

**TOWN OF TONAWANDA  
2015 BICYCLE MASTER PLAN**

**December 2015**



Master of Urban Planning  
2015 Fall Studio

# Agenda

A background photograph of a suburban street scene. In the foreground, a wide concrete sidewalk runs along a grassy area. Two people are riding bicycles on the road, moving away from the camera. In the distance, a yellow school bus is visible on the road, along with other cars and trees. The sky is bright and clear.

- Introduction
- Existing Conditions
- Essential Elements of a Bike Friendly Community
- Policy & Goals
- Analysis
- Design Proposals

# Mission and Purpose of the Plan

- Our aim is to introduce a **strong system** of bike facilities in order to create a **safe** and **convenient** environment for bicyclists.
- **Education, Equity, and Encouragement** are included in the plan to promote safety and connectivity.
- The plan addresses goals in the town's Comprehensive Plan, including "Maintaining the safety, high quality of life, public health, and sustainability of our community."



# Current Bicycle Planning in the Region

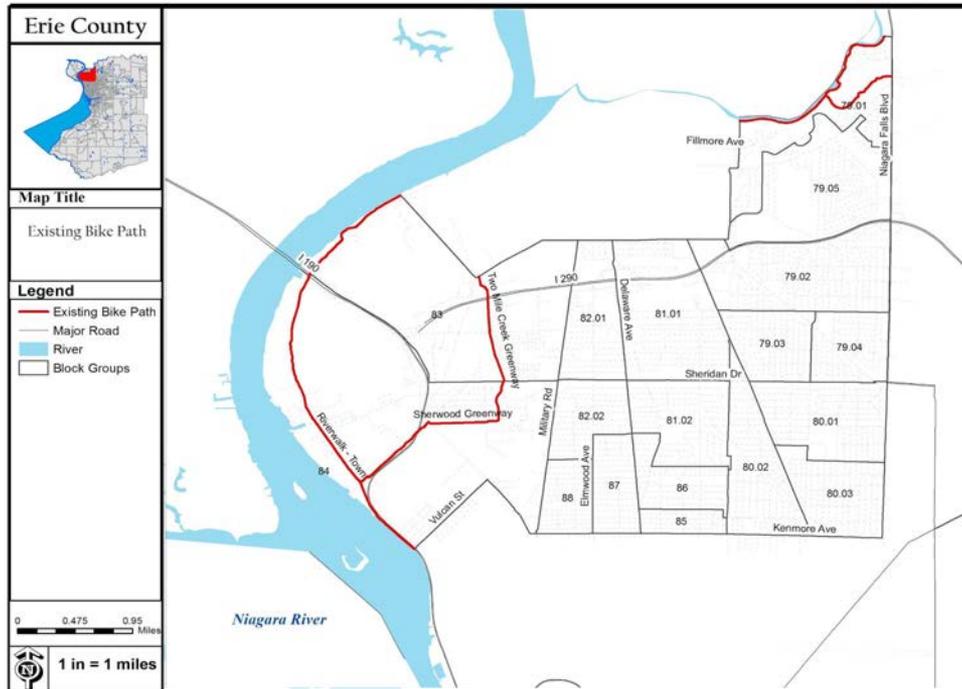
- Rail to Trails - complete Fall 2015
- Complete Streets Committee in Tonawanda - 2015
- Buffalo Bicycle Facility Master Plan - in progress
- Commitment to install ten miles of bicycle infrastructure annually in the City of Buffalo
- GBNRTC Bicycle & Pedestrian Master Plan - 2008



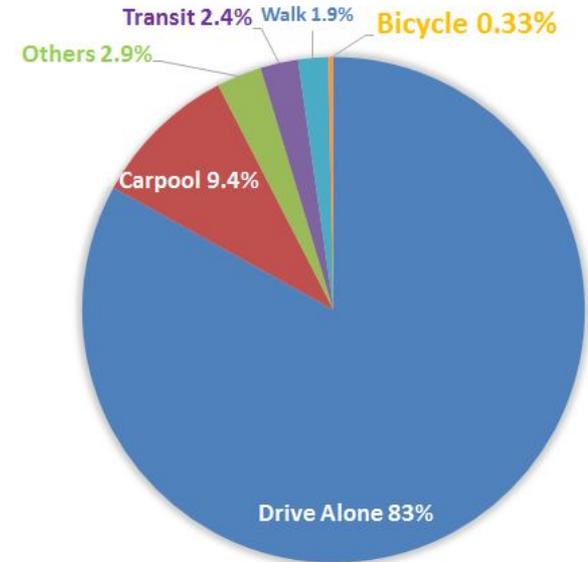
Rail to Trail Path off of Kenmore Avenue

# Existing Conditions: Network and Usage

## Map of Existing Bicycle Trails in Tonawanda

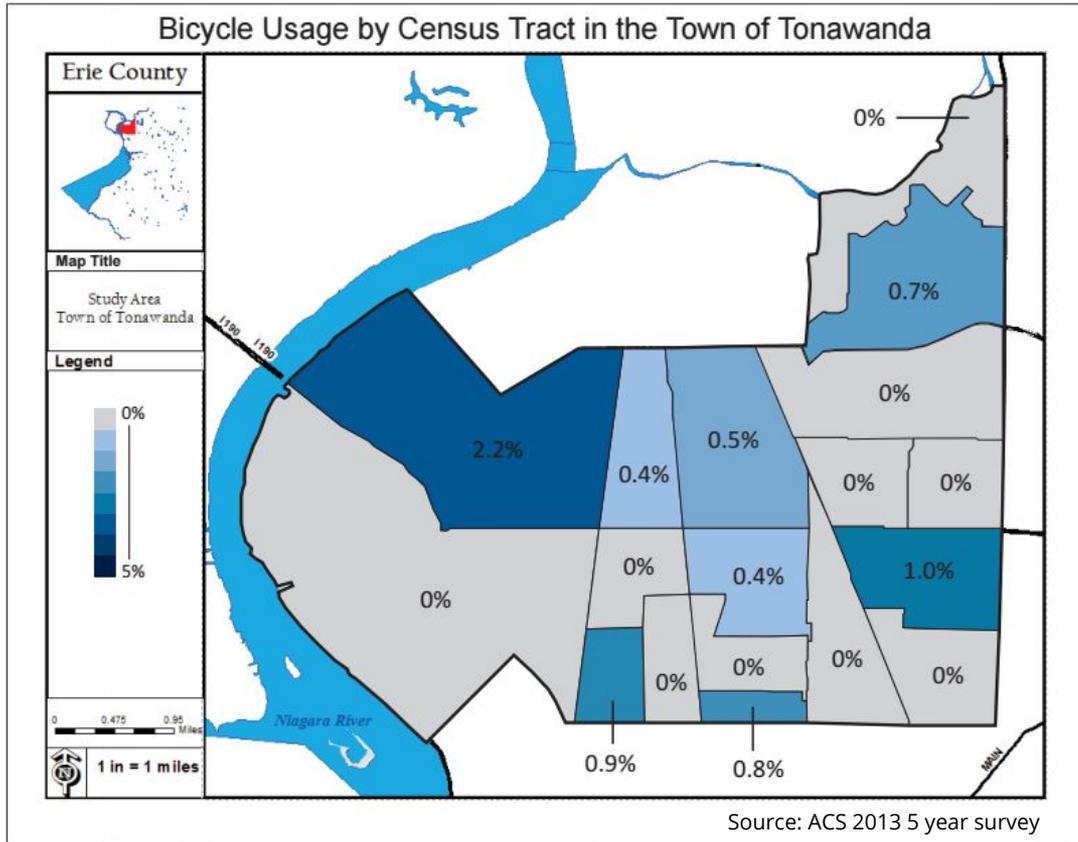


## Commuting to Work Mode Percentage



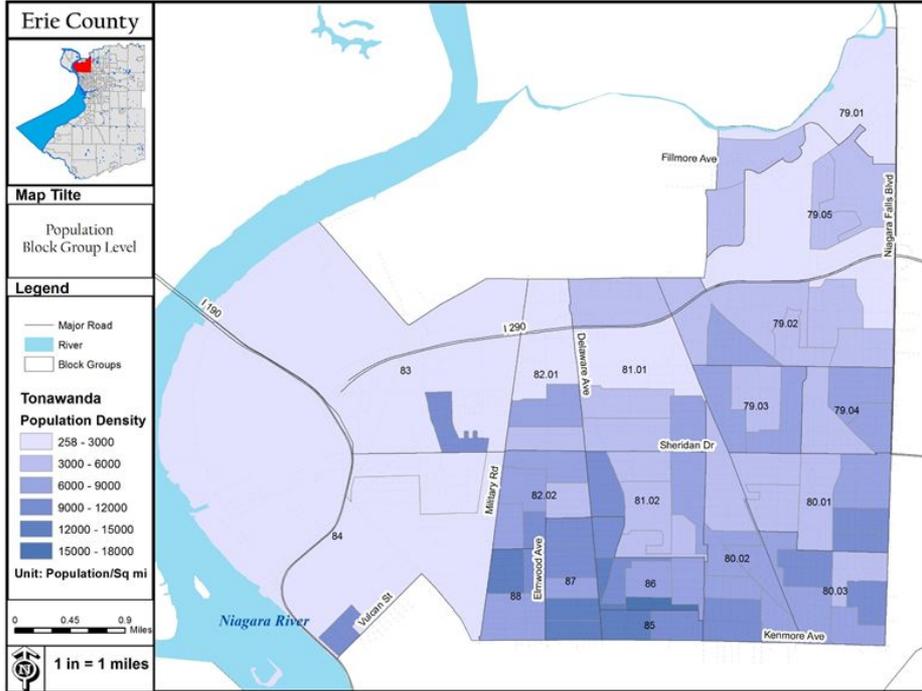
Source: ACS 2013 5 year survey

# Existing Conditions: Network and Usage



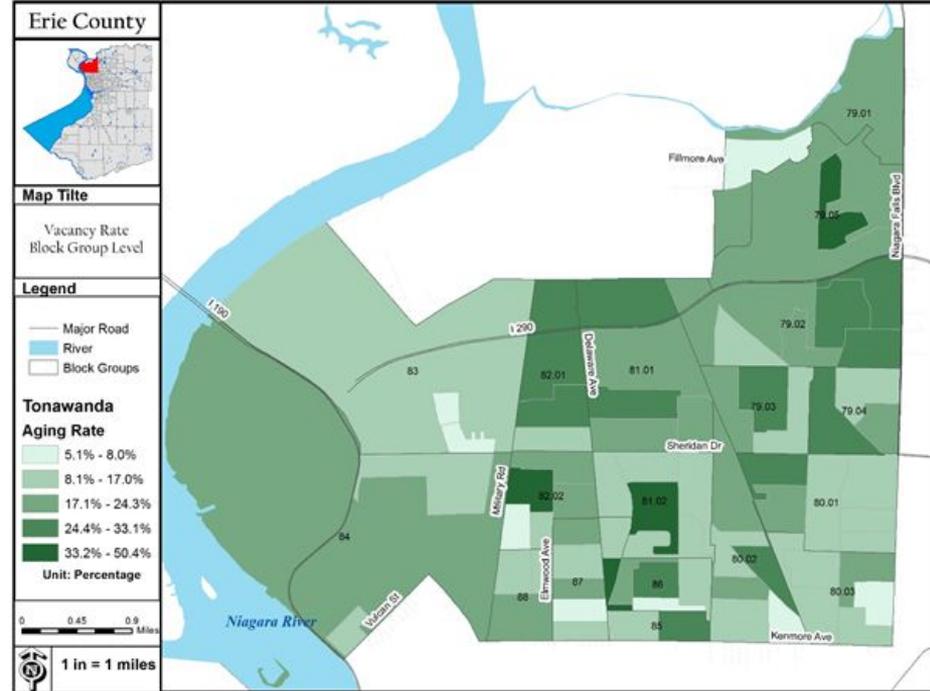
<u>Area</u>	<u>Bicycle Share</u>
City of Buffalo	1.10%
City of Tonawanda	0.90%
Erie County	0.40%
<b>Town of Tonawanda</b>	<b>0.33%</b>
Cheektowaga	0.30%
North Tonawanda	0.30%
Village of Kenmore	0.30%
West Seneca	0.10%
Williamsville	0.00%

# Existing Conditions: Population Density & Aging Rate



**Population Density Distribution in Town of Tonawanda**

Source: U.S. Census Bureau 2009-2013  
American Community Survey 5 Year Data



**Aging Population (65 Years or more) Rate Distribution in Town of Tonawanda**

Source: U.S. Census Bureau 2009-2013  
American Community Survey 5 Year Data

# The Essential Elements of a Bike Friendly Community

- **Engineering** (Design Guidelines): Creating safe and convenient places to ride and park
- **Education:** Giving people of all ages and abilities the skills and confidence to ride
- **Encouragement:** Creating a strong bike culture that welcomes and celebrates bicycling
- **Enforcement:** Ensuring safe roads for all users
- **Evaluation & Planning:** Planning for bicycling as a safe and viable transportation option
- **Equity:** Fairness for all



Source: League of American Wheelmen, Inc.

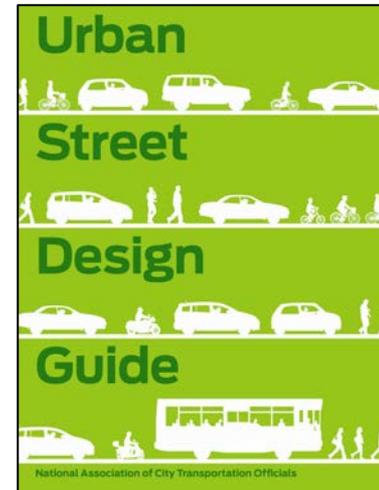
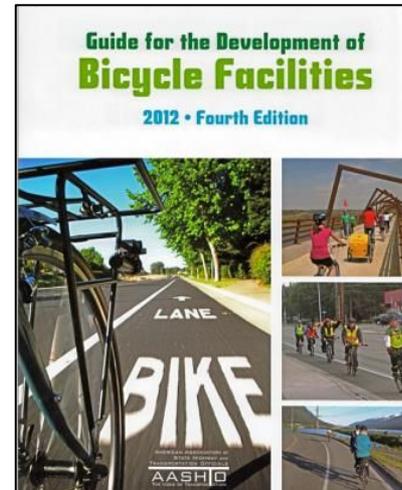
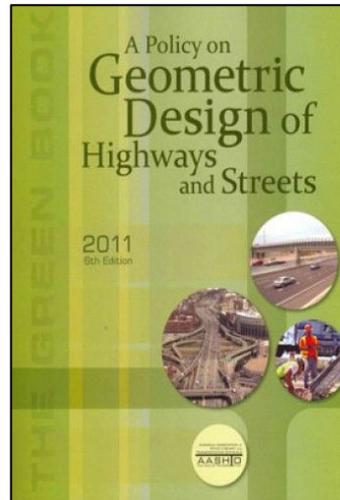
# Essential Elements: Engineering

## Policy references :

- **AASHTO** Executive Committee, (2011). Policy on geometric design of highways and streets.
- **AASHTO** Executive Committee. (2012). Guide for the Development of Bicycle Facilities.
- “Urban Street Design Guide” (2013), National Association of City Transportation Officials (**NACTO**).

## Design guidelines:

- 1- Bicycle facilities classification
- 2- Bicycle facilities for different type of streets
- 3- Intersection treatments



# Essential Elements: Education

**Goal: Educate the Town of Tonawanda on effective strategies, programs, and potential networks that reinforce bicycling culture, safety, and infrastructure.**

Education is an important component of the Bicycle Master Plan vision to encourage bicycle usage, awareness, and culture in the region.

Education involves strategizing methods of informing and disbursing relevant information on bicycling protocols and safety issues to various interest groups:

- Elected officials
- Current cyclists
- Young bikers
- New bikers



# Essential Elements: Education

## League Certified Instructors (LCIs) Program:

- To prepare presenters to train the public in bicycle education, possessing a broad knowledge base on the topic.

## Older Adult Three-Wheeled Bicycle Program:

- A program implemented by Portland Bureau of Transportation, this class teaches senior citizens about the components of bicycling and advocates for the right to cycle at all ages. This program encourages the activity amongst aging population, and in return, helps confidence with bicycling.

## Safe Routes to School Program:

- Teaches bike safety to children and adolescent on how to ride to school safely and provides a road map for schools to build successful walking and biking programs.



League Certified Instructors (LCIs) Program



Older Adult Three-Wheeled Bicycle Program

**SafeRoutes**  
National Center for Safe Routes to School



# Essential Elements: Encouragement

**Goal: The ideal of encouragement is centered on the creation and development of a strong cycling culture that both welcomes and celebrates bicycling as both a recreational activity and a mode of transportation. Some encouragement activities include:**

- Bicycle-themed programming
- Route-finding signage
- Public bike sharing

Encouragement is an important component of the Bicycle Master Plan vision, as it allows the large segment of the residents that are interested but concerned about bicycling to become involved in the activity



# Essential Elements: Enforcement

**Goal: Improved safety for all users of the roads, be they cyclists or drivers.**

Law enforcement personnel should focus on preventing these situations, if possible, as they lead to a high percentage of crashes involving cyclists. Certain activities, such as:

1. Operating vehicle while impaired by drugs or alcohol,
2. Failing to yield the right-of-way,
3. Not looking when entering the roadway or turning at intersections and driveways,
4. Speeding, particularly in neighborhoods and near schools, and
5. Overtaking bicycles in areas where it cannot be done safely



# Essential Elements: Evaluation

**Goal: To track plan implementation information and performance, provide accountability that plan is being followed through, and identify if any changes are needed. Sample goal, objective, and initiative.**



Goal 1	Monitor, measure, and evaluate the Tonawanda Bicycle Master Plan
Objective 1.1	To monitor the progress of the Tonawanda Bicycle Master Plan itself in order to ensure success
Initiative 1.1.1	Complete Streets Committee will update the Tonawanda Bicycle Master Plan as needed

# Essential Elements: Equity

## Applications

### Vertical Equity: Connectivity

Plan works to connect bicycle network across all areas of the town to provide safe bicycling routes for members of the community who rely on bicycling for all or a portion of their trips.

### Horizontal Equity: Universal Design

Plan works to ensure that any individual has equal access to bicycle and pedestrian infrastructure.



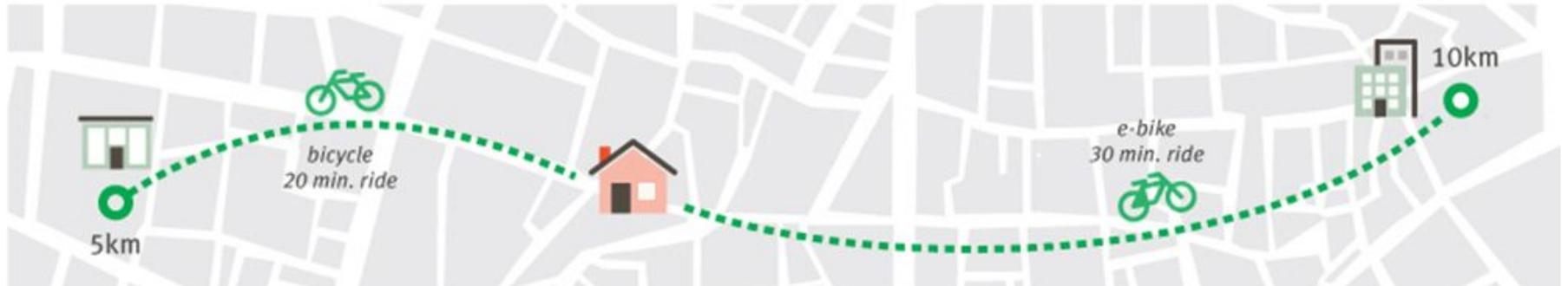
# Analysis of Bicycling Conditions

- 5 Analyses
  - **Environmental Benefits Analysis**
  - **Crash Analysis**
  - **Network Gap Analysis**
  - **Connectivity Analysis**
  - **Community Survey Analysis**
- The data included is valuable to planners and policy-makers to produce equitable and logical outcomes when developing bikeways.
- Section supports project proposals and their locations



# Environmental Benefits of Bicycling

- Reduced traffic congestion
- Reduced air pollution
- Economic savings (gasoline for motorists)



# Environmental Benefits of Bicycling



- Tens of thousands of vehicles drive on Tonawanda roads each day.
- Switching to bicycling can help reduce those numbers and have environmental benefits.

Road	Average Number of Vehicles per Day
Niagara Falls Boulevard	21,725 to 52,315
Sheridan Drive	12,148 to 29,946
Delaware Avenue	20,339
Military Road	18,833 to 19,497

# Environmental Benefits of Bicycling

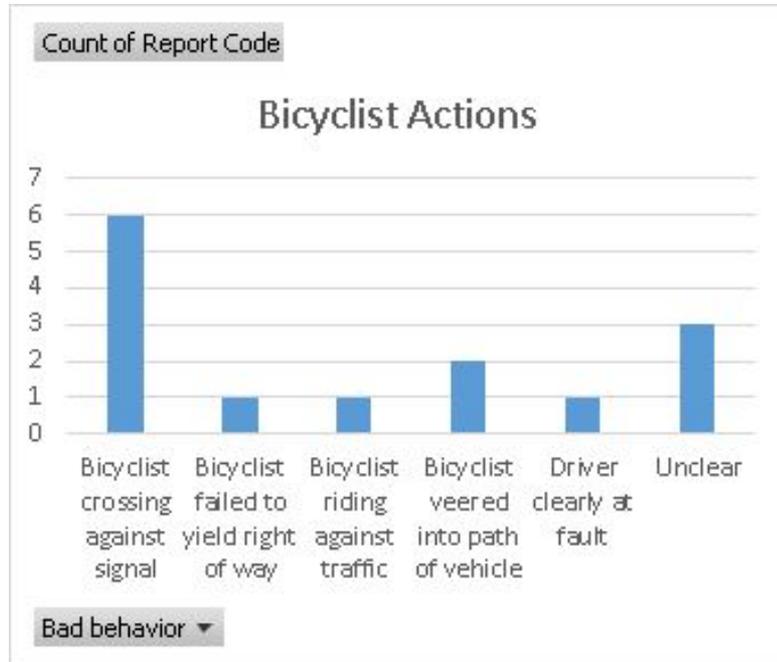
<b>Pollutants from Traffic</b>
Carbon Monoxide (CO)
Carbon Dioxide (CO <sub>2</sub> )
Nitrogen Oxides (NOX)
Volatile Organic Compounds (VOCs)
Total Hydrocarbons (THCs)
Particulate Matter (PM <sub>10</sub> )
Particulate Matter (PM <sub>2.5</sub> )

Source: U.S. EPA, 2015

- A 1% switch from driving to bicycling (340 drivers out of 34,045 total drivers) annually would result in:
  - A 1% decrease per year in each pollutant listed
  - Reduced traffic congestion
  - Cost savings for each driver of about \$1,156 per year (Assuming 12,000 miles driven per year, 24 miles per gallon, and current gas prices)

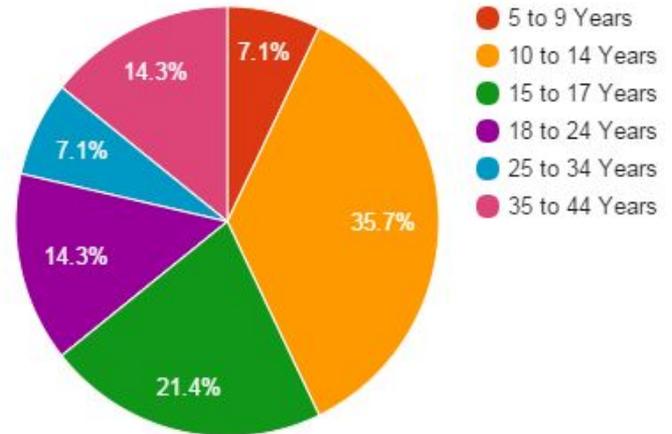


# Crash Data Analysis Statistics



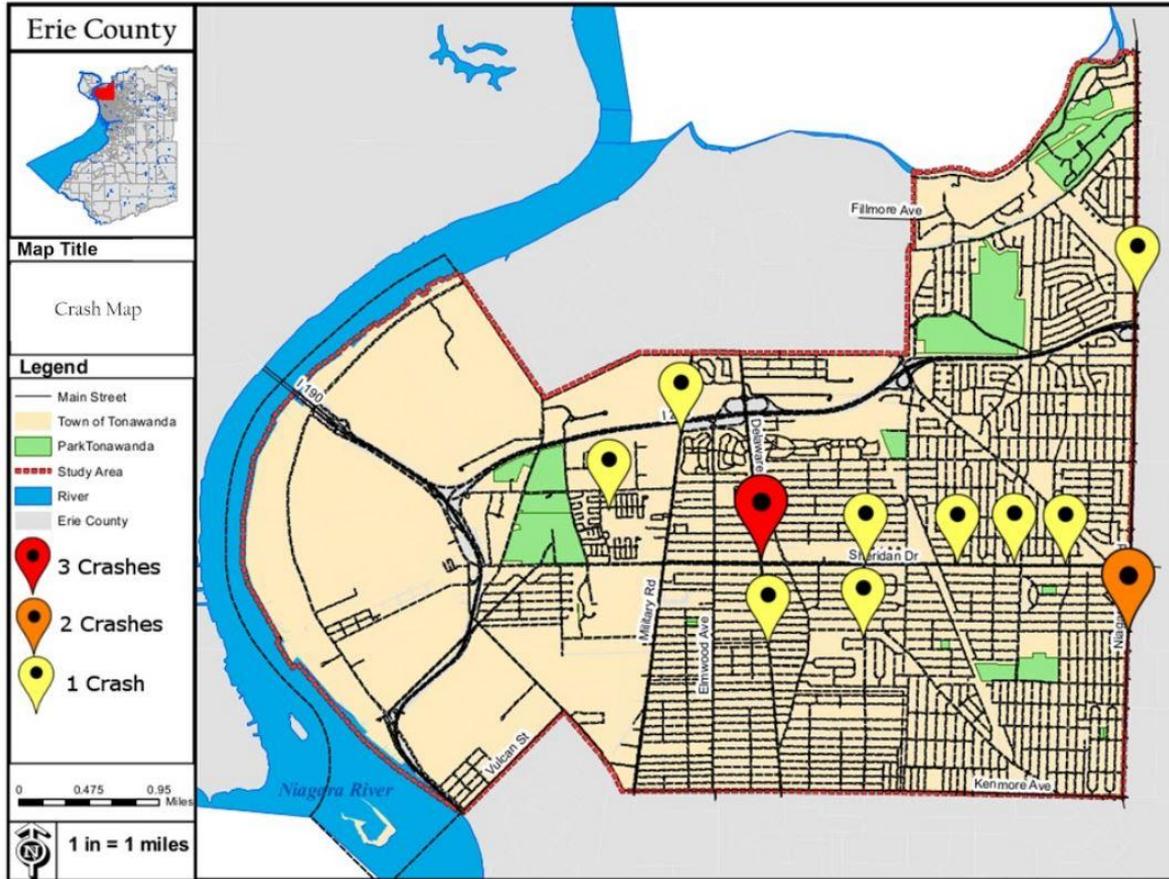
Source: 2011-2013 Town of Tonawanda Police Reports

### Share of Crashes by Age Group



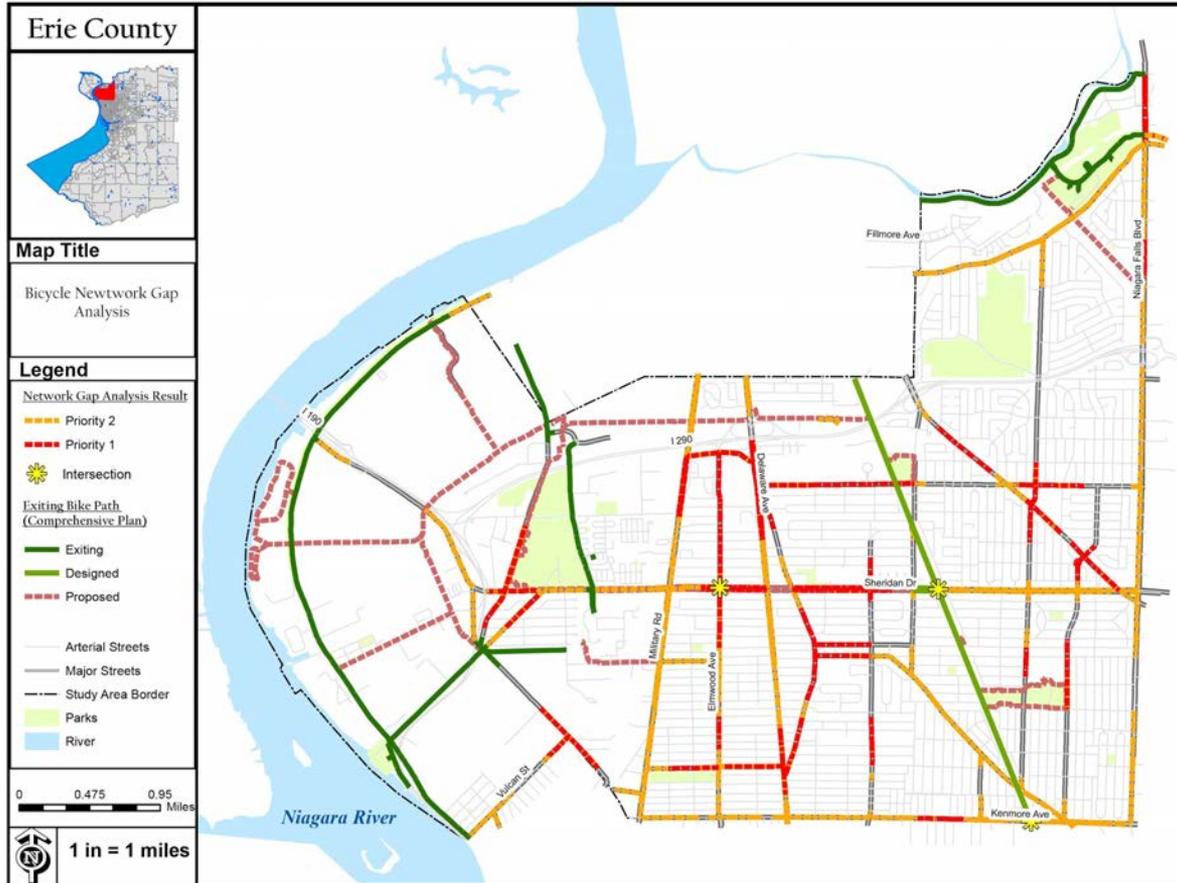
Source: 2011-2013 Town of Tonawanda Police Reports

# Crash Data Analysis



- 14 Crashes
- All daylight hours
- All occurred where residential streets meet major arterials
- Most clustered along Sheridan Drive
- Plurality of Crashes involved children under age of 18
- 1 Fatality
- Time Period: 2011-2013

# Network Gap Analysis



## Purpose :

- Identify the most important destinations for bicyclists
- Identify dangerous intersections and streets
- Improve regional connectivity

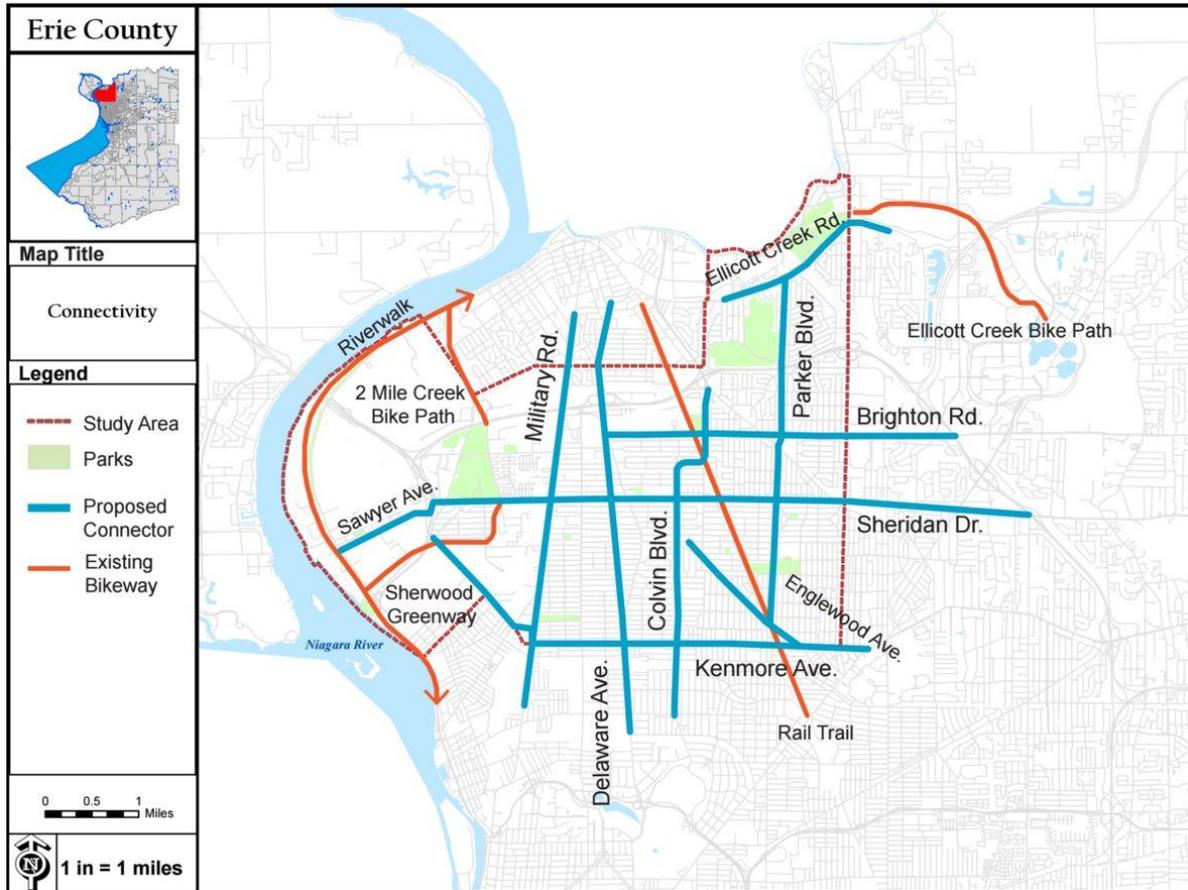
## Priority 1:

- Short-term projects
- Linkages to the all public facilities like schools and libraries

## Priority 2:

- Long-term projects
- Linkages to major employers and commercial corridors

# Connectivity Analysis

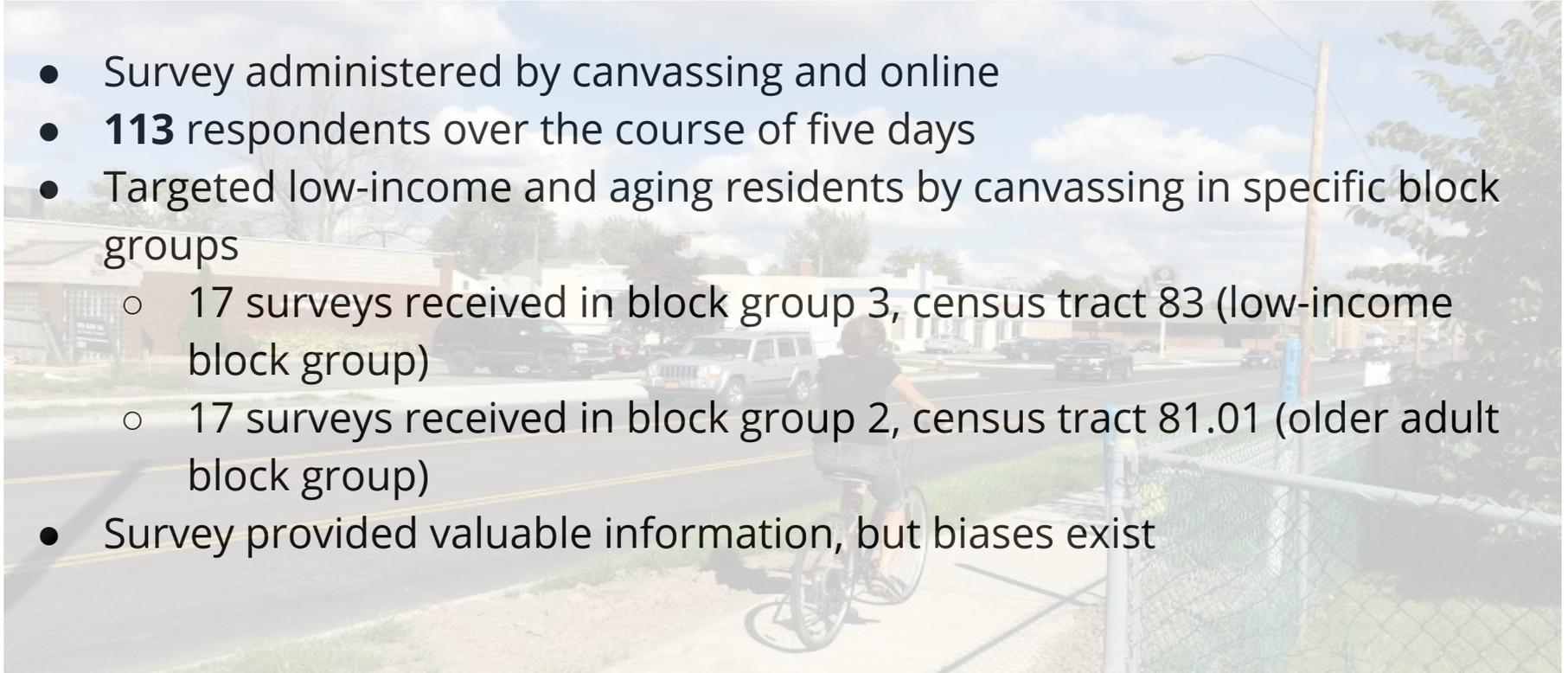


Connectivity for:

- Centers of employment
- Educational institutions
- Commercial corridors
- Waterfront
- City of Buffalo
- Town of Amherst

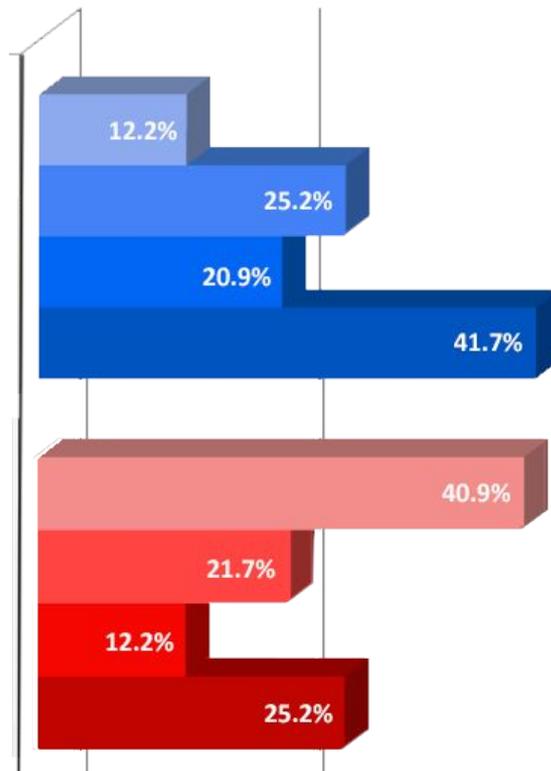
# Survey: Purpose and Methods

- Survey administered by canvassing and online
- **113** respondents over the course of five days
- Targeted low-income and aging residents by canvassing in specific block groups
  - 17 surveys received in block group 3, census tract 83 (low-income block group)
  - 17 surveys received in block group 2, census tract 81.01 (older adult block group)
- Survey provided valuable information, but biases exist



# Survey: Results and Analysis

How often do you **bike for recreation** in the Town of Tonawanda?



How often do you **bike to commute** in the Town of Tonawanda?

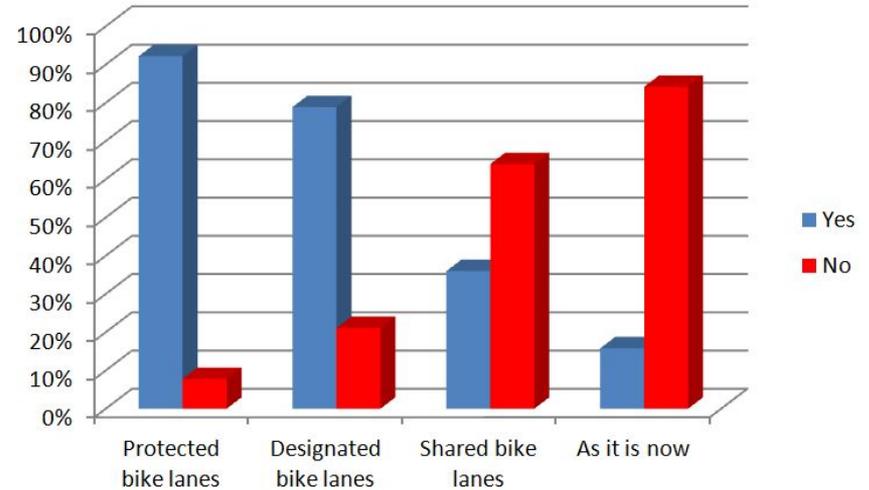
- Never
  - A few times a year
  - A few times a month
  - Once or more a week
- 
- Never
  - A few times a year
  - A few times a month
  - Once or more a week

# Survey: Results and Analysis

## What are the biggest obstacles to biking in the Town of Tonawanda?

Lack of designated bike lanes	74.30%
Dangerous intersections	70.80%
Driving behavior (e.g. speeding)	63.70%
Conditions of roads/bike lanes/sidewalks	59.80%
Lack of secure bicycle parking	41.10%
Weather	27.00%
Long distances	21.60%
Health issues	18.20%
I don't own a bike	6.90%

## Would you bike on Sheridan Dr if there were...

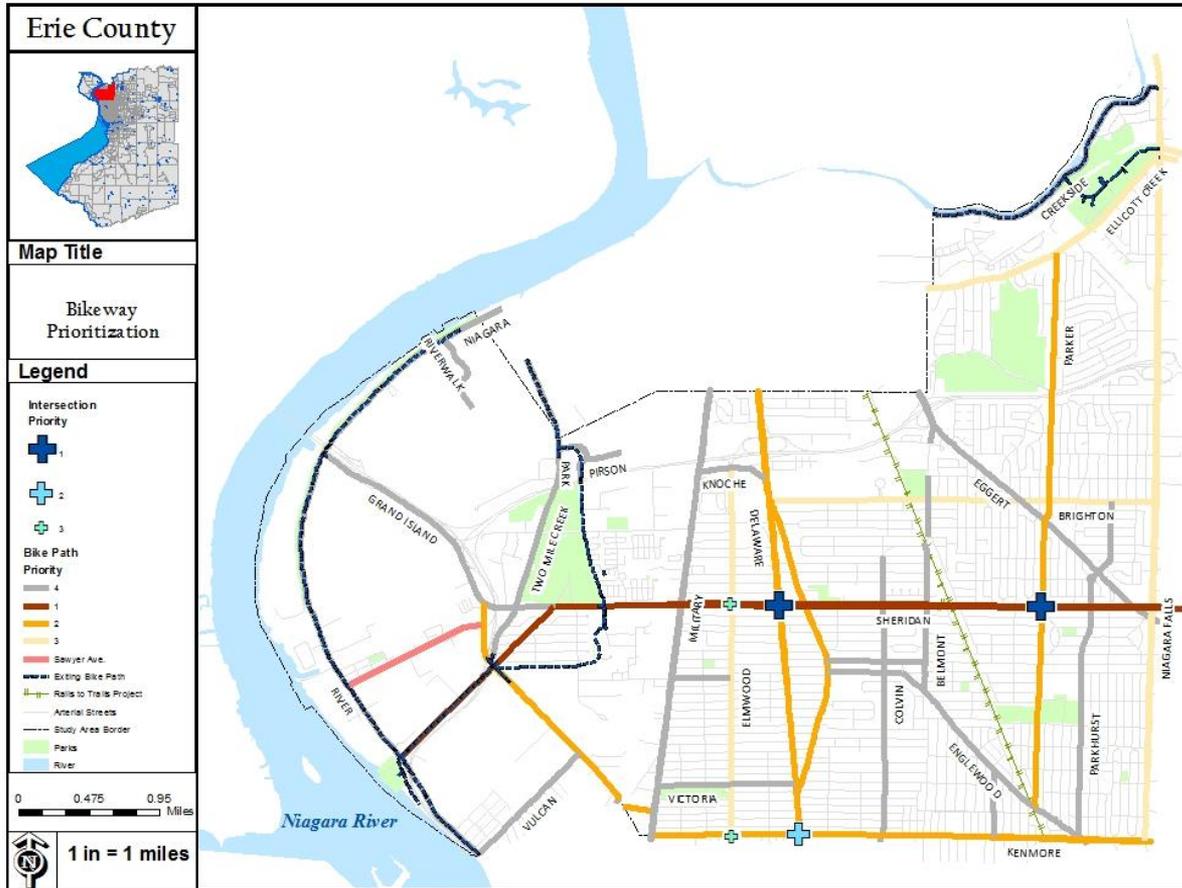


# Analysis Conclusions

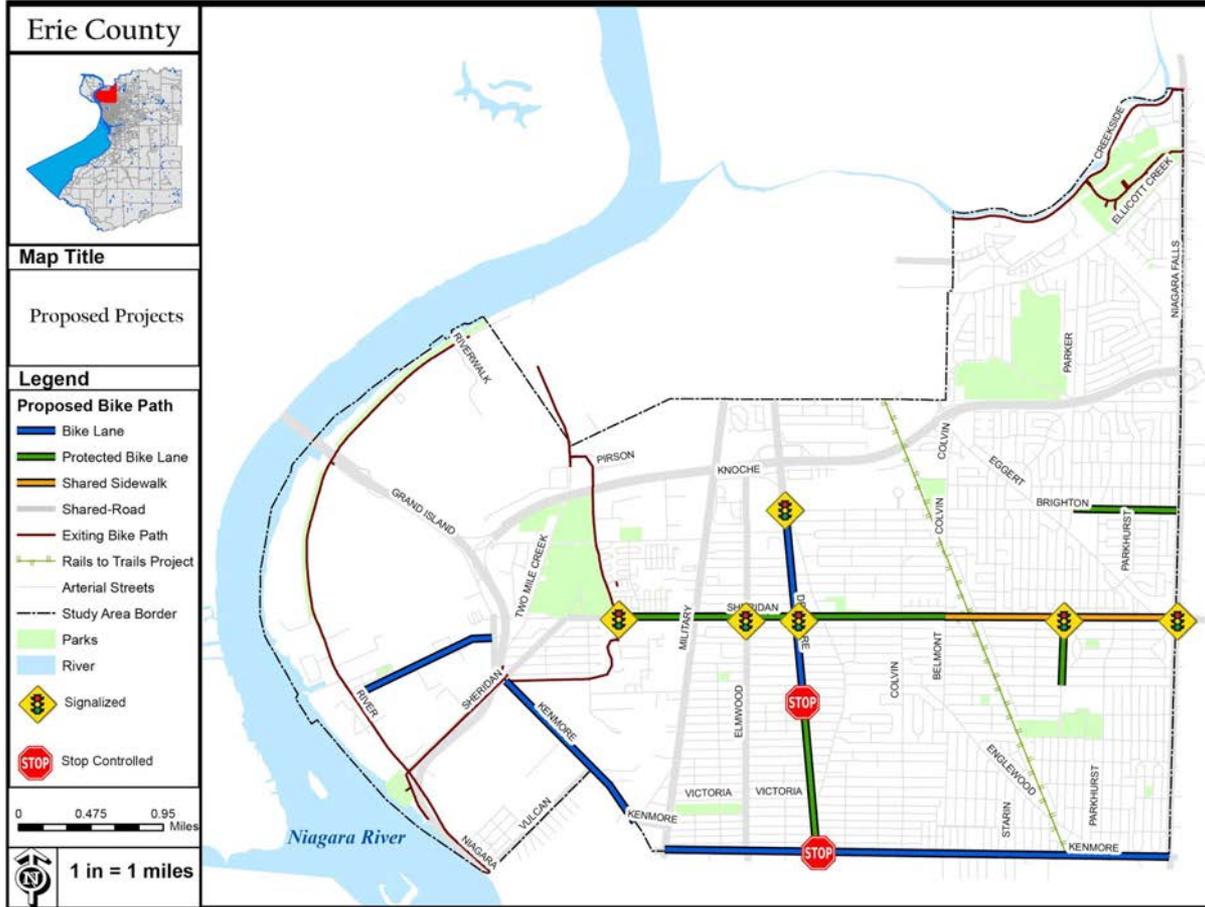


- **Environmental Benefits Analysis, Crash Data, Network Gap Analysis, Connectivity, and Community Survey** all support implementing bicycle infrastructure and improvements
- All studies dealing primarily with spatial issues found a high need on **Sheridan Drive**
- People slightly more likely to ride a bicycle on Sheridan Drive if facilities were improved
- Ridership is currently extremely low and survey results suggest that **improved facilities** may improve overall bicycle usage

# Proposal Prioritization



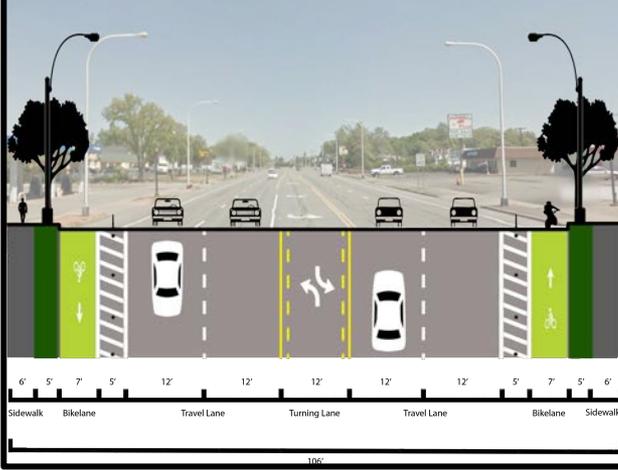
# Proposed Projects



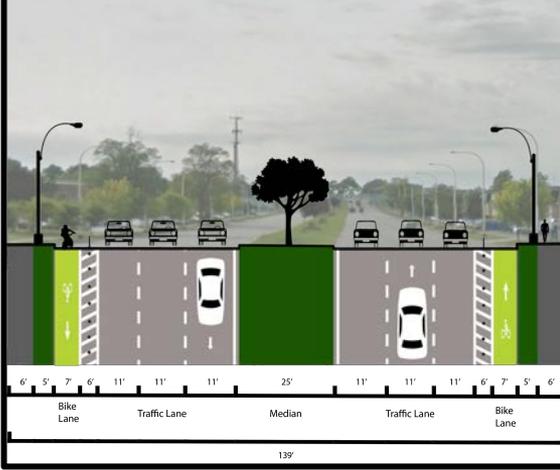
# Sheridan Drive [Priority 1]



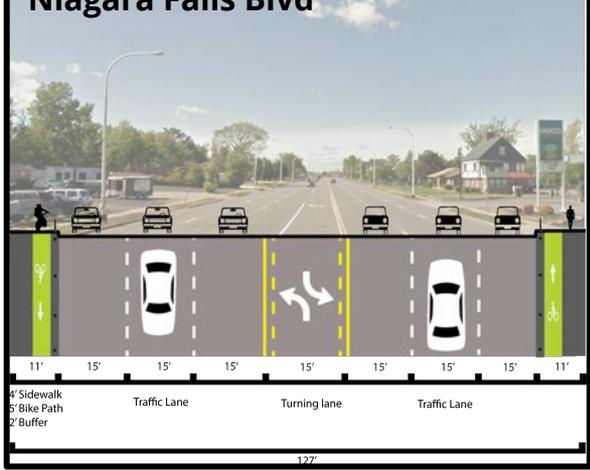
**From East Park Dr to Military Rd**



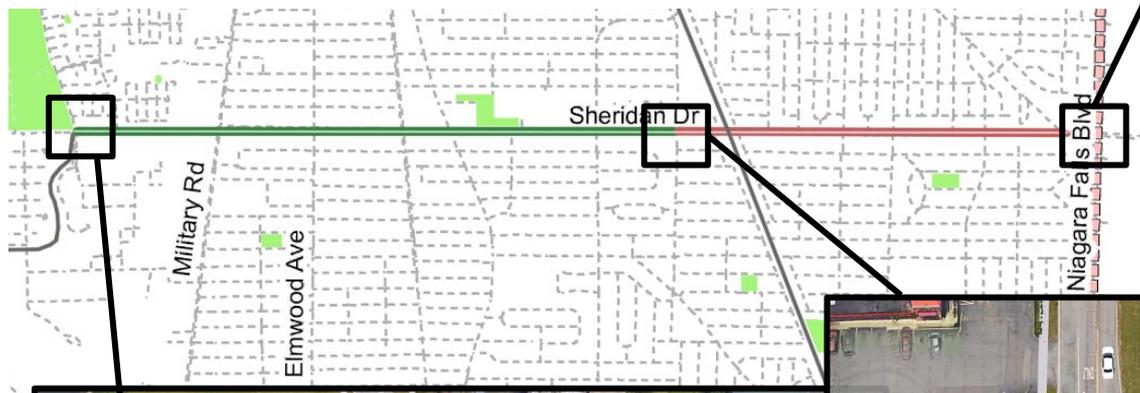
**From Military Rd to Belmont Ave**



**From Belmont Ave to Niagara Falls Blvd**



# Sheridan Drive [Priority 1]



**Niagara Falls Blvd  
and Sheridan Dr**



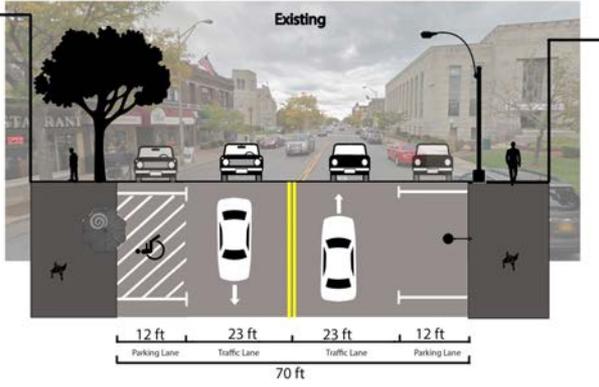
**East Park Dr and Sheridan Dr**



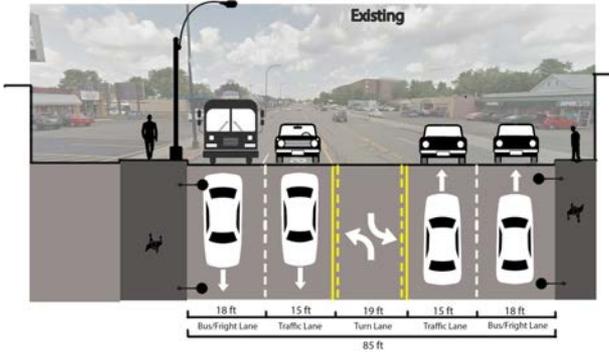
**Belmont Ave and  
Sheridan Dr**

# Delaware Avenue [Priority 2]

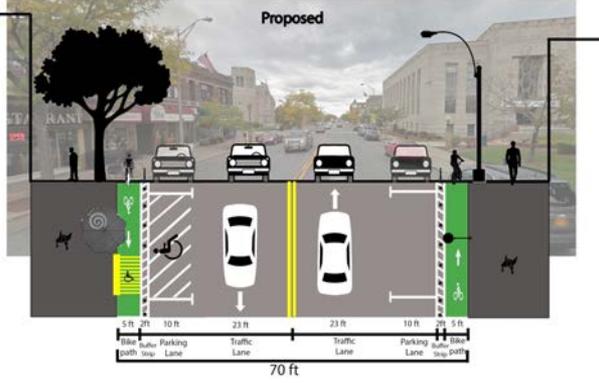
Delaware Ave. With parking



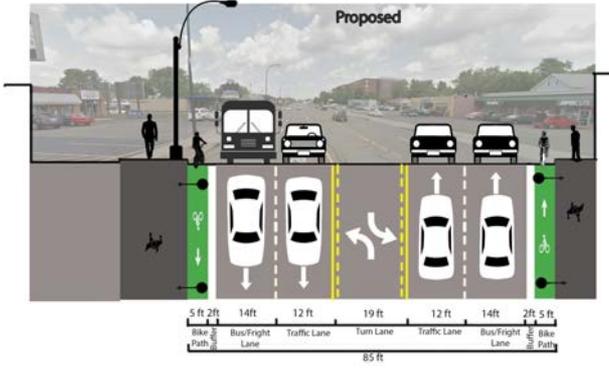
Delaware Ave. Without parking



Colored Pavement: 2 Linear Miles



Colored Pavement: 1.6 Linear Miles

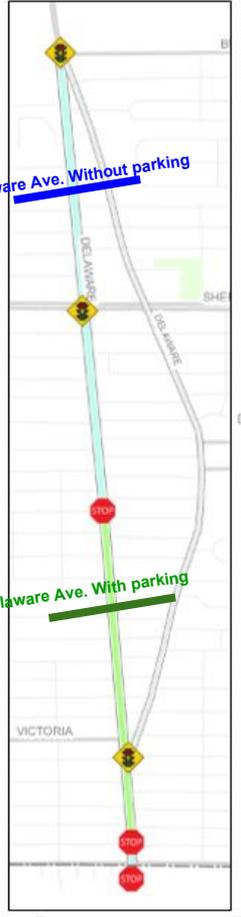


Key Map

1 in=2,000 ft.

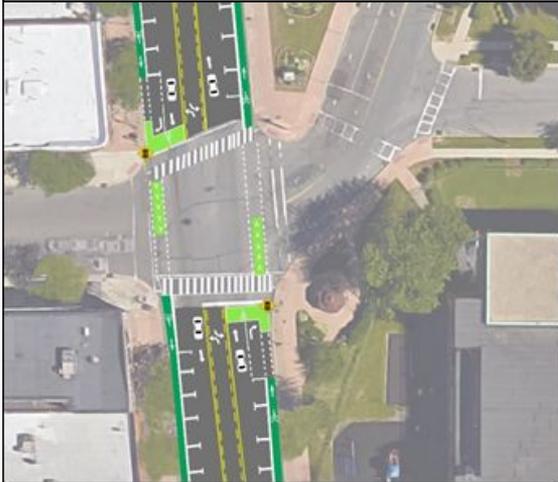
Delaware Ave. Without parking

Delaware Ave. With parking



# Delaware Avenue [Priority 2]

Proposed intersection for Delaware Rd. with Delaware Ave. bike path.

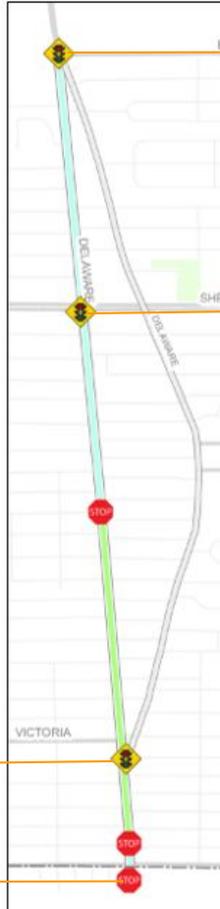


Proposed intersection for Kenmore Ave. with Delaware Ave. bike path.



Key Map

1 in=2,000 ft.



Proposed intersection for Brighton Rd. with Delaware Ave. bike path.



Proposed intersection for Sheridan Dr. with Delaware Ave. bike path.

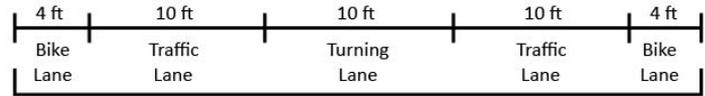
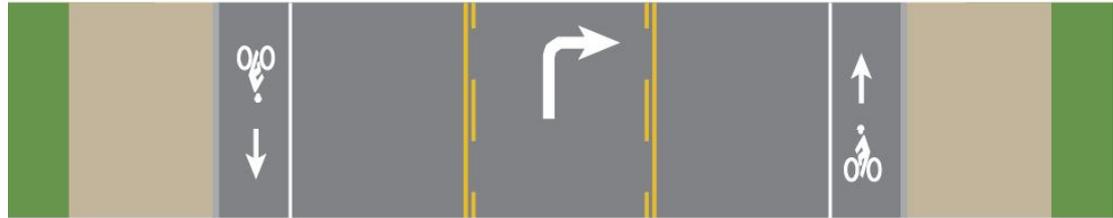


# Kenmore Avenue [Priority 2]

- 4.2 miles of on-street bike lanes added to Kenmore Ave.
- Total of 8.4 linear miles of bikeway infrastructure
- 1 mile requires street widening to fit bike lanes



Kenmore and Delaware Ave.



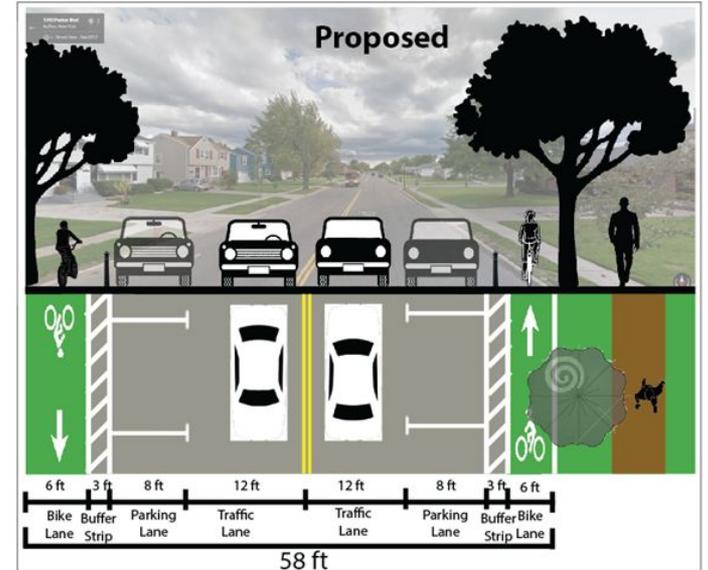
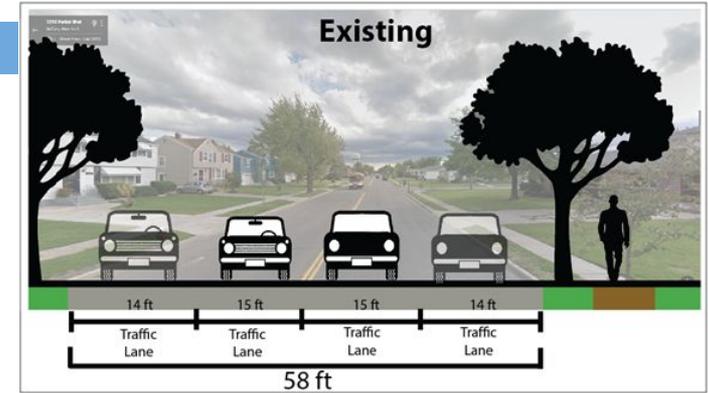
38 ft

Rail Trail to Military Rd.

# Parker Boulevard [Priority 2]



Intersection Design  
Sheridan Drive & Parker Blvd



# Brighton Road [Priority 3]



Surrounding Neighborhood in Brighton Rd  
(Source: Google Map)

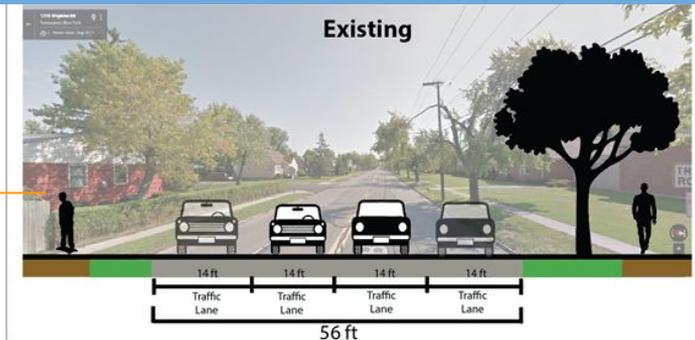
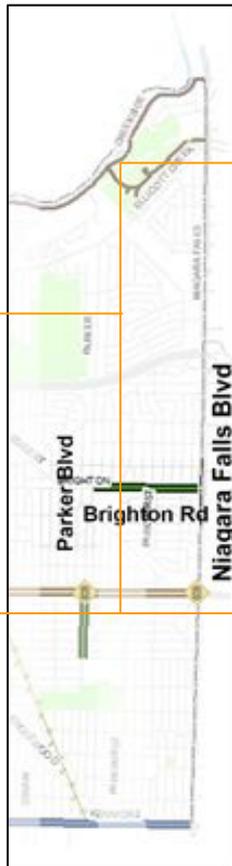


Surrounding Neighborhood in Brighton Rd  
(Source: Google Map)

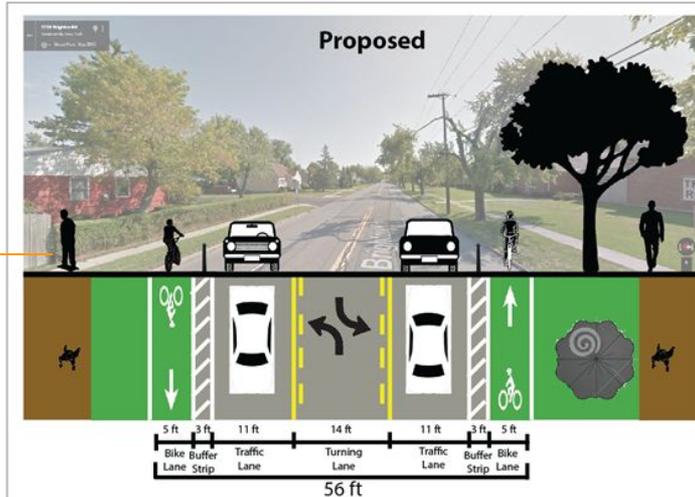
Street Width: 56 ft

- 5' Bicycle Lane
- 3' Buffer
- 22' Traffic lanes
- 14' Turning lane

Candlestick  
Bollards added  
for additional  
safety between  
parked vehicles  
and bicyclists.



Existing Condition (4 Travel Lanes)



Colored Pavement (Bike path with Parking space):  
0.7 Miles Length



# Sawyer Avenue [Priority 3]



River Rd and Sawyer Ave



Sawyer Ave and Kenmore Ave

# Opportunities along Utilities Corridor

- Many **electric** and **pipeline transmission lines** cut through the town, especially in the western part of town near the waterfront.
- There may be opportunities to **collocate bike trails** within existing utility corridors, especially with closure of Huntley Generating Plant.
- **Liability** and **environmental** concerns need to be addressed.



Electric and Pipeline Transmission in Waterfront, Tonawanda

# Funding Opportunities

Funding Source	Category
National Highway Performance Program Federal	Federal
Highway Safety Improvement Program	Federal
Surface Transportation Program	Federal
Congestion Management And Air Quality (CMAQ)	Federal
Transportation Alternatives	Federal
Bikes Belong Coalition	Private
CHIPS (Consolidated Local, State, and Highway Improvement Program)	State
HUD Community Development Grants	Federal

# Acknowledgements

- **Erik L. Frisch**, Transportation Specialist, City of Rochester
- **Frederick Frank**, LEED AP BD+C, Senior Planner, Parsons Brinckerhoff
- **James Hartz**, AICP, Director of Community Development, Town of Tonawanda
- **James B. Jones**, PE, Town Engineer, Town of Tonawanda
- **Jason Haremza**, AICP, Senior Planner, City of Rochester
- **Justin Booth**, GoBike Buffalo
- **Captain Timothy Waring**, Police, Town of Tonawanda
- **Survey Participants**

# Thank You!

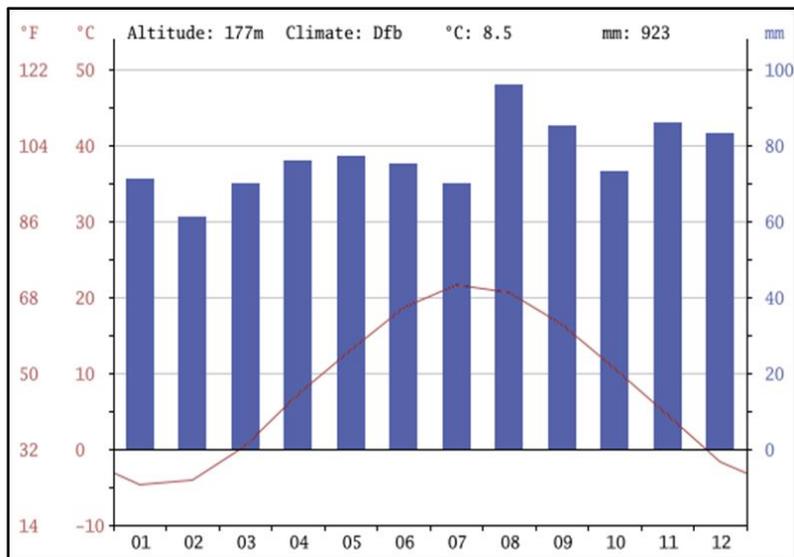


Studio Team: Dr. Bumjoon Kang, Bruno Avila, Mark Coleman, Eric Hammer, Zhiqiu (Cho) Jiang, Alexandra Judelsohn, Tara Kamal Ahmadi, Michael Longley, Joseph McGrath, April McLean-McCoy, Mara Pusateri, David Warner

# Existing Conditions - Temperature

Mean Temperature	
Summer	67.0° F / 19.4° C
Winter	27.8° F / -2.3° C

## 2014 Town's Average Temperature



## 2014 Temperature Statistics in Town of Tonawanda

Chart: Climate in Town of Tonawanda (*Climate-data.org, 2014*)



**Niagara River and Niawanda Park**



**Gateway Park**

The elevation in Town is from 566-718 feet above sea level, meaning this place is mostly “flat”, and absolutely a really good source for biking activities.

Tonawanda, New York, gets 39 inches of rain per year. The US average is 37. Snowfall is 82 inches. The average US city gets 25 inches of snow per year. The number of days with any measurable precipitation is 169 (Climate overview, 2015).