DETERMINING THE BEST PRACTICES FOR IMPLEMENTATION OF COMPLETE STREETS IN THE NORTH COUNTRY OF NYS

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What are Complete Streets?

"Complete Streets are streets designed and operated to enable safe use and support mobility for **all users**."

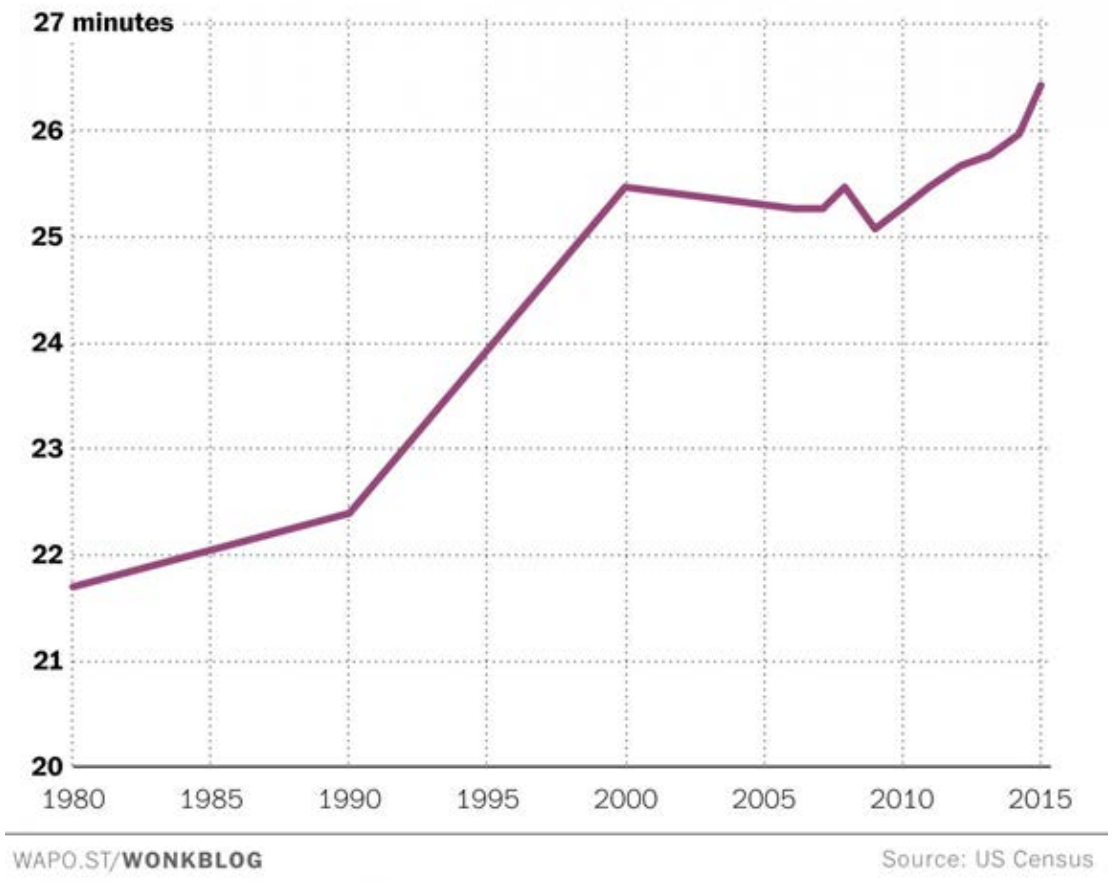
U.S. Department of Transportation

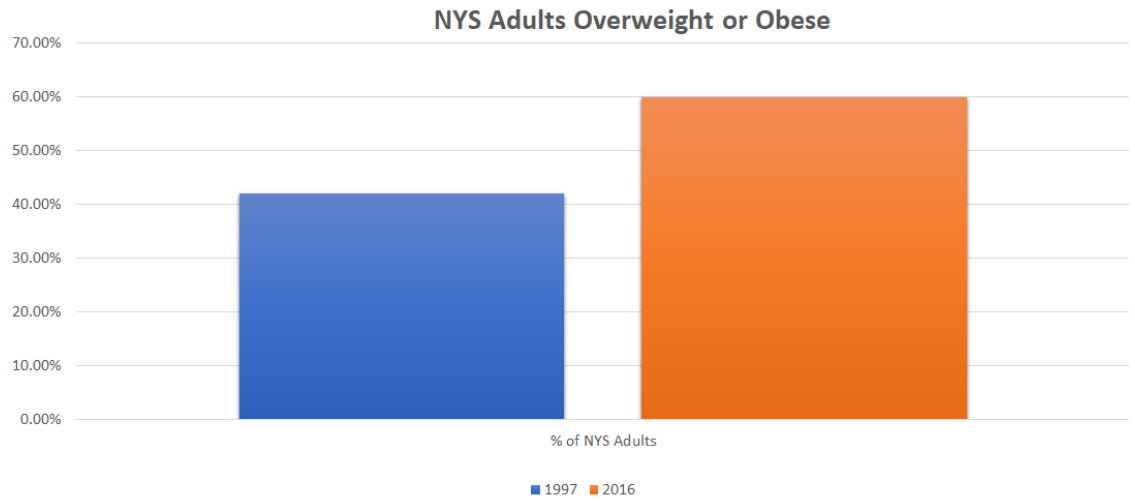
Office of Inspector General

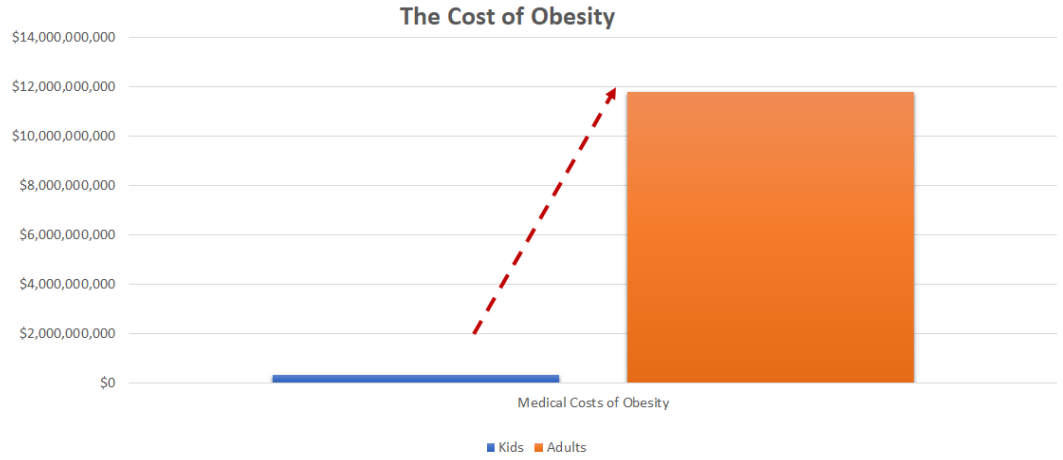
Why do we need Complete Streets?

1. Health Concerns

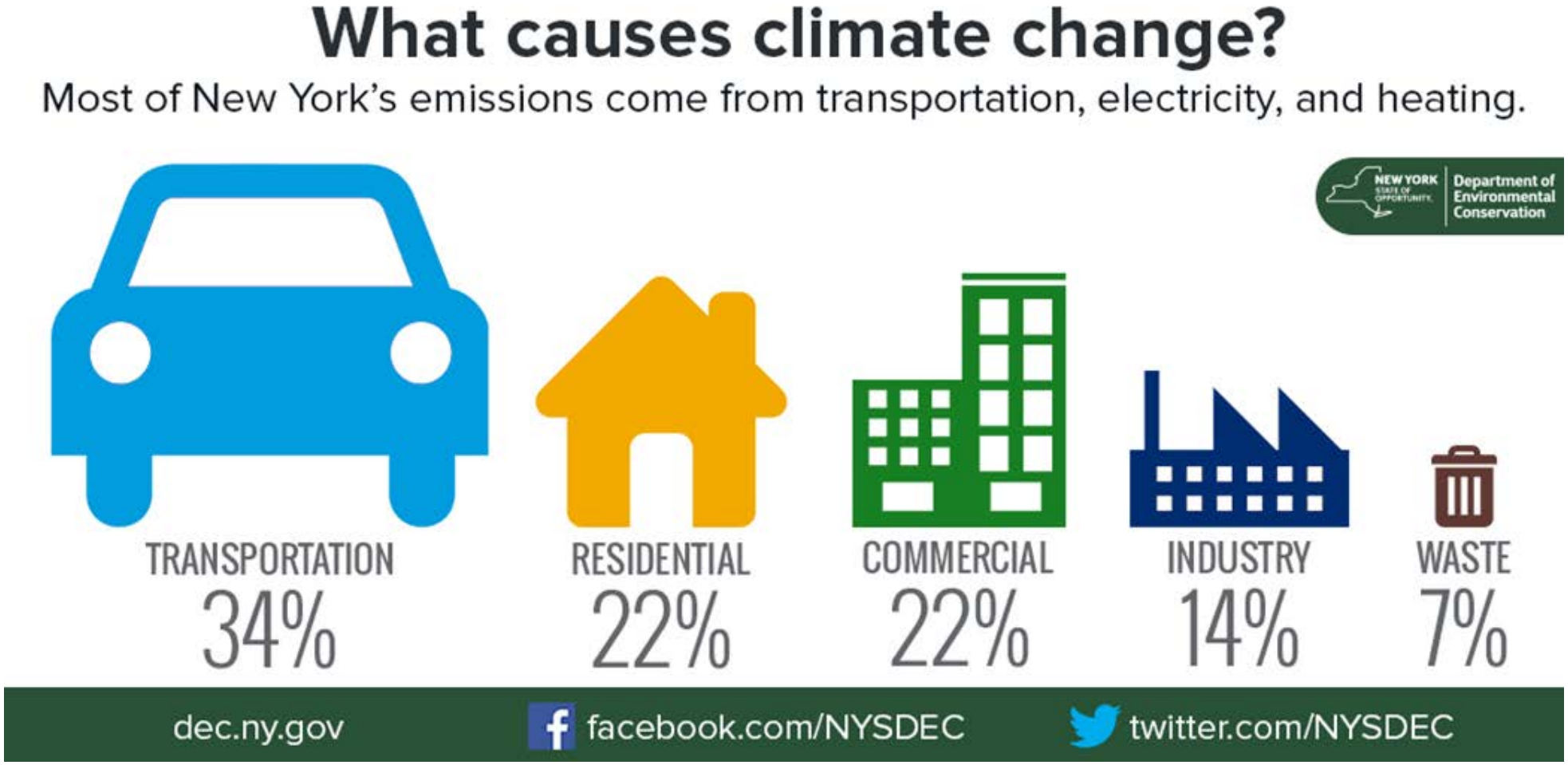
Average US Travel Time to Work 1980-2015



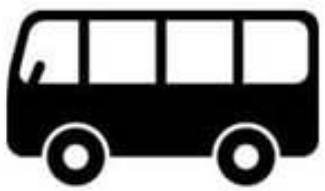




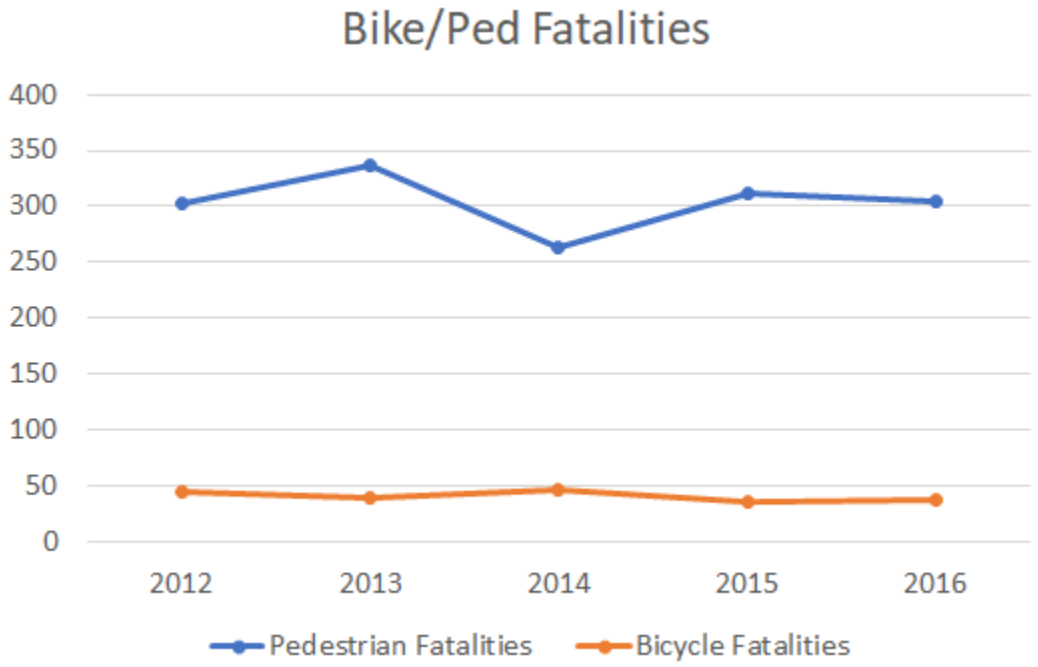
2. Environmental Concerns

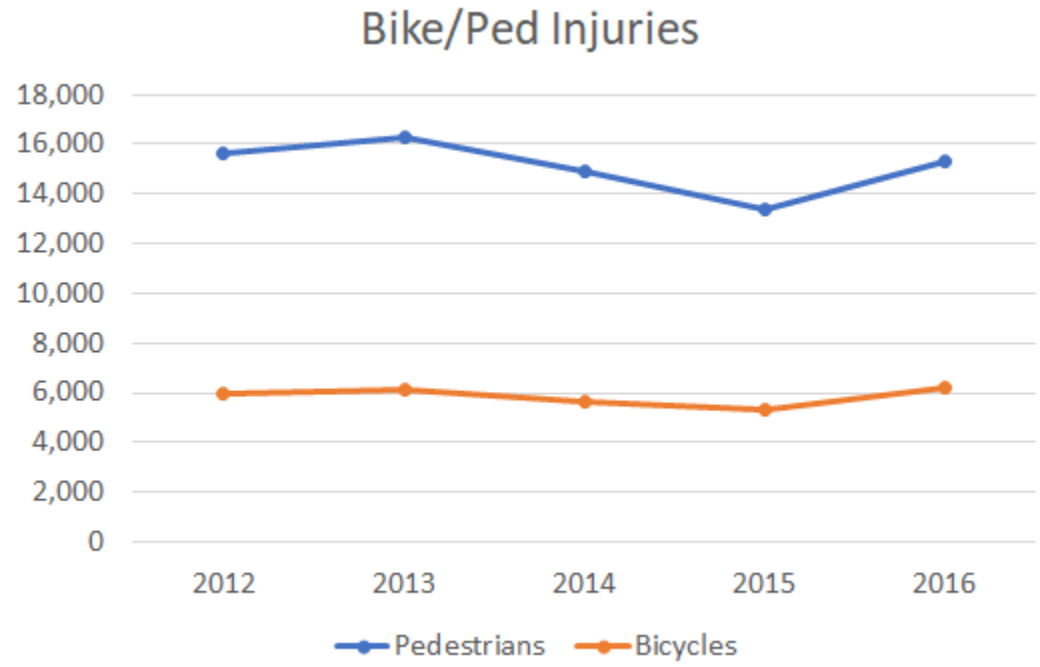


2.Road Efficiency



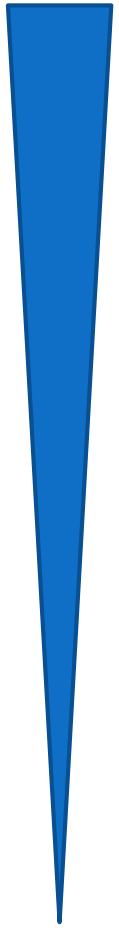
3. Safety for Pedestrians and Motorists





NEW YORK STATE OF OPPORTUNITY. | Governor's Traffic Safety Committee

Shifting Focus



- Walking
- Biking
- Transit
- Cabs/Rideshare/TNC
- Carpooling
- Cars

HOW TO IMPLEMENT COMPLETE STREETS?

Focus: Traffic Calming

How to choose the best traffic calming measures?

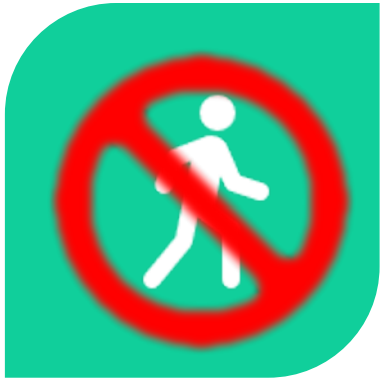
1. Identified the area and special considerations
2. Collected information on various methods
3. Created a weighted decision matrix to rank the best options

1

What makes rural upstate New York unique?

SNOWFALL

LARGE AMISH COMMUNITY



LESS AREAS CONNECTED
BY A WALKABLE DISTANCE

1

Varying Weather Conditions

1

Varying Types of Traffic

What are the best Complete Street Practices?

Four Main Categories of traffic calming techniques

- Crossing the Street
- In-Road Design Elements
- Street Narrowing
- Pavement Markings

2

LIST OF CRITERIA

Criteria
Reduces vehicle speeds
Reduces number of accidents
Disrupts emergency vehicles
Affects roadway drainage
Requires maintenance
Expensive
Long/Difficult implementation process
Interferes with snow removal
Effective year round
Aesthetically pleasing
Easily maneuverable for all vehicles
Does it reduce snow storage area?
On-Street Parking Amenities

2

General Rubric

	Crossing the Street				
	Raised Crosswalks	Mid-Block Crosswalks	Mid-Block Crosswalks + Refuge Island	Signs within crosswalk	Crossing Guards
					
Source	FHWA	NACTO	Iowa State University	USA Streets Blog	CDC
Criteria					
Reduces vehicle speeds	Yes - by up to 35%	Yes	Uncertain	Yes	Yes
Reduces number of accidents	Yes -by up to 46%	Yes - by 46%	Yes - 56%	Yes	Yes
Disrupts emergency vehicles	Minimally - 3-5 second delay	No	No	No	No
Affects roadway drainage	Yes - drains need to be placed above c	No	No	No	No
Requires maintenance	Yes	Yes - occasional repainting	Yes - repainting lines	Yes- prone to damage, occasional replac	No
Expensive	Moderate - $5,000	No - $500-$1,500	Yes - $10,000-$40,000	No - $65	No - most are volunteers
Long/Difficult implementation process	Yes	No	Yes	No	No
Interferes with snow removal	Yes	No	Yes - special accommodations	No	No
Effective year round	Yes	Yes	Yes	Yes	Yes
Aesthetically pleasing	Yes	Yes	Yes	No	N/A
Easily maneuverable for all vehicles	Yes	Yes	No	Yes	Yes
Does it reduce snow storage area?	Just at the entrance to the crosswalk	No	Just at the entrance to the crosswalk	No	No
On-Street Parking Amenities	Minimal parking space taken	No effect on parking	Minimal parking space taken	No effect on parking	No effect on parking

3

Weighted Decision Matrix- Analytical Hierarchy Process (AHP)

Traffic Calming Measure	Easily maneuverable for all vehicles - **7**		Does not reduce snow storage area - **6**		**Total Score**
	Score (1-3)	Weighted Score (Score x 7)	Score (1-3)	Weighted Score (Score x 6)	Sum of Weighted Scores
Mid-Block Crosswalk	3	21	3	18	157
Roundabouts	3	21	3	18	140
Transverse Lane Markings	3	21	3	18	139
Bike Boxes	3	21	2	12	137
Transverse Rumble strips	2	14	3	18	135
Signs within crosswalks	2	14	3	18	134
Bollards	3	21	3	18	128
Shoulder Widening	3	21	3	18	128
Speed cushions	2	14	2	12	125
LED Pavement Markings	3	21	3	18	123
Crossing guards	2	14	3	18	123
Raised Crosswalks	2	14	1	6	121
Chicane	2	14	1	6	120
Speed humps	2	14	1	6	118
Mid-Block Crosswalk with refuge island	1	7	1	6	116
Speed slots	2	14	2	12	112
Protected bike lanes	3	21	1	6	111
Curb Extension	2	14	2	12	108
Painted Bike Lanes	3	21	1	6	105
Center Island	2	14	2	12	97
Landscaping- Trees and shrubs along the road	2	14	1	6	87
Landscaping- Trees and shrubs in center island	2	14	1	6	77

Results

Mid-Block Crosswalks (157)

Roundabouts (140)

Shoulder Widening (128)

Transverse Lane Markings (139)

Conclusion

The weighted decision matrix created serves as a tool for other communities trying to decide which traffic calming measures to implement.

Future Work

- The next step in this research project will be gather input from a community.
- More research could also be done to create a weighted decision matrix for different areas outside of the Northern New York context.

Acknowledgements

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Clarkson Honors

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QUESTIONS?