

TECHNICAL APPENDIX A

Summary of Existing Trends

A.1 Strava Data

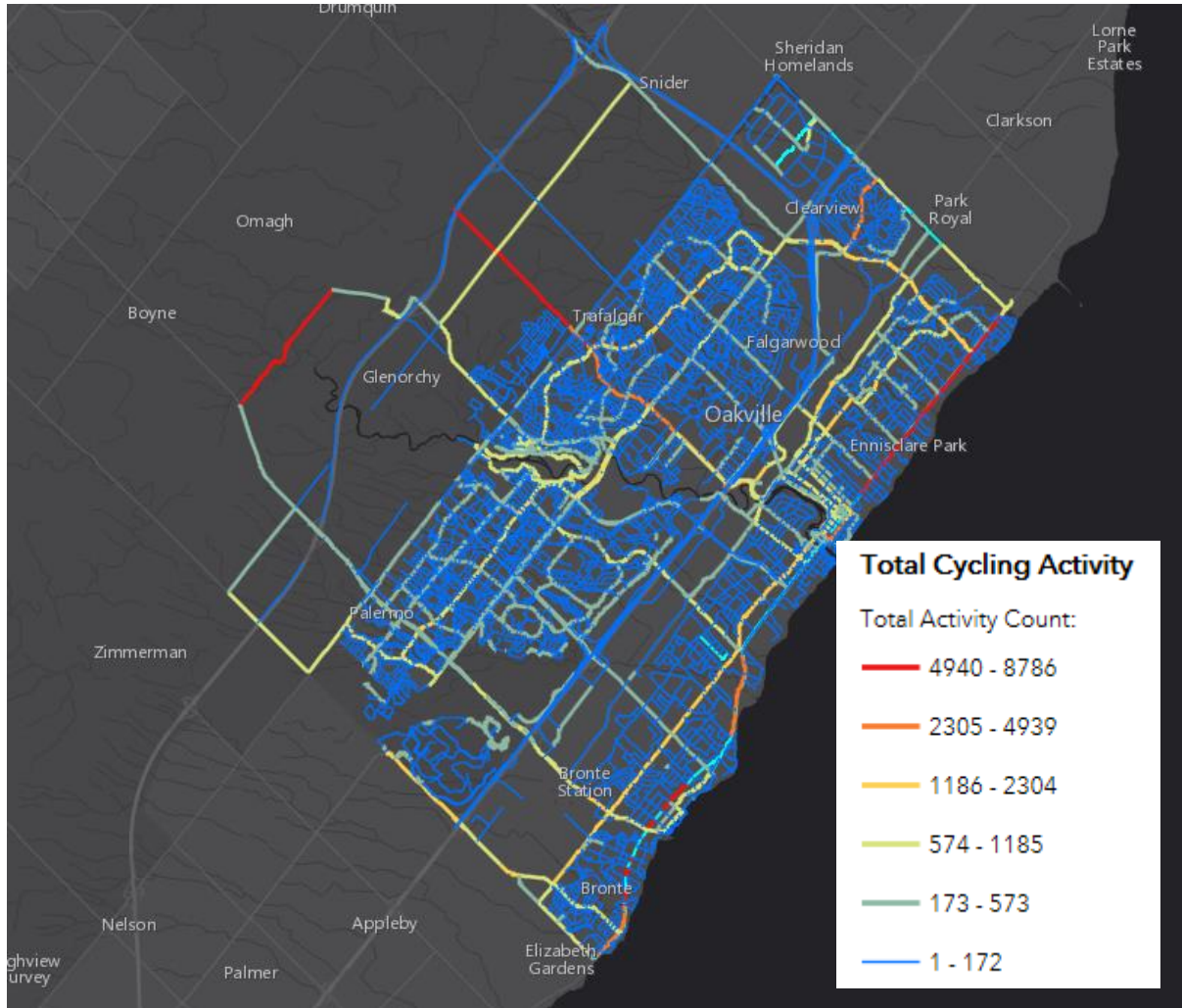
Strava is a website and mobile application used to track physical activity and travel via GPS technologies. Strava enables users to track all activity (such as cycling, running, walking, etc.) and also collects information on routes / streets used, origin and destination points, intersection wait times and peak commute times. The collected data is aggregated and visualized as a heat-map to show frequency of popular routes / roads travelled among Strava users and average wait times at intersections.

The Town of Oakville has acquired cycling data from Strava that was recorded between October 2014 and March 2016. The following is a brief description of the three datasets collected:

- **Total Cycling Activity** – the total number of all cycling trips including commuter and recreational trips in Oakville;
- **Total Commute Activity** – the total number of all commuter trips in Oakville. Trip purpose, such as commuting, can be identified by Strava users when tracking their activity; and
- **Total Cyclists** – the total number of all cyclists who have recorded cycling activity in Oakville.

A summary of the Strava data is presented on the following pages. A snapshot of the entire town and downtown area is provided for each dataset.

Total Cycling Activity – Town-wide

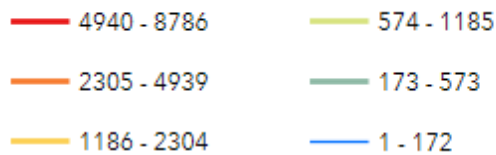


Total Cycling Activity – Downtown Area



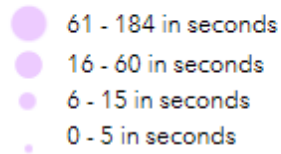
Total Cycling Activity

Total Activity Count:



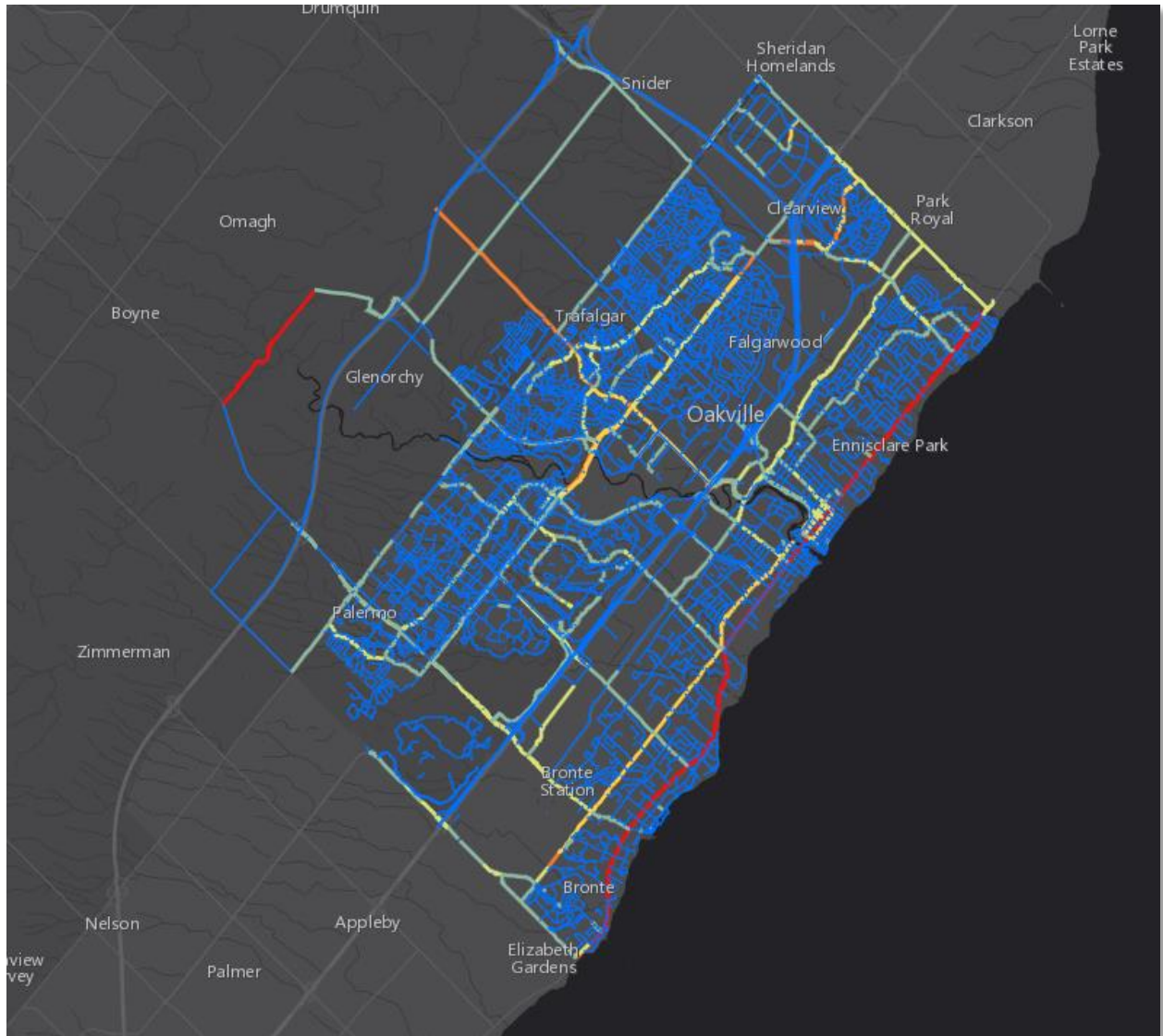
Intersection Wait Times

Median Wait Time



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Total Commute Activity – Town-wide



Total Commute

Total Commute Trips:

- | | |
|--|---|
| — > 579 to 1,202 | — > 95 to 196 |
| — > 326 to 579 | — > 30 to 95 |
| — > 196 to 326 | — 0 to 30 |

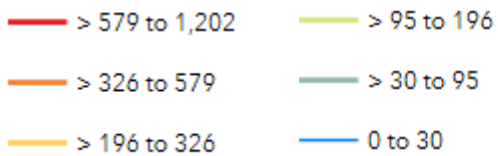
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Total Commute Activity – Downtown Area



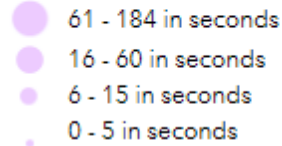
Total Commute

Total Commute Trips:



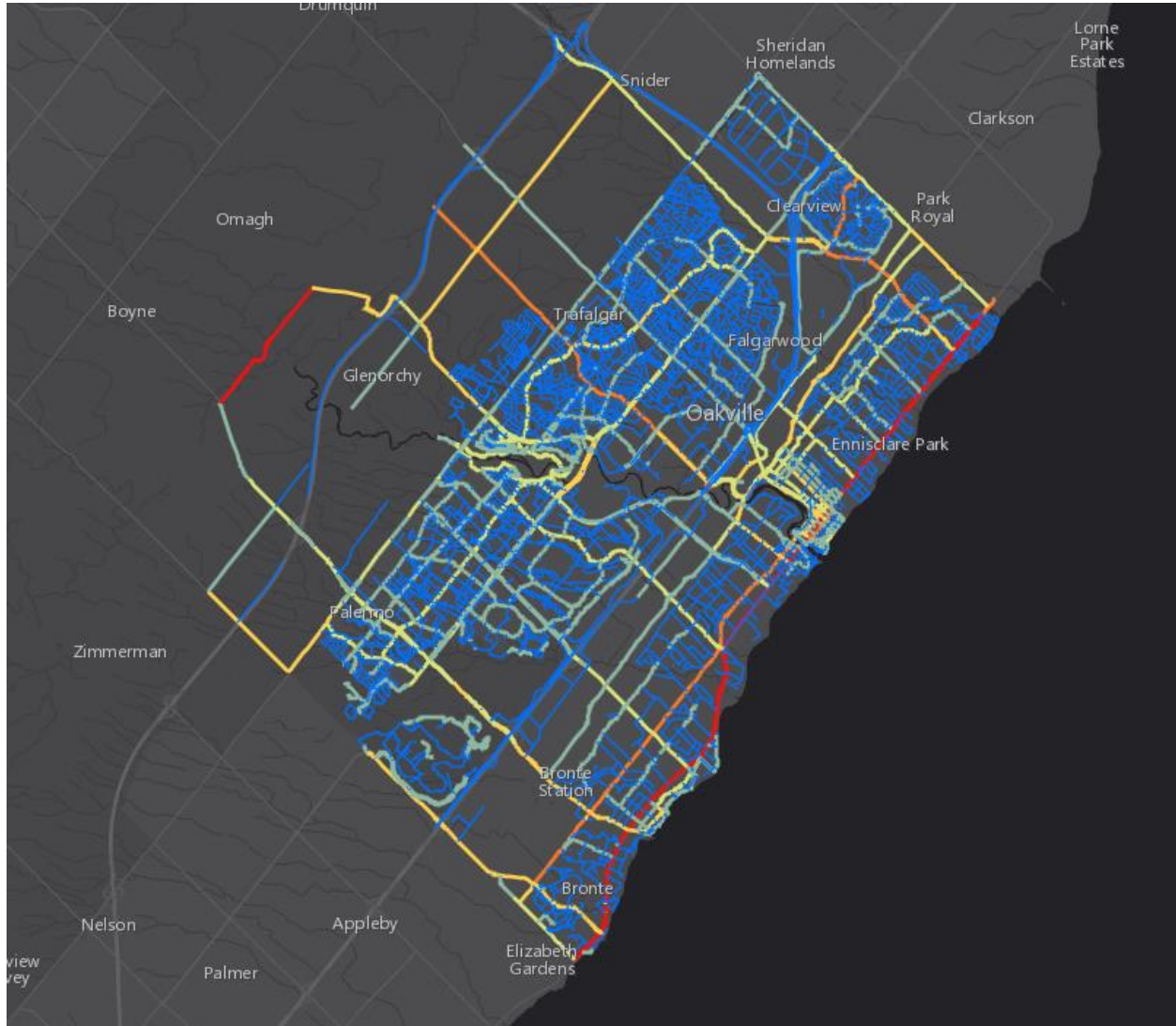
Intersection Wait Times

Median Wait Time



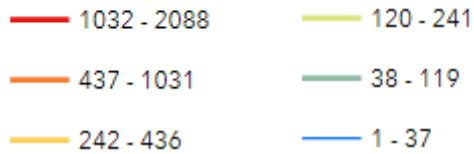
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Total Cyclists – Town-wide



Total Cyclists

Total Cyclist Trips:



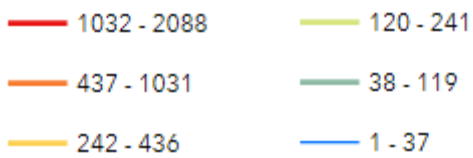
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Total Cyclists – Downtown Area



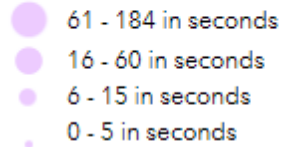
Total Cyclists

Total Cyclist Trips:



Intersection Wait Times

Median Wait Time



A.2 Spatial Analysis

A.2.1 Walkability Mapping Methodology

Walkability is a measure which combines a series of individual factors that contribute to the overall walking quality. For all surface factors, a specific set of spatial analysis tools was applied in order to best emulate its effect on walking quality. Each surface was rasterized to a 30 metre grid and normalized to a scale from 1 to 10. All indicators were then combined with the raster calculator to create an overall walkability surface where each indicator is weighted equally. The following table provides a summary of each factor considered when undertaking the walkability analysis:

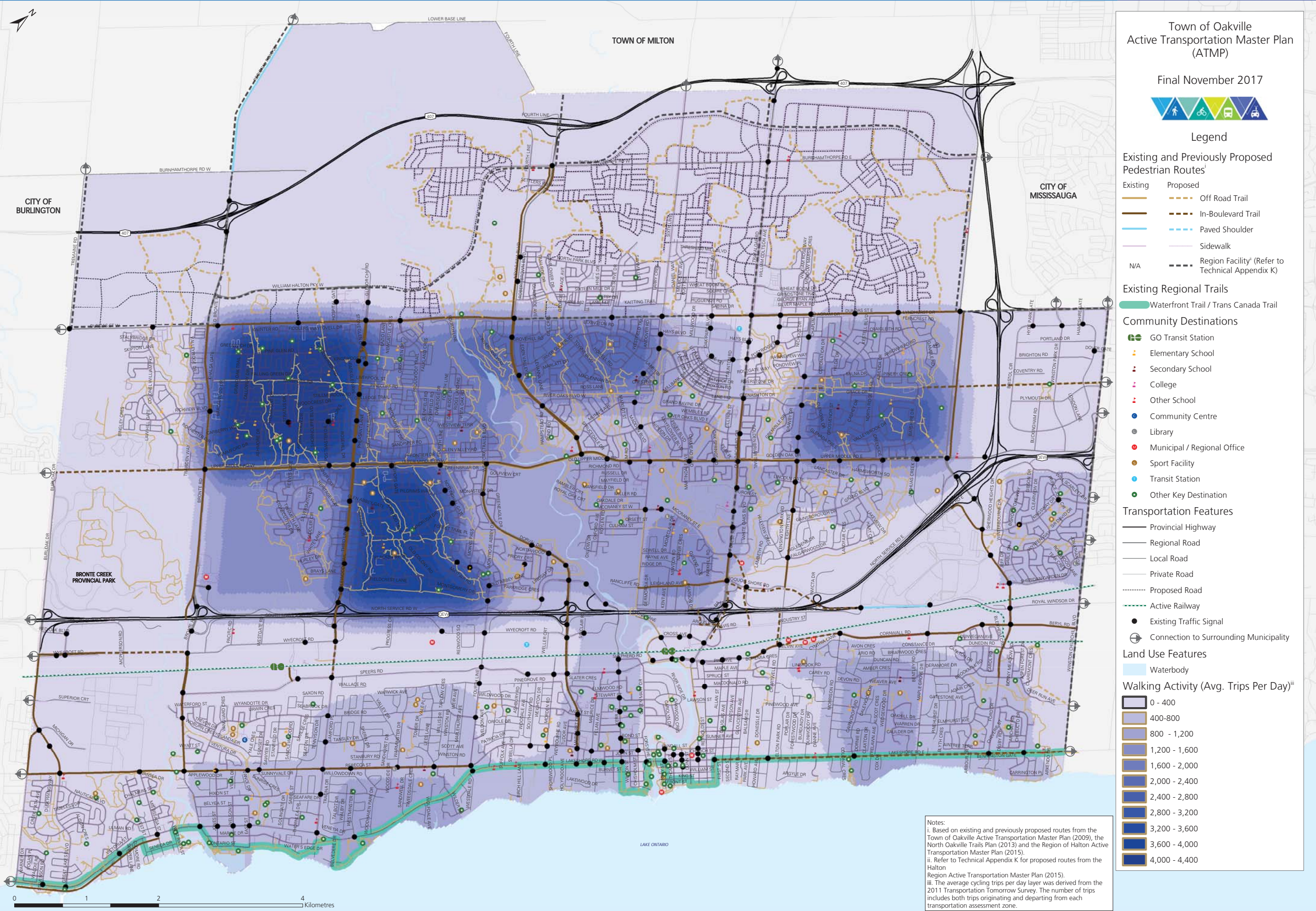
FACTOR NAME	METHODOLOGY	CLASSIFICATION	SOURCE
Density and size of street trees	Calculated the density of street trees within 5m. Weighted each tree by its base diameter height.	Natural Breaks.	Oakville Open Data
Slope	Generated slope from topography raster.	Manual. Based off of pedestrian accessibility standards.	Natural Resources Canada
Density and variation of population serving businesses	Filtered complete set of businesses to population serving businesses by North American Industry Classification System (NAICS) code. Population serving is a way to designate businesses with a high amount of public traffic. Afterwards, mixed use areas were determined through Anselin Morans I analysis. This weighted outliers as twice as important as other businesses. Calculated business density by counting number of businesses within 400m.	Natural Breaks.	Environics Business Locations

FACTOR NAME	METHODOLOGY	CLASSIFICATION	SOURCE
Proximity to schools	Converted school lands polygons to points based on feature vertices. Calculated 1500m service area from vertices using network analysis.	Binary, within 1500m or outside of 1500m.	Open Data Oakville
Proximity to parks	Took a 400m linear polygon buffer from the parks polygon layer.	Binary, within 400m or outside of 400m.	Open Data Oakville
Population density	Calculated population density for each Dissemination Area (DA). Applied a 400m blur using focal statistics to account for density bleed at the edges of the DA boundary.	Natural Breaks.	Statistics Canada 2011 Census
Street connectivity	Calculated the density of non-highway street intersections within 400m using point statistics.	Manual, following from research on street permeability modelling.	Town of Oakville
Proximity of available trails	Calculated the density of trails within 400m using line statistics.	Natural Breaks.	Town of Oakville
Proximity of available sidewalks	Calculated the density of sidewalks within 25m using line statistics.	Natural Breaks.	Town of Oakville

A.2.2 Bikeability Mapping Methodology

Bikeability is a measure which combines a series of individual factors that contribute to the overall biking quality. For all surface factors, a specific set of spatial analysis tools was applied in order to best emulate its effect on biking quality. Each surface was rasterized to a 30 metre grid and normalized to a scale from 1 to 10. All indicators were then combined with the raster calculator to create an overall bikeability surface where each indicator is weighted equally. The following table provides a summary of each factor considered when undertaking the bikeability analysis:

FACTOR NAME	METHODOLOGY	CLASSIFICATION	SOURCE
Proximity of existing cycling tracks	Calculated the density of cycle tracks within 400m using line statistics.	Manual. Based off of bikeability research.	Natural Resources Canada
Slope	Generated slope from topography raster.	Manual. Based off of bikeability research.	Natural Resources Canada
Density and variation of population serving businesses	Filtered complete set of businesses to population serving businesses by North American Industry Classification System (NAICS) code. Population serving is a way to designate businesses with a high amount of public traffic. Afterwards, mixed use areas were determined through Anselin Morans I analysis. This weighted outliers as twice as important as other businesses. Calculated business density by counting number of businesses within 400m.	Manual. Based off of bikeability research.	Environics Business Locations
Street connectivity	Calculated the density of non-highway street intersections within 400m using point statistics.	Manual. Based off of bikeability research.	Town of Oakville



Town of Oakville
Active Transportation Master Plan (ATMP)
Final November 2017

Legend

Existing and Previously Proposed Pedestrian Routesⁱ

Existing	Proposed

Existing Regional Trails

- Waterfront Trail / Trans Canada Trail

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Private Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

Land Use Features

- Waterbody

Walking Activity (Avg. Trips Per Day)ⁱⁱⁱ

	0 - 400
	400-800
	800 - 1,200
	1,200 - 1,600
	1,600 - 2,000
	2,000 - 2,400
	2,400 - 2,800
	2,800 - 3,200
	3,200 - 3,600
	3,600 - 4,000
	4,000 - 4,400

Notes:

- Based on existing and previously proposed routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013) and the Region of Halton Active Transportation Master Plan (2015).
- Refer to Technical Appendix K for proposed routes from the Halton Region Active Transportation Master Plan (2015).
- The average cycling trips per day layer was derived from the 2011 Transportation Tomorrow Survey. The number of trips includes both trips originating and departing from each transportation assessment zone.

Town of Oakville
Active Transportation Master Plan (ATMP)
Final November 2017

Legend

Existing and Previously Proposed Cycling Routesⁱ

Existing	Proposed

N/A

Existing Regional Trails

- Waterfront Trail / Trans Canada Trail

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

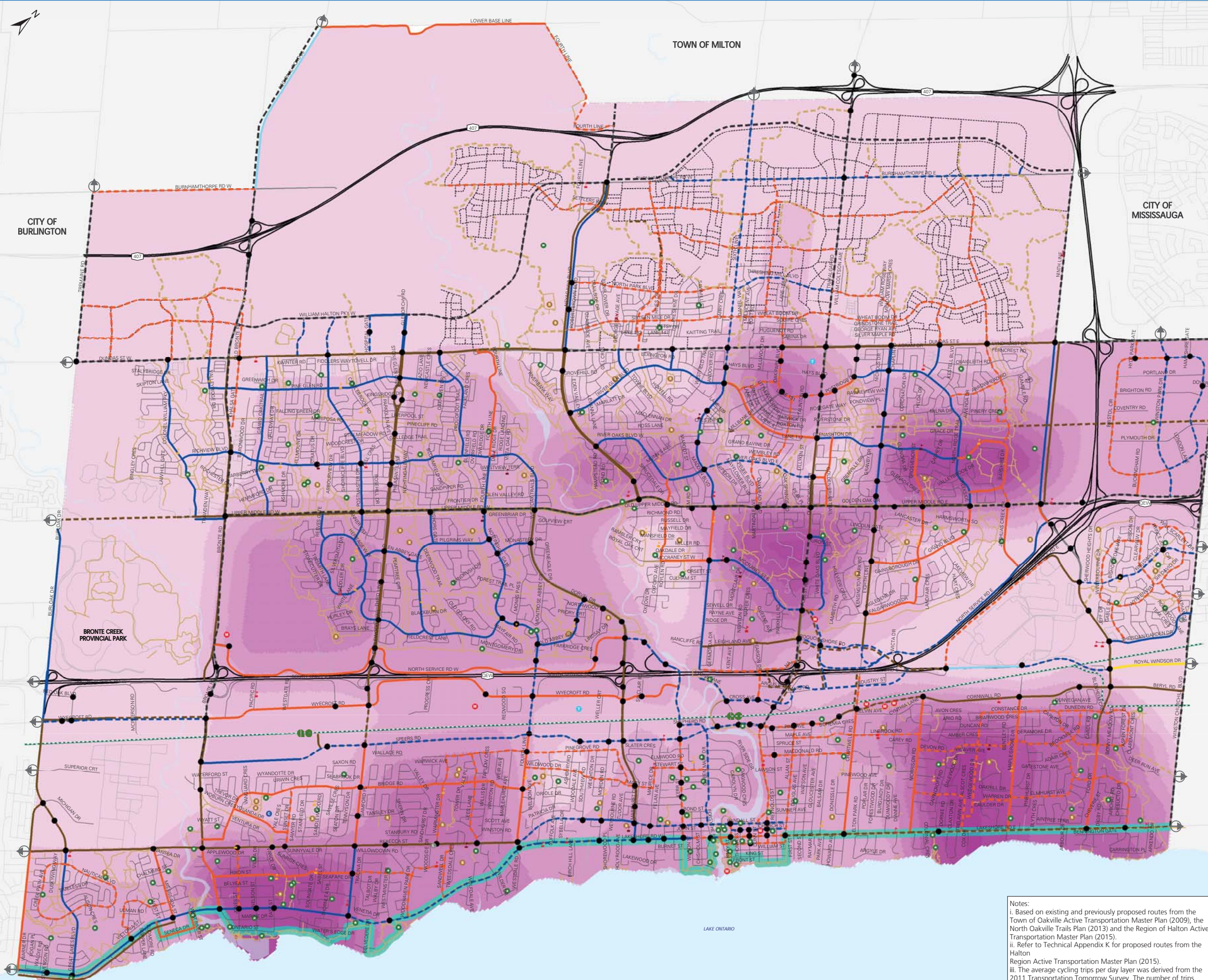
- Provincial Highway
- Regional Road
- Local Road
- Private Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

Land Use Features

- Waterbody

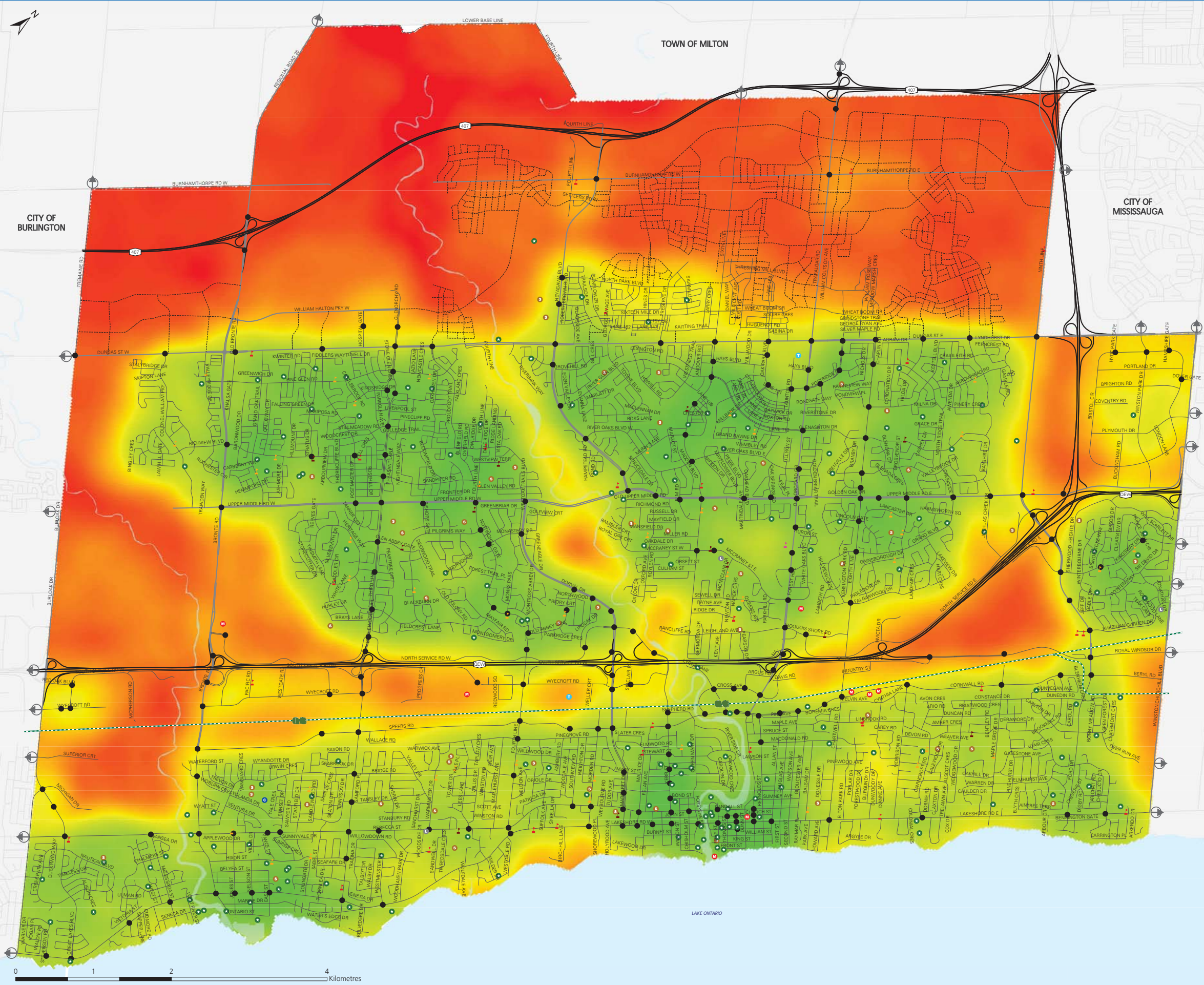
Cycling Activity (Avg. Trips Per Day)ⁱⁱⁱ

	0 - 40
	40-80
	80-120
	120-160
	160-200
	200-240
	240-280
	280-320
	320-360
	360-400



Notes:
 i. Based on existing and previously proposed routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013) and the Region of Halton Active Transportation Master Plan (2015).
 ii. Refer to Technical Appendix K for proposed routes from the Halton Region Active Transportation Master Plan (2015).
 iii. The average cycling trips per day layer was derived from the 2011 Transportation Tomorrow Survey. The number of trips includes both trips originating and departing from each transportation assessment zone.





Town of Oakville
Active Transportation Master Plan (ATMP)
Final November 2017

Legend

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

Land Use Features

- Waterbody

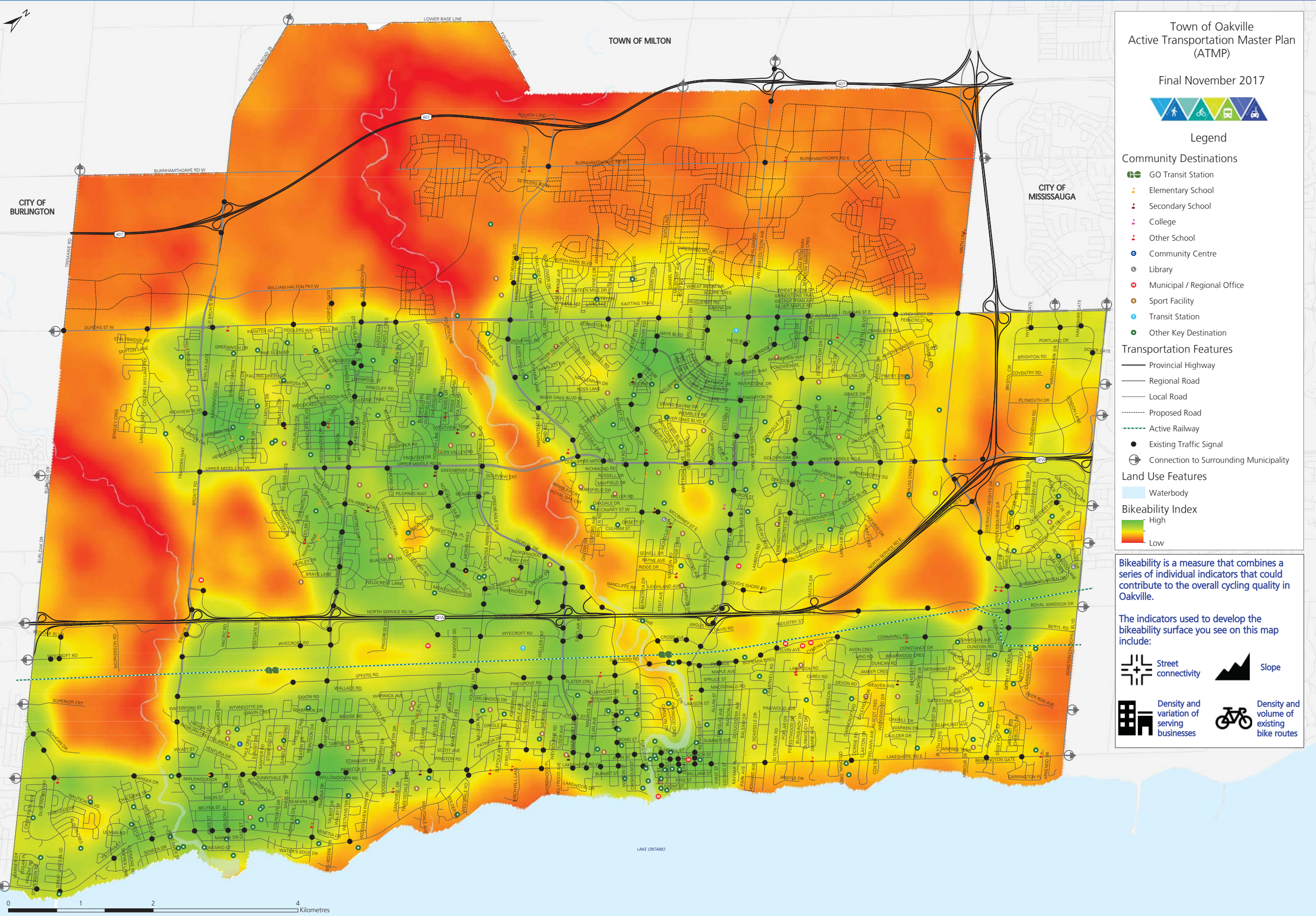
Walkability Index

High
Low

Walkability is a measure that combines a series of individual indicators that could contribute to the overall walking quality in Oakville.

The indicators used to develop the walkability surface you see on this map include:

Proximity to schools	Street trees
Street connectivity	Proximity to parks
Density and variation of serving businesses	Density and volume of existing sidewalks
Slope	Population Density
Density and volume of existing trails	



CITY OF BURLINGTON

TOWN OF MILTON

CITY OF MISSISSAUGA



Town of Oakville
Active Transportation Master Plan
(ATMP)

Final November 2017



Legend

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
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- Sport Facility
- Transit Station
- Other Key Destination

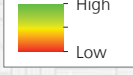
Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

Land Use Features

- Waterbody

Bikeability Index



Bikeability is a measure that combines a series of individual indicators that could contribute to the overall cycling quality in Oakville.

The indicators used to develop the bikeability surface you see on this map include:

- Street connectivity
- Slope
- Density and variation of serving businesses
- Density and volume of existing bike routes

