

# Exploring the Economic Impacts of Complete Streets

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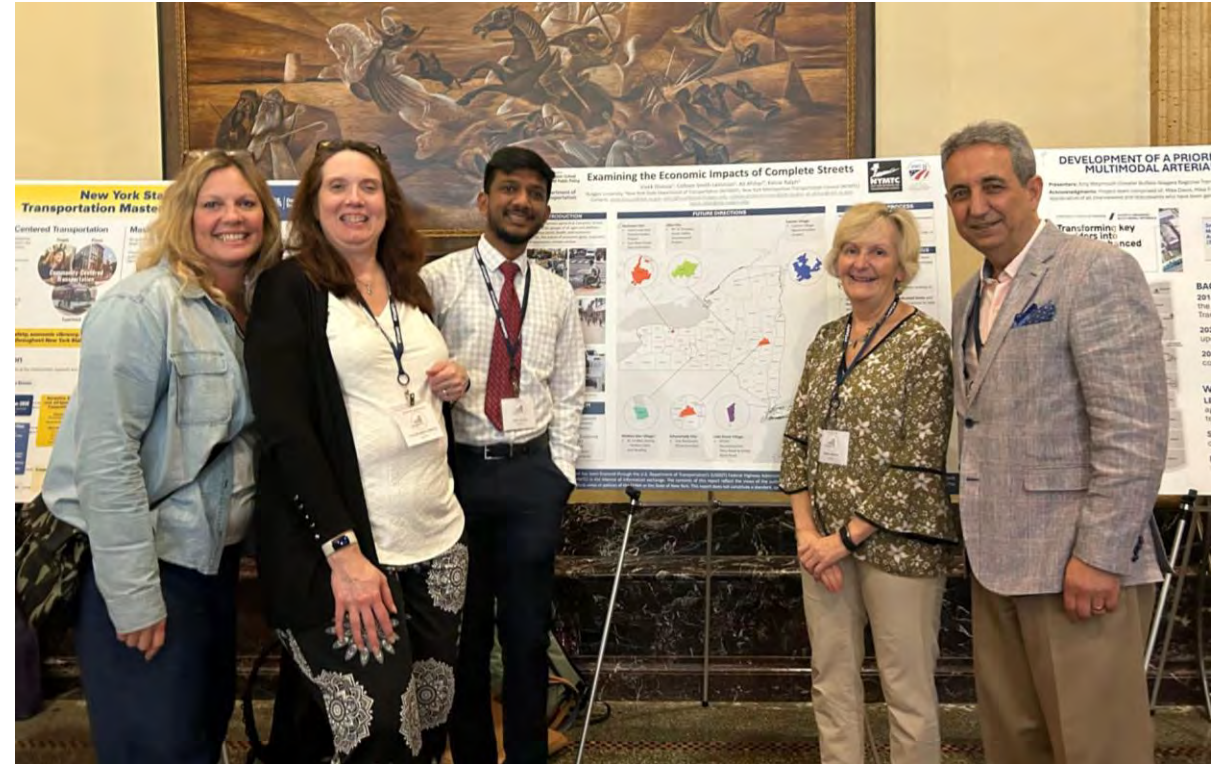
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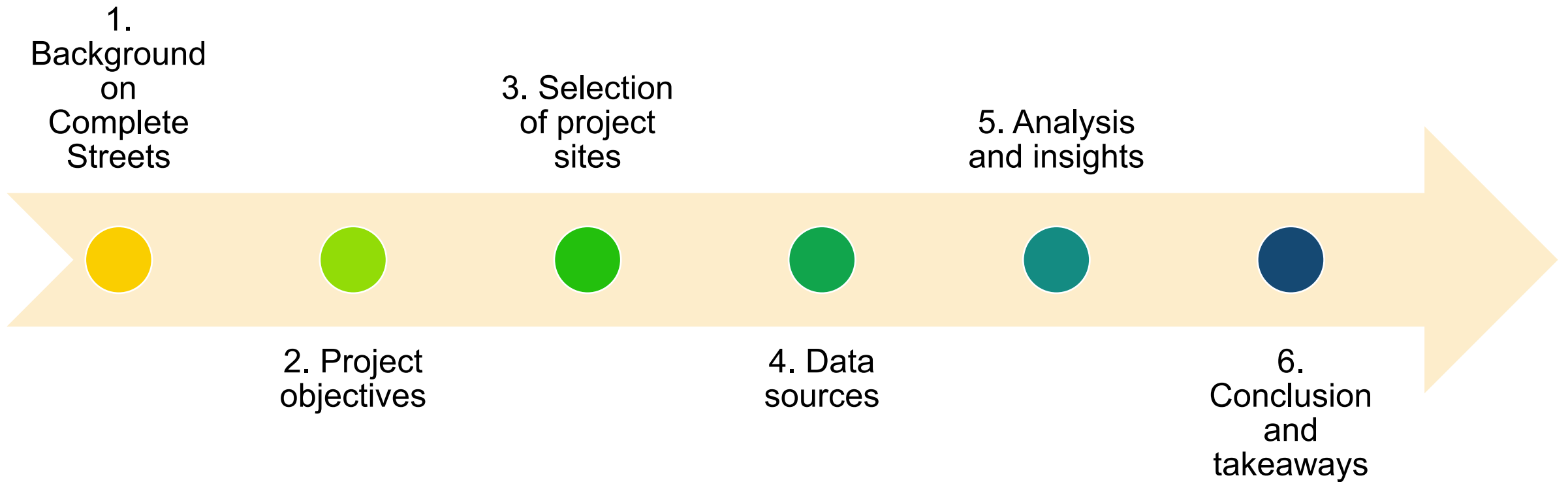
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# PRESENTATION OUTLINE



# COMPLETE STREETS ARE STREETS DESIGNED FOR EVERYONE

- Transportation planning and (re)design approaches
- Travel **accessible** for **all ages and abilities**
  - Pedestrians
  - Cyclists
  - Drivers
  - Public transit users
  - Those who don't have access to vehicles
  - Vulnerable communities
    - Children and low-income groups
- Prioritizes people over automobiles
- Emphasis on providing 'choice' for participating in community life



Source: NACTO Street Design Guide

# COMPLETE STREETS ARE CONTEXTUAL



Dedicated bus lanes, City of Rochester



Bus shelter and bike parking, Suffolk County



ADA ramps, Village of Canisteo



Route 5S Bike lane, Utica



Crosswalks and medians, Canisteo Main St.



Outdoor seating, New York City

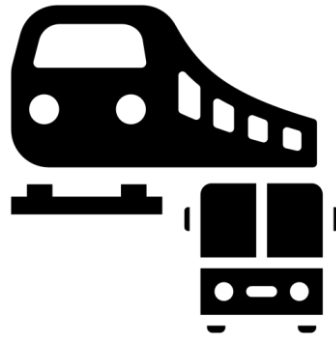
# COMPLETE STREETS HAVE SEVERAL POSITIVE BENEFITS



Safer travel  
**Reduction in  
motor vehicle  
crashes**



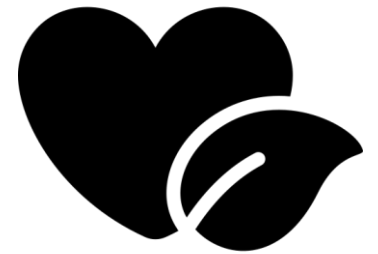
Increase in  
access and  
mobility  
**Multimodal  
options**



Transportation  
options  
**Fairness**



Stronger  
communities and  
neighborhoods  
**Social  
interaction**



Healthy cities  
**Public /  
Community  
health**

# Complete Streets improvements positively influence communities

- Facilitates neighborhood improvement
- Attracts investments
- Increases economic activity
- Make neighborhoods more 'vibrant' or 'desirable'
- Properties near improvements likely to have higher sale/rental prices
- 8/10 projects saw increase in property values (Smart Growth America, 2015)

## What about businesses?



Source: NY State Department of Transportation

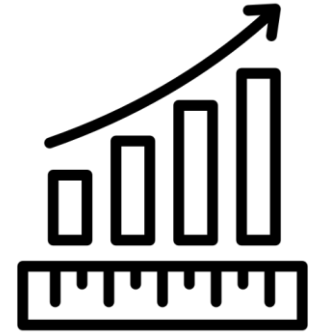
# PROJECT OBJECTIVES



1. Identify **design elements** and **land use characteristics** that improve active transportation and multimodal access



2. Identify **best practices** for analyzing economic impact of Complete Streets improvements



3. Propose **methodologies to measure** the economic benefits of Complete Streets

# REVIEW ON THE ECONOMIC BENEFITS OF COMPLETE STREETS



# LITERATURE REVIEW: LAND USE AND DESIGN ELEMENTS

| Mode                              | Land Use                                                                                                                                                                                                                                             | Design Elements                                                                                                                                                                                                                                                                                              | Positive Benefits                                                                                                                                                                                                                                                                                                                                 | Negative Benefits                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bicycle Infrastructure</b>     | <ul style="list-style-type: none"> <li>• <b>Dense, mixed-use</b> areas with existing transit networks.</li> <li>• Commercial districts with <b>people-oriented businesses</b>.</li> <li>• High jobs-housing balance and income diversity.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Protected bike lanes</b> outperformed shared lanes</li> <li>• <b>Shared bike systems</b> (e.g., bike-share).</li> <li>• Replacing underutilized parking with <b>bike infrastructure</b>.</li> </ul>                                                              | <ul style="list-style-type: none"> <li>• <b>Increased</b> restaurant and grocery sales due to <b>foot traffic</b>.</li> <li>• <b>Savings in time and costs</b> for users.</li> <li>• Property values increase when <b>combined with transit access</b>.</li> <li>• Business support is possible with <b>shared parking incentives</b>.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Gentrification</b> and neglect of low-income groups.</li> <li>• <b>Decline for auto-oriented businesses</b>.</li> <li>• Safety risks from <b>crashes</b> in shared or poorly designed lanes.</li> </ul>                                                                                                                                   |
| <b>Bus Rapid Transit (BRT)</b>    | <ul style="list-style-type: none"> <li>• <b>Urban and metropolitan areas</b>.</li> <li>• Transit-Oriented Development (TOD) zones with <b>integrated land-use planning</b>.</li> </ul>                                                               | <ul style="list-style-type: none"> <li>• <b>Dedicated lanes</b>.</li> <li>• High-frequency and <b>reliable service</b>.</li> <li>• Well-designed station <b>amenities</b>: off-board fare collection, platform-level boarding, security measures.</li> </ul>                                                 | <ul style="list-style-type: none"> <li>• Increased business activity and job opportunities <b>near stations</b>.</li> <li>• Increased property values within <b>0.5 miles of stations</b>.</li> <li>• Effective for <b>regional connectivity</b>.</li> <li>• More effective than other transit modes when properly implemented.</li> </ul>        | <ul style="list-style-type: none"> <li>• Arterial BRT lacked economic benefit and led to <b>reduced job growth</b>.</li> <li>• Systems without dedicated infrastructure, high frequency, or reliability underperform.</li> </ul>                                                                                                                                                      |
| <b>Passenger &amp; Light Rail</b> | <ul style="list-style-type: none"> <li>• <b>High-density corridors and downtown cores</b> with economic agglomeration.</li> <li>• <b>Mixed-use zoning</b> with supportive TOD policies.</li> </ul>                                                   | <p>Integration <b>with street</b></p> <ul style="list-style-type: none"> <li>• Accessibility (<b>ADA-compliant ramps</b>)</li> <li>• Wayfinding (<b>signage</b>)</li> <li>• <b>Dedicated lanes</b></li> <li>• Pedestrian <b>signals</b></li> </ul> <p><b>Room for businesses</b> (for elevated stations)</p> | <ul style="list-style-type: none"> <li>• Increased retail, office, and commercial property values <b>near stations</b> (premiums seen up to 1.85 miles).</li> <li>• <b>Surge in building permits</b> and development project values post-announcement.</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>• <b>Construction disruptions</b> caused temporary/permanent harm to small businesses.</li> <li>• <b>Negative perceptions</b> from single-family homeowners.</li> <li>• <b>Competing land uses</b> / saturation can lead to decline in certain sectors.</li> <li>• Benefits are <b>not automatic</b> and require supportive policy.</li> </ul> |
| <b>Sidewalks &amp; Road Diets</b> | <ul style="list-style-type: none"> <li>• <b>Existing walkable neighborhoods</b>.</li> <li>• Mixed-use areas where walking is practical.</li> <li>• Areas with <b>complementary multi-modal infrastructure</b>.</li> </ul>                            | <ul style="list-style-type: none"> <li>• <b>Adding sidewalks</b> where they are missing.</li> <li>• Road diets</li> <li>• <b>Pedestrian-scale improvements</b> (lighting, crosswalks, landscaping).</li> </ul>                                                                                               | <ul style="list-style-type: none"> <li>• Increased property values in <b>walkable neighborhoods</b>.</li> <li>• Enhanced <b>safety and community appeal</b>.</li> </ul>                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• <b>No economic benefit in car-dependent, low-density suburban areas</b>.</li> </ul>                                                                                                                                                                                                                                                          |

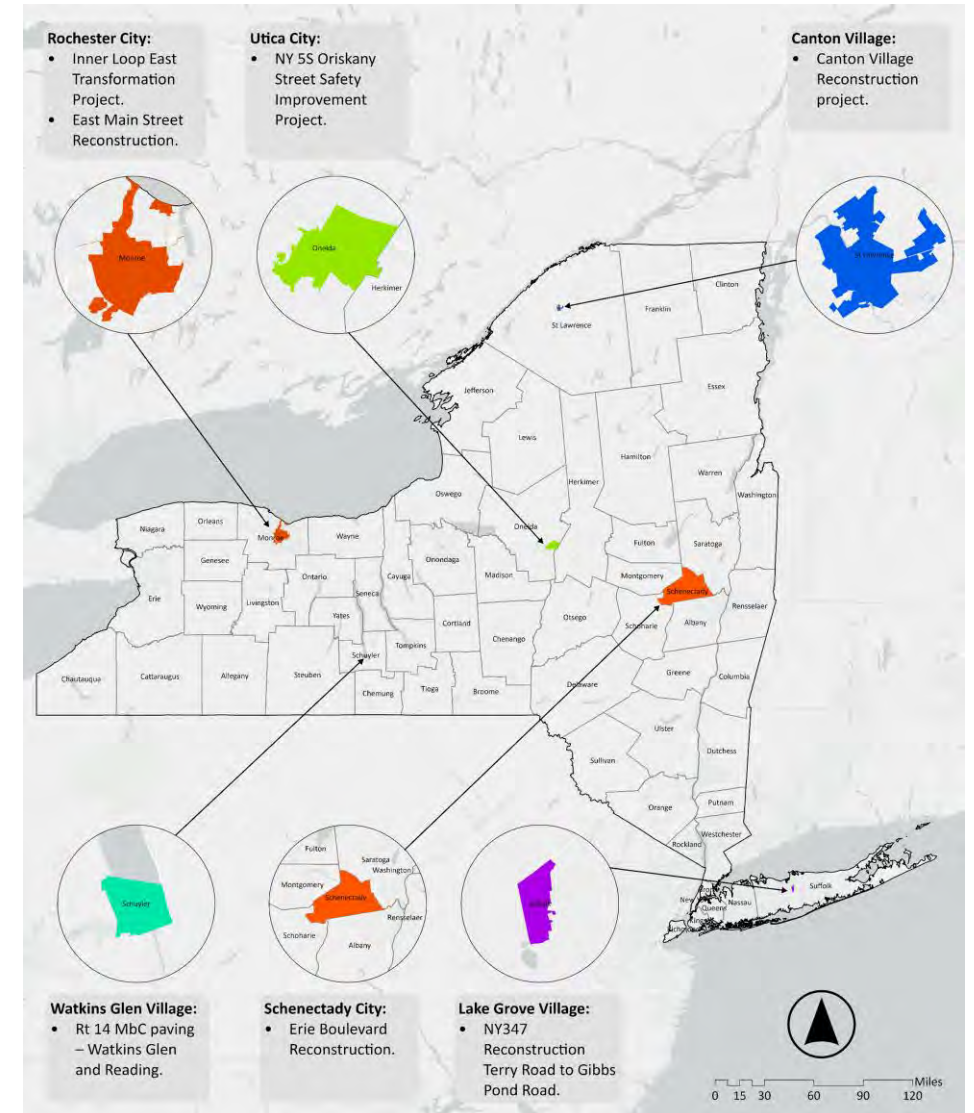
# SELECTION OF PROJECT SITES



# SELECTION PROCESS

- Diversity of projects:
  - Context: urban, suburban, rural
  - Complete streets elements: ADA ramps, medians, sidewalks, crosswalks, bike lanes, on route parking, pedestrian signals
  - Timeline: 2013 – 2013
- Effort to understand if benefits were realized.

| No | Context          | Project                                             | County       | Year Completed |
|----|------------------|-----------------------------------------------------|--------------|----------------|
| 1  | Rural            | Canton Village Reconstruction project               | St. Lawrence | 2013           |
| 2  | Urban            | Erie Boulevard Reconstruction                       | Schenectady  | 2016           |
| 3  | Suburban         | NY 347 Reconstruction Terry Road to Gibbs Pond Road | Suffolk      | 2017           |
| 4  | Urban            | Inner Loop East Transformation Project              | Monroe       | 2018           |
| 5  | Rural            | Route 14 MbC paving – Watkins Glen and Reading      | Schuyler     | 2019           |
| 6  | Suburban / Urban | NY 5S Oriskany Street Safety Improvement Project    | Oneida       | 2021           |
| 7  | Urban            | East Main Street Reconstruction                     | Monroe       | 2023           |



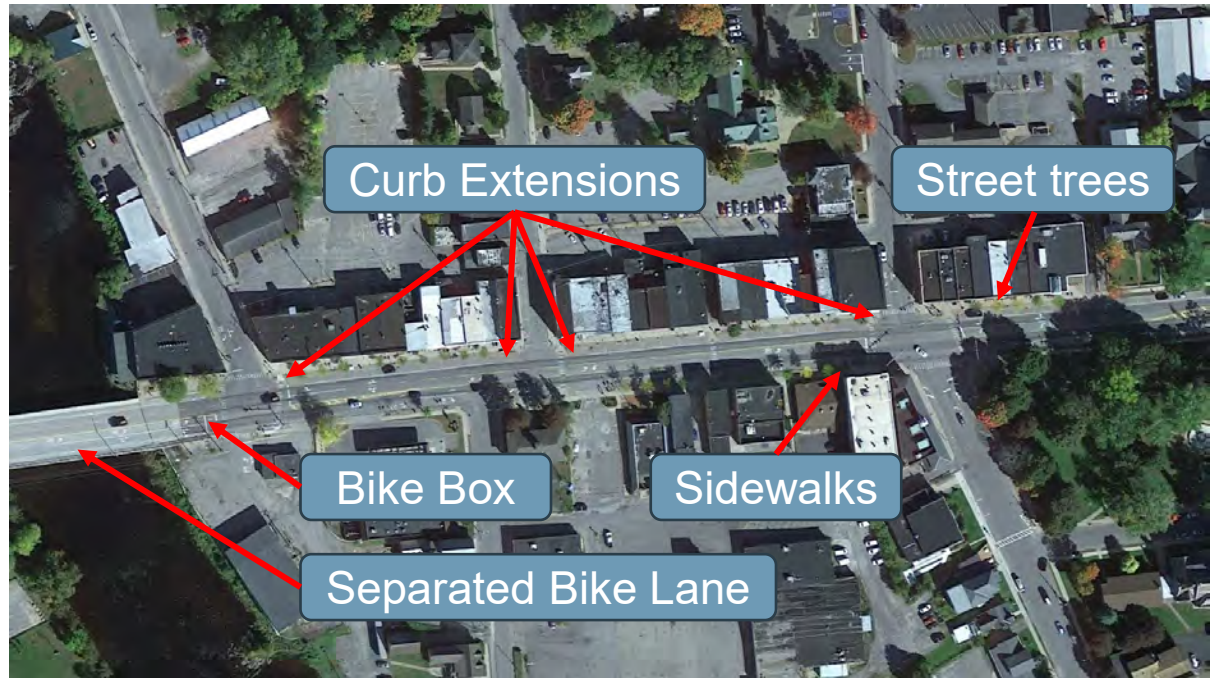
# 1. CANTON VILLAGE RECONSTRUCTION PROJECT



**BEFORE**

**Context:** Canton, St. Lawrence County (**Rural**)

**Improvements:** Sidewalks, pedestrian bump outs, appurtenances (ornamental lighting, benches) and street trees



**AFTER**

**Completed:** 2013

**Source:** Google Earth Pro

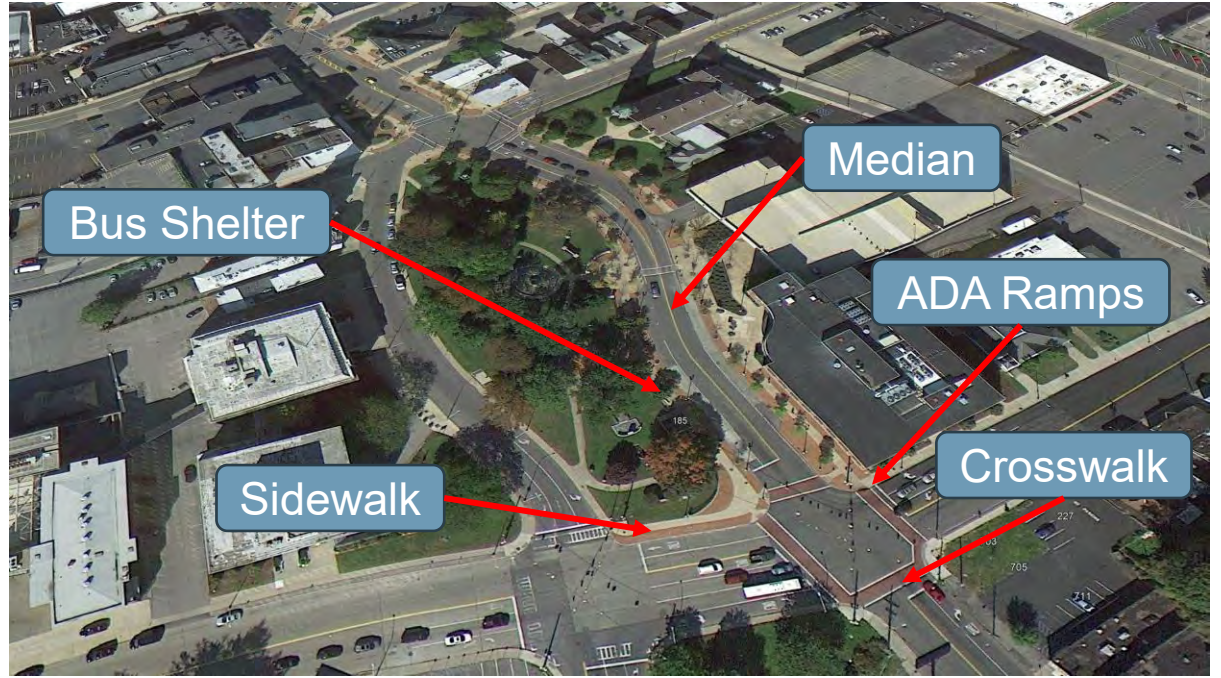
## 2. ERIE BOULEVARD RECONSTRUCTION



**BEFORE**

**Context:** Schenectady, Schenectady County (**Urban**)

**Improvements:** Streetscape enhancements like lighting, benches, and trees.  
Traffic calming measures  
New parking and additional depth of frontage between businesses and curb line



**AFTER**

**Completed:** 2016

Source: Google Earth Pro

### 3. NY 347 RECONSTRUCTION (Terry Road to Gibbs Pond Road)



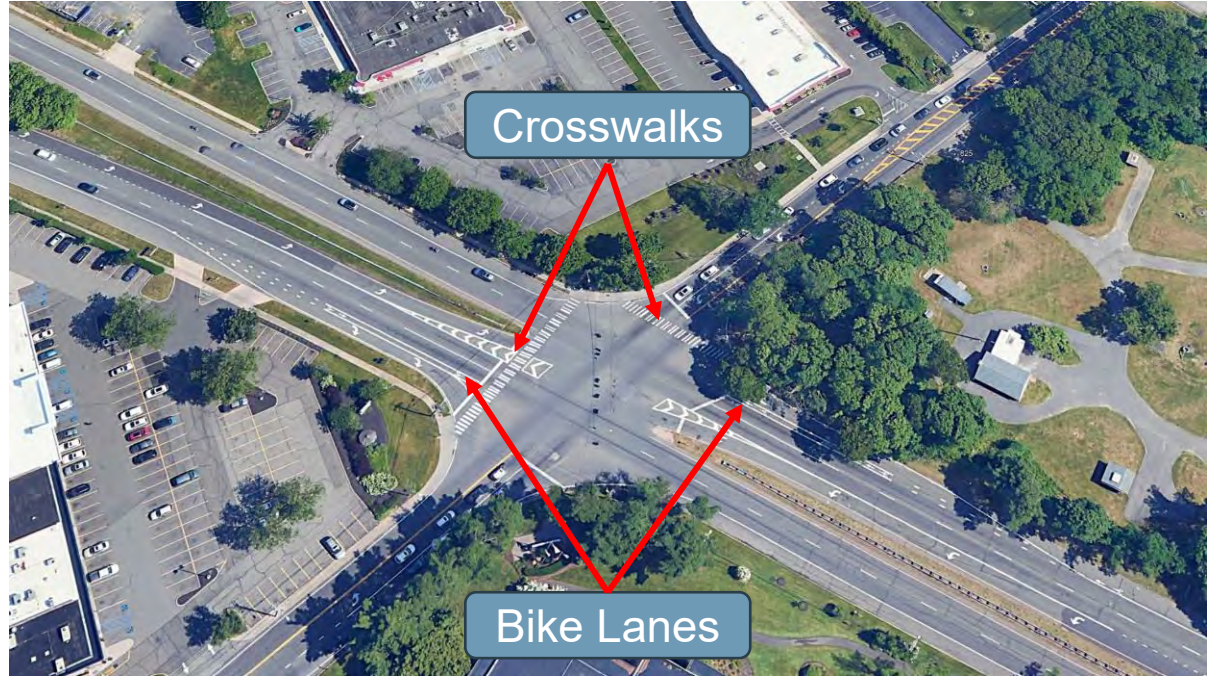
**BEFORE**

**Context:**

Lake Grove, Suffolk County (**Suburban**)

**Improvements:**

Shared use path, pedestrian sidewalk, ADA ramps, enhanced bus shelter, planted center median, pedestrian crosswalks, pedestrian timers



**AFTER**

**Completed:** 2017

Source: Google Earth Pro

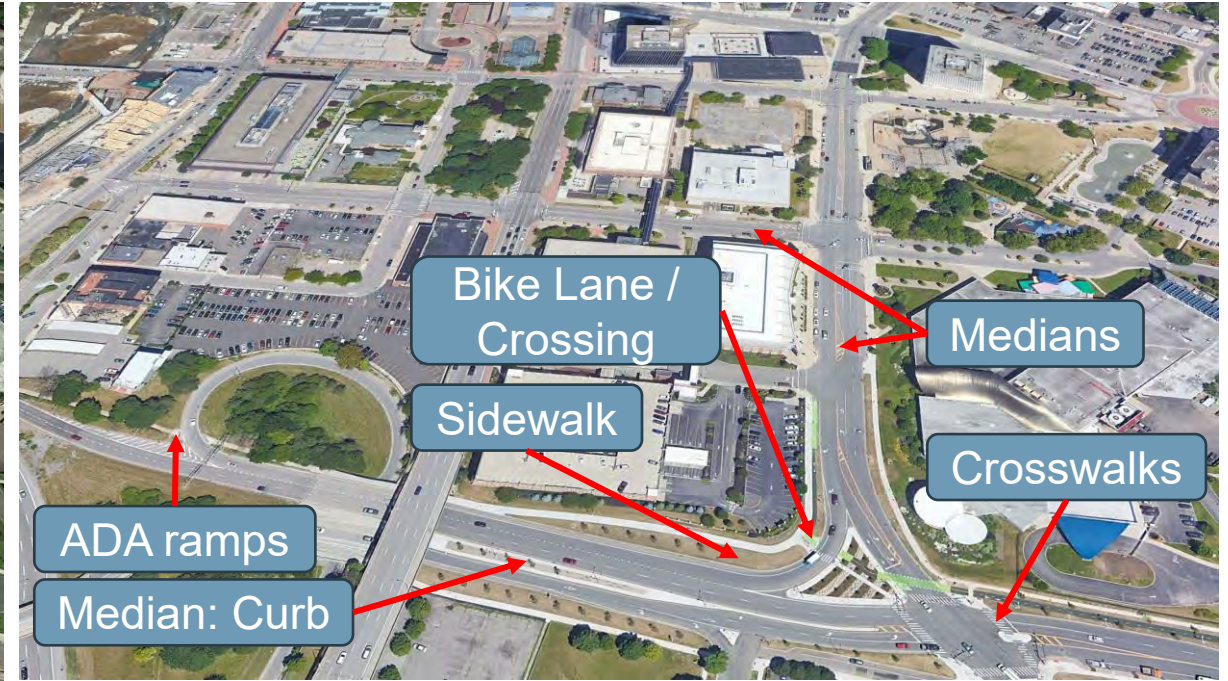
## 4. INNER LOOP EAST TRANSFORMATION PROJECT



**BEFORE**

**Context:** Rochester, Monroe County (**Urban**)

**Improvements:** Improve geometric design, on-street parking, street lighting  
Pedestrian accommodations in conformance with ADA standards.  
Two-way cycle track from Monroe Ave to University Ave



**AFTER**

**Completed:** 2018

**Source:** Google Earth Pro

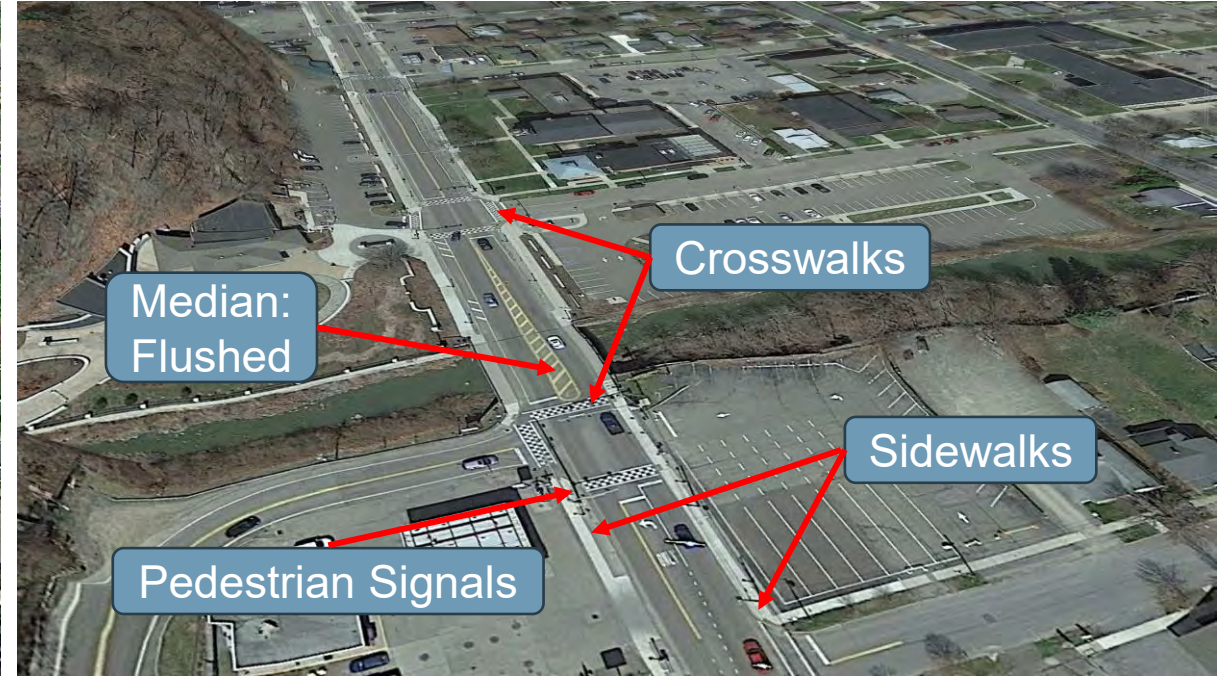
## 5. ROUTE 14 MBC PAVING – (Watkins Glen Village and Reading Town)



**BEFORE**

**Context:** Watkins Glen Village, Schuyler County (**Rural**)

**Improvements:** Adding “gateway” features, street lighting, ADA ramps, crosswalks, special crosswalk, sidewalk, colored and imprinted concrete, adding a curbed median and raceway historic features



**AFTER**

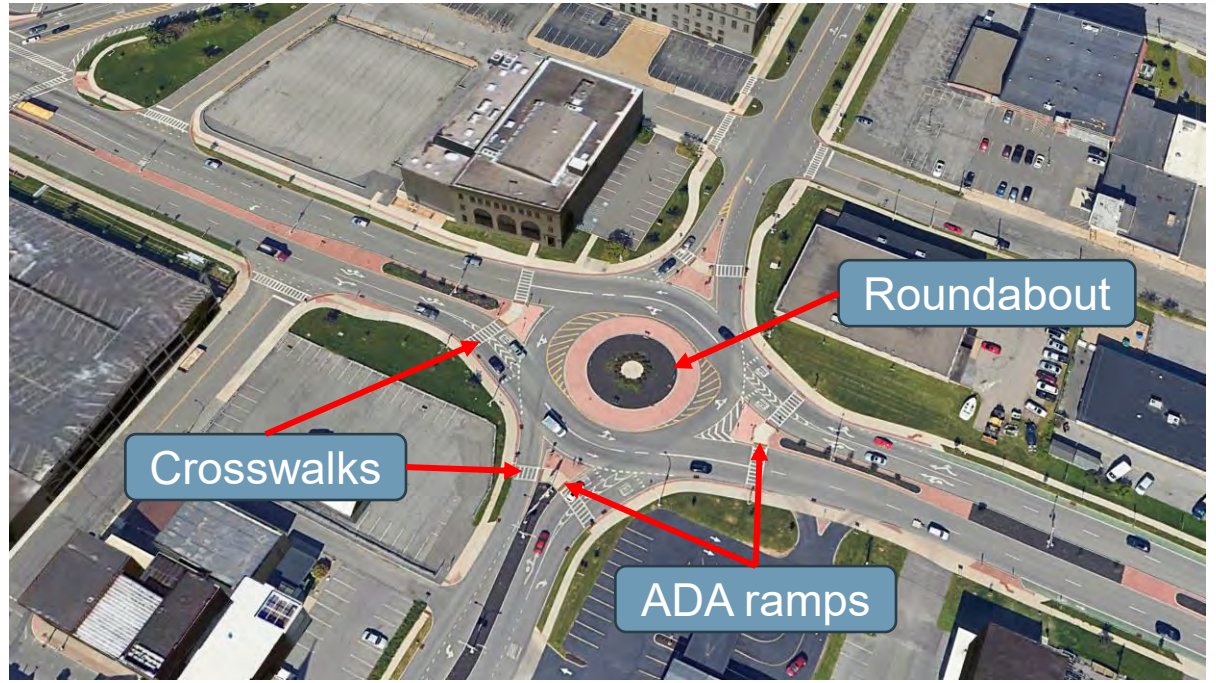
**Completed:** 2019

Source: Google Earth Pro

## 6. NY 5S ORISKANY STREET SAFETY IMPROVEMENT PROJECT



**BEFORE**



**AFTER**

**Context:** Utica, Oneida County (**Suburban/Urban**)

**Completed:** 2021

**Improvements:** Vehicular travel lanes eliminated, dedicated bicycle facilities, pedestrian crossing distances reduced, mid-block crossings added, roundabout replaced a signalized intersection in the corridor

Source: Google Earth Pro

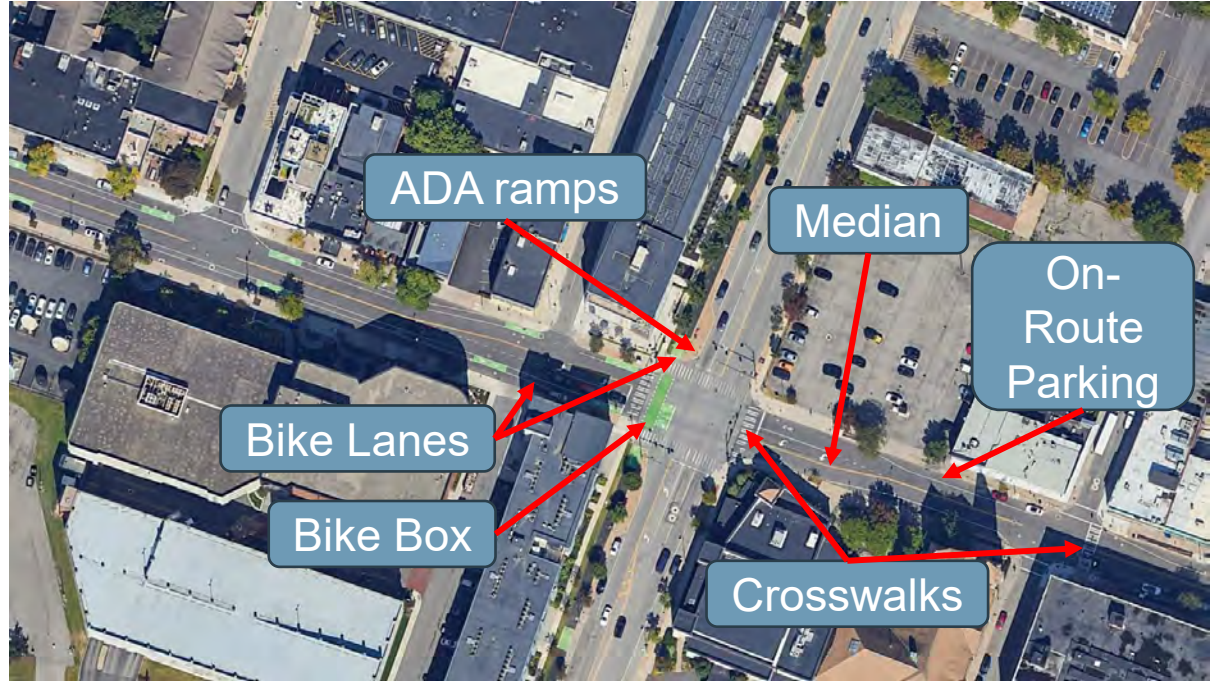
## 7. EAST MAIN STREET RECONSTRUCTION



**BEFORE**

**Context:** Rochester, Monroe County (**Urban**)

**Improvements:** 8-ft sidewalks including 4-ft space for street light poles, trees, traffic signs, hydrants and pedestrian amenities.  
6'-6" width for sidewalks and curb ramps  
Two midblock crossings with public space and bike facility.



**AFTER**

**Completed:** 2023

Source: Google Earth Pro

# DATA SOURCES



# DATA SOURCES

## Unit of Analysis: Census Tract

- NYSDOT Layers on Complete Streets, Businesses, and Property Prices
- Replica Datasets
- NY State Census Tracts (NYS GIS Clearinghouse)
- Population (American Community Survey, 5-year estimates)
- Analysis of data within 1.25-mile buffer



# ANALYSIS AND INSIGHTS



# ANALYSIS & INSIGHTS

- Business Count Change
- Business Count % Change
- Employee Sum Change
- Employee Sum % Change
- Property Value Change
- Property Value % Change
- Z Scores of each Complete Street improvements
- Composite Score = Average of CS Z scores in each tract

## Simple Correlaton Matrix

+1: A perfect positive relationship (as one increases, the other increases proportionally).

0: No linear relationship.

-1: A perfect negative relationship (as one increases, the other decreases proportionally).

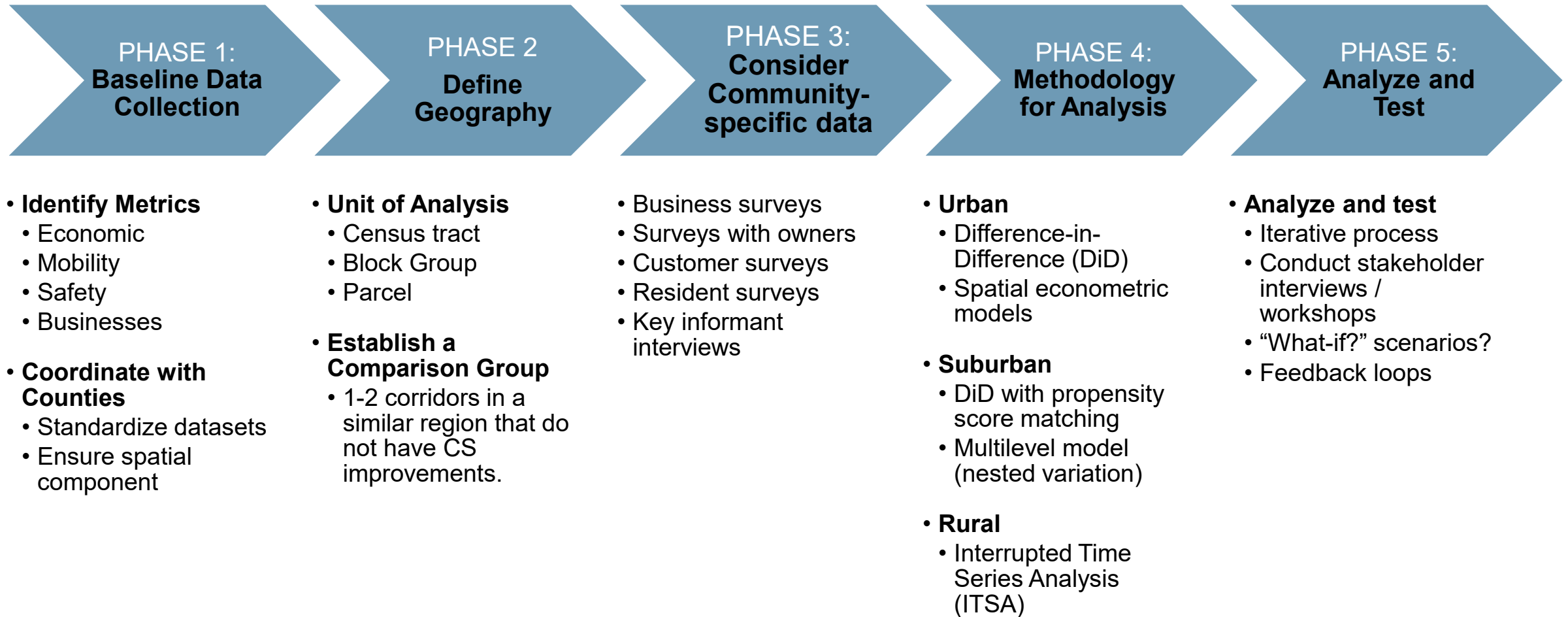
|                       | Composite_Score | Count_Signals | Count_ADA | Sum_Parking_ft | Sum_Median_Area_ft | Sum_Bikelane_Area_ft | Sum_Sidewalk_Area_ft | Sum_Crosswalk_Area_ft |
|-----------------------|-----------------|---------------|-----------|----------------|--------------------|----------------------|----------------------|-----------------------|
| Business_Count_Change | 0.45            | 0.26          | 0.51      | 0.49           | -0.24              | 0.22                 | 0.52                 | 0.57                  |
| Employee_Sum_Change   | 0.45            | 0.25          | 0.53      | 0.40           | -0.24              | 0.25                 | 0.51                 | 0.56                  |
| PropValue_%_Change    | -0.19           | -0.21         | -0.15     | -0.14          | -0.20              | 0.00                 | -0.15                | -0.16                 |

# ANALYSIS & INSIGHTS

| Project Sites                                       | Businesses                                                                                                                                                           |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Canton Village Reconstruction project               | Strong <b>positive</b> correlation with <b>ADA ramps and crosswalks</b>                                                                                              |
| Erie Boulevard Reconstruction                       | Generally <b>weak</b> and negative correlation with <b>most improvements</b><br>Only <b>positive</b> correlation is between <b>medians and property value</b> (0.30) |
| NY 347 Reconstruction Terry Road to Gibbs Pond Road | No strong evidence to show correlation                                                                                                                               |
| Inner Loop East Transformation Project              | <b>Moderate positive</b> correlation with <b>parking, crosswalks, signals, and ADA ramps</b>                                                                         |
| Route 14 MbC paving – Watkins Glen and Reading      | No strong evidence to show correlation                                                                                                                               |
| NY 5S Oriskany Street Safety Improvement Project    | No strong evidence to show correlation                                                                                                                               |
| East Main Street Reconstruction                     | <b>Moderate positive</b> correlation with <b>crosswalks, sidewalks, and ADA ramps</b><br>Only site showing <b>positive relationship with employment</b>              |

- Three sites (**Canton Village, Inner Loop, East Main St.**) showed moderate to strong positive correlations between CS improvements and increase in the number of businesses.
- Three sites (**Erie Blvd, NY347, NY5S**) showed weak or negligible correlations.
- CS improvements can be associated with business growth, but they are not guaranteed to be
  - Correlation  $\neq$  Causation
- CS improvements included in larger neighborhood revitalization projects are likely to improve businesses.

# ASSESSMENT FRAMEWORK TO EVALUATE COMPLETE STREETS



# THANK YOU!

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Department of  
Transportation



20TH ANNIVERSARY

IN MEMORY OF  
IGNATIUS ADANGA  
CHARLES LESPERANCE  
SEE WONG SHUM



RUTGERS-NEW BRUNSWICK

Edward J. Bloustein School  
of Planning and Public Policy