

CWATS COUNTS



Active Transportation Monitoring Program 2019





Active Transportation

What is Active Transportation?



“Active transportation refers to all human-powered forms of transportation, in particular walking and cycling. It includes the use of mobility aids such as wheel chairs, and can also encompass other active transport variations such as in-line skating, skateboarding, cross-country skiing, and even kayaking. Active transportation can also be combined with other modes, such as public transit” (Transport Canada, 2011)

Benefits of AT

ENVIRONMENTAL BENEFITS

- ❖ Generates very little air pollution
- ❖ Less carbon intensive than cars
- ❖ Reduced energy consumption
- ❖ An important component to municipal greenhouse gas reduction plan

ECONOMICAL BENEFITS

- ❖ The development and maintenance costs of AT infrastructure are far lower than other transportation infrastructure
- ❖ AT infrastructure can have positive local economic development impacts and produce individual cost savings

PUBLIC HEALTH AND SAFETY

- ❖ Encourages physical activity and therefore is a healthier mode of transportation
- ❖ A well-designed cycling infrastructure can greatly improve pedestrian and cyclist safety

TRANSPORTATION BENEFITS

- ❖ A good municipal AT network improves connections to, and between, community destinations, which improves the broader transportation network
- ❖ AT decongests traffic throughout roadways

Resource: https://www.fcm.ca/Documents/tools/GMF/Transport_Canada/ActiveTranspoGuide_EN.pdf



AT Count Program

Overview

- ❖ In 2015, the County of Essex established a short term Active Transportation Count program that provides a snapshot in time for pedestrian/cyclist activity. Data on usage and demand is essential to build long term support for walking and cycling to improve conditions where possible.
- ❖ CWATS facilities connects all 7 municipalities of the County of Essex together and to the Trans Canada Trail (Great Trail).
- ❖ Purpose: Allows further development of the trail system, observe how the trails are currently being used as well as behavioral aspects of the AT users.
- ❖ Types of Infrastructure: Multi-Use Trails (MUT), paved shoulders, signed routes, bike lanes, 1-way cycle paths, 2-way cycle paths.
- ❖ MUT and paved shoulders are the most common types of facilities CWATS has built to date.

Terminology

Definitions:

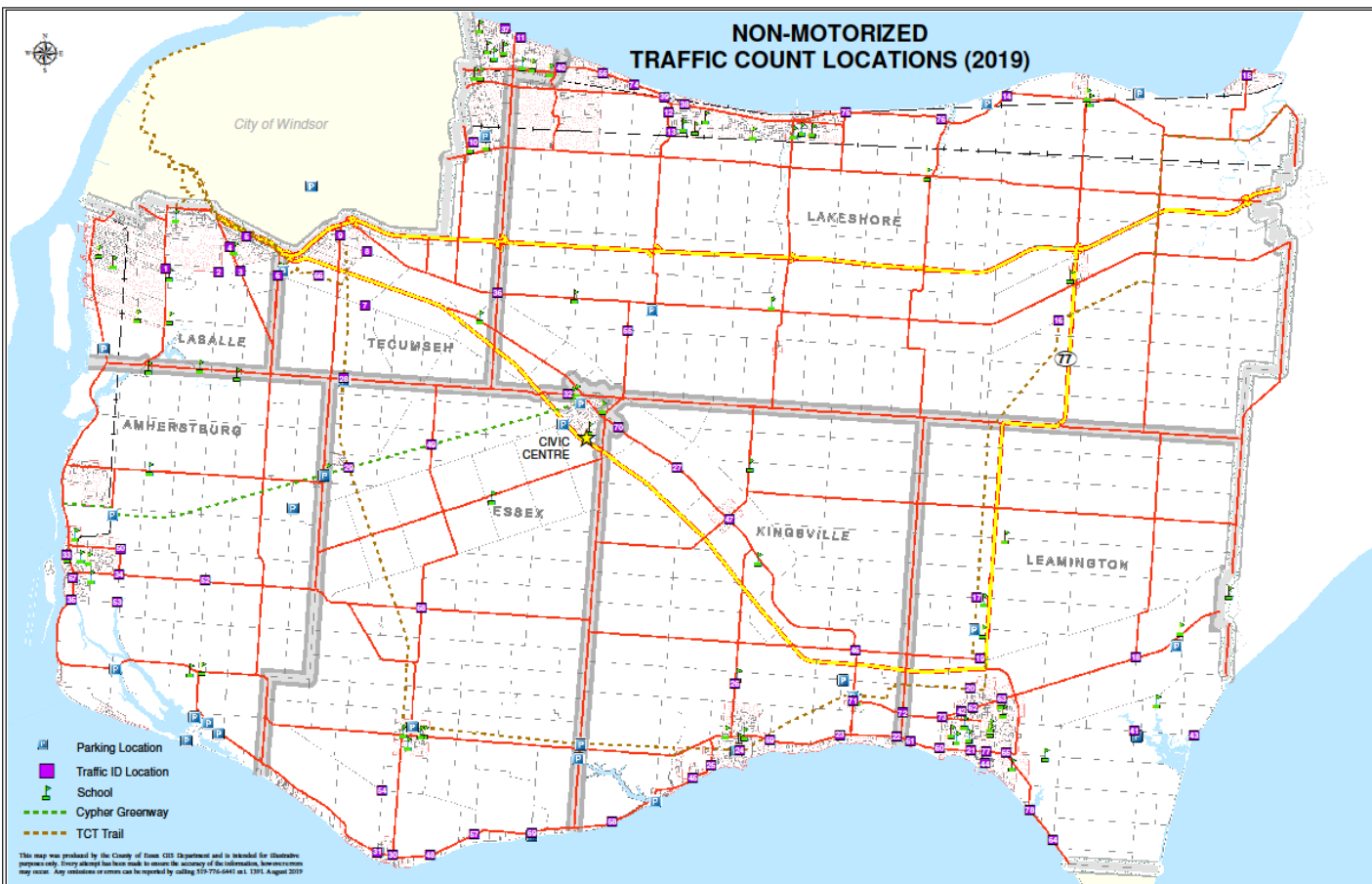
- ❖ Utilitarian Cyclists - those who ride a bicycle for utilitarian purposes such as going to work or school, running errands, going shopping or visiting friends
- ❖ Recreational Cyclists - those who ride a bicycle for recreation or fitness purposes
- ❖ Elite Cyclists - advanced cyclists
- ❖ Non-Cyclists - those who do not ride a bicycle (including pedestrians, e-bikes, rollerblades, skateboards, etc.)



Research Methodology

- ❖ The study aims to count active transportation users at all built locations, including new facilities that are planned in any given year.
- ❖ The study was conducted at 77 count locations in all 7 municipalities of the County of Essex.
- ❖ 11 new locations for 2019.
- ❖ Observe all forms of active transportation, direction of travel, appropriate usage, safety, age, gender.
- ❖ Timeline: June 17th – August 2nd
- ❖ Time period: 1 - 2 hour counts per location, typically a morning count and an afternoon count.
- ❖ Peak times: 9 –11 am, 12-2 pm

Count Locations Map



Intersection and Segment Count Forms

The raw data was gathered using the following forms and then put into a comprehensive Excel database. Two forms were used, one for segments and one for intersections.

Non-Motorized Traffic Count - Intersection Count Form

Cyclists Form

Station ID: _____ Date: _____ Time: _____

Street: _____ Facility: _____

Male Child _____ Female Child _____ Male Adult _____ Female Adult _____

Weather Conditions: ☐ Sunny ☐ Cloudy ☐ Raining ☐ Foggy ☐ Snowing ☐ Windy

Outdoor Temperature: _____

Street: _____ Facility: _____

Male Child _____ Female Child _____ Male Adult _____ Female Adult _____

Record every time one of the following events occurs

Intersection misuse:	Wrong way:	Not using facility:	Adult No Helmet:
Child No Helmet:	Recreation / Utilitaria	Elite	

Non-Motorized Traffic Count - Segment Count Form

Station ID: _____ Date: _____

Road Name: _____ Time: _____

Existing Facility: _____

Direction of Road: ☐ East-West ☐ North-South

Road Speed: _____

Weather ☐ Sunny ☐ Cloudy ☐ Raining ☐ Snowing

Conditions: ☐ Foggy ☐ Windy

Outdoor Temperature: _____

Direction of travel: <input type="checkbox"/> East <input type="checkbox"/> North						Direction of travel: <input type="checkbox"/> West <input type="checkbox"/> South					
Activity	Child Male	Child Female	Adult Male	Adult Female	Group Size & Age (A/C/M)*	Activity	Child Male	Child Female	Adult Male	Adult Female	Group Size & Age (A/C/M)*
Walking/Running						Walking/Running					
Cyclists						Cyclists					
Rollerblades/Skateboards						Rollerblades/Skateboards					
wheelchair						wheelchair					
e-bike						e-bike					
other						other					
Total						Total					

Record every time one of the following events occurs:

Wrong way:	Not using facility:	Adult No Helmet:	Child No Helmet:

*take note of groups and mark the age of the users as Mixed(M), Adult(A), or Child(C)

For each user place in category:

Elite	Recreation / Utilitarian



Key Findings

Overall Findings for AT Usage

Total Cyclists	840
Total Non-Cyclists	659
Total Females	541
Total Males	958
Total Adults	1131
Total Children	368
Recreational/Utilitarian Cyclists	655
Elite Cyclists	185
Hours of Counts	150
Total AT Users	1499
User/hour	10.0



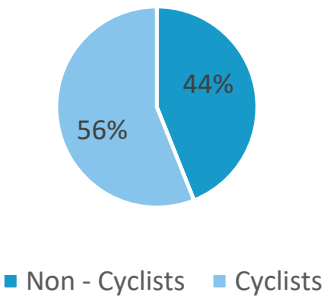
There were a total of 840 cyclists and 659 non-cyclists throughout Essex County during the count program in 2019.

Demographic and Behavioural Findings: Cyclists

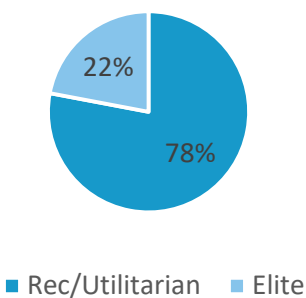
- A key finding of the Active Transportation count program has been a continued trend of increased cyclists.
- In 2017, the number of cyclists surpassed the number of non-cyclists.
- Of the total 1499 users, 56% were cyclists and 44% were pedestrians.
- In 2019, just under a quarter of all cyclists were elite cyclists.
- This demonstrates that cycling is increasingly more popular amongst Essex County residents as a legitimate mode of transportation.

2019

Cyclists vs Non-cyclists

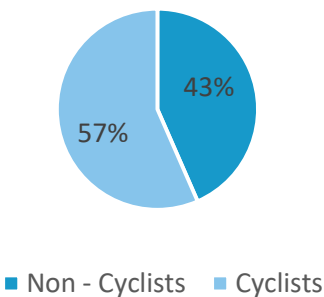


Type of Cyclist

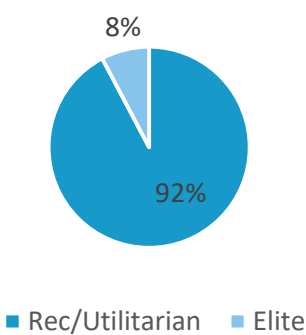


2018

Cyclists vs Non-cyclists

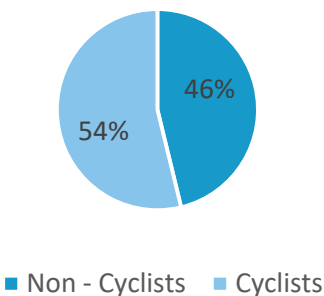


Type of Cyclist

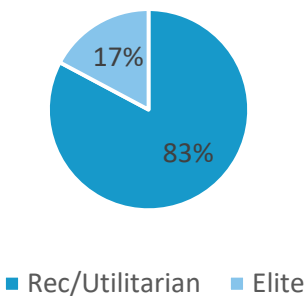


2017

Cyclists vs Non-cyclists



Type of Cyclist

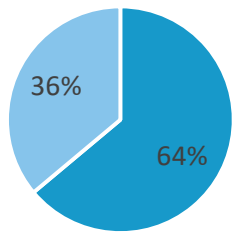


Demographic and Behavioural Findings: Gender and Age

- The study also suggests there are generally more male AT users than females, 64% to 36% respectively.
- Adults typically use AT facilities more than children, making up 75% of AT users.

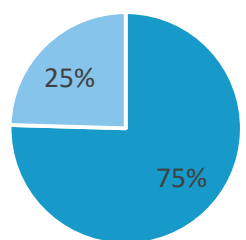
2019

Males vs Females



■ Males ■ Females

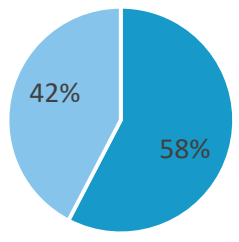
Adults vs Children



■ Adults ■ Children

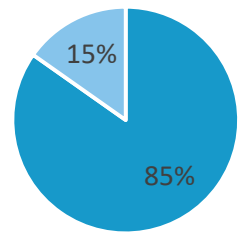
2018

Males vs Females



■ Males ■ Females

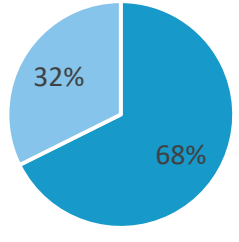
Adults vs Children



■ Adults ■ Children

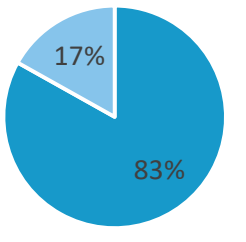
2017

Males vs Females



■ Males ■ Females

Adults vs Children

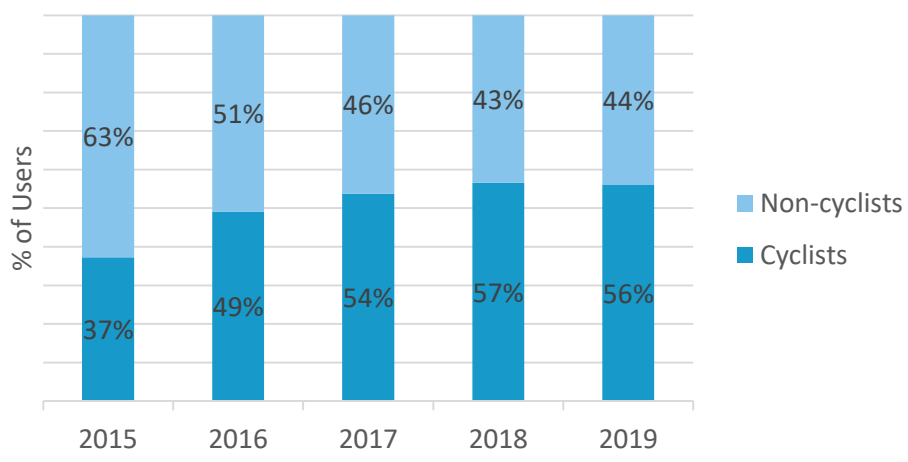


■ Adults ■ Children

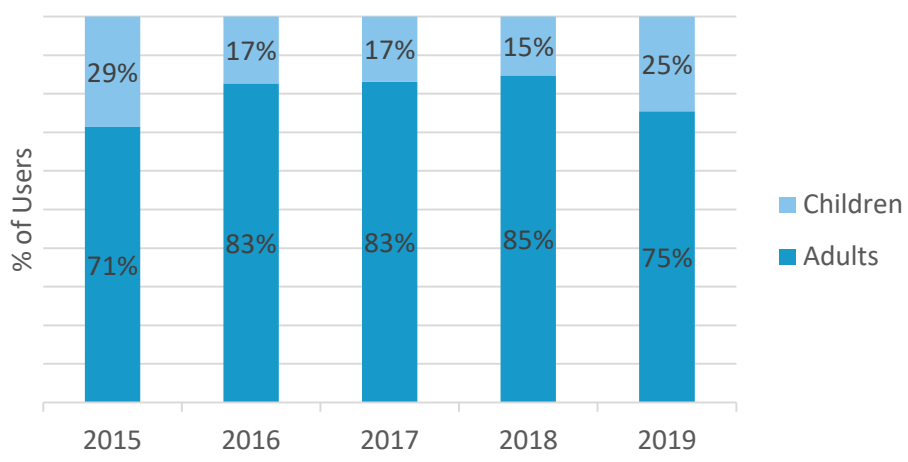
Demographic and Behavioural Findings: Overall Trends

- The general trend in AT usage from 2015 to 2019 shows an increase in the number of cyclists.
- The age trend shows more adults than children using AT facilities.
- Males typically use AT facilities more than females.

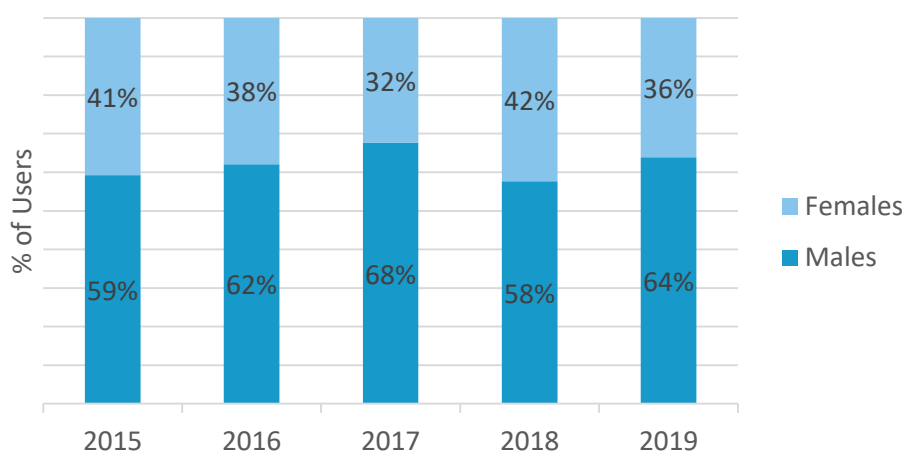
Cyclists vs Non-cyclists Trend



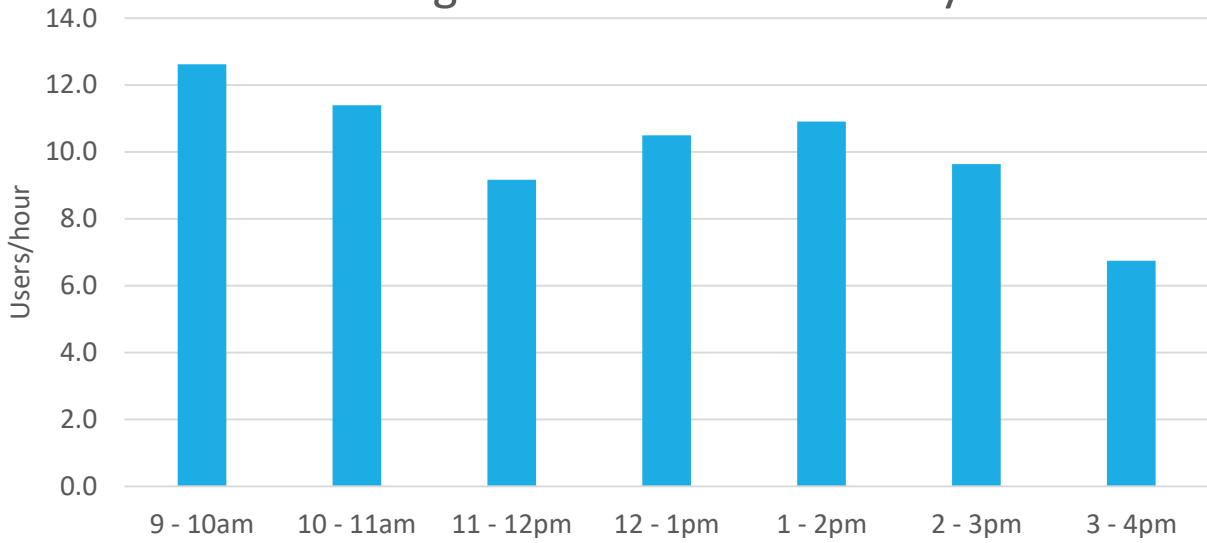
Adults vs Children Trend



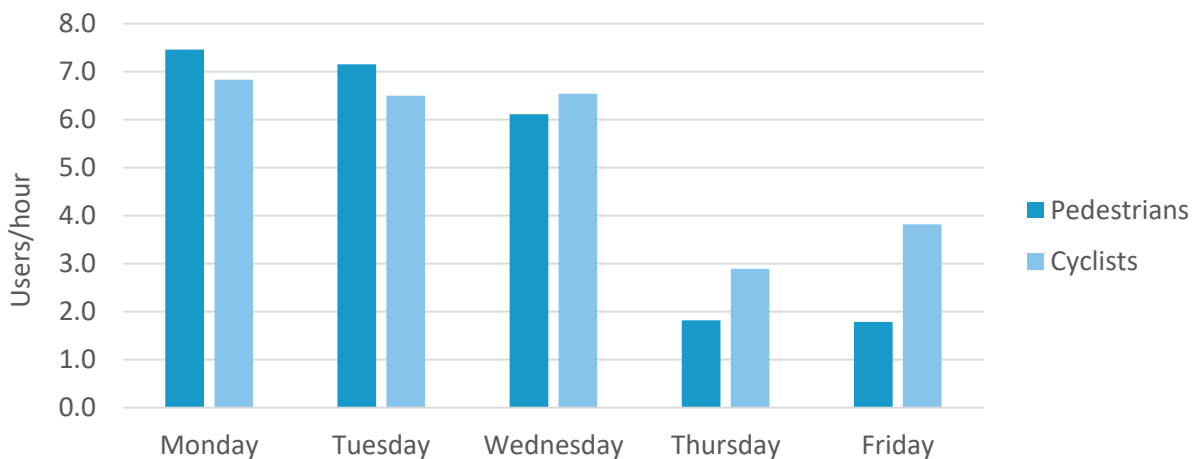
Males vs Females Trend



AT Usage based on Time of Day



AT Usage based on Day of Week



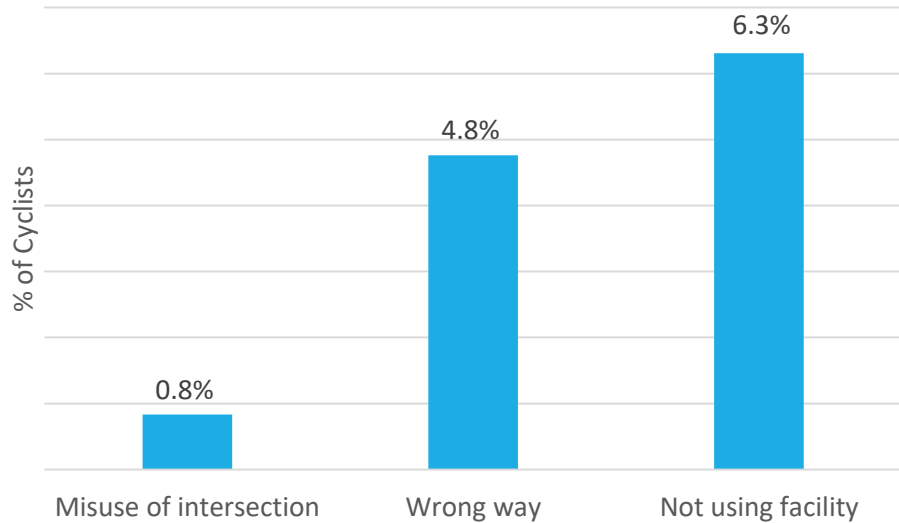
Demographic and Behavioural Findings: Time of Usage

- Peak times for facility usage are between the hours of 9 - 11 a.m. and 12 – 2 p.m.
- Peak days of the week for facility usage are Mondays, Tuesdays and Wednesdays.
- These findings, however, may not provide an accurate representation of AT usage throughout the day and week because different sites were counted at different times of the day on different days of the week.

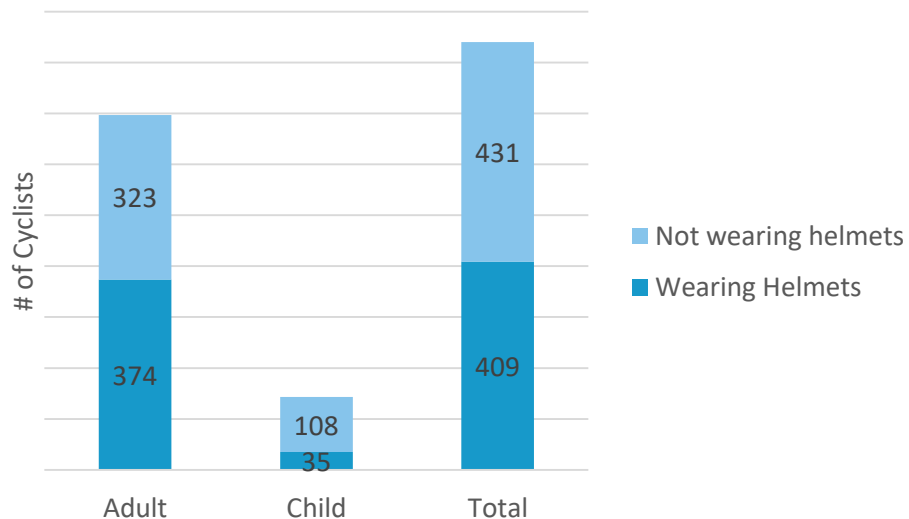
Demographic and Behavioural Findings: Safety Factors

- The majority of CWATS users properly use AT facilities.
- 51% of all cyclists did not wear helmets in 2019.
- 46% of adults and 76% of children did not wear a helmet while biking.
- This may be an opportunity to increase education on road and bike safety.

Improper Use of Facilities by Cyclists



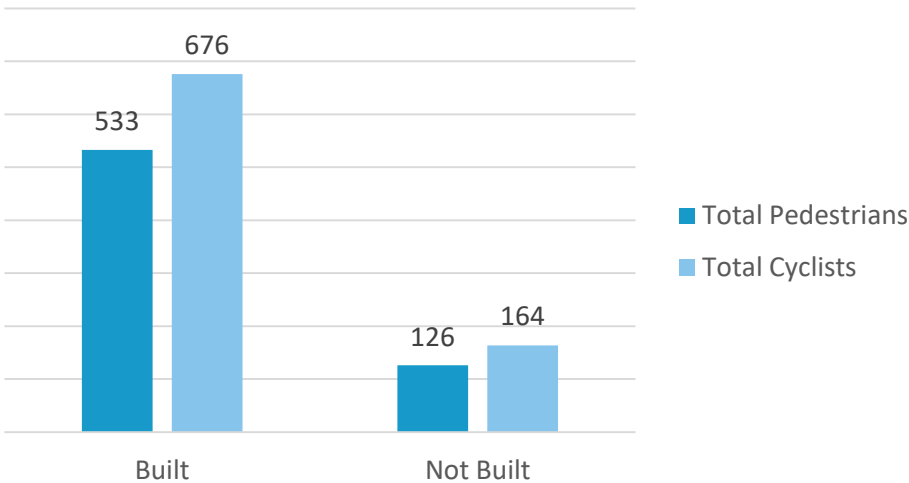
Helmet Usage by Cyclists



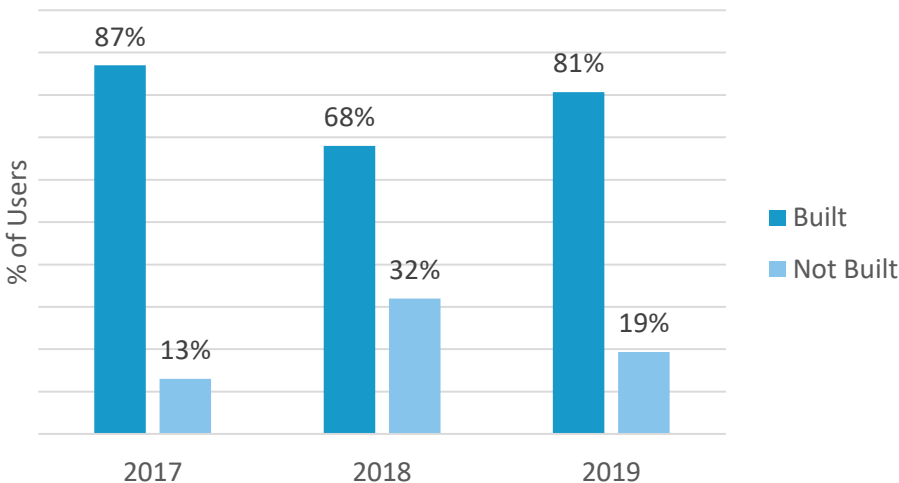
Findings Based on Facility Type

- There was 81% ridership in areas where facilities were already built, compared to 19% ridership in non-built areas
- AT users generally take advantage of built facilities. When facilities are newly built, there will typically be a spike in usage.
- These findings may suggest that users have a certain perception of safety and level of confidence when using the facilities. The more that is available to them and the more protected they feel, the more likely it is that they will utilize the facilities. Although, many users will travel on unbuilt facilities if it leads them to their destination.

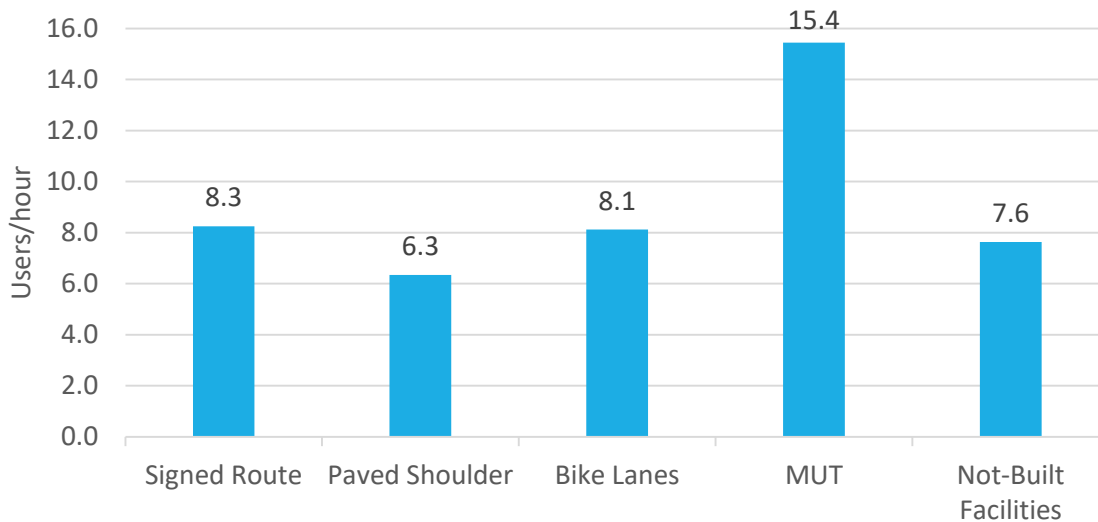
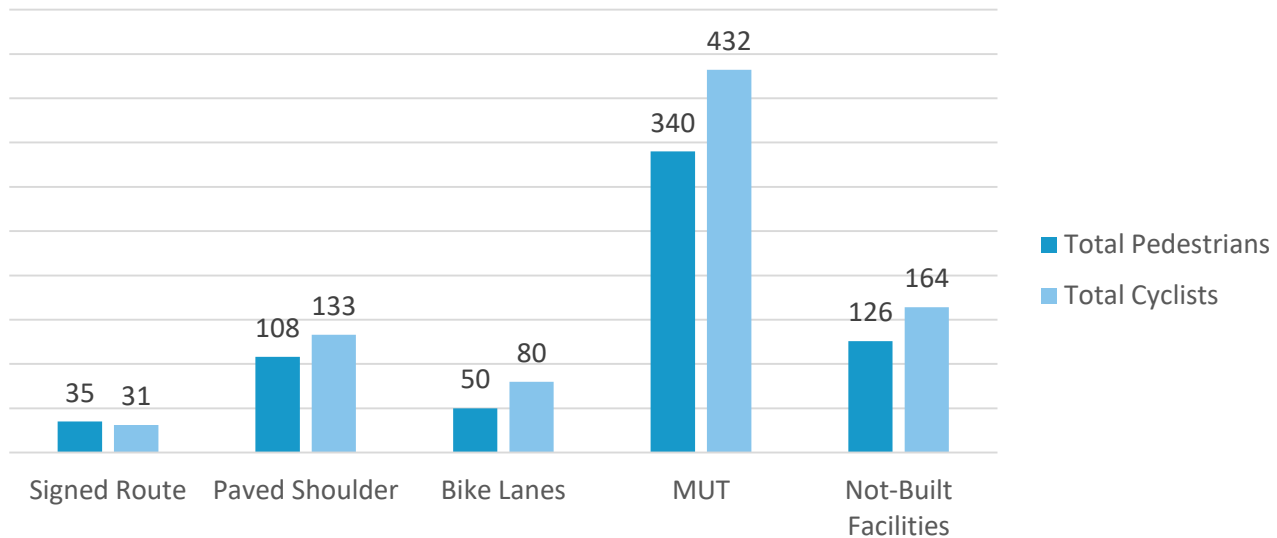
Usage of Existing Facilities vs Un-built Facilities



Usage Trends of Built and Un-built Facilities



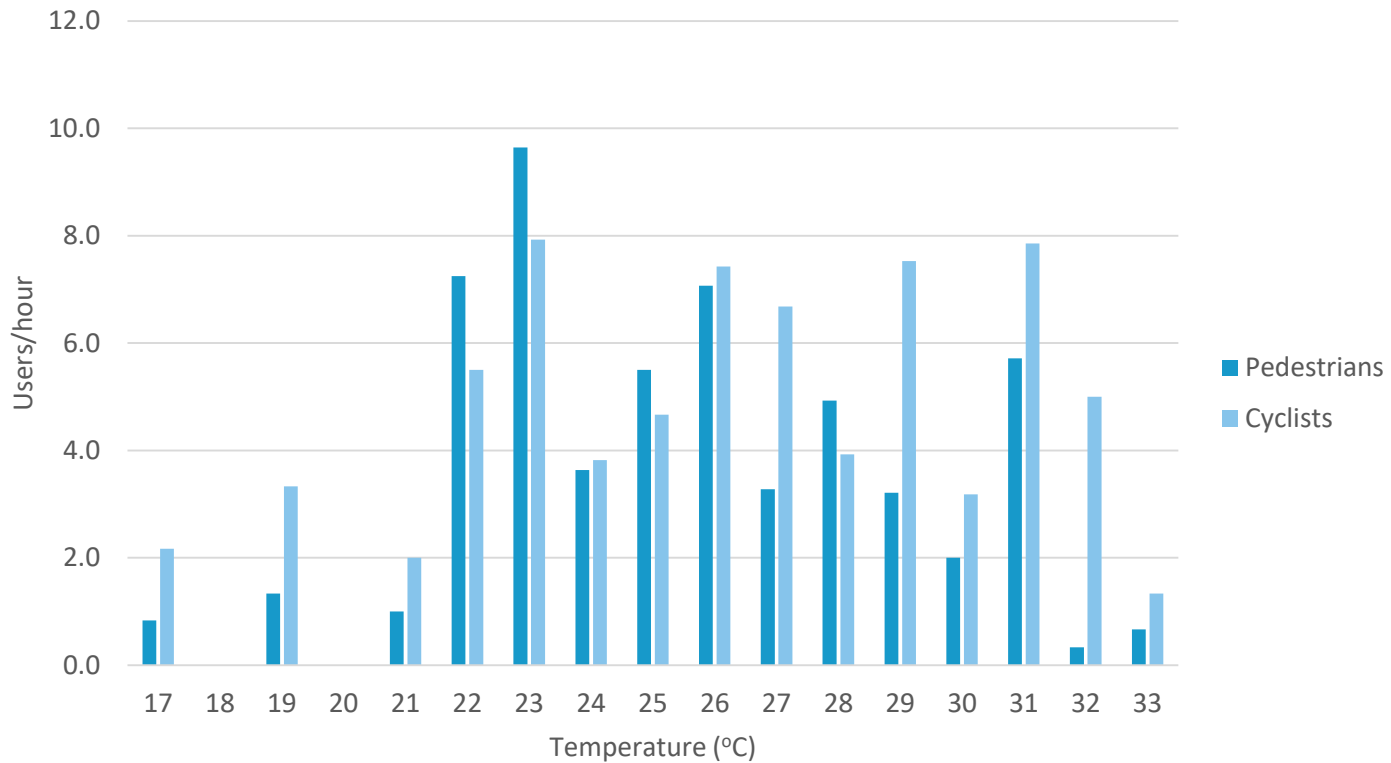
AT Usage by Facility Type



Findings Based on Facility Type

- There were 4 major types of CWATS facilities: multi-use trails (MUT), paved shoulders, bike lanes and signed routes.
- Multi-use trails have the highest number of both cyclists and pedestrians.
- Count locations are usually a combination of two or three facility types.

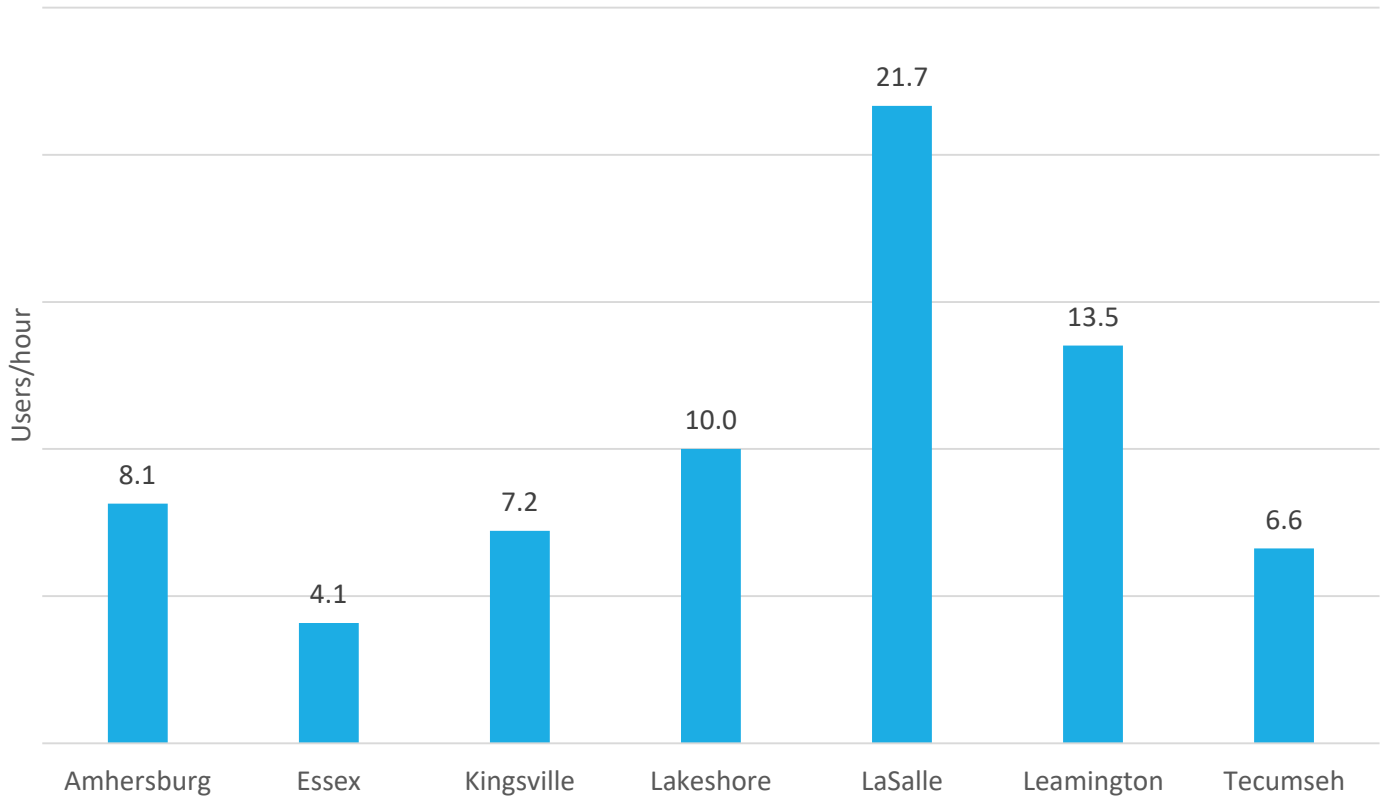
Impact of temperature on AT usage



Meteorological Findings

- AT counts were conducted on days with ideal weather (i.e. rainy days were avoided).
- AT users generally utilize CWATS facilities when the temperature is between 22 – 31 °C.
- 2019 data shows temperature has a greater impact on pedestrians than cyclists. Temperatures below 22 °C and above 31 °C show a significant decrease in pedestrians using facilities.

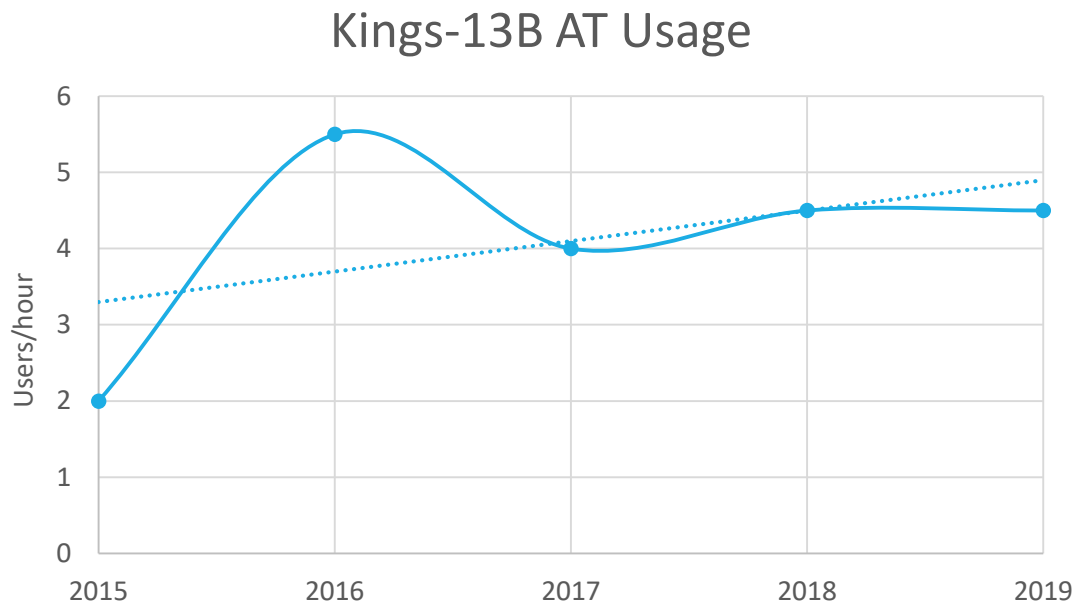
Users/hr by Location



Variation by Location

- The Town of LaSalle had the highest number of active transportation users at 21.7 users/hr.

Project Usage Highlights: Kingsville 13B 1-Way Cycle Track



- ❖ This facility, located on Seacliff Dr, separates vehicles from cyclists and pedestrians with a physical curb barrier.
- ❖ This trend shows a spike in usage in 2016, the year it was built.
- ❖ Overall, there is consistent data that shows more AT usage of Kings-13B after being built.



Top 5 CWATS Facilities for Cyclists in 2019

CWATS ID	Location	Facility Type	Pedestrians	Cyclists	Total Users
Las-3, Las-12, Las-15	Laurier Pkwy @ Malden Rd	Multi-Use Trail	89	32	121
Leam-22, Leam-37	Seacliff Dr (near Kinsmen Baseball Diamonds)	Multi-Use Trail, Signed Route	48	32	80
Leam-28, Leam-37	Robson Rd @ Leamington Greenway	Multi-Use Trail, Signed Route	48	24	72
Tec-17	Riverside Dr E (near Lakewood Park)	Multi-Use Trail, Signed Route	42	19	61
Lake-11, Lake-28	Old Tecumseh Rd @ E Pike Creek Rd	Signed Route	26	33	59

Location of Interest

- ❖ Laurier Pkwy MUT (Las-15).
- ❖ 4 count locations along the 5.5 km MUT.
- ❖ High AT traffic volumes.
- ❖ This MUT is commonly used by elite cyclists, recreational users and high school students alike.
- ❖ Consistent ridership patterns and proper facility use of MUTs like Las-15 offer the best locations for automated eco-counters.

Automated Eco-Counters

- ❖ Automated eco-counters are devices that accurately count cyclists throughout all hours of the day.
- ❖ Of the 77 count locations, 5 were located at or near Essex County's automated eco-counters on paved shoulders or bike lanes.
- ❖ Considering paved shoulders and bike lanes are on both sides of the road, the eco-counters only gather data of cyclists traveling in one direction.
- ❖ In order to gather holistic data of AT usage, consideration should be given to locating future counters on multi-use trails and two-way cycle paths. On these facilities, cyclist error is minimal and AT users are "funneled" onto a single shared path.



Automated Eco-Counters Comparison

CWATS Count Location	Location	Distance from Eco-Counter	Cyclists Counted Manually (total)	Cyclists Counted Manually (direction accounted for)	Cyclists Counted by Eco-Counter
74	Old Tecumseh Rd	0 m	35	18	20
57	County Rd 50 @ Ridge Rd	40 m	15	7	7
22	County Rd 20 @ Rowley Park Dr	80 m	9	5	4
61	County Rd 20 @ Pinecrest Dr	0.5 km	9	2	2
60	County Rd 20 @ Fraser Rd	0.5 km	13	3	3

- ❖ Even when direction is accounted for, some numbers are still inconsistent
- ❖ This is a result of cyclist behavior, including
 - ❖ Avoiding eco-counters
 - ❖ Crossing eco-counters multiple times
 - ❖ Riding on the wrong side of the road

Possible Barriers for AT



Safety



End-of-trip facilities



Connectivity



Funding/ Cost



Accessibility



Design of AT and trails infrastructure



Signage and Wayfinding



Lack of AT and trails infrastructure



Attitudes / Education



Distance

Summary of Findings



- ❖ The number of cyclists exceed the number of pedestrians.
- ❖ AT users generally use facilities that offer some degree of separation from motorists.
- ❖ More than half of all cyclists did not wear a helmet, all of which were recreational/utilitarian cyclists.
- ❖ Peak times for AT users: 9 – 11 a.m., 12 – 2 p.m.
- ❖ Peak temperature range for AT users: 22 – 31 °C.
- ❖ Count sites that were closer to “destination” areas such as parks or by the river had consistently high usage.

Enhancing our understanding of factors that influence active transportation in a local context will support evidence for informed decision making. Automated bicycle and pedestrian traffic data collection is recommended as a long term objective to provide a greater understanding of patterns in different contexts.

Recommendations

❖ Education/safety

- ❖ Increase signage – Clarify how and where to ride.
- ❖ Public outreach – Motorist knowledge and awareness of AT users needs improvement. Reckless driving is at the forefront of AT users' safety concerns. Use of bike helmets remains an issue as well.

❖ Expanding the network

- ❖ Trail connections – Connection within and between municipalities should be a focal point for ease of access to CWATS.
- ❖ Public surveys – Use public input to determine preferred areas for development.
- ❖ Busy/high speed roads – Consideration must be given to current AT usage on busy/high speed roads prior to developing AT facilities. AT facilities on busy/high speed roads are oftentimes not fully utilized unless there is some form of physical separation (e.g. curb, delineator, space between trail and road)

Recommendations

❖ Eco-counters

- ❖ Placement on facilities that channel AT users onto a single path (e.g. multi-use trails, 2-way cycle paths) is highly recommended for holistic data.

❖ Bike storage facilities

- ❖ “Destination” areas – Areas such as parks, rec centers, shopping centers, schools and any location that attracts AT users should be considered candidates for bike storage facilities.

❖ Future manual AT counts

- ❖ As more eco-counters are installed in Essex County, manual AT counts should focus more on areas of development.

Reference Websites

<http://www.cwats.ca/en/about-cwats.asp>

[http://www.raqsmb.mto.gov.on.ca/techpubs/eps.nsf/0/825810eb3ddd203385257d4a0063d934/\\$FILE/Ontario%20Traffic%20Manual%20-%20Book%2018.pdf](http://www.raqsmb.mto.gov.on.ca/techpubs/eps.nsf/0/825810eb3ddd203385257d4a0063d934/$FILE/Ontario%20Traffic%20Manual%20-%20Book%2018.pdf)

<https://www.canada.ca/en/transport-canada.html>

https://www.fcm.ca/Documents/tools/GMF/Transport_Canada/ActiveTranspo_Guide_EN.pdf

https://www.countyofessex.ca/en/county-government/resources/Documents/CWATS_Survey_Results.pdf