



The CRD Student Climate Challenge

Township of Esquimalt Bike Parking Challenge



CYCLING INFRASTRUCTURE IN THE TOWNSHIP OF ESQUIMALT

The CRD Student Climate Challenge

Hosted By Marlene Lagoa of the

Township of
ESQUIMALT

READY

SET

SOLVE



Our Team

Jessica Shamek

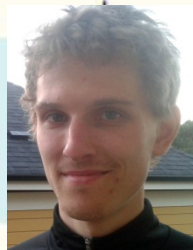
Oliver Terry

Jane Patterson

Ashley and David Bronaugh

Students of..

Camosun College



and our slide show presentation


As part of the CRD's Ready Set Solve Climate Change Initiative, the Township of Esquimalt commissioned a group of students to catalogue and map existing bike parking using Geographical Informational System software.

As per the Regional Pedestrian and Cycling Master Plan, the Capital Regional District aims to increase cycling mode share to 15% by 2035, a goal only achievable with the commitment of its municipalities.


Esquimalt has one of the highest ratios of jobs to residents in the CRD, and increased traffic must be managed to ensure a healthy and vibrant community.



Cycling can provide many benefits, which include:

 Increased health, statistically adding up to 14 months of life expectancy and providing wide-ranging health benefits

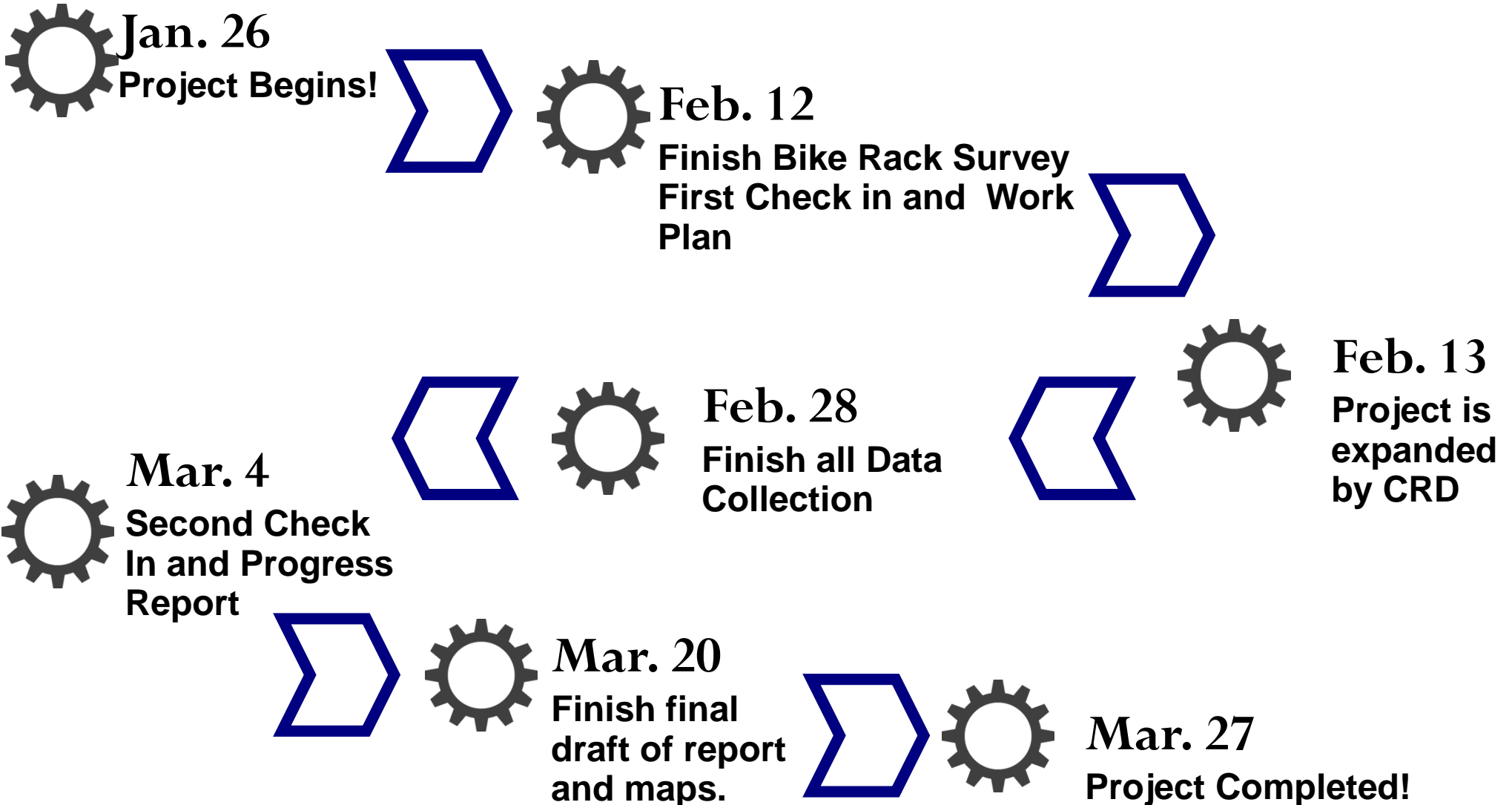
 Decreased air pollution, adding to the general well-being of society as a whole

 Decreased congestion and wear and tear on infrastructure, saving money for governments and municipalities

 Increased community health and real estate value in areas with more cycling infrastructure



Project Timeline...



Process...

The first month of the challenge was spent mapping the public bike parking supply in Esquimalt. Despite all of our team members being full-time students, and many of them working part time, each was able to survey their area ahead of time.



Part way through the project, the team's responsibilities were expanded significantly to include mapping all cycling infrastructure in Esquimalt and correlating it with the CRD's Pedestrian and Cycling Master Plan.

David Bronaugh surveying bike parking in Esquimalt.

Our data collection was done on foot and by bicycle.



Jessica Shamek prepping for some infrastructure surveying.





Oliver Terry analysing and noting rack capacity at Saxe Point Park.

Careful measurements were taken of relevant infrastructure parameters.



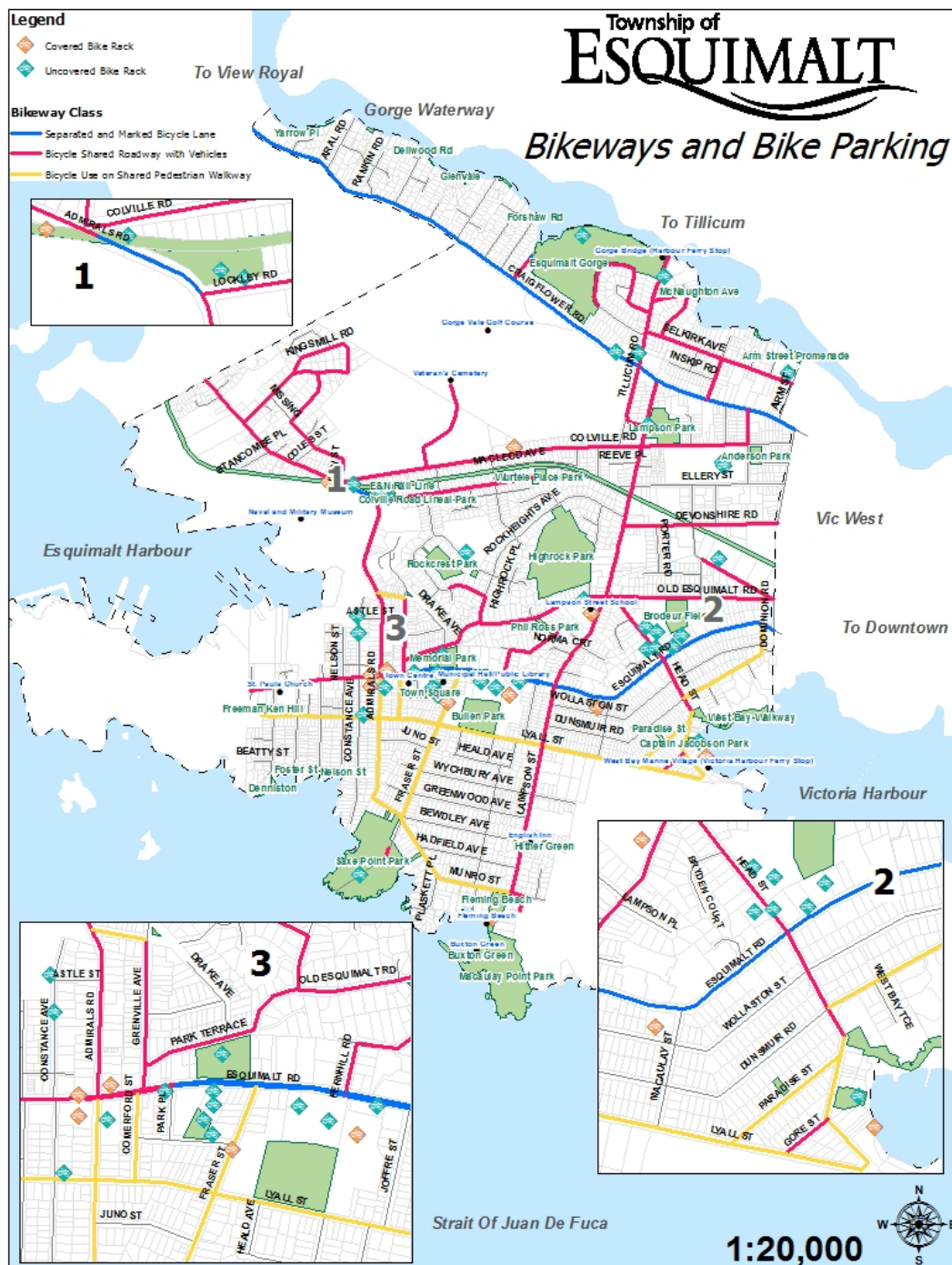
At the end of the allotted time, our team compiled an exhaustive, twenty-five page report on our findings, with well-researched suggestions and observations.



Ashley Bronaugh enjoying a sunny surveying session.

We also generated several maps using ESRI ArcGis, including a cycling map intended for distribution to the public, and a database and photo library.





Public Cycling Map of Esquimalt

Providing the public with information about the location of covered and uncovered bicycle parking and the current bikeways of Esquimalt



RACK DESIGNS WITHIN ESQUIMALT



61%



2%



ribbon rack

2%

Cora rack

spiral rack



7%

Concrete rack

23%

Concrete racks consistently scored low on security and were not used



loop rack

5%



hitching post

KNOW YOUR RACKS!



A bicycle rack must be securely anchored in place.



A rack that has been tampered with is likely to be left unused as it is a proven security risk!

The rack should be in a high traffic area.



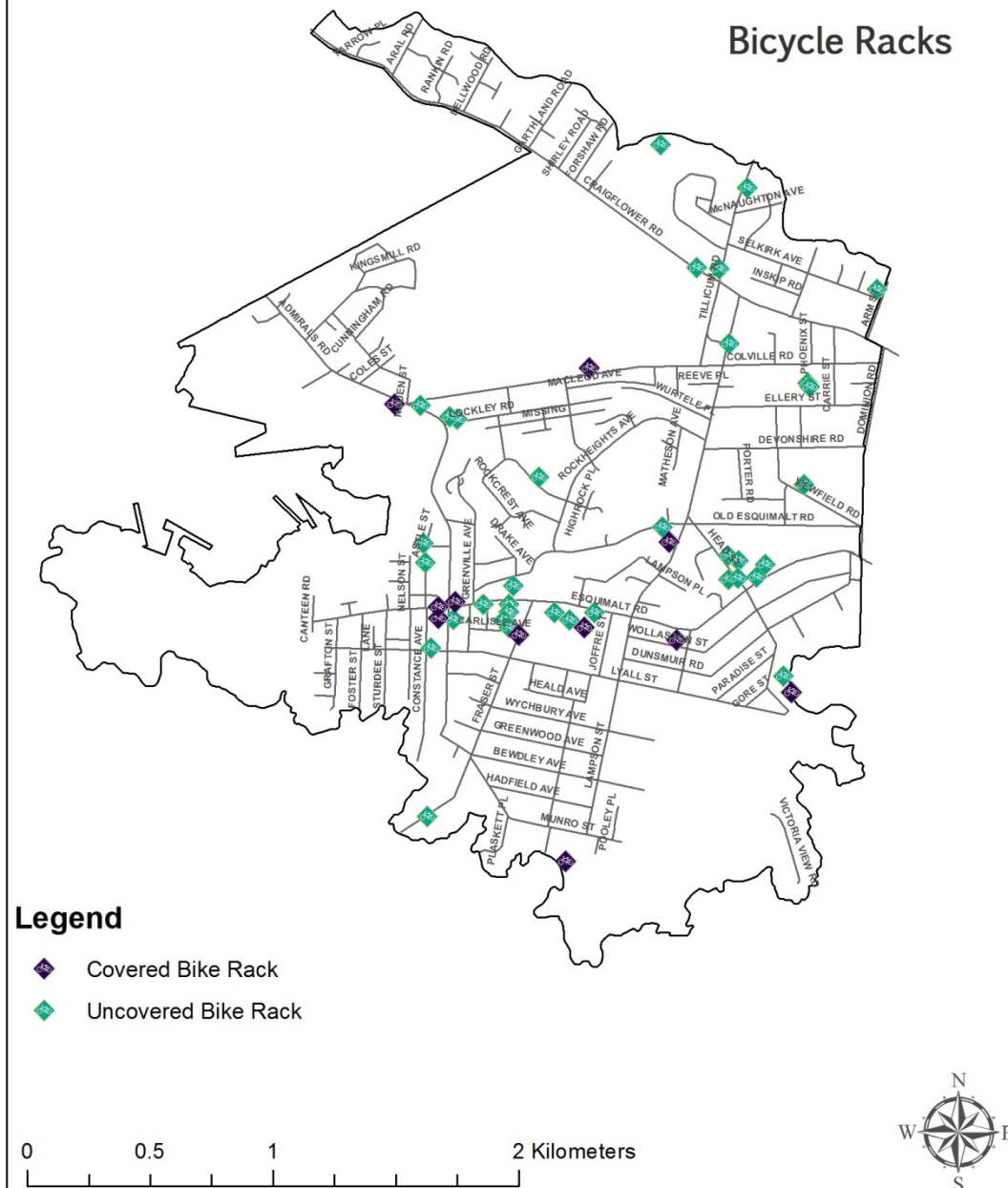
The rack should be able to accommodate many kinds of bicycle locks.



Jane Patterson evaluating rack security at Saxe Point Park.

Township of ESQUIMALT

Bicycle Racks

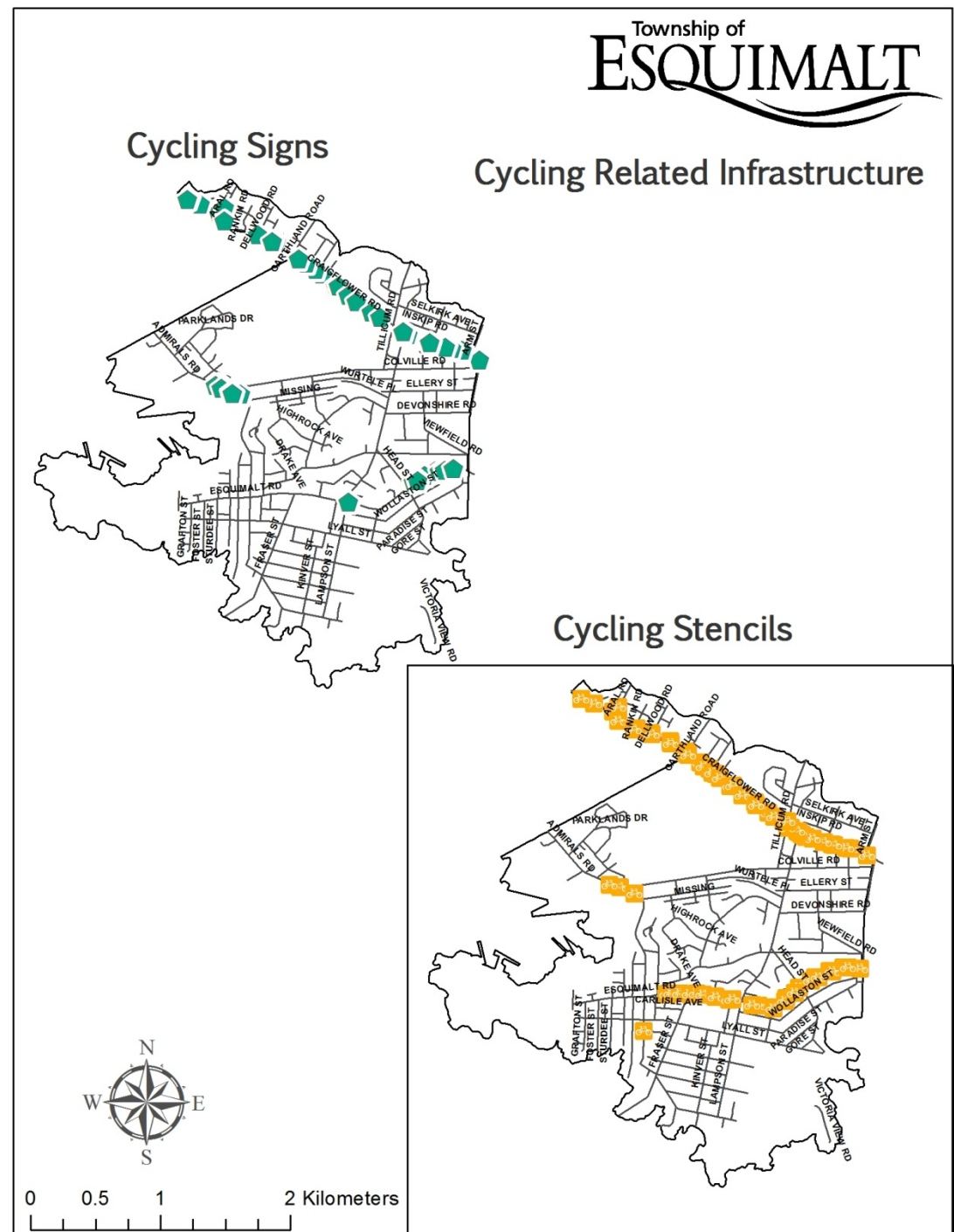


Bicycle Parking Map

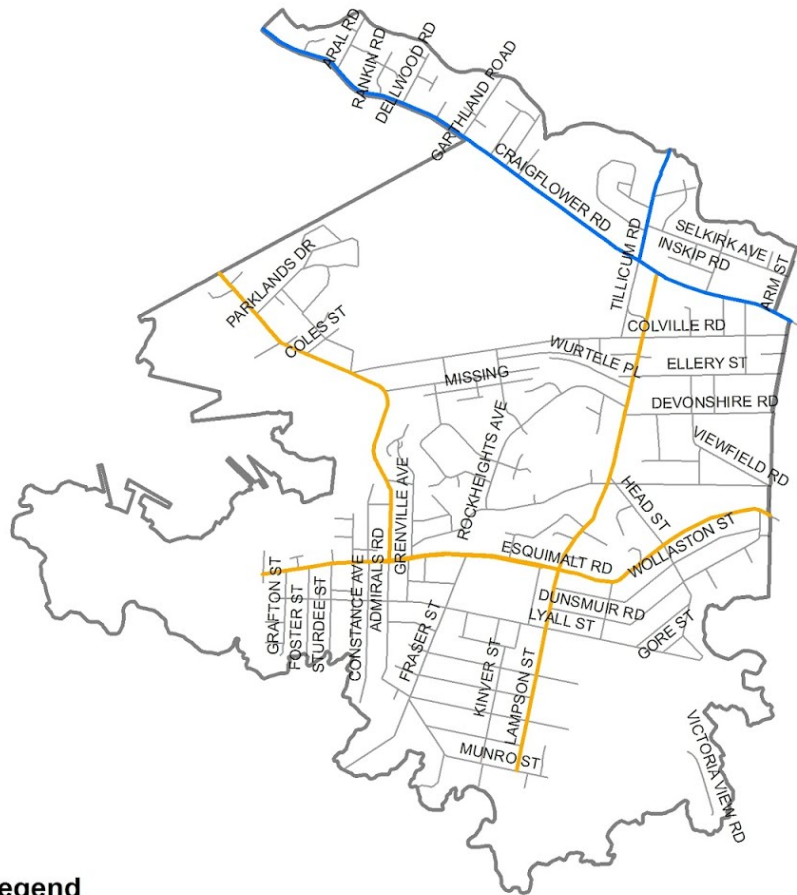


Cycling Infrastructure Map (Signs & Stencils)

Two main bicycle lanes were observed on Esquimalt Rd and on Craigflower, as well as a section of lane on Admirals Rd. Each lane had suitable infrastructure.



PCMP Bikeways Recommended Separation



Legend

- Bicycle Lane/Shoulder Bikeway
- Separated On-Street

0 0.5 1 2 Kilometers



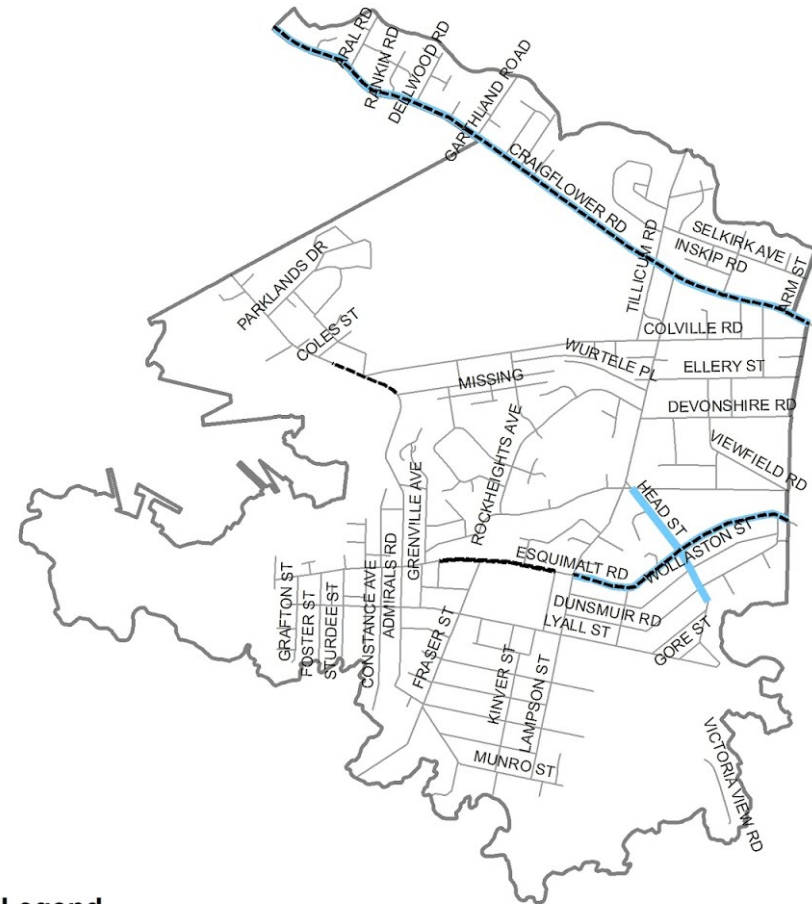
Pedestrian and Cycling
Master Plan Recommended
Separation for Cyclists



As detailed in this map, the existing bike lanes as observed during the completion of this project often varied wildly from the bike lanes as previously surveyed.



Differences of Previously Surveyed Bike Lanes and Actual Existing Bike Lanes from 2013 Student Survey



Legend

----- 2013 Surveyed Bike Lanes

— Previously Surveyed Bike Lane

0 0.5 1 2 Kilometers





We also noted that several decommissioned bikeways existed, many of which had been incompletely removed. Some had been painted over, but weathering of the paint had occurred and the bikeway was partially visible.



Map of Defunct Lanes



Map by Jane Patterson

This is confusing to both cyclists and drivers, and we recommend that a more thorough removal of decommissioned bikeways be undertaken. Many of the defunct lanes were considered “Bicycle shared pedestrian walkways” which could be a liability.



We found many signs that Esquimalt is encouraging cycling, such as high densities of signage and infrastructure along major routes, and traffic calming devices such as speed humps on local roads.

A “Speed Hump” forces drivers to slow down, while allowing cyclists to pass through unimpeded.



Challenge Solved...

Our team exceeded the host organization's expectations, and came up with many suggestions to increase cycling and thereby decrease the effects of climate change. These included:



Planning cycling-only routes, or cycling routes on less-travelled local roads with traffic-calming devices, which are proven to be the safest and most popular types of route for cyclists.



Improving the continuity of the bike network by linking existing and future bikeways and trails, and completing the E&N Rail Trail.



Increasing the amount and diversity of infrastructure available to cyclists, such as public bike racks and public repair stations.



Placing public bike parking near recreation sites such as parks and beach access points, to encourage cycling and to increase the use of these facilities.

The following infographic provides a brief summary of the findings and suggestions contained in our report.





Increased cycling spreads community well-being and health, is economically beneficial, and provides a modest decrease in greenhouse gas emissions.

- ▶ CRD aims to increase cycling mode share to 25% in urban areas by 2038 through implementation of the PCMP
- ▶ Esquimalt promotes public transit and multimodal transportation to help the CRD meet that goal, and aims to make all roads accommodating of bicycles

Esquimalt is essential to helping the CRD meet its climate action targets.

Cycling is better for the environment, good for your health, and a more efficient way to travel!

4.56

Total KM of Bike Lanes

124

Signs, Stencils, and Sharrows

Cycling Lanes

Bike Racks

Pieces of Infrastructure

Bike Parking

Knowing and mapping where current cycling infrastructure is located will help determine where new infrastructure is needed.

Total Bike Racks

42

Available bike parking spots

303



Encouraging Cycling through Infrastructure

Security

61% of Bike Racks in Esquimalt are Cora Style, a durable and excellent security rack with varying parking capacity

Security is essential to effective bike parking. Security of the rack itself must be considered along with the security of the location.

Increased infrastructure encourages cycling and will help reach the CRD goal of having a commuter cycling rate of 15% by 2035.

Weather Protection

19% of racks in Esquimalt are fully protected from weather; 24% have some level of weather protection

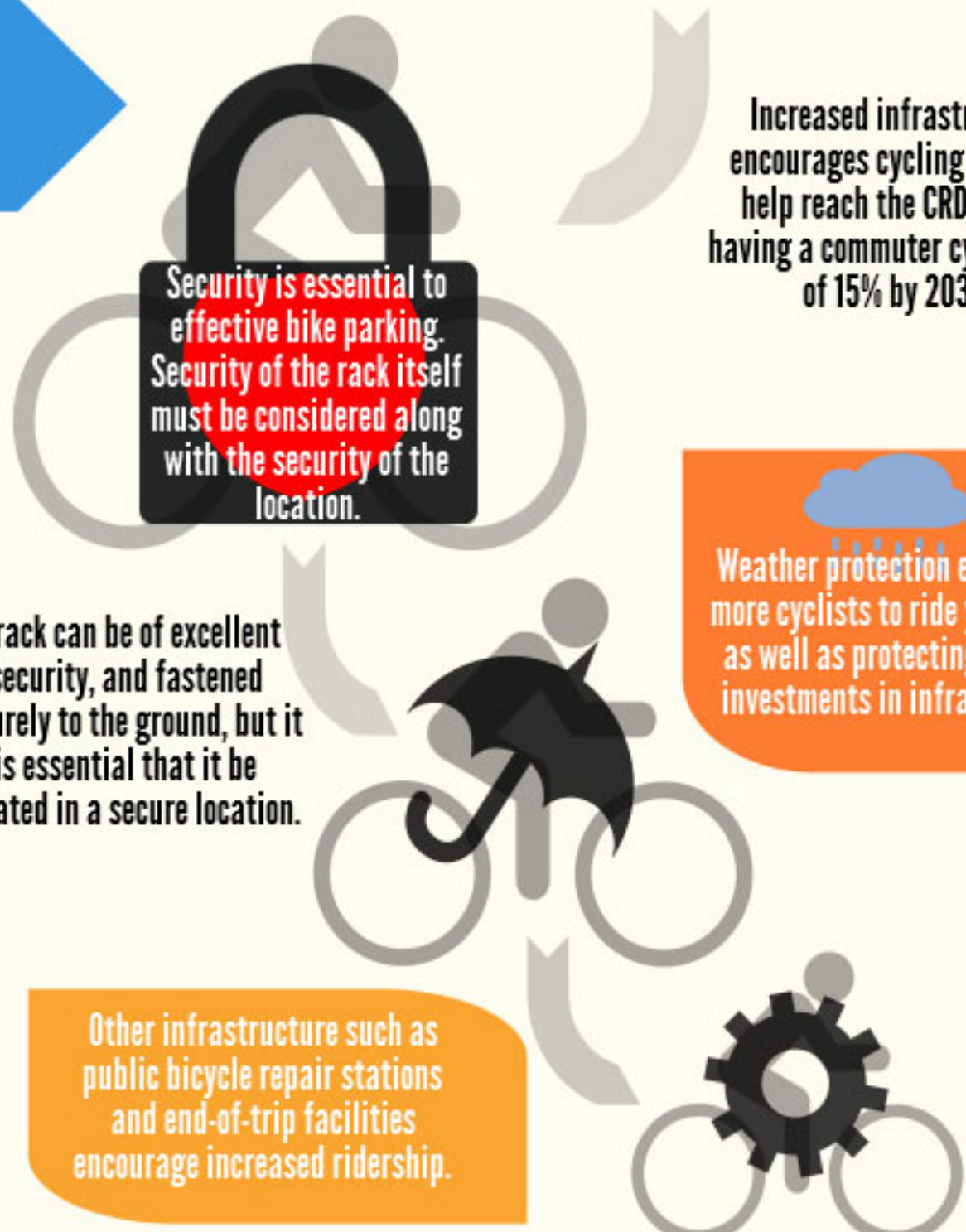
A rack can be of excellent security, and fastened securely to the ground, but it is essential that it be situated in a secure location.

Weather protection encourages more cyclists to ride year-round, as well as protecting valuable investments in infrastructure.

Other Infrastructure

Public events such as Bike to Work week spread knowledge on bike tool use and basic bicycle maintenance.

Other infrastructure such as public bicycle repair stations and end-of-trip facilities encourage increased ridership.



Bike Ways and Best Practices

The safest types of cycling routes are most popular and encourage people to ride

In Esquimalt, we observed both bicycle routes on high traffic streets, notably on Esquimalt Road and Craigflower Road, as well as traffic calming devices on less-travelled local streets

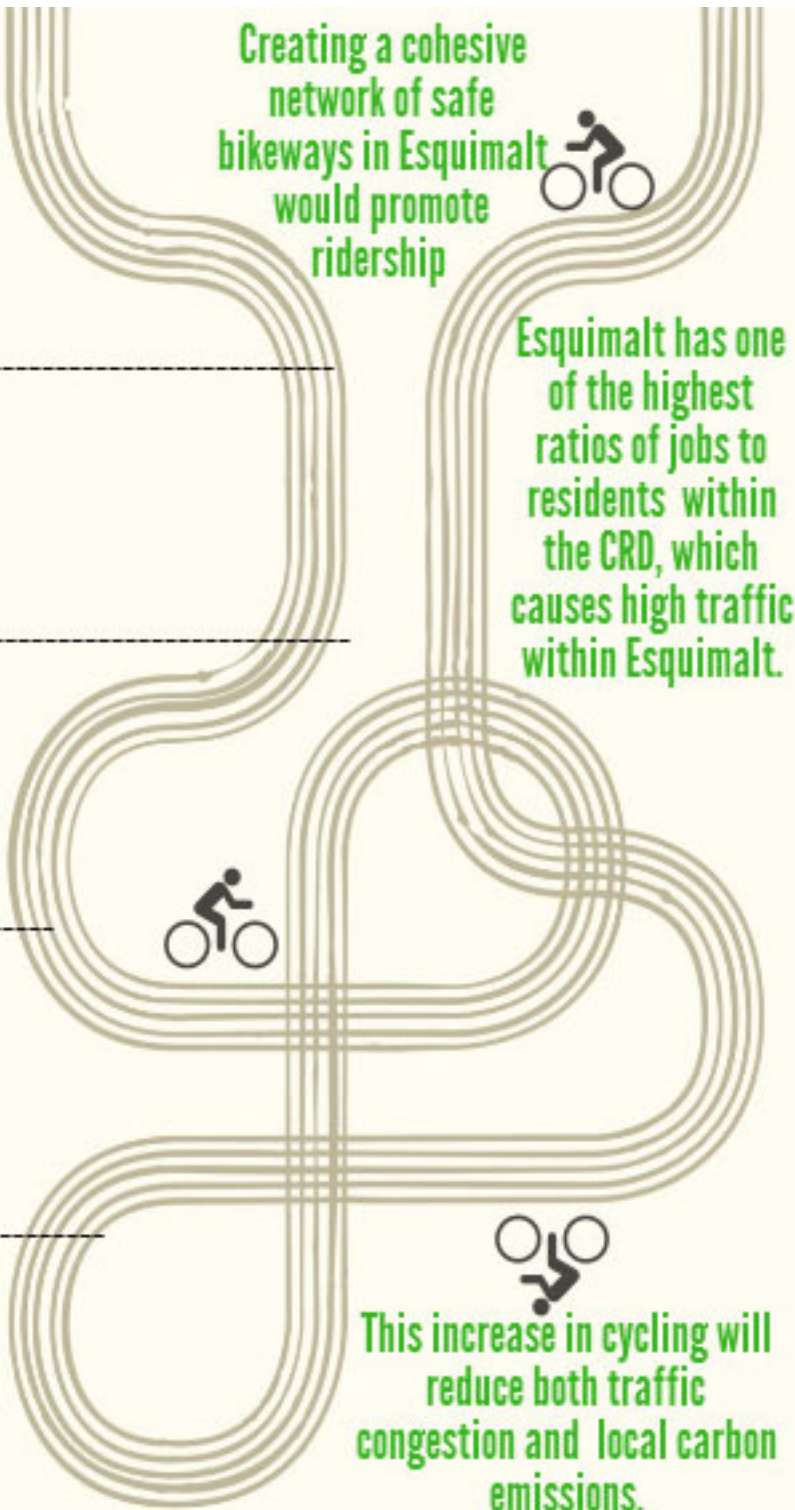


Bicycle only paths are the most preferred and safest type of route

Local streets with traffic calming measures are next

Observed examples are 'Speed Cushions', and increased signage and striping on newer routes

Newer and future infrastructure choices in Esquimalt should reflect findings such as these



CYCLING TOWARDS A BETTER FUTURE...



*Cycling can statistically
add up to 14 months to
your lifespan.
- de Hartog et al*

Key suggestions from the findings of this report:



The Township of Esquimalt would promote increased ridership by connecting to the cycling network that the CRD has built throughout the Greater Victoria area.



By creating a cohesive cycling network of cycling lanes and flat local roads with traffic calming devices within the Township and connecting CFB Esquimalt, the townships largest employer, to the network, Esquimalt would further encourage cycling.



Bike racks were lacking in desirable recreational locations such as parks and beach access points. Racks in these locations would encourage residents and visitors to cycle.



Covered durable racks in secure locations encourage year round cycling and protect valuable infrastructure investments



All information for our power point was taken directly from our report.

List of References from the report:

Section 1

de Hartog, J. J., Boogard, H., Nijland, H. and Hoek, G. (2010) Do the Health Benefits of Cycling Outweigh the Risks? Environmental Health Perspectives. 2010 August; 118(8): 1109–1116. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920084/>.

Teschke, K., Reynolds, C., Harris, A., Crompton, P., Chipman, M., Cusimano, M., Babul, S., Winters, J., Brubacher, J., Friedman, S., and Hunte, G. (2012) Bicyclists' Injuries and the Cycling Environment: Results of a Case-Crossover Study in Toronto and Vancouver. Retrieved from <http://cyclingincities-spph.sites.olt.ubc.ca/files/2012/10/BICEstudyAnalysis1.pdf>.

Capital Regional District: Regional Pedestrian and Cycling Master Plan. (2011) Alta Planning + Design. Retrieved from <http://www.crd.bc.ca/transportation/plans/documents/CRDPCMPweb.pdf>.

Township of Esquimalt. (2007) Official Community Plan Bylaw No. 2646. Retrieved from <http://www.esquimalt.ca/businessDevelopment/officialCommunityPlan/>.

Section 3

Capital Regional District: Regional Pedestrian and Cycling Master Plan. (2011) Alta Planning + Design. Retrieved from <http://www.crd.bc.ca/transportation/plans/documents/CRDPCMPweb.pdf>.

Township of Esquimalt. (2007) Official Community Plan Bylaw No. 2646. Retrieved from <http://www.esquimalt.ca/businessDevelopment/officialCommunityPlan/>.

Section 5.1

Welcome Cyclists Network. (2012) Bicycle Racks Options. Retrieved from www.welcomecyclists.ca/network-resources/item/download/35.

Metro Interactive Agency. (2013) Bike Racks and Metal Products. Retrieved from <http://www.parcoproducts.com/bikeracks.php>

Scoreworks Digital Media Inc. (2002) Ring Rack. Retrieved from <http://www.bikeup.com/horizontal/ring.html>

Montreal Web Design Co. (2011) The Post; The Lock Up 2 Parking System. Retrieved from <http://www.bikerack.ca/>

Thorpe et al. (2008) Bike Lock Typology. Retrieved from http://www.bikeoff.org/design_resource/DR_locks_typology.shtml

John Luton. Bicycles at Rest. Retrieved from www.bicycleparkingonline.org/

Cora Bike Rack, Inc. (2007) Cora Expo W Series Bike Racks. Retrieved from <http://www.cora.com/product1.htm>

Section 5.2

Teschke, K., PhD, Harris, M. A., C.O. Reynolds, C. C. O., Winters, Babul, M. S., Chipman, M., Cusimano, M. D., Brubacher, J. R., Hunte, G., Friedman, S. M., Monro, M., Shen, H., Vernich, L., Crompton, P. A. (2012) Safe Cycling: How do Risk Perceptions Compare With Observed Risk? Canadian Journal of Public Health, Vol. 103, No. 9. Retrieved from <http://journal.cpha.ca/index.php/cjph/article/view/3200/2668>.

Meghan Winters and Kay Teschke (2010) Route Preferences Among Adults in the Near Market for Bicycling: Findings of the Cycling in Cities Study. American Journal of Health Promotion: September/October 2010, Vol. 25, No. 1, pp. 40-47.

Section 5.3

Dero Bike Racks. (2013) Dero Fixit Brochure. Retrieved from <http://www.dero.com/products/fixit/index.html>.

Section 5.4

1. Teschke, K. and Winters, M. (2012) Cycling in Cities Opinion Study Brochure. Retrieved from <http://cyclingincities.spph.ubc.ca/files/2012/08/OpinionSurveyBrochure.pdf>.

2. Teschke, K., PhD, Harris, M. A., C.O. Reynolds, C. C. O., Winters, Babul, M. S., Chipman, M., Cusimano, M. D., Brubacher, J. R., Hunte, G., Friedman, S. M., Monro, M., Shen, H., Vernich, L., Crompton, P. A. (2012) Safe Cycling: How do Risk Perceptions Compare With Observed Risk? Canadian Journal of Public Health, Vol. 103, No. 9. Retrieved from <http://journal.cpha.ca/index.php/cjph/article/view/3200/2668>.