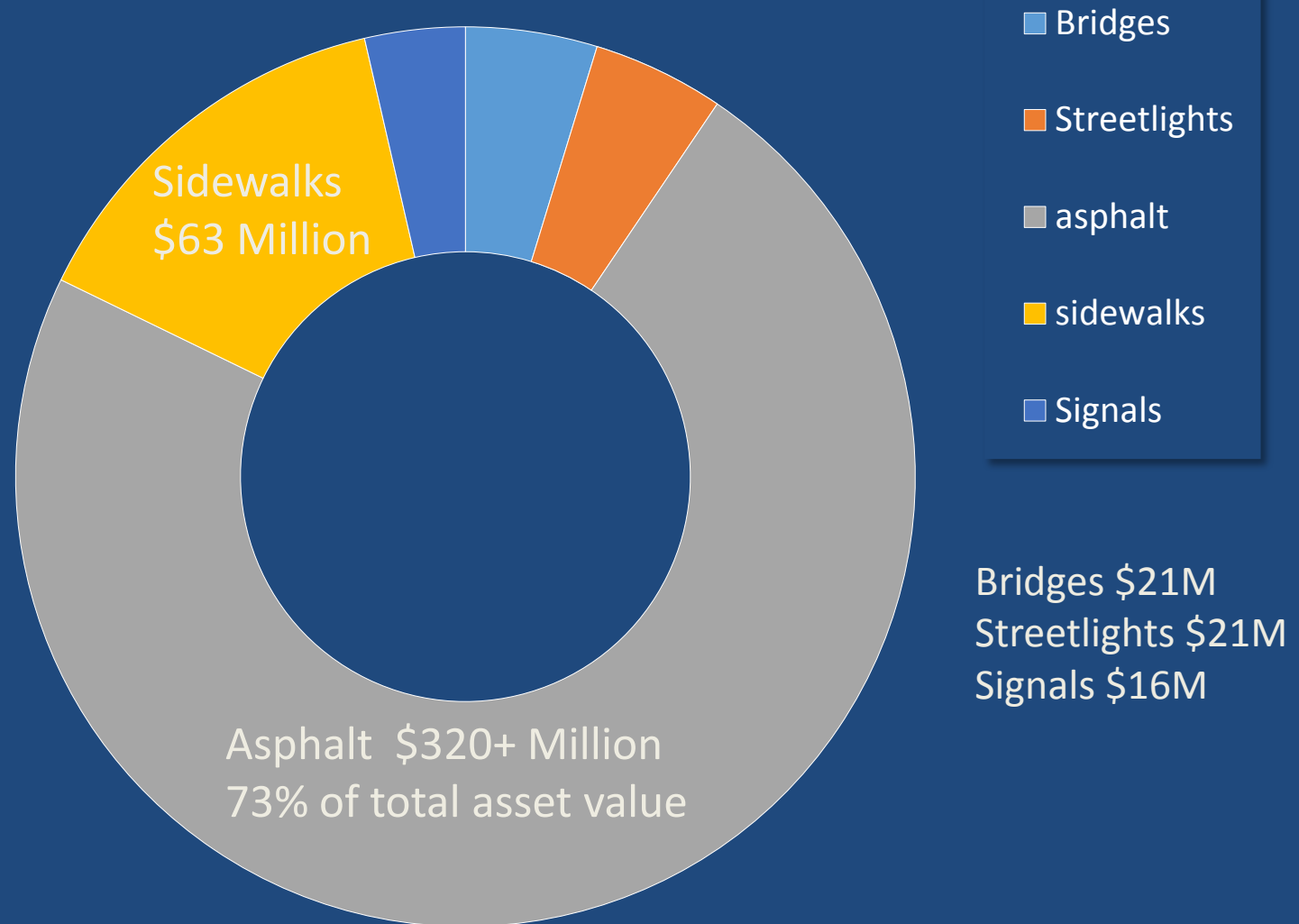
Levels of Service

Risk

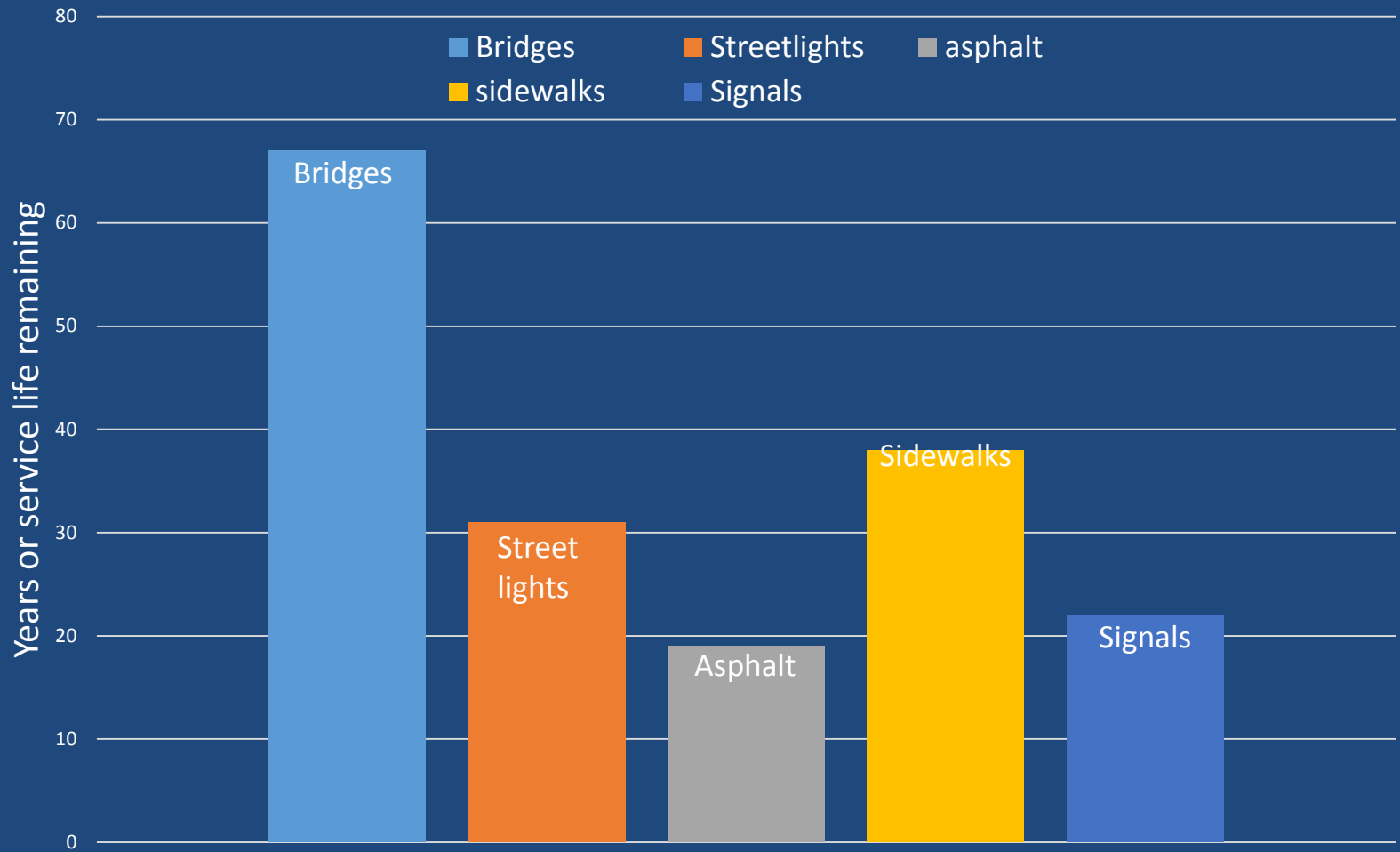




Transportation Asset Value



Average Remaining Service Life (years)





Road Rehab

Asphalt Condition Assessment - 2017

- Detailed technical inspection/survey on 528 km of roads

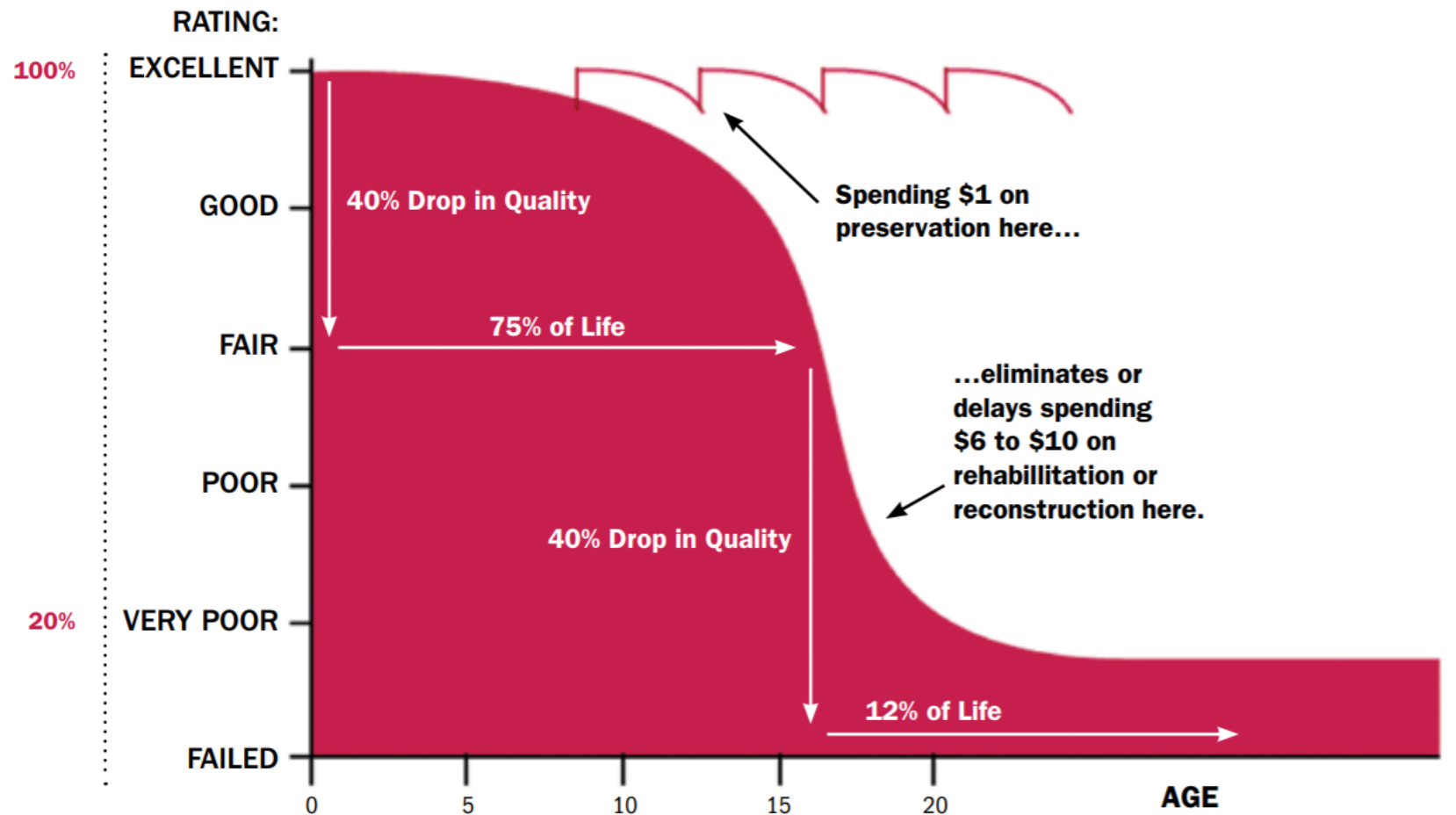
Performance indicators:

- Riding Comfort Index (RCI)
- Surface Distress Index (SDI)
- Structural Adequacy Index (SAI)
- Pavement Quality Index (PQI)



This one!

Figure 6: Example of asset deterioration curve (Roads)



Source: Canadian Infrastructure Report Card 2016 – key messages



Table 5.14: Maintain 2017 PQI of 79 Budget Scenario Results

| Year | Cost (\$) | Target PQI | LL-PQI | LL-Def. (%) |
|--------------|---------------------|------------|--------|-------------|
| 2017 | \$221,000 | 79 | 79 | 2 |
| 2018 | \$6,970,000 | 79 | 79 | 1 |
| 2019 | \$5,873,000 | 79 | 79 | 1 |
| 2020 | \$5,070,000 | 79 | 79 | 0 |
| 2021 | \$6,517,000 | 79 | 79 | 0 |
| 2022 | \$5,041,000 | 79 | 78 | 0 |
| 2023 | \$3,095,000 | 79 | 78 | 0 |
| 2024 | \$3,838,000 | 79 | 77 | 0 |
| 2025 | \$3,701,000 | 79 | 76 | 0 |
| 2026 | \$5,987,000 | 79 | 76 | 1 |
| 2027 | \$3,972,000 | 79 | 76 | 1 |
| Total | \$50,285,000 | | | |



Levels of Service

PW:

- SNIC
- Sweeping
- Road Rehab
- Pothole repair
- Signal maintenance
- Street light

Eng:

- Enquiry or complaint response
- Capital Projects
- Planning – Development Reviews
- Active Transportation Activities and Events
- Transit amenities: bus shelters, benches, garbage cans and signs.
- Network Efficiency / Delay tolerance.



Risk

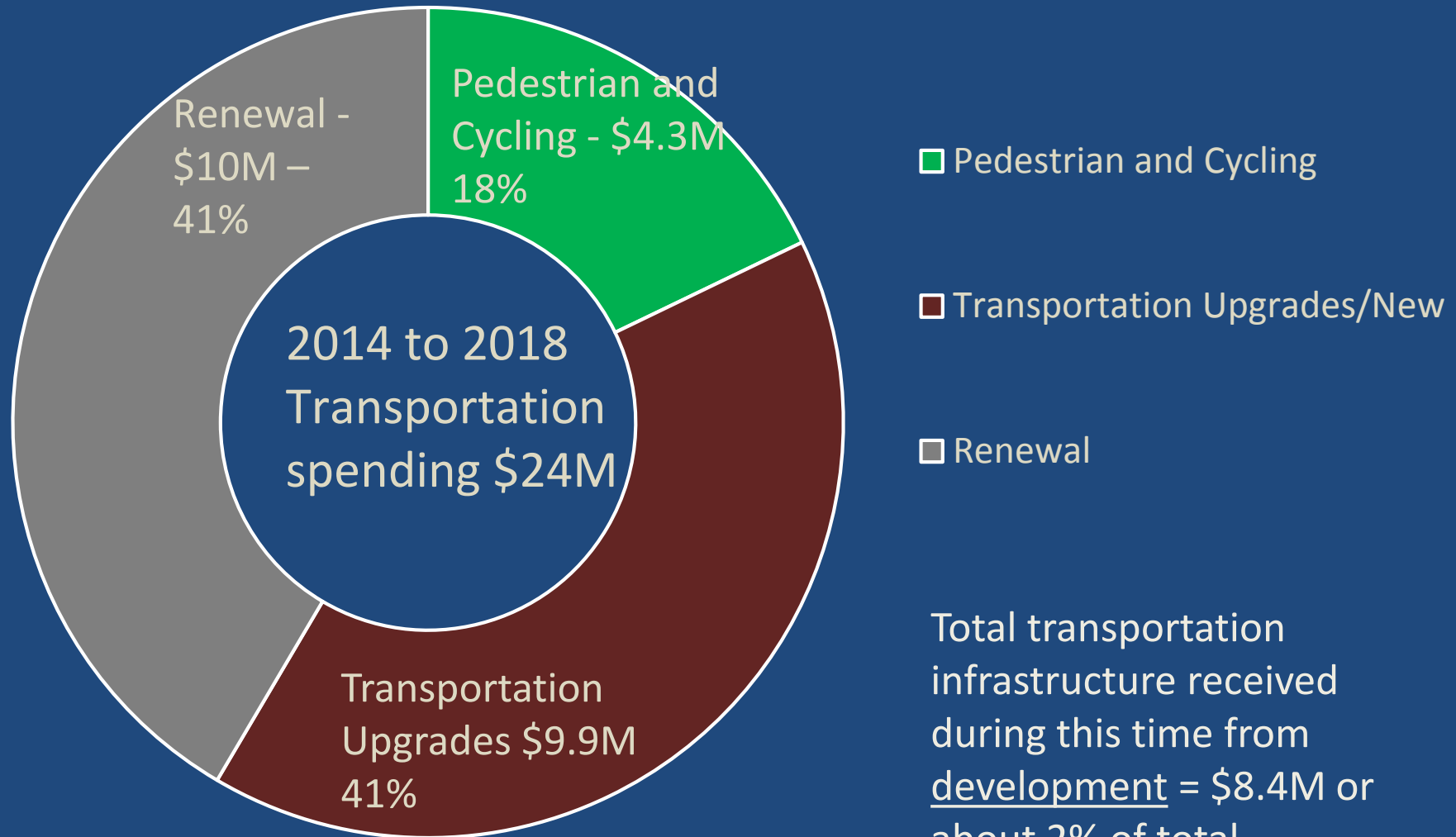
Examples include:

Slope stability

Structures such as bridges, or signal poles

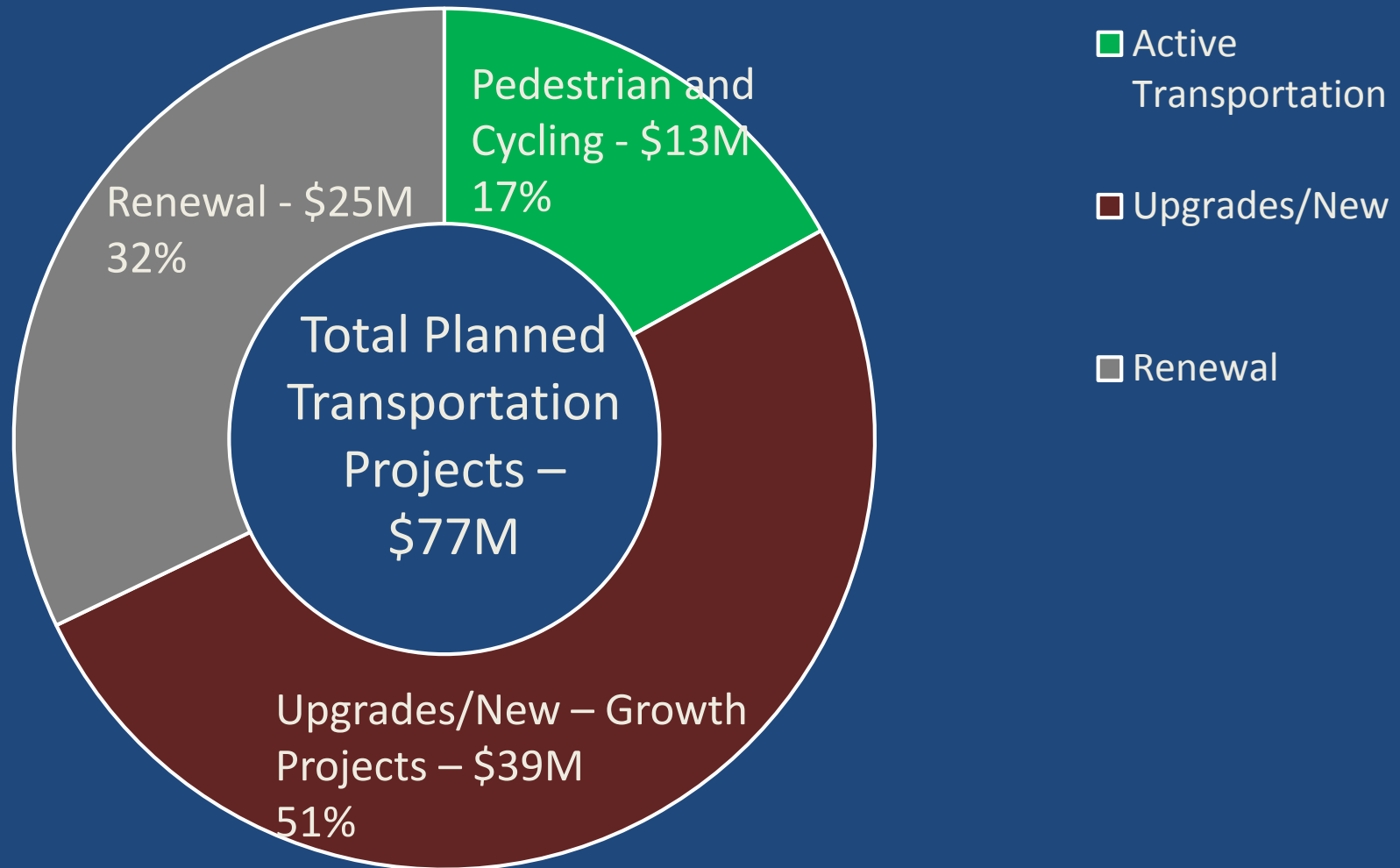


Historic Transportation Infrastructure Spending 2014 to 2018





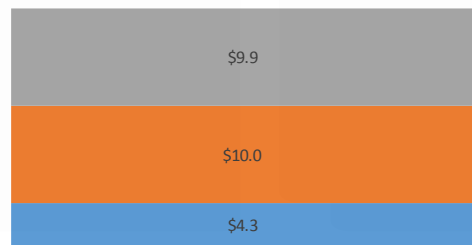
2019-2023 Project Plan - Transportation



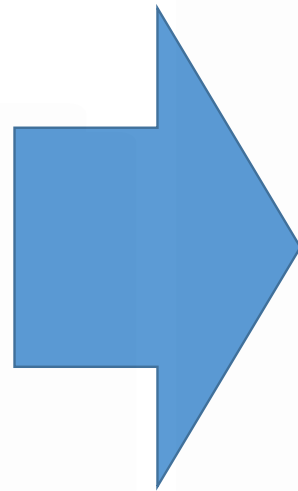
Transportation Capital

- Pedestrian and Cycling
- Renwal
- Upgrades and New

Total Spent Past 5 Years - \$24M



spent



Total Planned Next 5 Years - \$77M

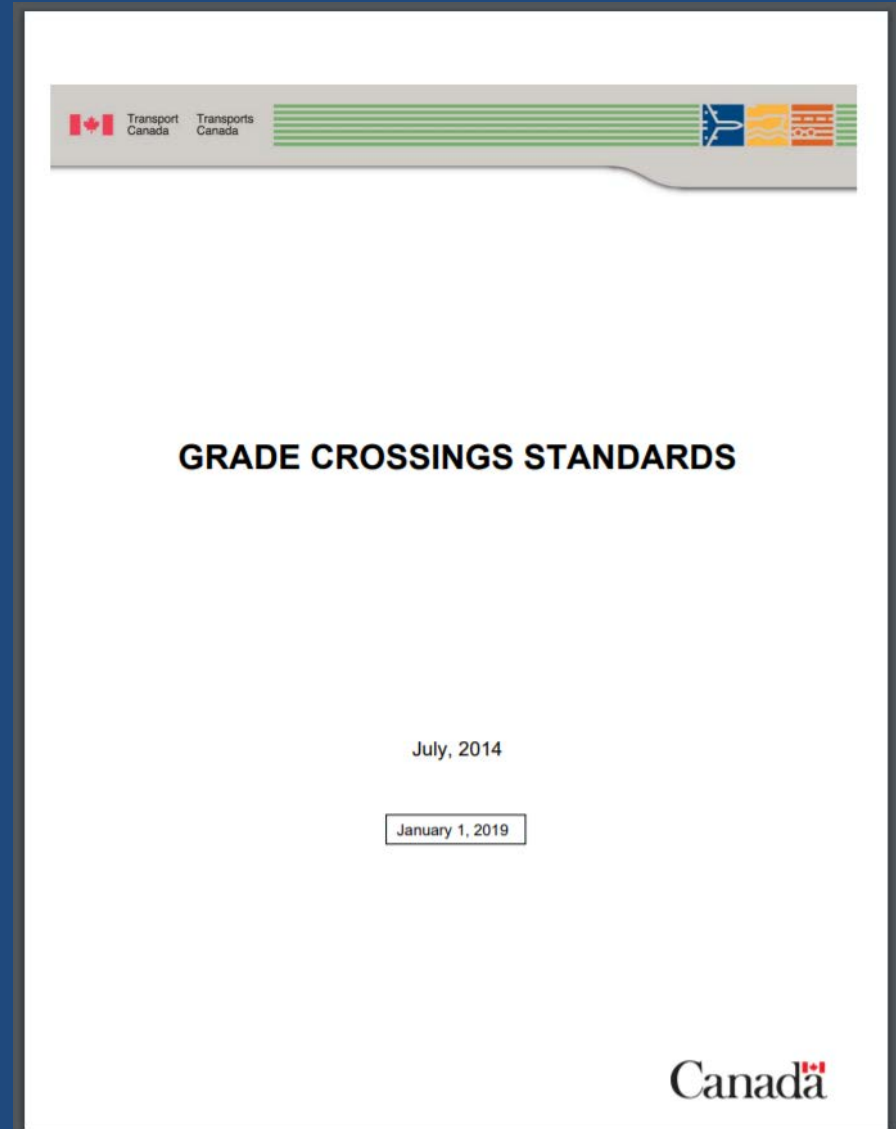


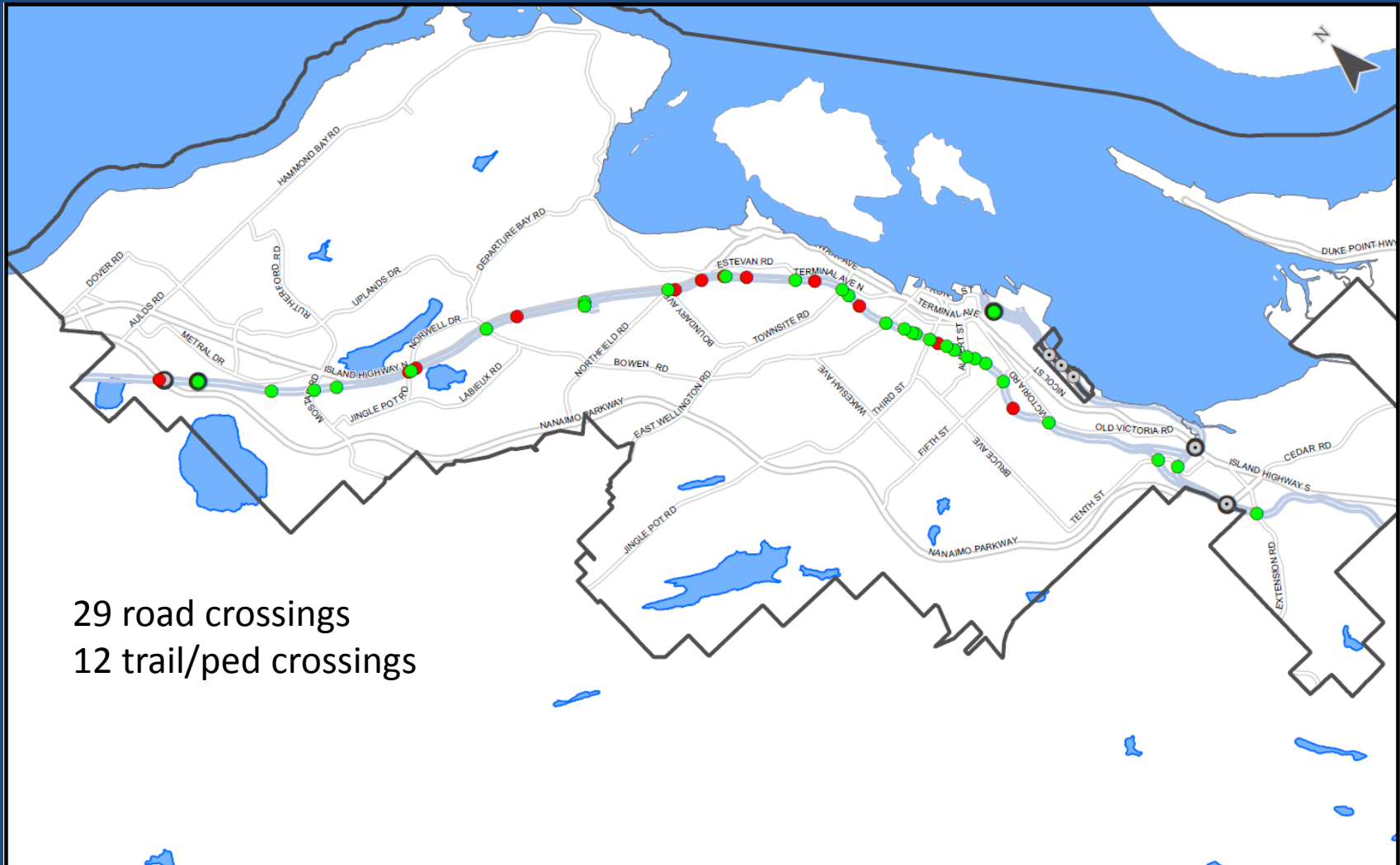
budget



E&N Rail

- E&N Rail regulation
- Federal Standards
- Cost per crossing
- Impact extends well beyond crossing
- Impact to capital planning
- Impact to development





29 road crossings
12 trail/ped crossings

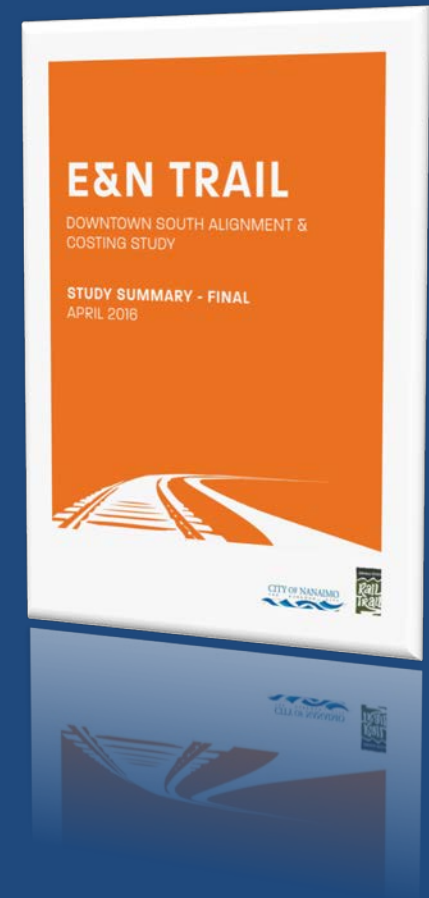
Legend

- Railway Crossings Vehicular
- Railway Crossings Pedestrian
- Other Jurisdictions
- E&N Railway
- City Boundary
- Grade Separated Crossings



Extension of the E&N Trail South

Estimate \$6 to \$8 million





Capital Project Types

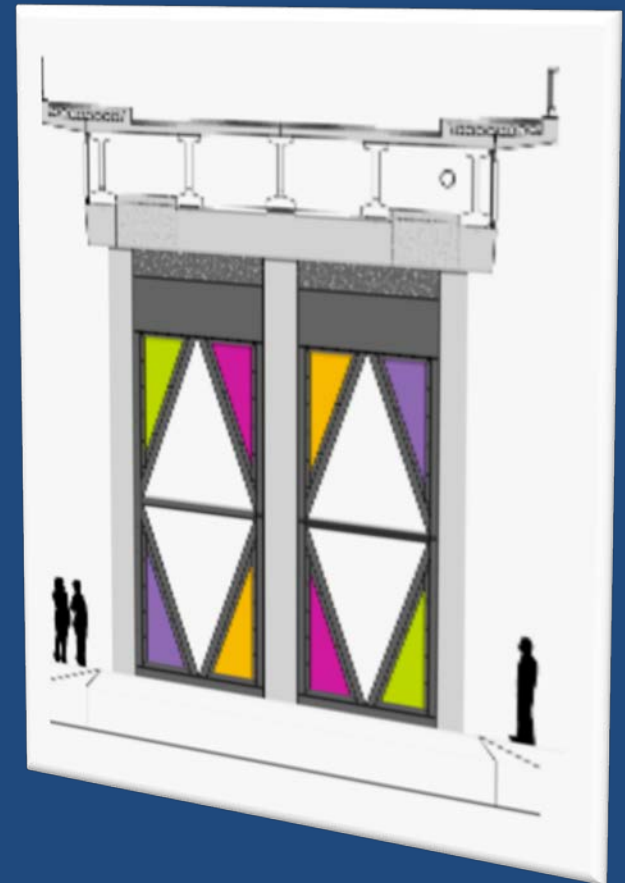
- Condition Deficiency
 - Road rehab/paving
- Growth (aka DCC projects)
 - Rutherford Roundabout
- Capacity Deficiency
 - Bowen and Northfield
- Strategic
 - Metral active transportation corridor
- Operational Deficiency
 - Dufferin Sidewalk
- Opportunity presents itself
 - Haliburton



Bastion Bridge Seismic Upgrade

Cost: \$1.8 million

Completion Fall 2019



Port Drive/Wellcox Access

Cost: \$1.8 million

Completion: Fall 2019

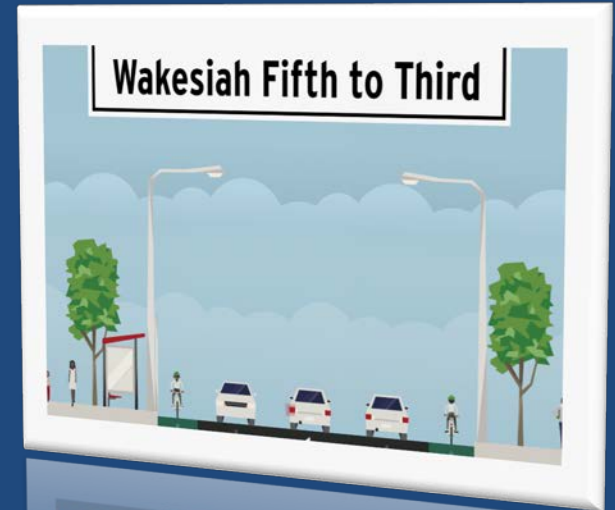
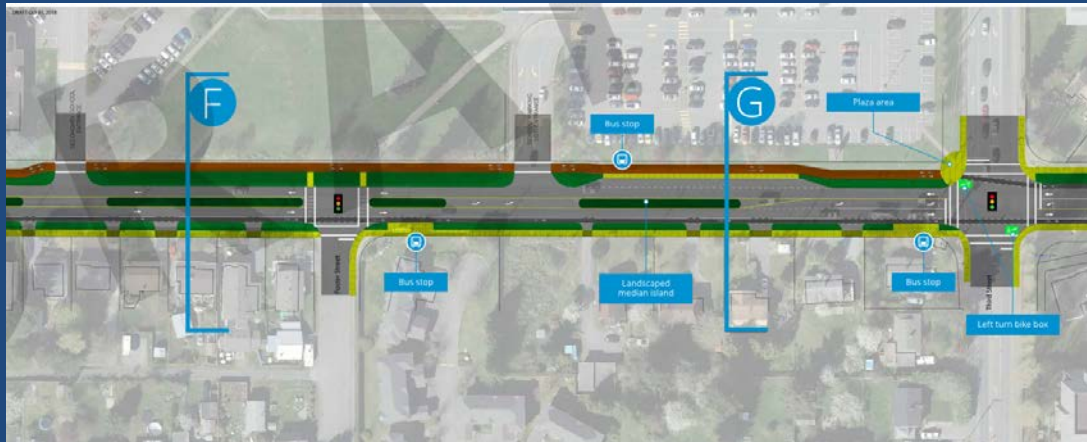




Wakesiah Corridor – Phase 1

Cost: \$4.7 million

Schedule: Construction 2020



Metral Drive Corridor

Cost:

- Phase 1, \$4-5 million
- Phase 2, \$4-5 million

Schedule:

- Phase 1, 2020
- Phase 2, TBD



Stewart Ave Complete Street

Est:

- \$600,000

Schedule:

- Design 2019-2020
- Construction 2021



Boxwood Connector

Cost:

- Phase I, \$3.5 million
- Phase II, \$8.5-11.5 million

Schedule:

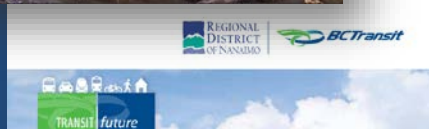
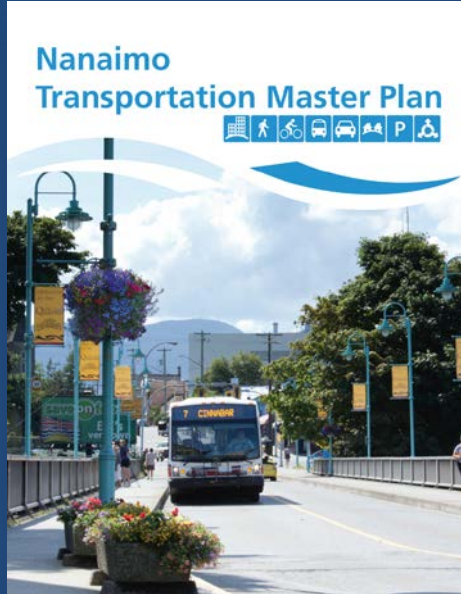
- Phase I, 2019
- Phase II, 2022





Boxwood Corridor – Off Bowen Bike Route





- Multiple Plans
- Multiple Projects
- Multiple Stakeholders



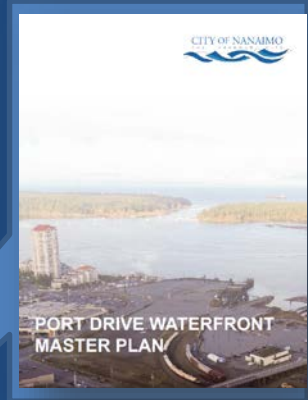
Opportunities



Downtown
Cycling Loop

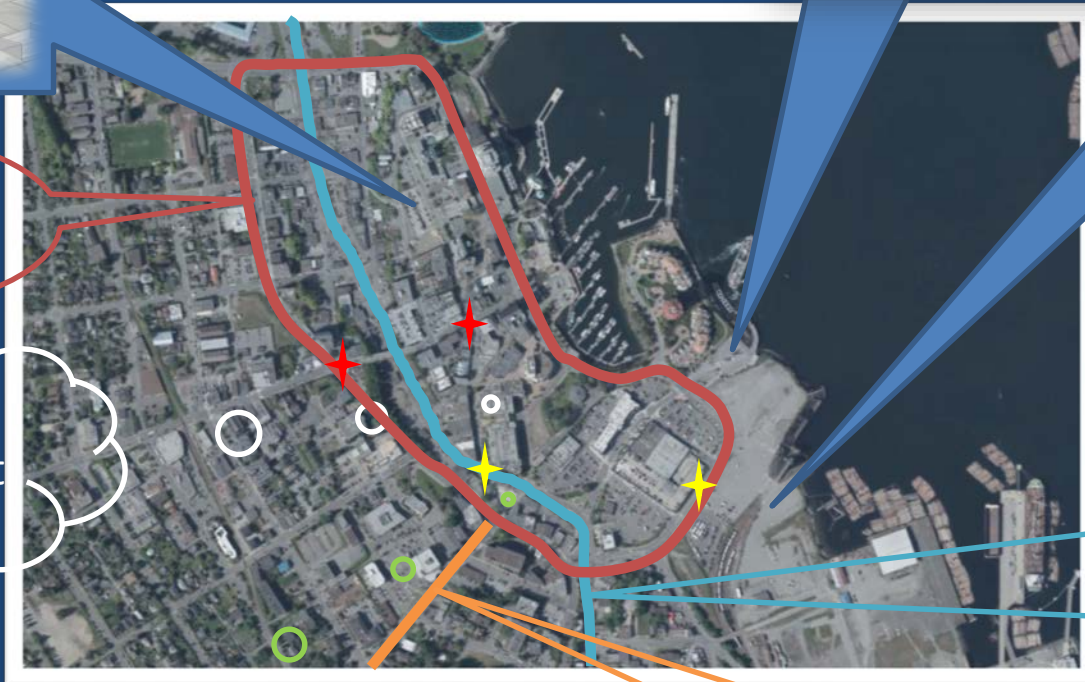
Parking
Management
Strategy

Redevelopment
Potential



★ Transit Options
★ Signal Rebuild

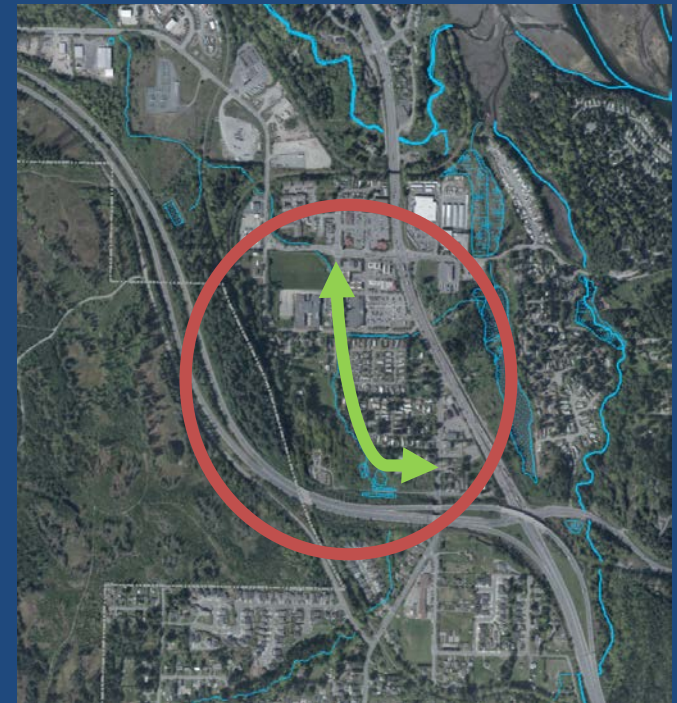
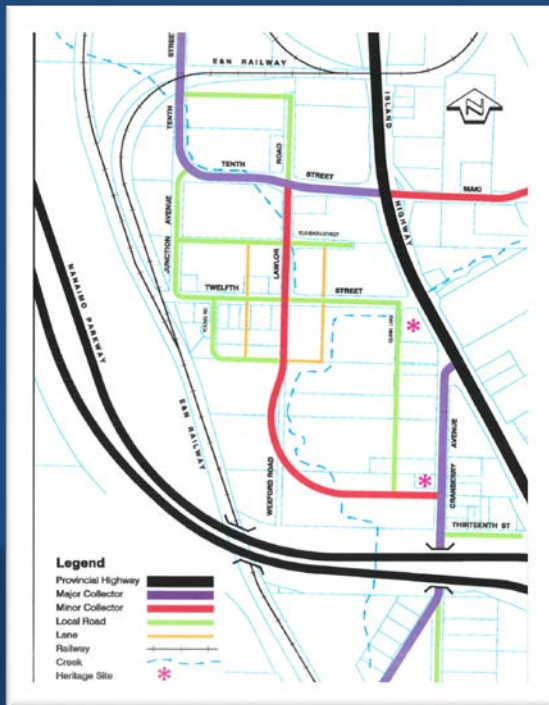
Albert Street
Bike Route



Cranberry Connector

Planned for 2023

Currently updating background info





More Capital Projects

LED Conversion:

- Phase 2, 2019
- Phase 3, 2020

Traffic Signal Management System

Wellcox Secondary Access

Norwell Road at Departure Bay Road intersection rebuild

Townsite Bike Lanes

Fifth Street – Bruce to Wakesiah

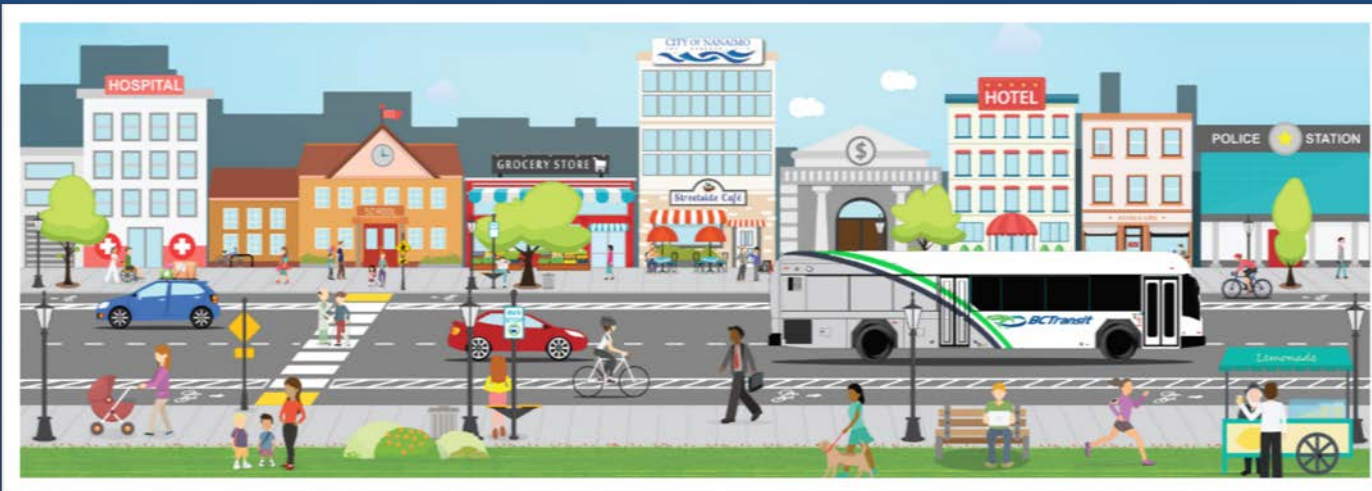
Various sidewalk and bike lane infill projects

Annual Pedestrian Unallocated funding



Complete Street Standards

- Current Practice
- Outcome of Project
- Timeline





Future of Transportation

Too Many Variables!

- Advancements in Technology
- Legislation (ride hailing)
- Societal Preference
- Economic Changes





Future Studies

2020

- Active and Sustainable Transportation
 - Data Collection
 - Master Plan
 - Pedestrian Prioritization Process Update
- Transit integration
 - Frequent Transit Plan
 - Rapid Bus Corridor Plan (RDN)
- Mobility HUB Plan
- Area Parking Strategy (location to be determined)



Summary of Future Actions

Update MOESS with complete streets standards

Active and Sustainable Transportation Master Plan 2020

Rapid Bus Implementation Study 2020

Area Wide Parking Management Study (annual starting in 2020)



Potential Future Actions

Road Rehab – proposed budget increase from \$2.5M to \$3.5M for 2020 and beyond to meet AM targets.

Transportation Level of Service – undertake establishment of Level of Service for Transportation – 2020 or 2021. Requires funding and significant staff resources to undertake.

Develop a Vision Zero Toolkit 2022 (new to plan)

Update Transportation Master Plan 2024



Council Actions and Considerations

Funding levels

- capital (aka projects)

- staff resources for project delivery

- staff resources for ongoing operational impacts

Policy

Prioritization

- infill as opportunity or implement strategically?