



# LEWIS COUNTY COMPLETE STREETS PLAN

DRAFT: October 2023



**LEWIS**  
COUNTY  
NEW YORK

# LEWIS COUNTY COMPLETE STREETS PLAN DRAFT REPORT | OCTOBER 2023

Prepared For:

## **LEWIS COUNTY, NEW YORK**



*Lewis County Complete Street Committee*

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In partnership with:



**RESOLUTION NO. 127 - 2023**  
**RESOLUTION APPROVING COUNTY'S COMMITMENT**  
**TO COMPLETE STREETS PLAN AND POLICY**

Introduced by Legislator Thomas Osborne, Chair of the Finance & Rules Committee.

WHEREAS, "Complete Streets" are defined as streets that are safe, convenient and comfortable for all ages and abilities using any mode of transportation (motor vehicle, public transportation, foot, bicycle, etc); and

WHEREAS, Complete Streets design features and practices include, but are not limited to sidewalks, paved shoulders suitable for cycling, designated bike lanes, lane striping, share the road signage, crosswalks, curb ramps, audible pedestrian signals, pedestrian crossing signage, traffic calming measures such as curb bump-outs, center islands and pavement markings, sidewalk snow removal and routine shoulder and bike lane maintenance; and

WHEREAS, Complete Streets has been recognized and adopted as policy and law at federal, state, county, town, village and city levels in the interest of improving multi-modal transportation options, safety and accessibility for all users; and

WHEREAS, Lewis County recognizes that Complete Streets will increase improved transportation options, limit greenhouse gas emissions, improve rates of physical activity and related health outcomes, improve neighborhood vitality, social interaction and economic development, and improve the general quality of life for people in the community; and

WHEREAS, the Lewis County has the ability to work with the local municipalities to explore the maintenance and enhancement of pedestrian, bicycle and trail connections within hamlet centers and address issues of these amenities as needed; and

WHEREAS, Lewis County has the ability to work with the local municipalities and other community partners to educate the community about the rules of roads and paths for all users including laws, safety, and courtesy.

NOW, THEREFORE IT BE RESOLVED, as follows:

Section 1. The Lewis County Board of Legislators hereby recognizes the importance of creating and engaging in the "Complete Streets" Plan developed by the Planning and Community Development Department , including but not limited to practices through the planning, design and construction of new streets and streets reconstruction undertaken by and participating with local municipalities to enable safe travel by all users including pedestrians, bicyclists, public transportation riders,

and drivers, and for people of all ages and abilities, including children, families, older adults and individuals with disabilities.

Section 2. The Lewis County Board of Legislators hereby approves and adopted the attached Complete Streets Plan and Policy developed by the Planning and Community Development Department.

Section 3. The Lewis County Board of Legislators will attempt to draw upon all possible funding sources to plan and implement Complete Streets elements to make implementation economically feasible and will approach every transportation project and program as an opportunity to improve public (and private) streets and the transportation network for all users, and will work in coordination with other departments, agencies and municipalities to achieve Complete Streets.

Section 4. That this resolution shall take effect immediately.

Moved by Legislator Virkler, seconded by Legislator Moser, and adopted on the 5<sup>th</sup> day of July, 2023.

## **Lewis County Complete Streets Plan**

### **Complete Streets Policy**

Lewis County is developing a county-wide Complete Streets Plan and seeks to adopt the policy of "Complete Streets" as a guiding principle for County infrastructure development. Complete Streets are defined as facilities that are designed and operated to enable safe access for all users including, but not limited to, pedestrians, bicyclists, motorists, and users of public transportation. Complete Streets enable safe access for users of all ages and abilities to safely move along and across a complete street.

The Complete Streets Policy advocates transportation facility design with all users in mind utilizing practical transportation planning methods and traffic control measures as appropriate.

Lewis County and its participating local municipalities support the development of a complete system of bikeways, pedestrian facilities and shared use paths, bicycles parking and safe crossings connecting residences, businesses, and public places. Lewis County promotes bicycling and walking for health, environmental sustainability, exercise, transportation, and recreation.

Bicycle and pedestrian facilities shall be considered in all new construction, reconstruction, and maintenance projects in the County unless:

- Bicyclists and pedestrians are prohibited by law from using the roadway.
- The cost of establishing bikeways or walkways would be prohibitive.

In cases where the existing right-of-way does not allow for sidewalks, bike lanes, paths or other improvements, potential alternatives will be examined including the appropriate use of paved shoulders, signage, traffic calming and/or enhanced education and enforcement.

New bicycle and pedestrian facilities will be constructed and maintained in accordance with guidelines adopted by the United States Department of Transportation (USDOT), New York State Department of Transportation (NYSDOT) and the American Association of State Highway & Transportation Officials (AASHTO). Such facilities will be considered in the County's site plan review and GML-239m review process as appropriate.

# LEWIS COUNTY COMPLETE STREETS PLAN

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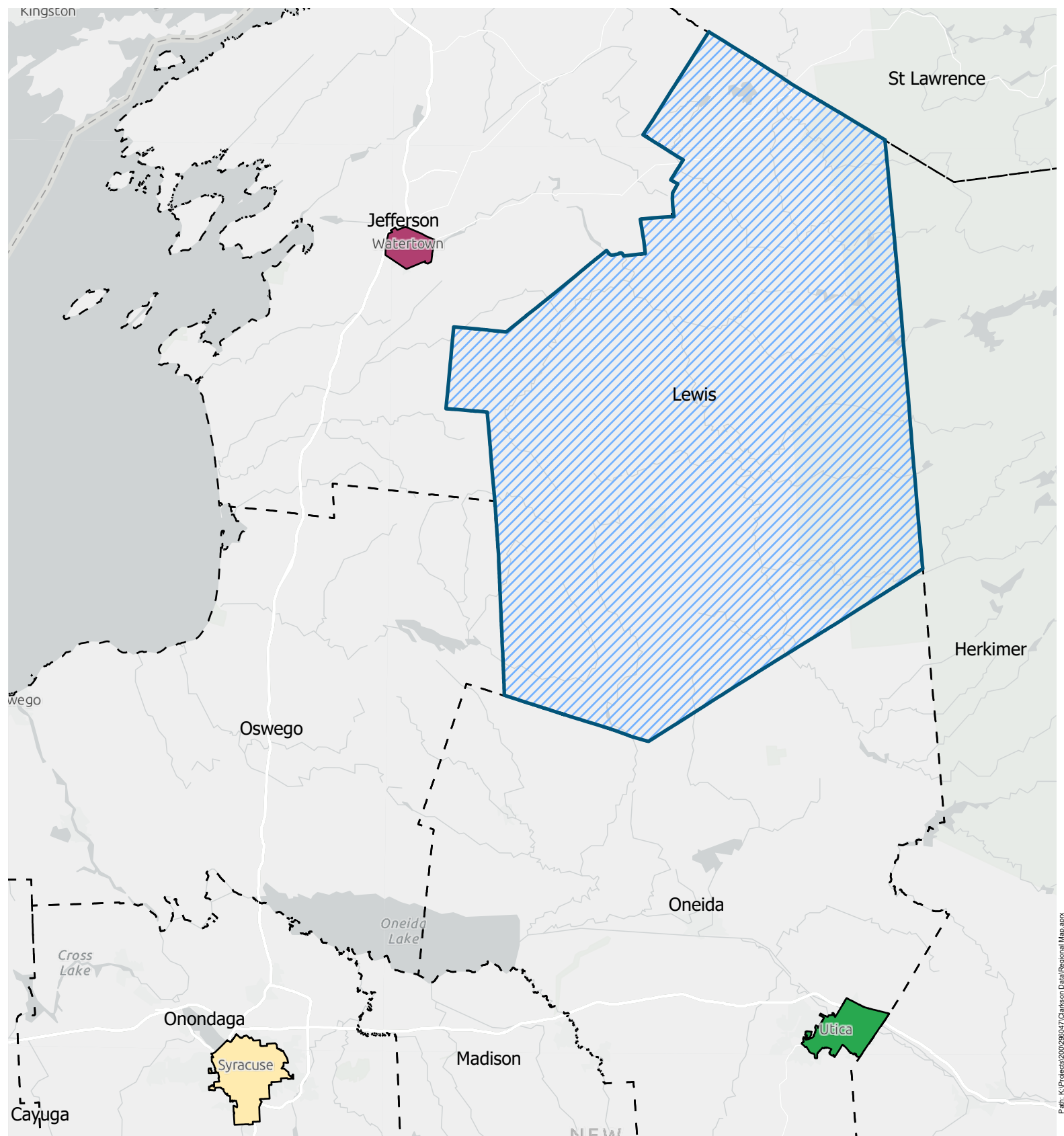
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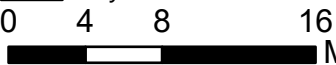
## EXECUTIVE SUMMARY



\*To be developed for the final plan report draft










Sources: Basemap - Light Grey Reference

 Lewis County Boundary
  City of Syracuse

 City of Watertown
  Counties

 City of Utica


**LEWIS COUNTY** NEW YORK
 

**Lewis County**  
 Lewis County Complete Streets Plan  
**Regional  
 Location Map**

Lewis County September 2023 New York

**Figure**  
  
**1.1**

Path: K:\Project\2023\047 Clarkson Data\Regional Map.aprx

# CHAPTER 1 – INTRODUCTION

## BACKGROUND AND PURPOSE OF THE LEWIS COUNTY COMPLETE STREETS PLAN

Lewis County's 2022-2024 Community Health Assessment demonstrates significant evidence, need, and demand for improved walkability. As of 2018, obesity rates among Lewis County adults and children/adolescents are 38% and 23%, respectively. These rates exceed the statewide average for both population groups and fall in the highest quartile in the state. According to community feedback on the 2022 Community Health Survey of Adult Residents, lack of physical recreation access is a significant barrier to a healthy lifestyle for many residents.

Only 50% of Lewis County respondents rated their family's access to places where you can walk and exercise, either indoors or outdoors, as "very available". However, 75.9% of adults participate in leisure-time physical activity, underscoring that interest is greater than access. These findings also show that older individuals and members of households earning less than \$25K annually reported less leisure-time physical activity, on average. Given that 40% of Lewis County's population is 50 or older, creating communities where residents can age in place is critical for fostering multi-generational social cohesion and equity.

The purpose of the Lewis County Complete Streets Plan is to better accommodate the travel needs and desires of motorists, pedestrians, bicyclists, transit riders, seniors, children and persons with disabilities. The Plan provides recommendations for context-sensitive roadway design improvements that focus on safe access for all users by deploying a comprehensive, integrated, and connected multi-modal network (streets, sidewalks and other public passage ways) of transportation options within the County. Additionally, the Plan includes specific public infrastructure recommendations for eleven (11) targeted participating Pilot locations.

## INTENDED USE OF THE PLAN

This document should be used as a guide by planners, engineers and policy makers for the municipalities of Lewis County. It provides an overview of complete street principles, best practices, and implementation strategies that should be applied within a rural and suburban context. The Plan is the first complete streets guide prepared by Lewis County and could serve as a template for neighboring counties who support multi-modal practices and initiatives when planning, designing and constructing projects in consideration of safety and mobility for all user types.

This Plan also provides detailed recommendations for selected Pilot locations at intersections, along roadway corridors and at trail crossings intersecting with the public ROW. These pilot locations provide an illustration of how Complete Street elements can be applied to various rural and suburban locations and contexts specific to Lewis County. In short, the Plan promotes context-sensitive Complete Streets solutions that are practical, sensitive to place, and help foster economic development for the County through regional connectivity and tourism.

## REGIONAL CONTEXT OF LEWIS COUNTY

Lewis County is a rural-agricultural region within the North Country of New York State. The county is located within three major geographic regions: the Tug Hill Plateau, the Black River Valley, and the Adirondack Foothills. Each of these geographies has significantly influenced the development patterns and economies within the county. The rugged terrain and often extreme North Country climatic conditions have limited development potential within the county, resulting in a small and scattered population of approximately 26,000 residents across nearly 1,300 square miles.

The County is comprised of 17 Towns and 8 Villages, and much of the county's population is located along the Black River Valley. The Village of Lowville is the population center and County seat with 4,888 residents as of the 2020 Census.

Because of the very rural nature of the County and the distance between population centers, low-income individuals without vehicles have difficulty accessing healthcare, human services programs, and retail stores to purchase essential goods and services. Without adequate transportation access, these residents are also finding it difficult to obtain and maintain gainful employment and attend adult education classes.

This Plan strives to provide guidance on a more connected and integrated system of transportation alternatives for all users within the County.

## ROLE STREETS PLAY IN LEWIS COUNTY

Streets are essential to the quality of life of residents and visitors. They are vital to the interconnectedness and universal accessibility within a community. A poorly designed street that caters solely to the automobile can make travel for other users without their own vehicle difficult and dangerous, while a well-designed street offers many economic, community, and social benefits. The Lewis County Complete Streets Plan contributes to the creation and maintenance of safe and efficient transportation systems, designed with the needs of Lewis County residents and travelers in mind, while also providing design guidance that stresses the importance of place making through planning for experiential public roadways. The efficiency and community design best practices of these transportation systems are the focus of these guidelines when planning for the design, reconstruction, or retrofitting of main corridors within the County.

### Transportation

At their most basic, streets serve as a transportation route for people traveling between the various villages within the County. Everyday, thousands of Lewis County residents use its roads as commuters, heading to work, school, or just making trips within their communities. As a predominantly rural area, most of these trips are taken via automobile, however, trips are also made on foot or bicycle.



Source: <https://www.avera.org/balance/childrens-health/preparing-for-your-child-to-walk-home->



Source: <https://www.nbcnews.com/better/pop-culture/walk-run-or-bike-work-these-clothes-are->



Lewis County Public Transportation Logo

### Economic

A well-designed Complete Street will increase the value of the properties surrounding it, strengthen local businesses, and generate tax revenue. Streets serve as the gateway for commercial activity; sidewalk dining for restaurants and cafes; window displays that draw in customers; and space for signage and advertisement. Streets can also support more temporary commercial installations, such as farmers' markets.



Good Ol' Wishy's in Croghan NY



Lewis County Fair Parade

### Recreation and Social Engagement

A Complete Street can also serve as venues for annual festivals, races, and parades. In residential neighborhoods, streets can be the setting for children to play or host parties. Complete streets can encourage walking, enabling increased interaction between people, and allowing them to better know each other and their communities. They also facilitate different forms of physical activity such as jogging, running, and biking, which improves overall public health.

### Infrastructure

Complete Streets support the delivery of electricity, gas, water, and communication to homes and businesses. They also serve a role in stormwater management and treatment, collecting and filtering rainwater.



Source: <https://www.epa.gov/nutrientpollution/sources-and-solutions-stormwater>

## PUBLIC OUTREACH AND ENGAGEMENT



Lewis County Director of Planning Casandra Buell Speaking to Residents during the August Public Meeting

Feedback from the public and stakeholders is critical to shaping any sort of plan intended to make meaningful positive changes to a community. On August 9, 2023, Lewis County, in coordination with the consultant team, held an open house event to gather public input that provided valuable input for the Lewis County Complete Streets Plan. The event was held at the Jefferson Community College Education Center in Lowville, NY and was open to all community members, municipal officials and business owners in the County. The open house was designed

to encourage participants to review maps of the participating Pilot villages and

hamlets within the County and to provide feedback related to needs, concerns and opportunities for an improved multi-modal network within their respective communities. Participating Pilot villages and hamlets included in the Plan and that were the target of the open house event are:

- \* *Hamlet of Beaver Falls*
- \* *Village of Castorland*
- \* *Village of Constableville*
- \* *Village of Copenhagen*
- \* *Village of Croghan*
- \* *Hamlet of Glenfield*
- \* *Hamlet of Harrisville*
- \* *Village of Lyons Falls*
- \* *Village of Port Leyden*
- \* *Village of Turin*
- \* *Hamlet of West Leyden*

**LEWIS COUNTY COMPLETE STREETS PLAN**

Streets are essential to residents' quality of life - they support interconnectedness and access within a community. There is a significant need and demand for improved walkability in the County, and a Complete Streets Design Guide will contribute to the creation and maintenance of safe and efficient transportation systems, designed with the needs of Lewis County residents in mind.

**WHAT IS A COMPLETE STREETS PLAN?**

Complete Streets is an approach to planning, designing, building, operating, and maintaining streets that enable safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. This approach also recognizes the needs of those who have experienced systemic underinvestment, or whose whose needs have not been met through a traditional transportation approach, such as older adults, people living with disabilities, people who don't have access to vehicles, and minority communities.

**WHAT WILL A 'COMPLETE STREET' LOOK LIKE?**

There is no one single way to create a 'Complete Street', as the transportation needs of a community are context sensitive. However, topics generally covered in a Complete Streets Plan include cycling infrastructure (as dedicated lanes, shared roads or shoulder paths), traffic calming measures, sidewalk connectivity, green street infrastructure (such as bioswales), and street design. You can provide your insight into what you want to see in the Lewis County Complete Streets Plan by scanning the QR code above!



Lewis County Complete Streets website can be accessed by using the QR code or URL below:  
<https://www.lewiscountyny.gov/transportation/planning-and-community-development/complete-streets>

Flyer and Poster from August Public Event

**Harrisville**

What are your ideas for complete streets in Harrisville?

Where are missing sidewalks?

What do you like to see a bike lane?


Where are places you want to walk?

Can pedestrians with disabilities be better accommodated?

What barriers exist that keep you from walking more?

Are there areas where flooding is a concern along walkways and bike lanes?

Is enhanced public transit desired?



Meeting participants were encouraged to walk around the room to view a board and map associated with each village or hamlet. Participants could leave post-it notes on the boards and mark up the corresponding maps to note their ideas for complete street improvements. More details from the results of the open house event can be reviewed in the Public Meeting Summary provided in Appendix D. This public meeting and other public input collected are discussed in depth in **Chapter 3: Existing Mobility Overview, Issues, and Opportunities**.

## CHAPTER 2 – COMPLETE STREETS

### OVERVIEW OF COMPLETE STREETS

Complete Streets provides for the mobility of all users through the planning, designing, building, operating, and maintaining streets that enable safe access for all people who need to use them, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. This approach also emphasizes the needs of those who have experienced systemic underinvestment, or those whose needs have not been met through a traditional transportation approach, such as older adults, people living with disabilities, people who don't have access to vehicles, and minority communities.<sup>1</sup>



Source:  
<https://www.cityofgoleta.org/home/showpublishedimage/1349/636245726171630000>

Context is important to this process, as not every street will be used by all transportation modes. A context-sensitive street approach is used to achieve practical, safe, and affordable improvements. Complete streets function as a system to ensure that the transportation network provides safe and efficient access for all roadway users and provides designated spaces for each mode when needed. Ideally, not only will a Complete Street aid in the safe and efficient movement for all transportation users, but they will also result in a balanced and interesting sense of place for communities that implement complete street policy and design along with other community planning initiatives.

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<sup>1</sup> Excerpt pulled from Smart Growth America: [Complete Streets - Smart Growth America](#)

## Anatomy of a Complete Street



Important to note is that Complete Streets are not just about multi-modal options. A well-planned and designed roadway corridor, particularly within downtown or Main Street settings should include mobility options for all users and ages, but also streetscape amenities that contribute to the overall vibrancy and sense of place for the community. The conceptual design illustrated above identifies the various elements that, when built and created together, helps foster an experiential setting and contributes to economic development while ensuring the safety of travels on foot, bike, or in vehicles.

### Benefits of Complete Streets

#### Economic Development

The presence of a quality street leads to increased value of the properties that surround it, which helps to strengthen local businesses and generate tax revenue. Additionally, areas with access to public transit and non-motorized transportation networks can lower transportation costs for some residents.

#### Improved Mobility

Lewis County's senior population has been continually increasing since 2000, growing from 13.8% to 18.7% in 2020<sup>2</sup>. As this population trend continues to increase, Lewis County must plan for senior mobility to allow them to age in place and ensure their quality of life. For safe and

<sup>2</sup> Source: [2020 ACS 5-year Estimate Age and Sex, 2000 DEC Summary File 4 Demographic Profile](#)



efficient access to public transit options the supporting infrastructure must provide sidewalks, safe road crossings, adequate signage, and space for bicycles.

Residents with disabilities (who make up approximately 14.7% of the Lewis County population) can also benefit greatly from a complete street design that makes pedestrian travel safer and more accessible for them<sup>3</sup>

*Lewis County Population Tables<sup>4</sup>*

Lewis County						
Age Group	2000	% of Total Population	2010	% of Total Population	2020	% of Total Population
0-19	8,206	30%	7,367	27.2	6,633	25.1
20-24	1,366	5%	1,515	5.6	1,448	5.5
25-44	7,588	28%	6,269	23.1	5,883	11.8
45-64	6,074	23%	7,860	29.0	7,533	28.4
65+	3,710	14%	4,076	15.1	4,959	18.7
<b>Total</b>	<b>26,944</b>	<b>100%</b>	<b>27,087</b>	<b>100.0</b>	<b>26,456</b>	<b>100.0</b>
Village of Castorland						
0-19	97	32%	85	22%	154	41%
20-24	24	8%	7	2%	18	5%
25-44	101	34%	97	25%	82	22%
45-64	59	20%	133	34%	77	20%
65+	20	7%	65	17%	47	12%
<b>Total</b>	<b>301</b>	<b>100</b>	<b>387</b>	<b>100%</b>	<b>378</b>	<b>100%</b>

<sup>3</sup> Source: [2020 ACS 5-year Estimate Disability Characteristics](#)

<sup>4</sup> All population tables use American Community Survey (ACS) Data for 2010 and 2020 – ACS Data uses a sample from the target population to estimate the demographic trends of the whole population and therefore has a margin of error. Smaller populations tend to have a larger margin of error in demographic estimations.

Data unavailable for: Hamlets of Beaver Falls, Glenfield, and West Lyden

Village of Constableville						
Age Group	2000	% of Total Population	2010	% of Total Population	2020	% of Total Population
0-19	94	30%	95	31%	96	29%
20-24	19	6%	5	2%	6	2%
25-44	97	31%	111	36%	76	23%
45-64	60	19%	60	19%	88	27%
65+	42	13%	38	12%	60	18%
<b>Total</b>	<b>312</b>	<b>100%</b>	<b>309</b>	<b>100%</b>	<b>326</b>	<b>100%</b>
Village of Copenhagen						
0-19	311	36%	131	24%	196	27%
20-24	86	10%	113	20%	55	8%
25-44	256	30%	114	21%	166	23%
45-64	144	17%	123	22%	220	30%
65+	66	8%	74	13%	91	13%
<b>Total</b>	<b>863</b>	<b>100%</b>	<b>555</b>	<b>100%</b>	<b>728</b>	<b>100%</b>
Village of Croghan						
0-19	205	29%	111	20%	189	31%
20-24	47	7%	46	8%	22	4%
25-44	174	25%	154	27%	180	30%
45-64	131	19%	135	24%	76	13%
65+	140	20%	116	21%	136	23%
<b>Total</b>	<b>697</b>	<b>100%</b>	<b>563</b>	<b>100%</b>	<b>603</b>	<b>100%</b>
Hamlet of Harrisville						
					<b>2019*</b>	
0-19	162	24%	163	26%	114	22%
20-24	46	7%	27	4%	42	8%
25-44	144	22%	178	29%	149	29%
45-64	185	28%	143	23%	110	21%
65+	126	19%	107	17%	103	20%
<b>Total</b>	<b>663</b>	<b>100%</b>	<b>618</b>	<b>100%</b>	<b>518</b>	<b>100%</b>
Village of Lyons Fall						
0-19	154	27%	172	25%	196	31%
20-24	34	6%	29	4%	17	3%
25-44	134	24%	184	27%	100	16%
45-64	143	25%	197	29%	159	25%
65+	98	17%	96	14%	155	25%
<b>Total</b>	<b>563</b>	<b>100%</b>	<b>678</b>	<b>100%</b>	<b>627</b>	<b>100%</b>


Village of Port Leyden						
Age Group	2000	% of Total Population	2010	% of Total Population	2020	% of Total Population
0-19	175	26%	226	32%	222	34%
20-24	33	5%	72	10%	31	5%
25-44	148	22%	163	23%	146	22%
45-64	157	24%	137	19%	132	20%
65+	148	22%	113	16%	118	18%
<b>Total</b>	<b>661</b>	<b>100%</b>	<b>710</b>	<b>100%</b>	<b>649</b>	<b>100%</b>
Village of Turin						
Age Group	2000	% of Total Population	2010	% of Total Population	2020	% of Total Population
0-19	92	35%	17	7%	71	36%
20-24	14	5%	4	2%	7	3%
25-44	58	22%	25	11%	33	17%
45-64	63	24%	66	28%	35	18%
65+	97	37%	121	52%	51	26%
<b>Total</b>	<b>261</b>	<b>100%</b>	<b>232</b>	<b>100%</b>	<b>197</b>	<b>100%</b>

Complete streets support additional transportation options such as walking, biking, and public transit in addition to driving. A more connected transportation network improves the feasibility of using these alternative transportation methods. This Complete Streets Plan will work in conjunction with the Lewis County Human Services Coordinated Transportation Plan to improve community mobility and the quality of life for county residents.

### Improved Safety and Health

There is a wide body of research suggesting that human health and the built environment are inextricably linked. The relationship between well-being and streetscapes extends beyond traffic safety into factors including chronic disease, mental health and social cohesiveness. According to the Center of Diseases Control Prevention (CDC), chronic diseases such as heart disease and diabetes affect more than half of American adults, and are the leading drivers of the nation's \$3.5 trillion in annual health care costs. Several organizations have partnered in a joint call to action to promote healthy communities, including the following:

This project presents a significant opportunity to address the health disparities found within the region through design elements such as:



<p><b>Active Transportation Infrastructure</b></p> <p>Installing amenities such as bike lanes can promote increased physical activity</p>	<p><b>Street Trees</b></p> <p>Planting street trees can promote walkability and reduce harmful effects of pollutants from vehicles</p>	<p><b>Communal Spaces</b></p> <p>Creating attractive spaces that allow community members to safely gather can promote social cohesion</p>
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- \* American Institute of Architects
- \* American Planning Association
- \* American Society of Civil Engineers

- \* American Society of Landscape Architects
- \* American Public Health Association
- \* National Recreation and Park Association
- \* Urban Land Institute
- \* U.S. Green Building Council

The connection between public health and the built environment is of particular importance today, given that the chronic illnesses associated with poor physical environments are also tied to a higher likelihood of hospitalization due to COVID-19 infection. Lewis County generally has a higher prevalence of chronic diseases and associated behavioral risk factors as compared to New York State, such as the following:

<i>2021 Data<sup>5</sup></i>	<b>New York</b>	<b>Lewis County</b>
<b>Diabetes</b>	9.4%	9.9%
<b>Asthma</b>	10.8%	9.0%
<b>High Blood Pressure</b>	28.2%	31.5%
<b>Physical Inactivity</b>	23.7%	26.5%
<b>Obesity</b>	32.1%	41.6%

Thousands of commuters make trips on Lewis County roads every day, and installing multi-modal transportation infrastructure can reduce mixed mode crashes – making non-motorized users safer, allowing motorists to drive less erratically to avoid a bike/pedestrian, and creating a safer more predictable environment for everyone. For bicyclists, things like wide shoulders, bike lanes, and multi-use trails create separation from high-speed automobile traffic. The same separation is present for pedestrians utilizing sidewalks and multi-use trails. While rural populations only made up 14% of the total US population and 31% of total vehicle miles traveled, rural areas accounted for 43% of all traffic-related fatalities in 2020.<sup>6</sup> This higher percentage of traffic fatalities in rural areas can be linked to higher driving speeds on rural roads and arterials when the posted speed limit is 55 mph or higher.

For rural communities, complete street elements can address safety issues that result from dangerous or incomplete transportation routes, improving access to destinations and travel options. Small towns and rural main streets can also benefit from bringing a mixture of modes to their corridors.

<sup>5</sup> New York State Community Health Indicator Reports (CHIRS) 2021

<sup>6</sup> Data from the National Highway Traffic Safety Administration and U.S. Department of Agriculture [2020 Data: Rural/Urban Comparison of Motor Vehicle Traffic Fatalities \(dot.gov\)](https://www.dot.gov/2020-data-rural-urban-comparison-of-motor-vehicle-traffic-fatalities)  
[Rural America at a Glance: 2021 Edition \(usda.gov\)](https://www.usda.gov/rural-america-at-a-glance-2021-edition)

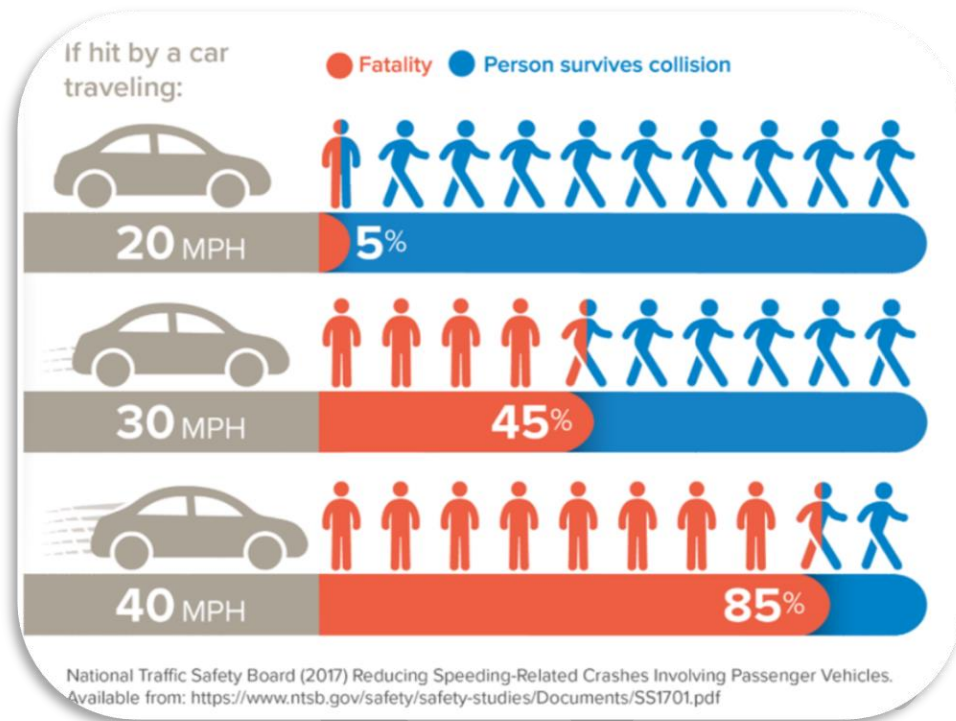


Image Source: <https://smartgrowthamerica.org/wp-content/uploads/2021/03/safety-UPDATED-1536x1186.png>

### Improved Sense of Place

Complete streets help create communities where people of all ability levels have safe transportation options and can more easily take trips within their communities to shop, participate in recreation, and visit friends and family. Communities that provide access to multi-modal infrastructure add to their sense of place and increase access to the cultural, historical, and recreational amenities of each community.

## IDENTIFYING STREET TYPES AND CHARACTER AREAS

### Identifying Potential Street Types

Complete street typology reflects the transportation function of the street for all travel modes and the surrounding land uses to better reflect the different functions a street may have. Complete street types may vary along a single street, depending on the land use character and mobility needs of the surrounding area.

Below is a simple process to assist in quickly identifying potential street types and design options that may be considered for a project at a high level.

#### *Step 1: Identify Roadway Functional Classification*

Consult NYSDOT functional classification mapping to identify appropriate classification. Potential classifications are: *Arterials, Collectors, and Local Roads/Streets*

#### *Step 2: Identify Context Zone*

Urban Zone (Village/ Hamlet)

- \* Diversity in land uses with moderate development density
- \* Trips are a mix of local travel along with through trips for commuters and long-distance travelers

#### Rural Zone

- \* Primarily a mix of agricultural uses and green space with scattered low-density development
- \* Trip distances are generally longer than those in Urban Zones

#### *Step 3: Identify Potential Street Types Based on Functional Classification and Context Zone*

Consult the Categories below of roadway functional classification and context zones for the street types that align with the roadway functional classification and context zone in the steps above.

#### Arterial

**State Route (Outer Core)** – High Traffic Volume, High Speed, No sidewalks

**State Route (Inner Core)** – High Traffic volume, Medium Speed, Sidewalks

#### Collector

**Business Core** – High Traffic Volume, Sidewalks on both sides, On-street parking,

#### Local Roads and Streets

**Neighborhood Streets** – Medium to Low Traffic Volume, Medium to Low Speed, Sidewalks

**Residential Street** – Low Volume, Medium to Low Speed, No sidewalks

#### *County Character Area and Land Use Context<sup>7</sup>*

To develop context-sensitive street types, streetscapes and transportation needs must be based on a vision and associated land use and economic development goals typically identified in a County-wide or local community comprehensive plan. The following area-type definitions have been developed based on the County Character Areas identified in the Lewis County Comprehensive Plan.

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<sup>7</sup> Source: [Lewis-County-Comprehensive-Plan.pdf \(lewiscountyny.gov\)](https://www.lewiscountyny.gov/Portals/0/Document%20Center/2019%20Lewis%20County%20Comprehensive%20Plan.pdf)

**Village Center:** Lewis County's highest core areas of commerce investment and activity. (Main Street, Downtown, or Central Business District). Compact with development focused along short stretches of state highways or flanking primary intersections; Medium density



*Croghan Village Center*

- \* On some main streets side sidewalks are broadened for enhanced pedestrian activity
- \* On Street Parking
- \* Employment Centers
- \* Sidewalks

**Village Living:** Single- and multi-family residences in well-defined neighborhoods that offer a diversity of housing choices within short walking distance to Village Centers.



*Copenhagen Village Living Area*

- \* Residential streets are lined with sidewalks, trees, and sometimes street-lighting

- \* Residences are primary uses but there are also schools, small-scale retail, parks, and churches.

**Hamlet & Crossroad:** Small population clusters



*Hamlet of West Leyden*

- \* Predominantly residential in nature
- \* No central node of activity like a Village Center
- \* Can include buildings of commercial, retail, or civic use

**Farmland:** Low- density



*Village of Turin Farmland Area*

- \* Groupings and pockets of residences along roadways
- \* Agriculture-dominant land use



## ELECTRIC VEHICLE (EV) CHARGING

EV charging availability is a crucial component of encouraging the widespread adoption of EVs. While charging stations should be conveniently accessible to commercial areas, it's preferable for them to be in parking lots and garages with perpendicular parking. This allows dual charging to serve two vehicles at a time, which reduces the installation costs per charger and the charging cords are less likely to be a tripping hazard for pedestrians utilizing the sidewalks.

The location of charging ports varies across the vehicle brands, and perpendicular parking allows head-on or back-in charging. In either parallel or perpendicular parking spaces, enforcement will be required to ensure spaces are only used for EVs while the vehicle is charging.



*Curbside Charging; Image Source:*  
<https://www.berkeleyside.org/2016/09/22/curbside-electric-vehicle-charging-stations-start-to-appear-in-berkeley>



*Perpendicular Charging Station; Image Source:*  
[https://finance.yahoo.com/news/chargepoint-acquires-amsterdam-based-electric-113605522.html?guccounter=1&guce\\_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce\\_referrer\\_sig=AQAAACVo8YsI5dBF3TLQYWnI0SPibR-w2nNUax](https://finance.yahoo.com/news/chargepoint-acquires-amsterdam-based-electric-113605522.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAACVo8YsI5dBF3TLQYWnI0SPibR-w2nNUax)

Currently, the EV charging network within the County is extremely limited, with only 3 stations, Nortz & Virkler Ford Dealership in the Village of Lowville, the Boondocks Restaurant in the Village of Lyons Falls, and the South Lewis Senior High School in the Town of Turin. These stations are all Level 2 Chargers – meaning that they charge vehicles at lower amperage and are best suited for destinations where it is assumed the driver will stay for longer periods.

An improved charging network would require the installation of more chargers across municipalities that include a mix of Level 2 and Level 3 Chargers. Level 3 Chargers (also known as DC Fast Chargers) provide much more power to EVs, which allows travelers to do a quick 'fill up' and then continue on their journey. The following table will explain the differences between chargers further<sup>8</sup>:

<sup>8</sup> Sources [What is a Level 3 charging station? | EVBox](#), [The complete guide to Level 1 vs. Level 2 vs. Level 3 charging for EVs — ChargeLab](#)

Charger Level	Power Output	Range Added per Hour (Miles)	Suitable Locations
<b>Level 1</b>	1.3 – 2.4 Kilowatts	~3	Personal Home Usage
<b>Level 2</b>	3-19 Kilowatts	18-28	Personal Home Usage Apartments, Businesses, Schools, Medical Centers, Libraries, Park/Trail Heads
<b>Level 3</b>	50 – 400 Kilowatts	173 - 298	Gas Stations, Busy Transportation Corridors

### Annual Average Daily Traffic (AADT)

AADT, in its simplest form, takes into account all vehicle trips on a segment of road or highway during a year-long cycle or interval in both directions and then applies the daily average over that duration of time. For the purposes of a Complete Streets Plan, it's important to understand general AADTs when determining needs and opportunities in road retrofits. Figures 2.1-2.11 illustrate the AADT figures for the participating communities listed below:

#### Preliminary Possible EV Charging Locations

**Port Leyden:** Cliff's Local Market (Level 3) or Port Leyden Community Park (Level 2) along State Route 12

**West Leyden:** Hilltop Market/Citgo Gas Station (Level 3)

**Copenhagen:** Stewart's Shops (Level 3)

**Croghan:** Sliders Food Mart/Citgo Gas Station (Level 3)

**Beaver Falls:** Beaver River Family Health Center (Level 2)

**Castorland:** Further Review Necessary

**Constableville:** Further Review Necessary

**Glenfield:** Further Review Necessary

**Lyons Falls:** Further Review Necessary

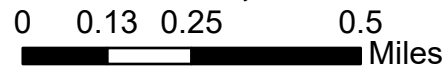
**Turin:** Further Review Necessary

*\*ADT Data not available for Harrisville*



ADDT Current Year Est.

- N/A
- 1 - 500
- 501 - 5000
- 5001 - 7500
- 7501 - 8100
- Beaver Falls Boundary
- Beaver River Family Medical Center



Sources: Basemap - World Street Map

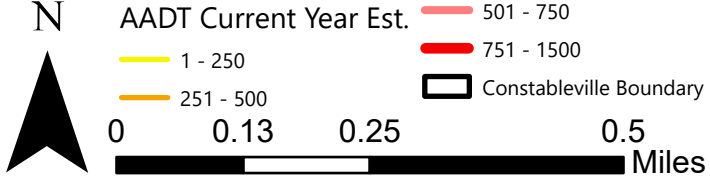
**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of Beaver Falls**  
**Average Daily Traffic**

Lewis County September 2023 New York

Figure  
**2.1**



Path: K:\projects\2020\047\Clarkson Data\Wvg\Daily Traffic.aprx



Sources: Basemap - Imagery Hybrid



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Constableville**  
**Average Daily Traffic**  
 Lewis County September 2023 New York

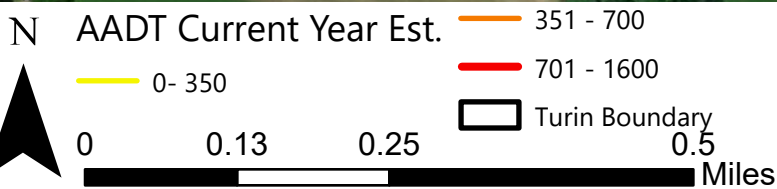
Figure  
**2.2**

Path: K:\Projects\2020\260\7\Clarkson Draft\Avg Daily Traffic.aprx



Path: K:\Projects\2020\26067\Clarkson Draft\Avg Daily Traffic.aprx

Sources: Basemap - Imagery Hybrid



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Turin**  
**Average Daily Traffic**  
 Lewis County September 2023 New York

Figure  
**2.3**

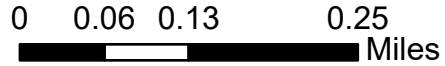


Sources: Basemap - Imagery Hybrid

AADT Current Year Est.

- 0 - 900
- 901 - 1300
- 1301 - 2000
- 2001 - 5000

- Port Leyden Boundary
- Cliff's Local Market
- Port Leyden Community Park



**Lewis County**  
Lewis County Complete Streets Plan  
**Village of Port Leyden**  
**Average Daily Traffic**

Lewis County September 2023 New York

Figure  
**2.4**



Path: K:\Projects\2020\2860\77\Clarkson Data\Avg Daily Traffic.aprx



AADT Current Year Est.  
 0 - 550  
 551 - 1050  
 1051 - 2000  
 2001 - 5000  
 Lyons Falls Boundary

0 0.13 0.25 0.5 Miles



Sources: Basemap - Imagery Hybrid



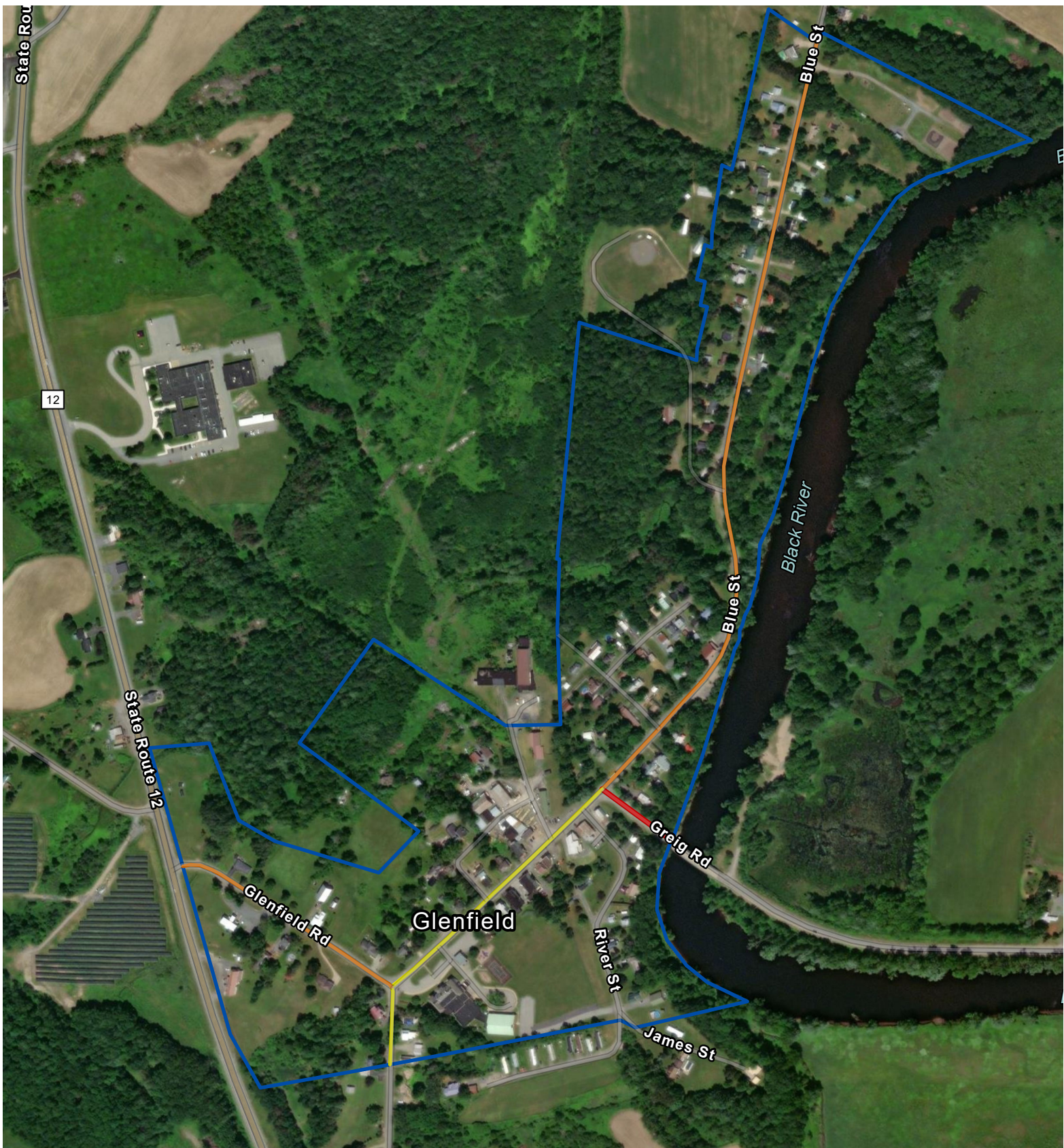
**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Lyons Falls**  
**Average Daily Traffic**  
 Lewis County September 2023 New York

Figure  
**2.5**

Path: K:\Projects\2023\09\07\Clarkson Data\Avg Daily Traffic.aprx







N

ADT Current Year Est.

0 - 450

451 - 680

681 - 1120

Glenfield Boundary

Sources: Basemap - Imagery Hybrid



**Lewis County**  
Lewis County Complete Streets Plan  
**Hamlet of Glenfield**  
**Average Daily Traffic**

Lewis County September 2023 New York

Figure  
**2.7**

Path: K:\Projects\2023\26077\Clarkson Data\Avg Daily Traffic.aprx



Preliminary EV  
Charging Location

**AA DT Current Year Est.**

- 1 - 500
- 501 - 1500
- 1501 - 2900
- 2901 - 3200
- Croghan Boundary
- Sliders Food Mart

0 0.06 0.13 0.25 Miles

**LEWIS COUNTY** **Barton & Loguidice**  
NEW YORK EDR Clarkson  
a better environment

**Lewis County**  
Lewis County Complete Streets Plan  
**Village of Croghan**  
**Average Daily Traffic**

Lewis County September 2023 New York

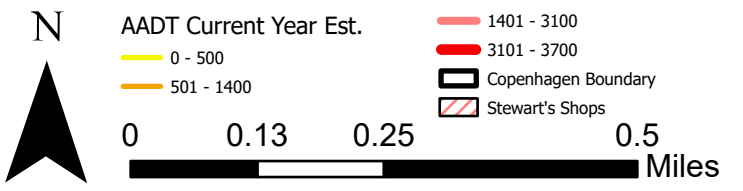
Figure  
**2.8**

Path: K:\Projects\2023\280477\Clarkson Data\Avg Daily Traffic.aprx

Sources: Basemap - Imagery Hybrid



Sources: Basemap - Imagery Hybrid



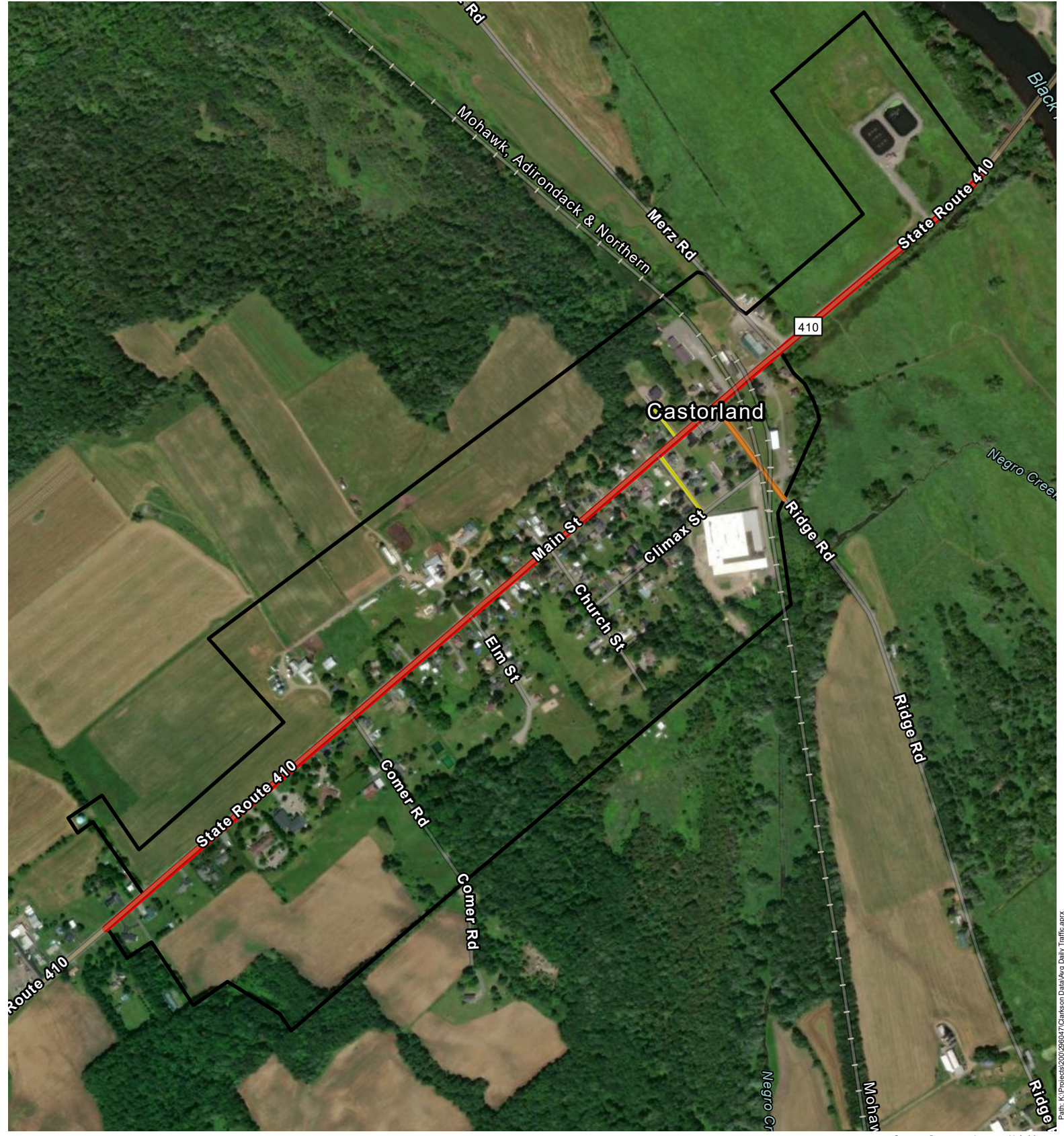
- AAADT Current Year Est.**
- 0 - 500
  - 501 - 1400
  - 1401 - 3100
  - 3101 - 3700
  - Copenhagen Boundary
  - Stewart's Shops



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Copenhagen**  
**Average Daily Traffic**  
 Lewis County September 2023 New York

Figure  
2.9

Path: K:\Projects\2020\2607\Clarkson Data\Avg Daily Traffic.aprx



Sources: Basemap - Imagery Hybrid

N

AADT Current Year Est.

- 0 - 100
- 101 - 320
- 321 - 1400
- Castorland Boundary

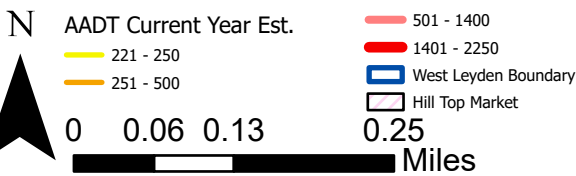
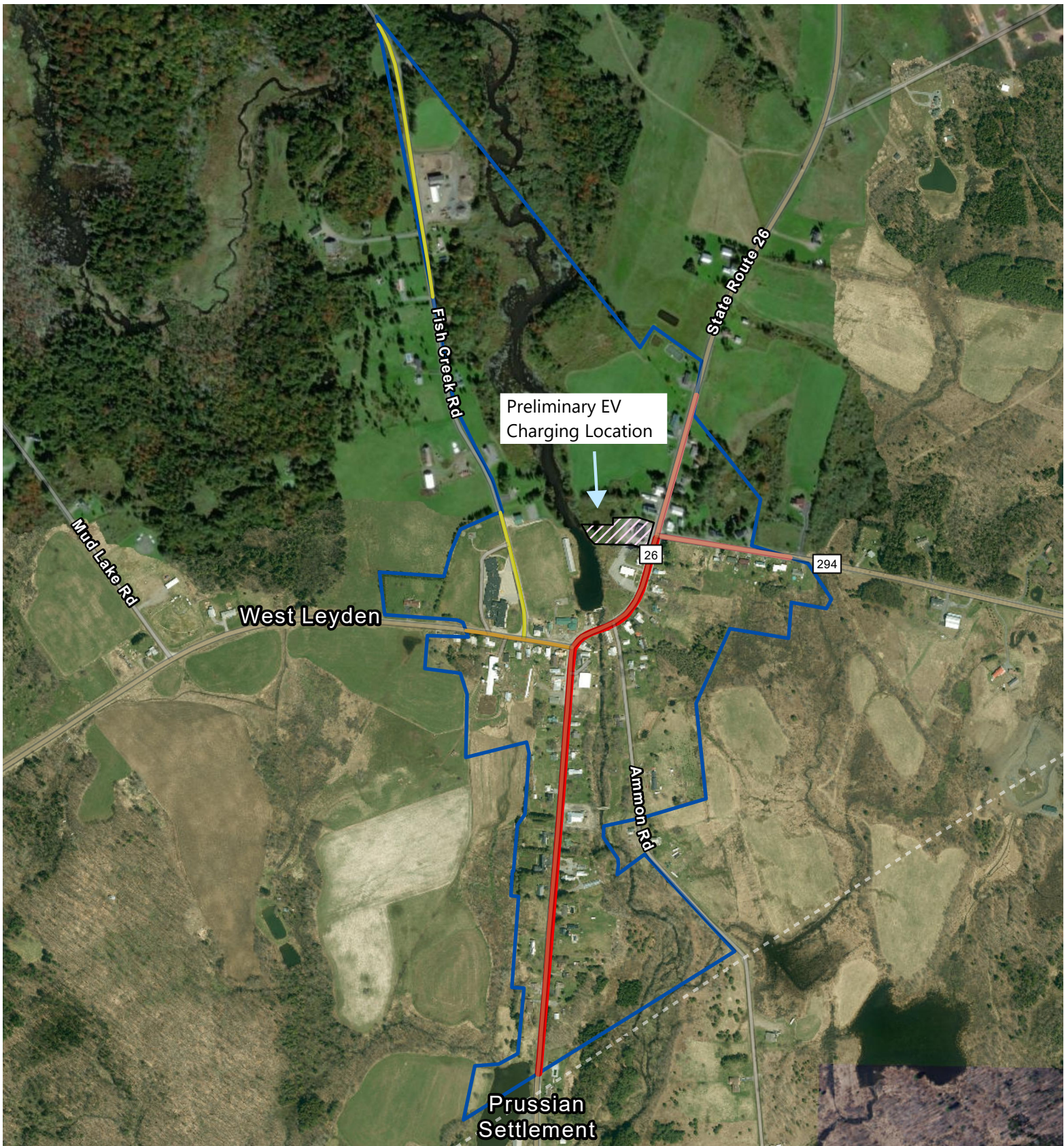
0 0.06 0.13 0.25 Miles

**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Castorland**  
**Average Daily Traffic**

Lewis County September 2023 New York

Figure  
2.10

Path: K:\Projects\2020\260577\Carleton Data\Avg Daily Traffic.aprx



Sources: Basemap - World Street Map

**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of West Leyden**  
**Average Daily Traffic**

Lewis County September 2023 New York

Figure  
2.11



Path: K:\Project\2020\296047\Clarkson Data\Avg Daily Traffic.aprx

## BICYCLIST BEHAVIOR<sup>9</sup>

**Traffic Stress** – Each person has a tolerance for bicycling near traffic, and if that tolerance is exceeded then they will be deterred from bicycling. To encourage a broader segment of the population to cycle, a bicycling network that accommodates traffic stress and does not require excessive levels of detour should be developed.

There are a variety of different factors influencing the riding behavior of bicyclists, such as their trip purpose and the level of skill and comfort the rider has. Accounting for these differences will support the creation of appropriate bicycling facilities within the County’s Villages and Hamlets.

### Trip Purpose

Trips are divided into two categories:

**Nondiscretionary**, meaning that the trip is required as part of a person's daily activities. This includes going to work or school, going shopping, and doing errands. Depending on the length of the trip and the quality of the bicycling conditions, bicycling can replace or link with other modes of transportation.

**Discretionary or Recreation**, meaning trips that are taken for leisure or exercise. This user group covers all ages and riders with varying levels of comfort riding in traffic. These trips have no set length, they could be a short trip within a neighborhood or a long ride along a bike trail.

While some bicyclists may not go beyond a recreational trip on a low-traffic road or shared-use path, others may become more comfortable and skilled and switch to commuting via bicycle.

Recreational Trips	Utilitarian Trips
Directness of route not as important as visual interest, shade, protection from wind.	Directness of route and connected, continuous facilities more important than visual interest.
Loop trips may be preferred to backtracking; start and end points are often the same.	Trips generally travel from residential to schools, shopping, or work areas and back.
Trips may range from under a mile to over 50 miles.	Trips generally are 1–10 miles in length.
Short-term bicycle parking is needed at recreational sites, parks, trailheads, and other recreational activity centers.	Short-term and long-term bicycle parking is needed at stores, transit stations, schools, and workplaces.
Varied topography may be desired, depending on the fitness and skill level of the bicyclist.	Flat topography is desired.
(Individuals) May be riding in a group.	(Individuals) Often ride alone.
(Individuals) May drive with their bicycles to the starting point of a ride.	Use bicycle as primary transportation mode for the trip; may transfer to public transportation; may or may not have access to a car for the trip.
Typically occur on the weekend or on weekdays before morning commute hours or after evening commute hours.	Some trips occur during morning and evening commute hours (commute to school and work), but in general bicycle commute trips may occur at any hour of the day.

*Excerpt from AASHOTA Bike Design Manual pg. 25*

<sup>9</sup> Source: AASHTO Bike Design Manual

## Level of User Skill and Comfort

**Children** generally are slower to recognize and respond to rapidly changing situations, which can lead to the possibility of crashes in common situations that children face, such as crossing the street. Other issues that children may have that increase the danger they may face while riding a bicycle include:

- \* Having a relatively narrow field of vision
- \* Having difficulty accurately judging the speed and distance of approaching vehicles
- \* Assuming drivers can see them if they can see the vehicle
- \* Having difficulty concentrating on more than one thing at a time
- \* Having difficulty understanding risks
- \* Having little to no experience understanding the rules of the road

All of these factors need to be considered when designing bike routes that may experience a high volume of children, such as routes to schools.

**Casual and less confident riders** are a majority of the population and encompass a wide range of riders: frequent riders, those who ride occasionally but only in low traffic/speed, recreational riders, and those who use bicycling as their main form of transportation

**Experienced and confident riders** are comfortable riding in any type of bicycling facility. This group includes both those who ride for recreation and nondiscretionary reasons who are simply more comfortable riding on busy roads and traffic. This does not mean that some members of this group do not prefer riding in low-traffic or shared-use paths.

## BICYCLE FACILITIES

### Bikeways

There are five levels of separation from traffic for bikeways, listed from greatest to least they are: Trails, Separated Bikeways/Sidepaths, Striped Bikeways, Bikeable Shoulders, and Shared Roads.

Trails and side paths include pedestrian travel while a separated bike path creates a separate place for both groups. The appropriate facility in each context depends on the anticipated volume of pedestrians that are expected.

### *Bikeable Shoulders*

Bikeable shoulders are portions of the roadway that accommodate stopped vehicles, emergency uses, non-motorized transportation, and pedestrians where there are no sidewalks provided.



*Bikeable Shoulder*

Shoulders should be at least 5 feet and up to 10 feet where there are increased vehicle speeds/volumes. Bikeable shoulders are a higher stress environment, especially when there are speeds more than 30 MPH and they have higher volumes of motorists, which deters cyclists that have lower traffic stress tolerance from utilizing them.

A method of separating shoulders as spaces for bikes is by using rumble strips, with periodic gaps included for bicyclists

to be able to enter and exit the shoulder without issue.

Bikeable shoulders can reduce “bicyclist struck from behind” and pedestrian “walking along roadway” crashes.<sup>10</sup>

### *Shared Roads*

Shared roads are bikeways that share space with automobiles, they can include neighborhood greenways in suburban areas, shared streets in urban areas, and priority shared lane markings where there is not enough space for dedicated bikeways.

Shared Streets in urban areas is a design approach where pedestrians, bicyclists, and motorized vehicles comfortably coexist.

Neighborhood greenways are streets with low motorized traffic volumes/speeds, that are designed to give walking and bicycling priority. This can be done using signs, pavement markings, speed, and volume management measures, and other traffic control techniques to discourage through trips by motor vehicles and improve safety at crossings of busy streets. There are a range of design elements that can be incorporated into neighborhood greenways: speed bumps, street narrowing, mini roundabouts, etc.



*Shared Road “Sharrow”*; Image Source: <https://city.milwaukee.gov/dpw/infrastructure/multimodal/Bike-Infrastructure/Shared-Lane-Markings>

<sup>10</sup> Source: Small Town and Rural Multimodal Networks



Priority shared lane markings communicate bicyclists' priority within a shared lane and guide bicyclists to utilize the whole lane. Priority shared lane markings can be installed in limited instances on roadways where it is not possible to implement bicycle lanes, separated bike lanes, or shared use paths, but communities want to communicate bike priority within a shared line.

### *Transit Stops*

Bus shelters improve the comfort and visibility of transit stops by providing shelter from sun, rain, and other elements. Across the County, there are 8 covered bus stop shelters, located in the Villages of Lowville, Harrisville, Croghan, Lyons Falls, and Copenhagen, and the Hamlet of Glenfield. Providing seating at bus stops improves accessibility for individuals with lower mobility as well as comfort for all transit users overall.

### **Bicycle Parking Facilities<sup>11</sup>**

As bicycles are not generally equipped with locks or anti-theft devices as motor vehicles are, providing a visible space near businesses and public facilities where they can be locked in a safe, orderly manner can encourage residents to opt for a bike ride.

### *Planning for Bicycle Parking*

There are a variety of ways that bicycle parking facilities can be planned for and installed. In many communities, bicycle parking is installed in the public right of way on behalf of local business owners or property managers. Consulting local bicyclists is another way to pinpoint locations where bicycle parking may be needed.

Local zoning and permitting can be modified to require new construction to have a minimum amount of bicycle parking included based on expected demand or in proportion to the total number of automobile parking spaces.

No matter how bicycle parking is determined, bicycle parking should be conveniently placed in a high visibility spot as close to the building entrance as possible. The American Association of State Highway and Transportation Officials identified these guidelines that should be used when determining the location of bicycle racks:

- \* *Easily accessible from the street and protected from motor vehicles*
- \* *Visible to passers-by to promote usage and enhance security*
- \* *Does not impede or interfere with pedestrian traffic or routine maintenance activities*
- \* *Does not block access to buildings, bus boarding or freight loading*
- \* *Allows reasonable clearance for opening of passenger-side doors of parked cars*
- \* *Are covered, if practical, where users will leave their bikes for a longer amount of time*

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<sup>11</sup> AASHTO Bike Design Manual pg. 185

## DESIGN SPEED, TARGET SPEED, AND POSTED SPEED

### Posted Speed



Posted Speed Limit Sign; Image Source: <https://aaafoundation.org/review-of-current-practice-for-setting-posted-speed-limits/>

Speed limits are determined on a percentile-based method, usually based on the 85th percentile (85% of drivers using a road are traveling at or below a certain speed). This method of determining speeds means that roads are designed to allow operating speeds faster than the target speed and will eventually receive higher posted speed limits.

Research supporting the use of the 85th percentile method was conducted on rural, two-way highways and may not be the optimal solution when dealing with more urban settings.<sup>12</sup> The Federal Highway Administration has acknowledged 3 other approaches to setting speed limits; including an injury minimization/safe system approach where speed limits are set "according to the crash types that are likely to occur, the impact forces that result, and the human body's tolerance to withstand these forces".<sup>13</sup> This means that speed limits can be set according to the context and use of roadways.

### Design Speed

The design speed of a road is a selected speed used to determine the various features of a roadway.<sup>14</sup> It is a fundamental element of roadway design and is used to define the geometric criteria (width, curvature, banking, etc.) for roads. These geometric elements of a road are designed to ensure that a driver can comfortably drive their vehicle at the design speed. These design standards factor in the performance of all vehicles and assume 'lower performing' vehicles do not handle as well as modern



Design vs Posted Speed Sign; Image Source: <https://www.strongtowns.org/journal/2018/1/25/speed-kills-so-why-do-we-keep-designing-for-it>

<sup>12</sup> Source: National Association of City Transportation Officials "Designed to Fail" – [Designed to Fail | National Association of City Transportation Officials \(nacto.org\)](https://nacto.org)

<sup>13</sup> Source: Federal Highway Administration "Methods and Practices for Setting Speed Limits: An Informational Report" – [07 - Methods and Practices for Setting Speed Limits- An Informational Report.pdf \(dot.gov\)](https://www.fhwa.gov/publications/informational_reports/07-116/07-116.pdf)

<sup>14</sup> Source: Federal Highway Administration "Design Speed" – [Mitigation Strategies For Design Exceptions - Safety | Federal Highway Administration \(dot.gov\)](https://www.fhwa.gov/publications/informational_reports/07-116/07-116.pdf)

passenger cars. This leads to roads with comfortable operating speeds for modern passenger cars that can be much higher than what their design speeds were intended for.

### Target Speed

Target speed is the highest operating speed at which vehicles should ideally drive on a roadway – a better approach to street design is to design roads to operate at or below the target speed, which can be encouraged through roadway geometry (curb extensions, speed bumps, etc.). Target speeds vary based on roadways and what their safe operation speeds are – with consideration of the volume of and proximity to pedestrians, bicyclists, and transit vehicles. When possible, the target speed should match with the posted speed.

### STRATEGIES FOR ACHIEVING TARGET SPEED

When a speed management approach is considered for any street, the following should be considered:

- \* Speed management measures should not diminish the safety, access, or comfort of bicyclists, pedestrians or transit users
- \* Designs should be predictable and easy to understand for all people
- \* Speed management measures should accommodate emergency vehicles
- \* The area-wide street network should be considered as to not divert traffic from one street to another

### Horizontal Measures<sup>15</sup>

Horizontal displacement treatments require drivers to physically move left or right, which slows driver speeds.



Bulb-out; Image Source: <https://www.planetizen.com/definition/traffic-calming>

**Bulb-outs, Neck-Downs, Chokers, or Mid-Block Crossings** – These create horizontal deflections by narrowing points along the roadway, generally used at intersections and high-traffic pedestrian crossings. When used on two-lane roads (in each direction) it can narrow the lanes or reduce two lanes to one. Not only is this method useful for slowing traffic, but it also reduces the distance that pedestrians have to cross on open roads when crossing, increasing safety.

This traffic calming measure may be difficult for trucks to navigate, so when considering its

<sup>15</sup> Source: The Midwest Transportation Consortium “Speed management for rural communities” [Speed management toolbox for rural communities. \(bts.gov\)](https://bts.gov)

implementation, it's important to be mindful of the level of truck traffic a roadway receives to determine its appropriateness.



Chicane; Image Source: [http://www.pedbikesafe.org/pedsafe/countermeasures\\_detail.cfm?CM\\_NUM=33](http://www.pedbikesafe.org/pedsafe/countermeasures_detail.cfm?CM_NUM=33)

**Chicanes or Serpentes** – Chicanes are short, horizontal displacements in the roadway that create a curvilinear alignment which encourages slower driving speeds. Traditional chicanes often require a change in the roadway alignment given they physically change the roadway. Similar effects can be achieved by creating alternating on-street parking from one side of the street to the other.

Chicanes should be placed 400 to 600 feet apart and normal turning radii of design vehicles need to be accommodated to ensure the roadway remains functional. Visibility and warning signs of the infrastructure are important considerations. Chicanes should be shifted at least one lane width and deflection angles should be at least 45 degrees. Center islands should be considered, when possible, to prevent drivers from cutting across the centerline to continue to speed.

Special consideration must be given to design if there is a high volume of truck traffic going through the road, as curb overtopping may be a problem if the shifts are too tight or closely spaced.

**Transverse Rumble Strips** – Rumble strips are grooves placed on the roadway's surface that transmit sound and vibration to alert drivers about changing conditions. They are typically placed longitudinally to the roadway on the shoulder or edge of pavement to alert drivers that they are leaving the roadway to reduce run-off-the-road accidents. Rumble strips can be placed perpendicular to the direction of traffic to alert drivers of a change in upcoming conditions, in advance of rural stop signs and before curves.



Rumble Strip; Image Source: <https://www.backroadsnews.com/news/rumble-strips-installed-intersection-us36>

In a series of rumble strips, the spacing between each strip should be one foot for every 10 mph of vehicle speed, e.g. posted speed of 50 mph should have each strip 5 feet apart.

Rumble strips are appropriate for speed transition zones in rural traffic-calming areas to alert drivers of upcoming speed changes. Using rumble strips in transition zones for rural areas is less likely to create adverse noise impacts than if they were used in urban areas given the transition area is likely to be in a less populated area.

Rumble strips are used frequently in Iowa in advance of stop signs on rural roadways. An important thing to note is that the Iowa DOT strongly discourages their use in applications other than in advance of stop signs.

### Vertical Measures<sup>16</sup>

While horizontal treatments are aimed at requiring drivers to lower their speeds to feel safe, vertical treatments are aimed at drivers slowing down to avoid the discomfort created from the treatment.

**Raised Intersection** – A raised intersection is a raised plateau, usually 3 to 6 inches above the adjacent streets, used at an intersection. A raised intersection slows drivers similarly to how they are slowed with a speed table. This is a good measure for high pedestrian areas – crosswalks should be on the raised section.

Raised intersections can be applied to rural main streets, particularly those with high pedestrian volumes. Raised intersections may impact traffic operations so large trucks should be considered.



*Raised Intersection; Image Source: <https://goshenindiana.org/blog/intersection-closure-jackson-and-9th-streets/>*

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<sup>16</sup> Source: The Midwest Transportation Consortium “Speed management for rural communities” [Speed management toolbox for rural communities. \(bts.gov\)](#)

**Speed Humps and Tables** - Speed tables are asphalt or rubber mounts that cover the full width of the roadway – they are essentially speed hubs that have a flat top. The flat top is typically long enough for the entire wheelbase of a passenger car to rest on. Because the ramps of speed tables are more gently sloped than those of speed humps they work better with higher design speeds compared to speed humps.

Emergency vehicle delays with speed tables are decreased as well as they are less jarring and allow larger emergency vehicles to cross with minimal disruption. Speed tables should be placed in a series and posted speed limits should be no greater than 35 mph.



*Speed Hump; Image Source: <https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-2>*

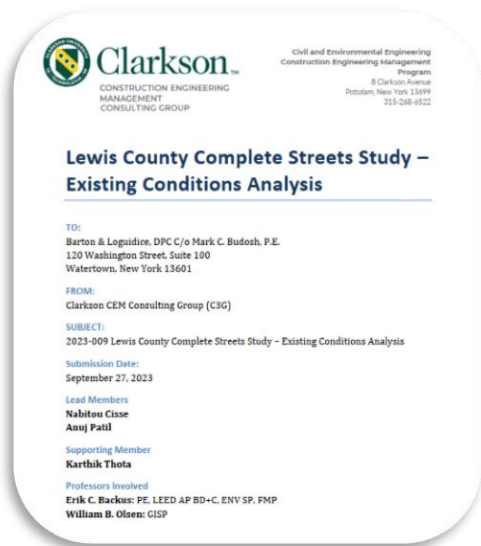
**Speed Lumps, Slots, and Cushions** – These measures are similar to the performance of speed humps by vertically displacing the vehicle. A major shortfall of traditional speed humps and tables is that emergency vehicles must slow down when navigating them – this becomes problematic as it results in an increase in response time for emergencies. Speed lumps, slots, and cushions are designed using multiple raised lumps with un-raised sections for emergency vehicle wheel paths.

The un-raised sections allow emergency vehicles to continue at the same speed they normally would, but prevents standard vehicles from speeding. Emergency vehicles have wider wheelbases than standard vehicles, so even if drivers place one of their wheels in a wheel path, the other wheel will still hit part of the speed lump. The design is important, as if not designed correctly all vehicles would be able to navigate the speed lump without slowing, not just emergency vehicles.



*Speed Cushion in use by Firetruck; Image Source: <https://nacto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-cushion/>*

# CHAPTER 3 – EXISTING MOBILITY OVERVIEW, ISSUES, AND OPPORTUNITIES



## CLARKSON INVENTORY REPORT

As a part of the Complete Street planning process, Clarkson CEM Consulting Group (C3G) completed an existing condition analysis of the County’s Villages and Hamlets using GIS data, input received during the first Public Meeting for the plan on August 9<sup>th</sup>, 2023, and feedback from a short 5 – 10 minute survey that was promoted to residents.

## Study Areas and Feedback

Public feedback received during this meeting helped to identify community priorities, which were categorized into Opportunity Areas or Constraints. While not every Community received feedback during the public meeting,

C3G identified at least one Opportunity Area and Constraints for each.

**Hamlet of Beaver Falls** The common priority area identified by respondents was the lack of sidewalks and crosswalks within the Hamlet. Presently, all the sidewalks are concentrated in the center of the community along State Route 126 (SR 126) and Main Street. The lack of crosswalk infrastructure in the area makes crossing the SR 126 - Main Street intersection dangerous and separates the northern portion of the Hamlet from the Beaver River Central School and the southern part of the Hamlet from community services such as the Post Office, Beaver River Family Health Center, Beaver Falls Library and the New Life Fellowship. These buildings are placed in a centralized location that is conducive to walking or bicycling, however, the lack of adequate infrastructure may be a deterrent to otherwise willing individuals.

### Opportunities

- \* Leverage the scenic Beaver River View
- \* Install a flashing speed limit sign in the school zone (Artz Road and Mira Lane)
- \* Add sidewalks along Mira Lane and Addison Ave
- \* Potential for a sidewalk loop of approximately 1 mile (*Participant did not clarify which area of the Hamlet the sidewalk loop should be placed*)

### Constraints

- \* Flood risks
- \* Space limitations in certain sectors
- \* Need for additional sidewalks and crosswalks

## 3-1 Existing Conditions Summary



**Village of Croghan** The common priority area identified by respondents was the need for expanded sidewalks and crosswalks within the Village. Croghan has sidewalk coverage on almost the entire length of Main Street, Shady Ave, Convent Street, and Bank Street, with partial coverage along George Street, which connects a good portion of its residential community to its central commercial area. However, there is a missing sidewalk connection with the Dollar General at the south end of Main Street that could be constructed to further improve accessibility to businesses within the Village. Another connectivity area missing is access to the Croghan Recreation Park from William Street, although portions of William Street on the way to Park Drive lay within the boundaries of the Town of New Bremen.

Identified as a priority area, there are currently no dedicated bicycle facilities within the Village, but the wide shoulder/parking area along Main Street provides the Village the opportunity to convert some of that space into painted bicycle lanes.

#### *Opportunities*

- \* Exploit the vast sidewalk expanse
- \* Extend sidewalks to Dollar General
- \* Add a crosswalk from Wishy's to Vinny's
- \* Potential for a painted bike lane

#### *Constraints*

- \* Maintenance of multiple crosswalks
- \* Ensuring pedestrian safety
- \* Need for additional sidewalks and crosswalks

**Village of Lyons Falls** No input was received about Lyons Falls during the public meeting. Despite its longer shape, Lyons Falls has sidewalks along many of its streets, however, there is a lack of sidewalk connectivity between the northern and southern portions of the Village. This leaves community service facilities such as the Post Office, Lyons Falls Free Library, and the Forest Presbyterian Church, all of which are located in the center of the Village disjointed from the sidewalk infrastructure. Additionally, the Bus Stop at Dorrity's Restaurant (for Jefferson Community College and the 631 Bus), is similarly cut off from sidewalk connectivity. Especially for those who are using the bus to travel to JCC, it is important to ensure that there is a safe route to walk along.

#### *Opportunities*

- \* Potential expansion of crosswalks given the extensive sidewalk length
- \* Improve McAlpine - Center Street Intersection Off-Street Parking

#### *Constraints*

- \* Maintenance of the long sidewalk
- \* Enhancing pedestrian safety
- \* Need for additional sidewalks and crosswalks



**Village of Castorland** No input was received about Castorland during the public meeting. As a smaller Village, sidewalk connectivity to important services is simpler to achieve. Around half of the length of Main Street has sidewalks, and important services such as the Post Office, Castorland Fire Department, and Mennonite School are connected to Main Street via sidewalk. Connectivity could be improved by extending the sidewalks to the rest of the length of Main Street to the south towards the Castorland Day Habilitation building.

#### *Opportunities*

- \* Engage the community using the available sidewalk infrastructure

#### *Constraints*

- \* Development needs to harmonize the Village's historical and cultural fabric

**Village of Constableville** Priority areas identified in Constableville include a lack of adequate bicycling and sidewalk infrastructure, and limited public transit access. Sidewalks within the Village are located along some of West Street, West Main Street, Main Street, and James Street. Due to its location on the eastern portion of John Street, Constable Hall is cut off from the sidewalk infrastructure in the rest of the Village, cutting residents off from access to the historic property. Constable Petroleum on the northern portion of State Route 26 (SR 26) not only serves as a gas station, but also is a local resource to purchase groceries in a Village that otherwise does not have a dedicated store. Extending sidewalk infrastructure along James Street along Sr 26 to provide residents with alternative methods to access the store could be a potential project for the Village.

There currently is a bus stop location at Constable Petroleum that travelers must call ahead for pick-up, however, a pick-up location centered within the more populated and easily accessible area of the Village should be considered. Concerns about public transit connectivity will need to be tackled at the County level, working to expand the Lewis County Public Transportation (LCPT) system to pass through Constableville.

#### *Opportunities*

- \* Enrich sidewalks with green spaces or public art installations
- \* All streets need a sidewalk, especially around Constable Hall

#### *Constraints*

- \* Limited sidewalk span may hinder broad developments
- \* No safe space for bikes
- \* Limited public transit
- \* No sidewalk to only grocery store

**Village of Copenhagen** Priority areas identified include crosswalks and sidewalk connectivity, traffic calming, and creating connector trails. Copenhagen's sidewalk network is extensive, with almost every road being at least partially covered by a sidewalk with the exception of Wood Battle Road, Groove Street, Lord Street, and Stoddard Street. Important services such as the

Copenhagen Family Medical Center, St Mary's Church, the Post Office, and Copenhagen Central School are all connected to the community through the sidewalk network.

Most of the Village businesses are lined along State Route 12 (SR 12) along with most of its daily traffic, therefore traffic calming techniques are needed to make pedestrians walking through the area feel more comfortable crossing.

All of the Village's crosswalks are for crossing SR 12, however, the school would benefit from crosswalks across Mechanic Street (County Route 194) and on both ends of Loud Street. Improved traffic control and markings around the school would not only make it safer for students but might encourage residents to walk to events held there.

#### *Opportunities*

- \* Host pedestrian-oriented events given its comprehensive infrastructure
- \* Traffic calming on High Street/State Route 12
- \* Additional crosswalks near school
- \* Connector trails to sidewalks

#### *Constraints*

- \* Regular and coordinated upkeep required

**Hamlet of Glenfield** Priority areas identified include improved sidewalk connectivity and roadway design. Currently the Hamlet only has a small section of sidewalk in front of Glenfield Elementary School along Main Street / Blue Street and along Widemeyer Street. Sidewalks do not extend to Community Service buildings such as the Post Office (which also serves as one of the Hamlets bus stops) or St. Mary's Catholic Church nor does it connect to local businesses or recreational areas. Extending the sidewalks on Blue Street further north and adding sidewalks to connecting streets such as Oliver Place and Depot Street would improve connectivity to key attractions in Town.

The intersection of Main Street and Glenfield Road currently only has a stop sign along Glenfield Road, however, a 3-way stop might be beneficial to safety along the street.

Participants mentioned constructing a river walk by the local boat launch on the eastern side of the Black River, which would require the Hamlet to work with the neighboring Town of Greig.

#### *Opportunities*

- \* Enhance connectivity between key attractions
- \* Sidewalk connecting boat launch to hamlet
- \* Riverwalks by the boat launch

#### *Constraints*

- \* Flooding issues
- \* The intersection of Main Street and Glenfield Road needs a 3-way stop

**Hamlet of Harrisville** Priority areas in Harrisville include sidewalk maintenance, sidewalk extensions, and trail creation. The Hamlet’s sidewalk network connects to almost all of its local businesses and community service buildings. Sidewalks are present along almost the entire length of Main Street, Maple Street, Pearl Street, State Street, Foskit Street, and Goose Pond Road.

Roads prioritized for sidewalk expansion include the western portion of Church Street to loop back around to State Route 3 to better connect the Health Clinic and Harrisville Lanes & Lounge, improving connectivity to the Harrisville Central School Campus through sidewalks along Mill Street and Pirate Lane, constructing a sidewalk along River Street, and improving crosswalk infrastructure. Of the existing sidewalks, better maintenance should be practiced to ensure broken, cracked or uneven sidewalks do not create an obstacle for those with mobility issues.

The Riverwalk trail was praised, however, similarly to local sidewalks, there is a need for improved maintenance practices to ensure residents can properly enjoy the recreational offerings of the Hamlet.

*Opportunities*

- \* Host pedestrian-centric events given the extensive sidewalk
- \* Develop and maintain trails connecting various parts of the Hamlet

*Constraints*

- \* Coordinated maintenance over a vast area
- \* Some sidewalks need work – they must be replaced to prevent tripping hazards and obstacles for those with mobility issues

**Village or Port Leyden** Priority areas identified in the Village include expanded sidewalk connectivity and curb cuts. There is good sidewalk connectivity in the portion of the Village on the west of the Black River, with coverage along almost the entirety of Main Street, Quarry Street, North Street, Douglas Street, Canal Street, Mechanic Street, Lincoln Street, and some sections of Pearl Street. While there are crosswalks and curb cuts across State Route 12, crosswalk infrastructure is not present anywhere across Main Street. The sidewalk network would also benefit from continued maintenance to fix cracked or broken sidewalk areas.

*Opportunities*

- \* Add more pedestrian infrastructure such as crosswalks on Main Street
- \* Sidewalks and curb cuts, especially near housing (such as East Main Street and Lincoln Street)

*Constraints*

- \* Synchronized maintenance across infrastructure
- \* Substantial drainage issue heading southeast from Elm Street to West Main Street

**Village of Turin** A priority identified is the East Road – Turin Road intersection safety. With two main roads within the Village, high levels of sidewalk connectivity are achievable. Almost the

entire length of Turin Road has a sidewalk, and State Street is partially covered with sidewalks closer to where the two roads meet (Between 4250 State Street to 4119 State Street). This lack of sidewalk infrastructure on State Street creates a connectivity issue with the South Lewis Central School District located just outside the Village boundaries (East Road). With most traffic through the Village coming along State Street, pedestrian safety may increase through the implementation of crosswalk infrastructure along the State Street – Turin Road intersection.

The East Road – Turin Road intersection lies outside of the Village Boundary and any changes to that intersection must be made in conjunction with the Town of Turin.

#### *Opportunities*

- \* Development of communal areas or landmarks
- \* Address the hazardous intersection at East Road and Turin Road
- \* Extend the sidewalk to The Arc location on West Main Street

#### *Constraints*

- \* Year-round sidewalk maintenance

**Hamlet of West Leyden** No input was received about West Leyden during the public meeting. Sidewalk infrastructure within the Hamlet is concentrated along State Route 26 (SR 26) between where it intersects with Osceola Road and State Route 294 (SR 294). Most of the Village's Commercial and community service buildings lay within this area, however, the West Leyden Elementary School is missing sidewalk connections that could loop it into the Hamlet's sidewalk network. Additionally, the Milk Plant Tavern is a local business that could benefit from extending the sidewalks along SR 26 further south. While the sidewalks do not extend far north or south on SR 26, there are shoulders on the highway that could be utilized by bicyclists who have a high stress tolerance to ride next to higher-speed cars.

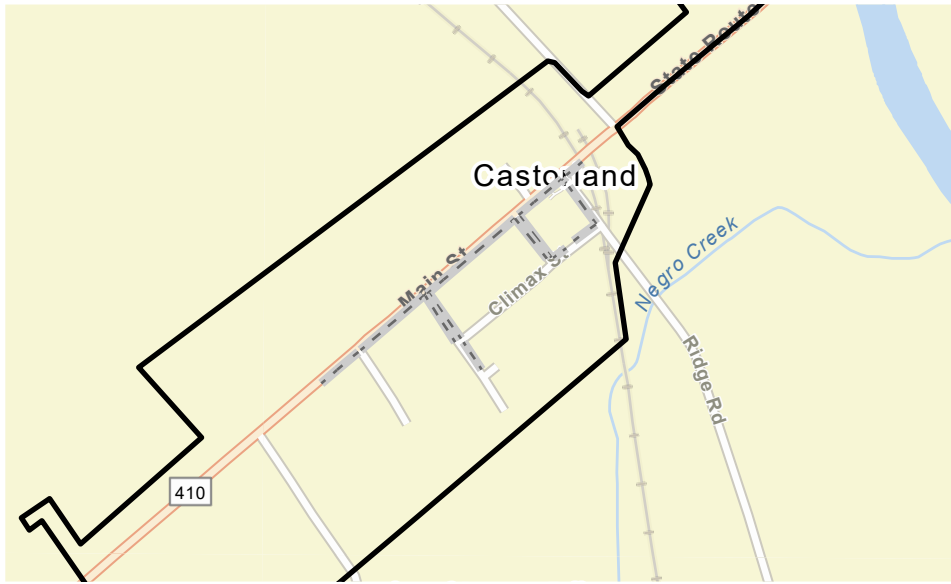
#### *Opportunities*

- \* Enhance community interactions via well-planned pedestrian zones
- \* Extend sidewalks

#### *Constraints*

- \* Synchronized upkeep of different pedestrian facilities

Village of Castorland



Village of Turin



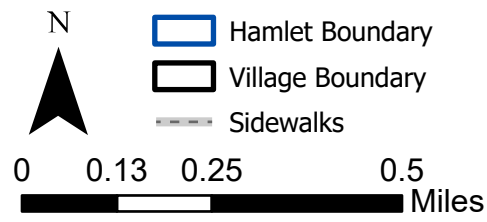
Hamlet of Beaver Falls






Village of Croghan



Basemap: World Street Map

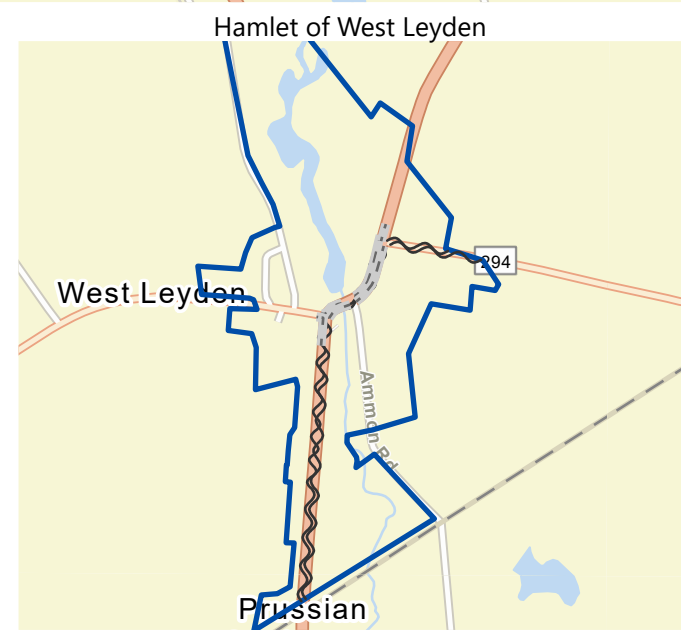
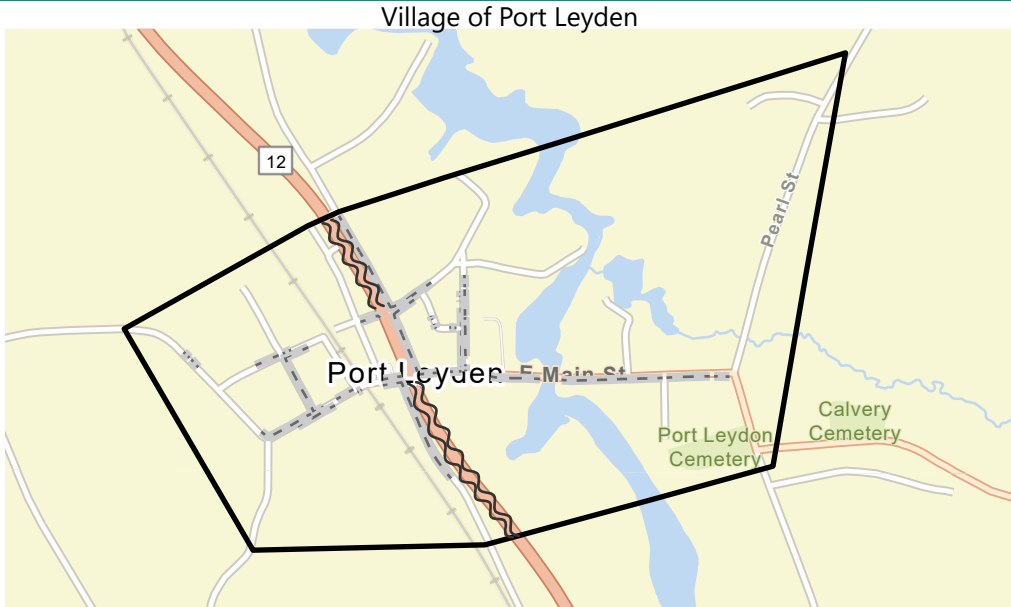
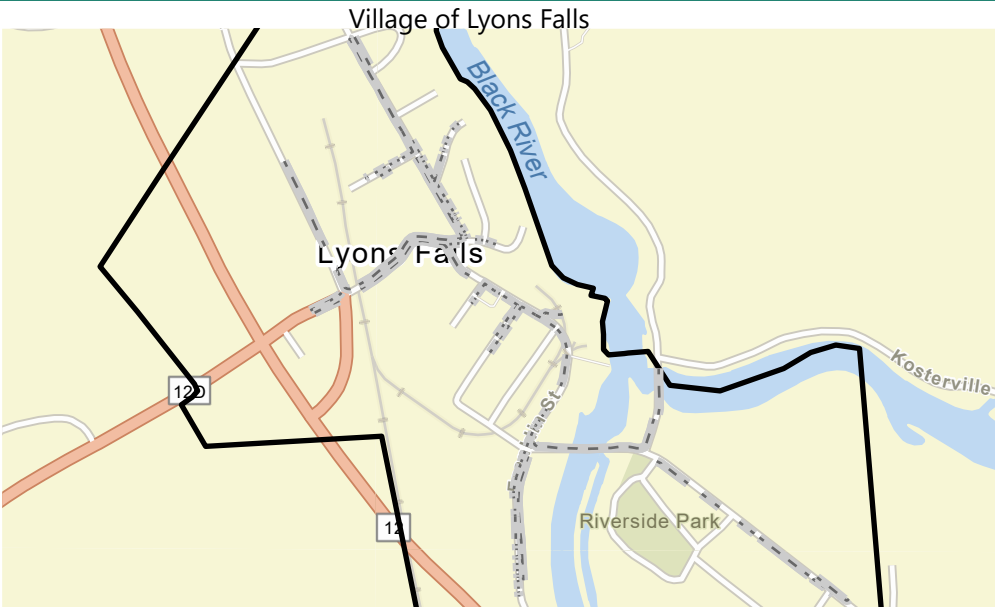


-  Hamlet Boundary
-  Village Boundary
-  Sidewalks

**Lewis County**  
 Lewis County Complete Streets Plan  
**Sidewalk Network Overview**  
 Lewis County September 2023 New York

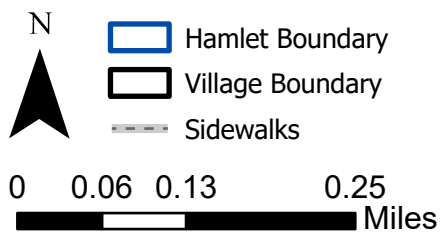
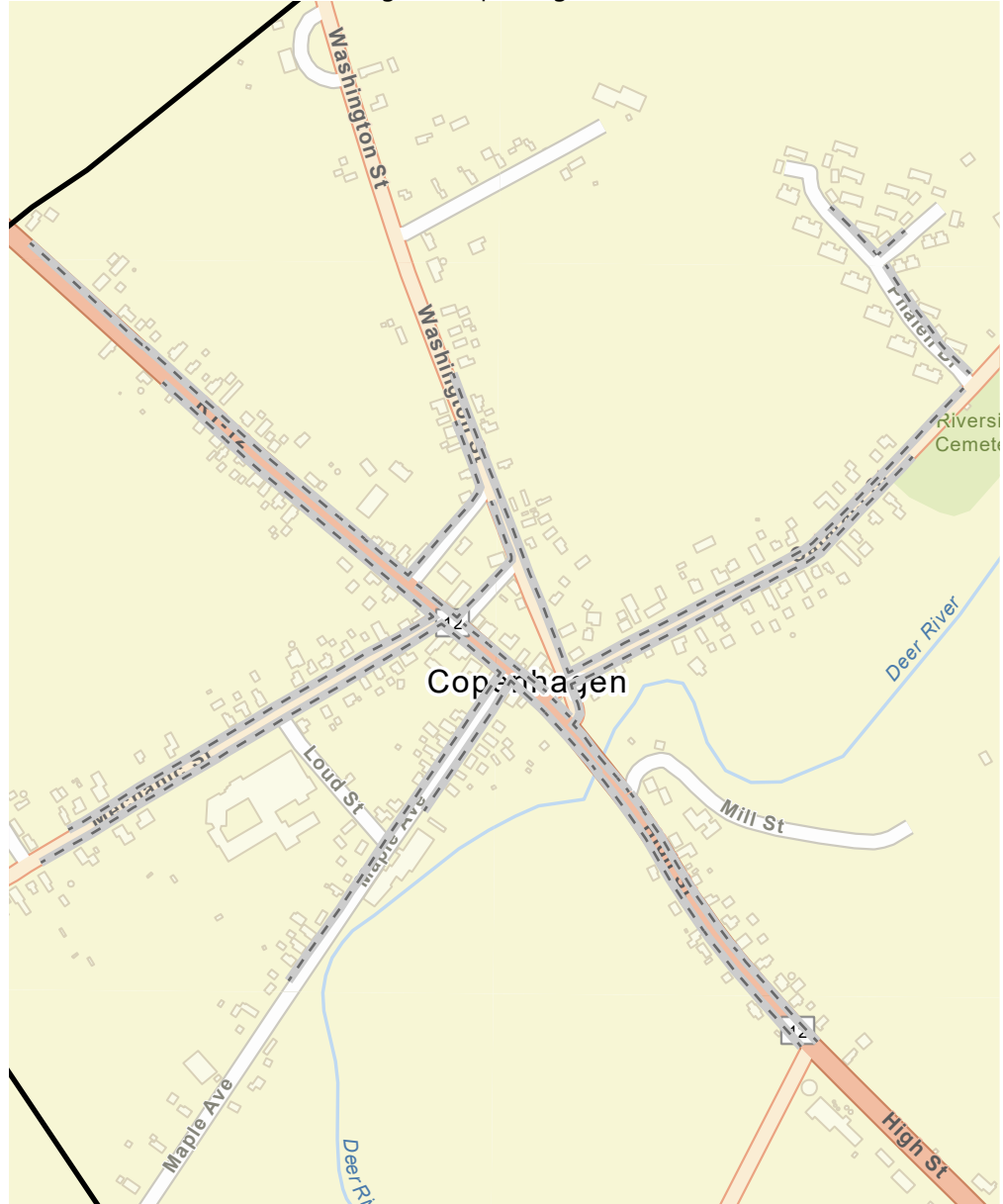
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Village of Copenhagen

Hamlet of Harrisville

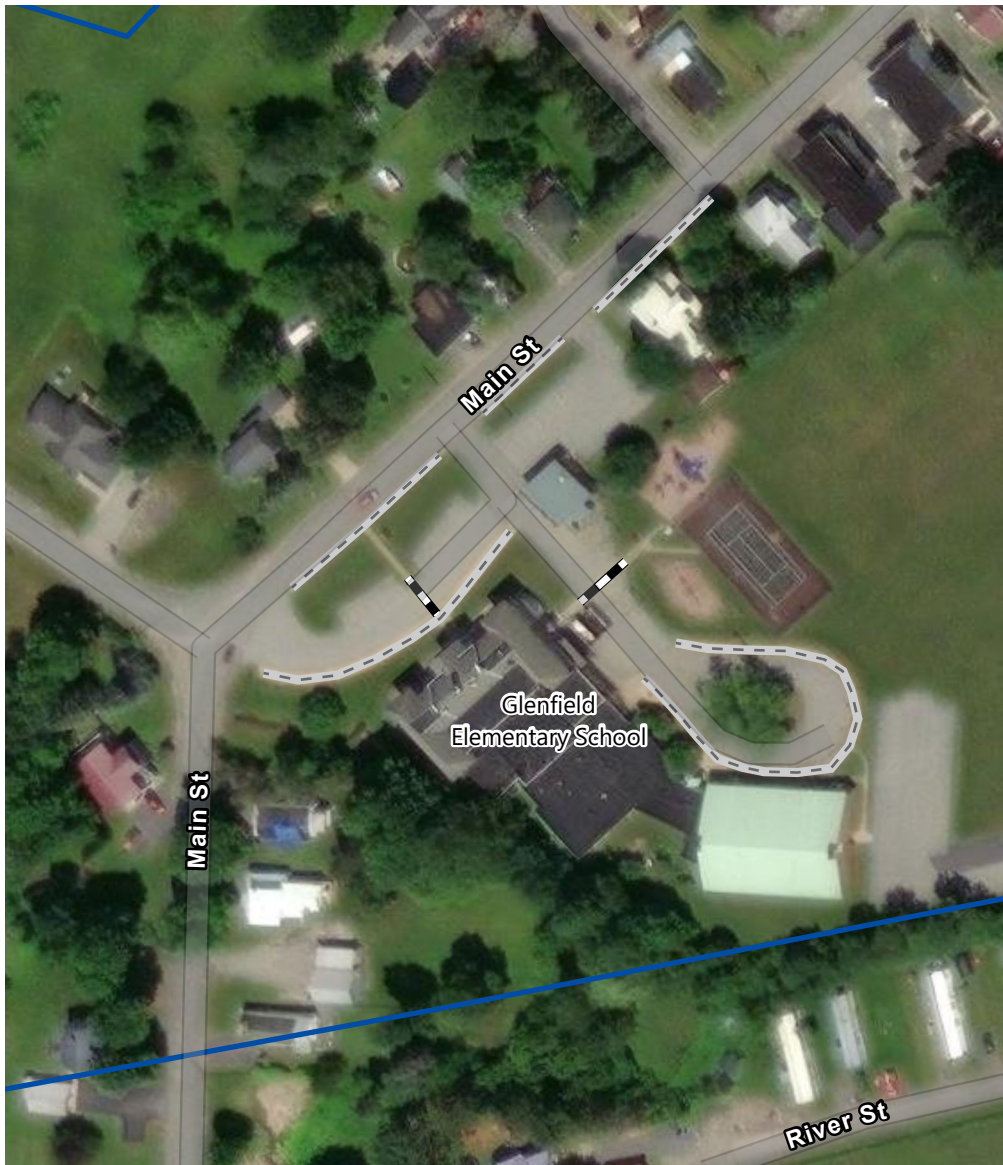


- Hamlet Boundary
- Village Boundary
- Sidewalks

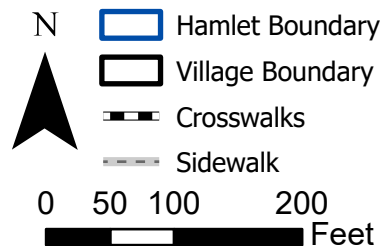
**Lewis County**  
 Lewis County Complete Streets Plan  
**Sidewalk Network**  
**Overview**

Lewis County September 2023 New York

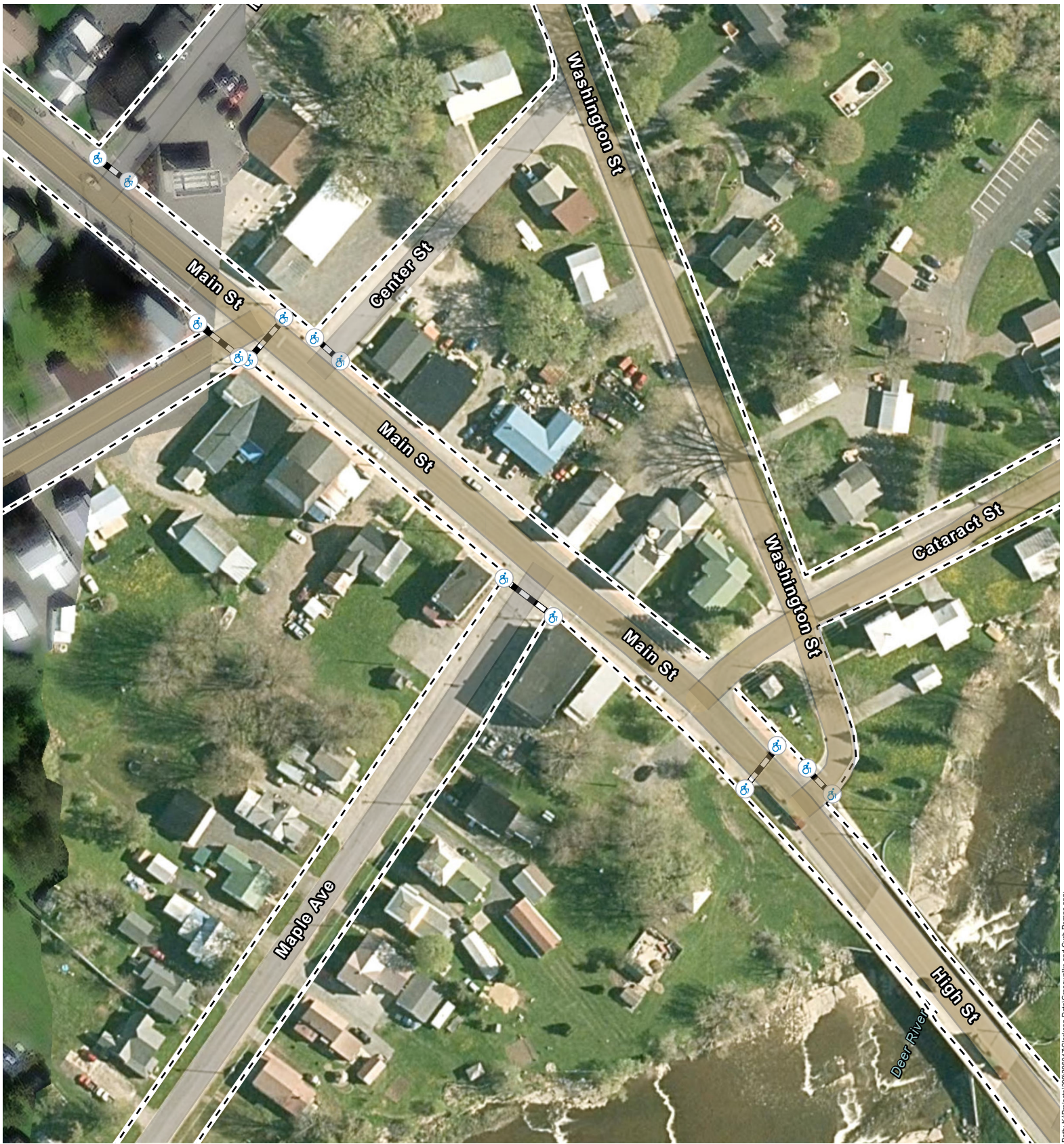
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

Sources: Basemap - Imagery Hybrid







Sources: Basemap - Imagery Hybrid


 Copenhagen Curb Ramps  
 Copenhagen Crosswalks  
 Copenhagen Sidewalks  
 0 50 100 200  
 Feet



**LEWIS COUNTY**  
 NEW YORK

**Barton & Loguidice**  
 EDR Clarkson  
a better environment

**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Copenhagen**  
**Crosswalks and Curb Ramps**  
 Lewis County September 2023 New York

Figure  
**3.5**

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N Croghan Curb Ramps

Croghan Crosswalks

Croghan Sidewalks

0 75 150 300 US Feet



Sources: Basemap - Imagery Hybrid

**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Croghan Crosswalks  
 and Curb Ramps**

Figure  
**3.6**

Lewis County September 2023 New York

DATA COLLECTED BY CLARKSON CEM CONSULTING GROUP (C3G)

Path: K:\Projects\2022\26077\Clarkson Data\Crosswalks and Curb Ramps.aprx



Sources: Basemap - World Street Map

- N
  - West Leyden Curb Ramps
  - West Leyden Crosswalks
  - West Leyden Sidewalks
- 0 25 50 100 US Feet

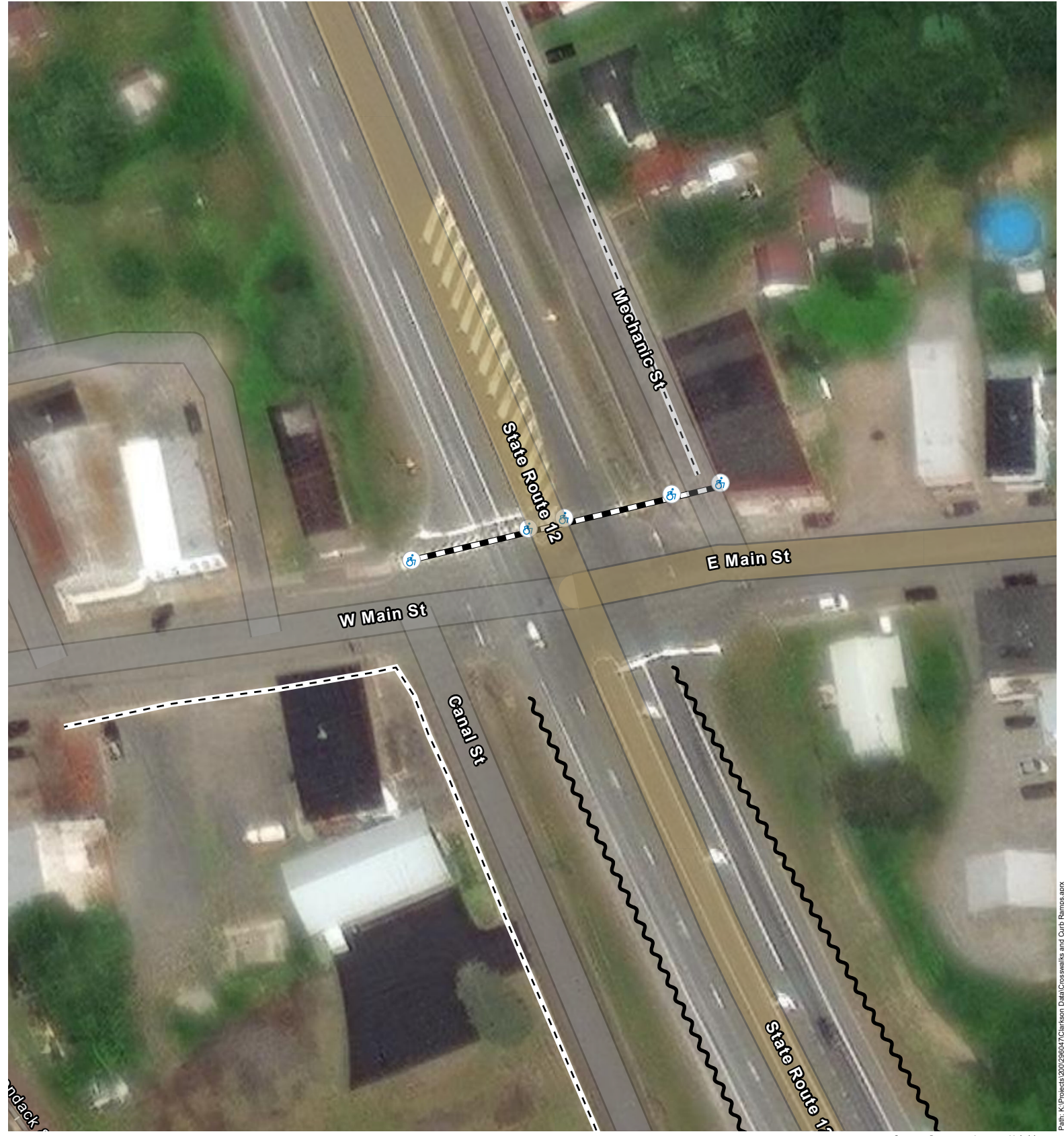


**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of West Leyden**  
**Crosswalks and Curb Ramps**

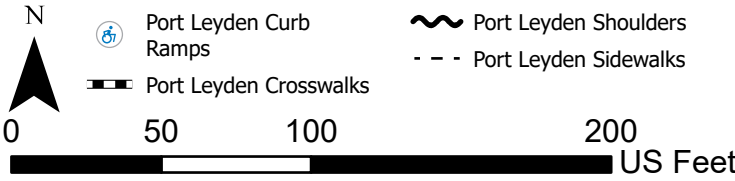
Lewis County September 2023 New York

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3.7

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Sources: Basemap - Imagery Hybrid



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Port Leyden**  
**Crosswalks and Curb Ramps**

Lewis County September 2023 New York

Figure  
3.8

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## Survey Results

During the summer of 2023, C3G launched a comprehensive survey to gather insights about pedestrian and biker infrastructure from Lewis County residents. This survey was divided into three main sections: demographics, general walkability, and considerations for school-aged children

Most respondents agreed that their communities would benefit from well-maintained and adequately lit sidewalks, indicating there is a public desire for improved sidewalk infrastructure across the County. Many respondents felt that the traffic and high speeds along roads deter them from walking or biking, which is especially important in communities whose sidewalk infrastructure may not be as expansive, and which require those who wish to walk to use the roadways.

Of the respondents that had school-aged children, 90% took either a family vehicle or a school bus to school, and the other 10% was split between using a bicycle or walking. Not every municipality had a school within its boundaries, and those that did sometimes only had elementary school buildings rather than K-12 school facilities. This means that the only option for transportation to schools is through the use of automobiles for a large portion of school-aged children within the County. For the communities with schools, there is an incentive to create a well-connected sidewalk system to ensure that students who walk to school have a safe path, and possibly encourage more families to allow their children to walk to school.

Overall, the survey results echo sentiments that were expressed during the public meeting – there is a County-wide need for improved sidewalk and crosswalk infrastructure.

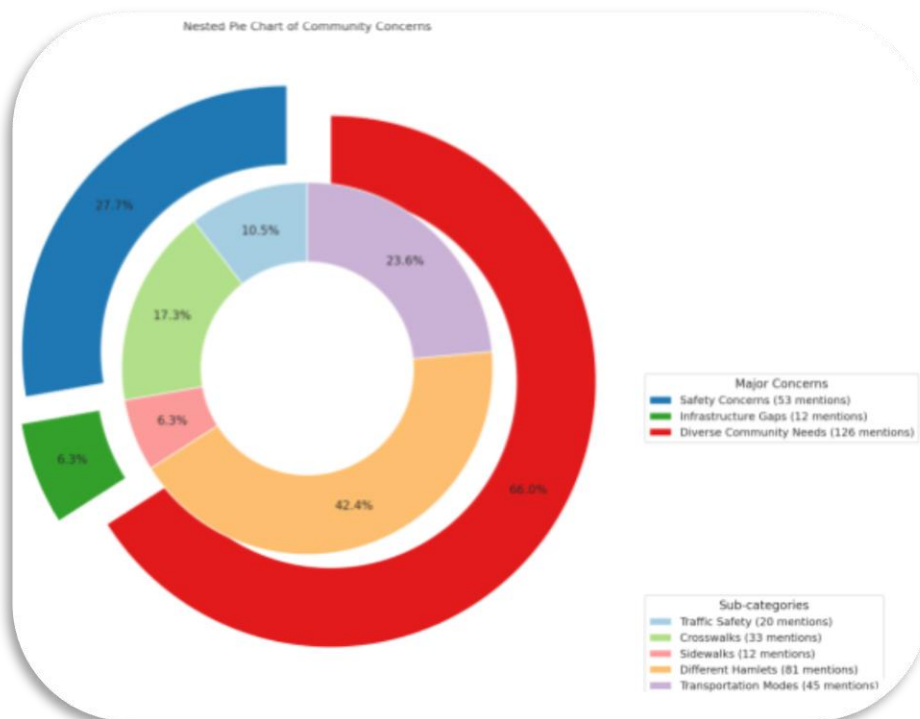


Chart Figure from Clarkson Report

### Croghan, NY: Workshop Summary

Prepared for: The Village of Croghan

Prepared by: Kevin Brouillard, Community Development Specialist and Anna Platz, Public Health Specialist

#### Recommendations Supporting Healthy Community Design

On June 2, 2021, community leaders, elected officials, business owners and residents of Croghan, NY took part in a Walk Audit led by Kevin Brouillard and Anna Platz. As members of Lewis County's Walkability Action Institute Team, Kevin and Anna are being trained by the National Association of Chronic Disease Directors and the New York State Department of Health to promote walking and walkability by creating equitable access to opportunities for walking, community and transportation design, policies and practices.

During introductions, Kevin and Anna shared that there are four elements of an active community:

- A. **Mixed land use patterns:** Different types of destinations and activities intermingled and close together allow for a variety of destinations within walking, cycling and transit distance.
- B. **Active transportation facilities:** A connected network of pedestrian, bicycle and transit facilities, such as side walks, bicycle lanes, and non-motorized pathways.
- C. **Functional site design:** Destinations and routes are designed to reward, not punish, those who arrive on foot, by bike and transit, such as buildings at the sidewalk, with parking on-street or behind, and elements such as street trees and landscaping; street furnishings such as benches, shade structures, planters and awnings, human scale lighting and way-finding signs; safe and appealing transit stops (with cover), benches and schedule information; and quality, plentiful bicycle parking.
- D. **Safety and access** for people of all ages, incomes, physical abilities and disabilities, including quality street crossings (e.g. highly visible markings, countdown times and auditory pedestrian signals), full ADA compliant design, and appropriately state-of-the-art traffic calming such as curb extensions.

Implementing these four factors will not only support public health through increased physical activity, but have a social, environmental and economic impact on the community, as well.

#### Recommendations and Priorities

Here you will find a list of recommendations that were generated during our walk audit or based on further review. They have been broken down into the three P's: programs, projects, and policies. You will find low cost actions, some that could be implemented relatively soon and could keep your community's momentum going and others that are more long-term goals to be accomplished over several years.

#### Program Recommendations (Anna)

## CROGHAN WALK AUDIT REPORT<sup>1</sup>

June 2<sup>nd</sup>, 2021 community members of Croghan, NY took part in a Walk Audit workshop led by Kevin Brouillard and Anna Platz, who were members of Lewis County's Walkability Action Institute Team. During this workshop, Kevin and Anna identified 4 elements of an active community:

**Mixed Land Use Patterns** – different types of destinations and activities that are intermingled and located close together to allow for a variety of destinations within walking, bicycling and transit distance

**Active Transportation facilities** – connected network of pedestrian, bicycle, and transit facilities (sidewalks, bike lanes, and non-motorized pathways)

**Functional site design** – destinations and routes are designed to reward those who arrive on foot, by bike or transit, such as buildings at the sidewalk, with parking on-street or behind, and elements such as street trees and landscaping; street furnishings such as benches, shade structures, planters and awnings, human scale lighting and way-finding signs; safe and appealing transit stops (with cover), benches and schedule information; and quality, plentiful bicycle parking.

**Safety and access** for people of all ages, incomes, physical abilities, and disabilities, including quality street crossings (e.g. highly visible markings, countdown times, and auditory pedestrian signals), full ADA-compliant design, and appropriately state-of-the-art traffic calming such as curb extensions.

Implementation of these four elements has a positive impact on not only public health (through increased activity), but also positive social, environmental, and economic impacts on the community.

Through discussion with community members priority projects were identified for pedestrian connectivity improvements, these include:

<sup>1</sup> See appendix for full Audit Report

- \* Traffic calming at the Convent Street and Shady Avenue intersection (4-way stop or traffic light, pedestrian crossing signs, and curb extensions)
- \* Create Destination wayfinding signage (Croghan Rec Park, Bridge Street Park, Croghan Island Mill, Soft Maple Campground)
- \* Redesign the no-parking zone in front of Vinny's Pizzeria
- \* Adding a marked crosswalk and signage and Route 812 between George Street and Mechanic Street
- \* Relocate the Information kiosk to the Village center
- \* Extend sidewalks to Dollar General and Moving Mountains Café
- \* Purchase and install benches (Wishey's or Steeple View Courts)
- \* Purchase and install bike racks at 'final destinations' (Good Ol' Spokes)
- \* Remove the fence or extend the curb on the corner of Bank Street and State Route 812



Map from Croghan Walk Audit

## PORT LEYDEN WALK AUDIT<sup>2</sup>

June 10<sup>th</sup>, 2021 community members of Port Leyden, NY took part in a Walk Audit workshop led by Kevin Brouillard, Anna Platz, who were members of Lewis County's Walkability Action Institute Team. During this workshop, Kevin and Anna identified 4 elements of an active community similar to what they identified during their meeting in Croghan (see page 3-9 for elements). Through discussion with community members priority projects were identified for pedestrian connectivity improvements, these include:

- \* Establish a Riverside Park on East Main Street (designated parking area, additional seating and trash receptacles)

<sup>2</sup> See appendix for full Audit Report

- \* Traffic calming on East Main Street (Create an unpaved median between the road and sidewalk, and add a marked crosswalk with signage beside the Port Leyden Elementary East Main Street Entrance)
- \* Redesign the no-parking zone on East Main Street and Lincoln Street (to increase compliance and safety for crossing pedestrians)
- \* Install benches downtown (e.g. Post office, Port Leyden Elementary School, along East Main Street)
- \* Create destination wayfinding signage (to destinations such as Port Leyden Community Park, Skate Park, Riverside Park)
- \* Designate a pedestrian trail between Port Leyden Community Park and Cliff's Local Market
- \* Repaint the reverse diagonal parking in front of the Post Office



Proposed Pedestrian Trail

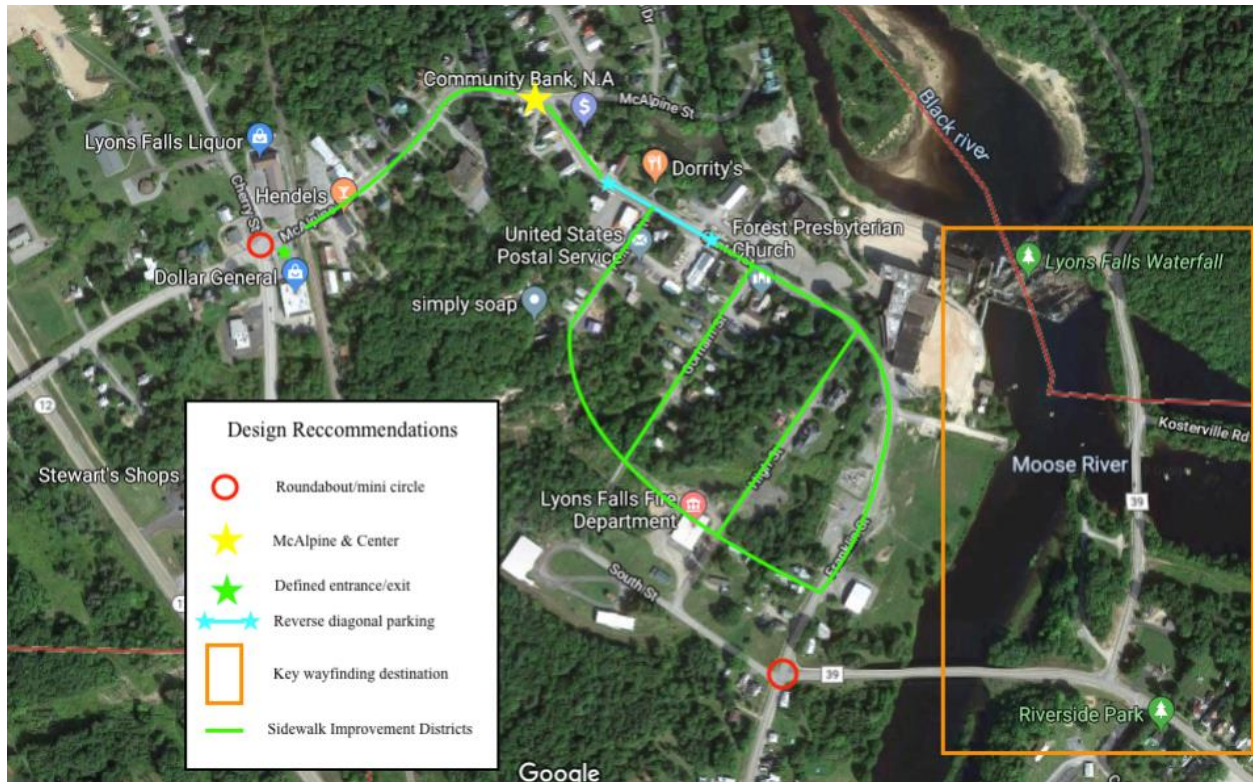
### LYONS FALLS WALK AUDIT<sup>3</sup>

May 13th, 2019, community members of Lyons Falls took part in a 'Health Community Design Workshop' sponsored by the Tug Hill Commission. This meeting was led by facilitator Mark Fenton at the Lyons Falls Fire Hall, where there was a discussion on identifying elements of the community that encourage routine physical activity and the development of specific recommendations for action. During the conversation, Mark provided an overview of the key research into what creates a more walkable community, identifying the key characteristics of a thriving community (see page 3-9 for elements). Projects identified to implement include:

- \* Construct a mini circle to replace certain all-way stop intersections (Ideal candidates are McAlpine – Cherry Street and Franklin-River-South-Laural intersections)
- \* Curb extension at McAlpine – Center Street intersection
- \* Speed Table on Mc Alpine Street
- \* Install high-visibility crosswalks
- \* Defined entrances/exits to the Dollar General Parking lot
- \* Reverse diagonal parking on the wide section of Center Street
- \* Establish Sidewalk Improvement Districts (define an area in which all property owners choose to contribute to a collective fund for sidewalk repair and construction)
- \* Develop a general sidewalk improvement fund through a community referendum (e.g. such as a sales tax surcharge, small public utility fee, development impact fees, etc.)
- \* Install improved wayfinding and signage to key destinations (e.g. Center Street shopping district and business on McAlpine)

<sup>3</sup> See appendix for full Audit Report





Design Recommendation Map from Lyons Falls Walk Audit Report

## COPENHAGEN WALK AUDIT<sup>4</sup>

May 14<sup>th</sup>, 2019 community members of Copenhagen took part in a 'Health Community Design Workshop' sponsored by the Tug Hill Commission. This meeting was led by facilitator Mark Fenton at the Copenhagen Village Hall, where there was a discussion on identifying elements of the community that encourage routine physical activity and the development of specific recommendations for action. During the conversation, Mark provided an overview of the key research into what creates a more walkable community, identifying the key characteristics of a thriving community (see page 3-9 for elements). Participants of the workshop came up with a variety of programs, projects, and policies that when implemented in tandem provide a comprehensive approach to creating a vibrant, safe, and healthy community.

### Program Recommendations

Programs include events, outreach, education, and promotional activities. These programs can be introduced through demonstration and pop-up installations to allow residents to gain a better understanding of the improvements and impact these projects will have on their community.

- \* Launch Safe Routes to School Program

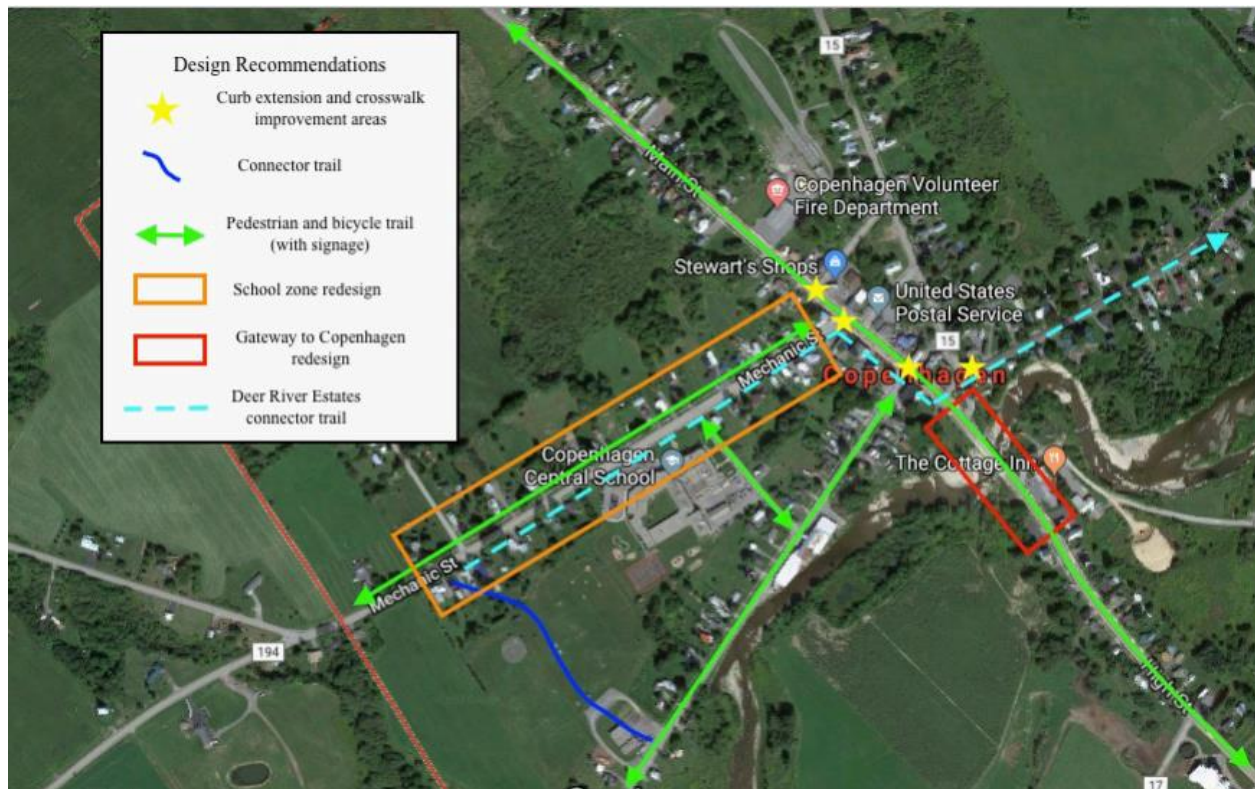
<sup>4</sup> See appendix for full Audit Report

- \* Improve sidewalk 'edge' in front of the Copenhagen Central School (create a clear delineation between the sidewalk and front of the school on Mechanic Street)
- \* Define Entries for Copenhagen Central School Parking Lot

### Project Recommendations

Projects are physical changes to infrastructure and the built environment.

- \* Add crosswalk markings across the entrances to the Stewart's parking lot on Main Street
- \* Create a community trail network (e.g. connector trail between Maple Ave and Mechanic Street)
- \* Make improvements for public access and use near the Village green space, gazebo, and Village Center
- \* Calm traffic on Main Street and improve pedestrian crossings (e.g. curb extensions at the existing cross walk)



Design Recommendations Map from Copenhagen Walk Audit Report

### CASTORLAND WALK AUDIT<sup>5</sup>

Community members in the Village of Castorland also took part in a walk audit, identifying local strengths and weaknesses, and worked together to come up with potential solutions and projects to improve the walkability and safety of the pedestrian network.

<sup>5</sup> See appendix for full Audit Report

**Strengths** Community members noted that the Village has ample space to create community spaces such as a community park or green spaces. The presence of walking trails and the installation of new (at the time) signs for the Village and Park.

**Weaknesses** Areas that were identified for improvements included the lack of bike racks or benches, missing sidewalk connectivity on portions of Main Street (SR 410) and lack of crosswalk infrastructure, poor maintenance of existing sidewalks, ADA accessibility, as well as speeding cars through the Village.

**Ideas** Using the various strengths and weaknesses, community members came up with potential project ideas to address weaknesses and build upon strengths.

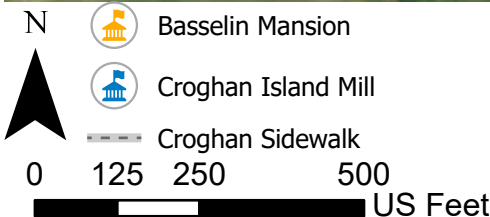
- \* Take advantage of the space across from the Post Office or at the park to construct a gazebo
- \* Install bike racks and benches by the Post Office and the park
- \* Revitalize the old building by the Fire Department (5194 NY-410)
- \* Utilizing mitigation techniques to deter speeding
- \* Installing wayfinding signs to the walking trails and park
- \* Mulching walking trails
- \* Crosswalk infrastructure where SR 410 meets Elm Street

## ADDITIONAL OPPORTUNITY AREAS

### Historic Sites

Lewis County takes pride in heritage and history, and some municipalities are in a position where they could utilize improvements in their pedestrian infrastructure in conjunction with wayfinding signage to provide increased access to local historical sites. Providing wayfinding signs would bring attention to the historical value of the structures which might otherwise be unknown to visitors.

Some of these historic sites are churches that are still in use with adequate sidewalk access, but others, such as Constable Hall in the Village of Constableville would benefit from improved access.

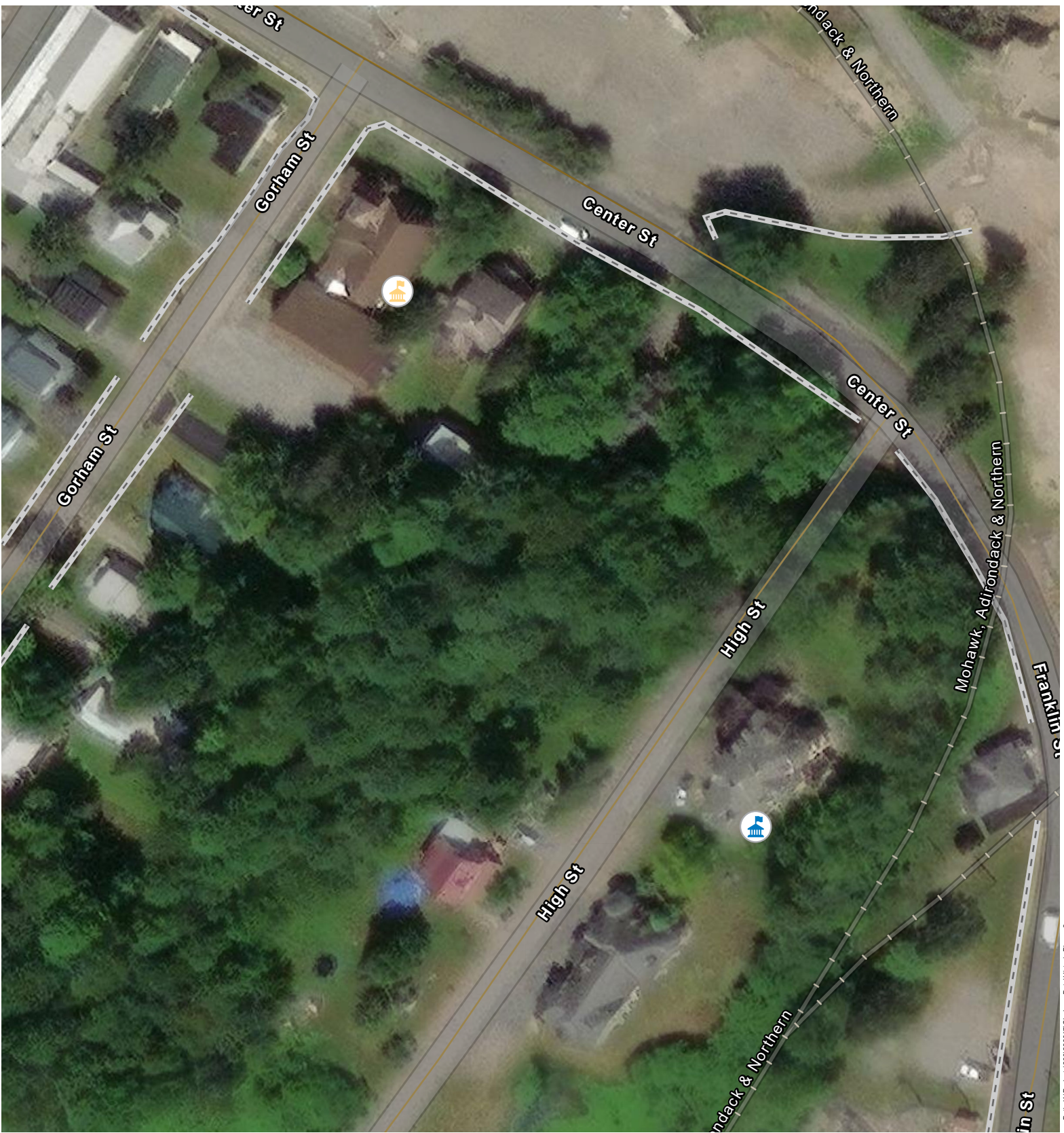


**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Croghan**  
**Historic Sites**  
 Lewis County September 2023 New York

Figure  
**3.9**

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Sources: Basemap - Imagery Hybrid




Sources: Basemap - Imagery Hybrid

N

0 50 100 200 US Feet

 Gould Mansion Complex

 Forest Presbyterian Church and Manse

 Lyons Falls Sidewalk

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NEW YORK EDR Clarkson  
a better environment

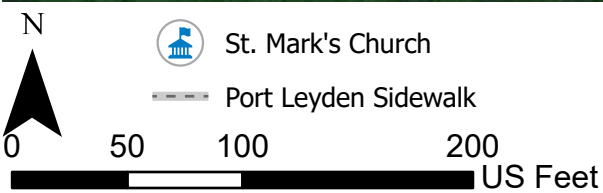
**Lewis County**  
Lewis County Complete Streets Plan  
**Village of Lyons Falls**  
**Historic Sites**  
Lewis County September 2023 New York

Figure  
**3.10**

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Sources: Basemap - Imagery Hybrid



 St. Mark's Church

 Port Leyden Sidewalk



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Port Leyden**  
**Historic Sites**

Lewis County September 2023 New York

Figure  
3.11



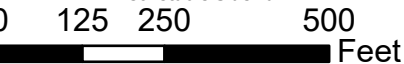
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Sources: Basemap - Imagery Hybrid

N Constableville Village Historic District

Constable Hall

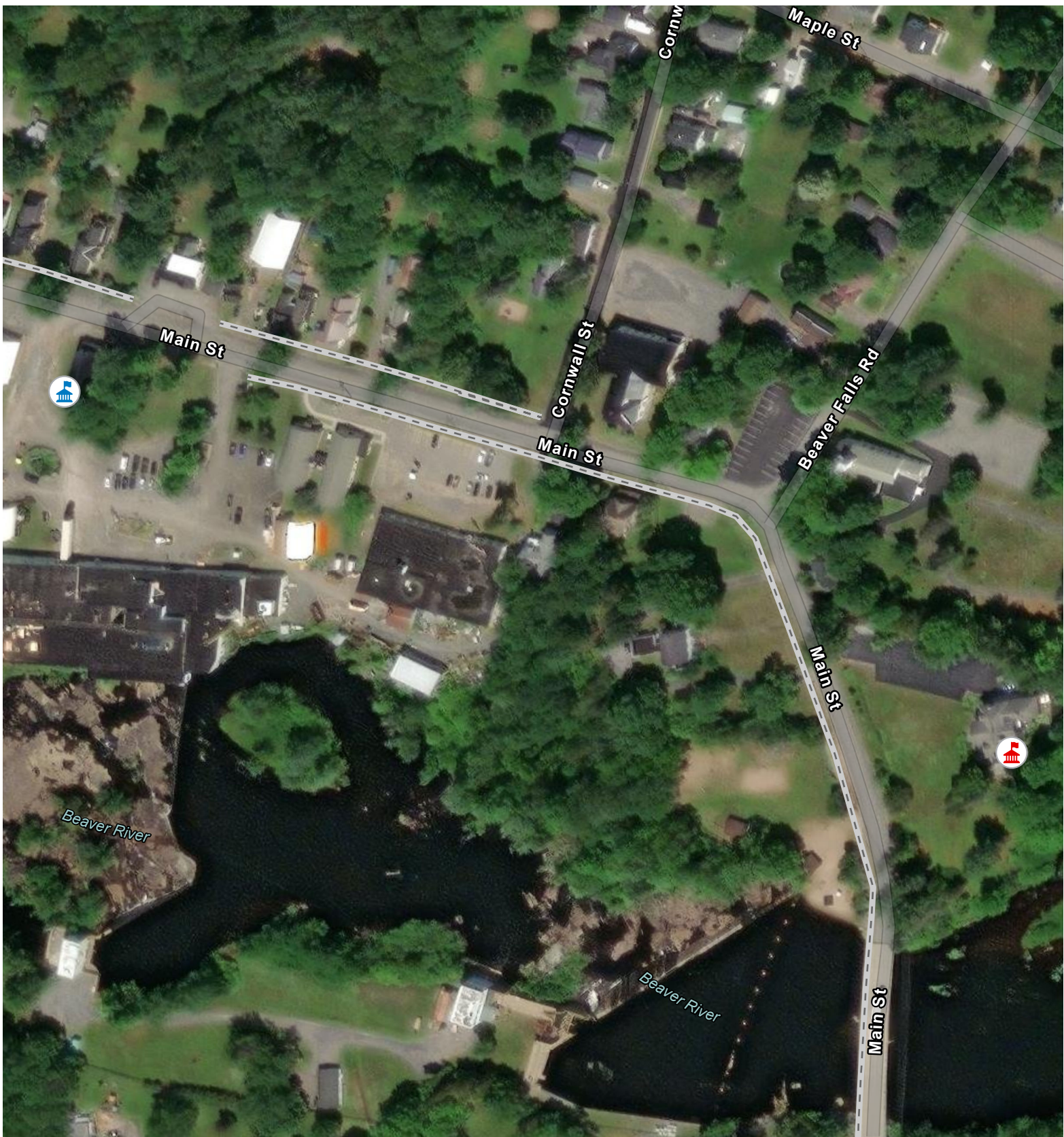
Constable Sidewalk



**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Constableville**  
**Historic Sites**

Lewis County September 2023 New York

Figure  
**3.12**



Sources: Basemap - Imagery Hybrid

N

Beaver Falls Grange Hall

Harry and Molly Lewis House

Beaver Falls Sidewalks

0 75 150 300 Feet

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**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of Beaver Falls**  
**Historic Sites**

Lewis County September 2023 New York

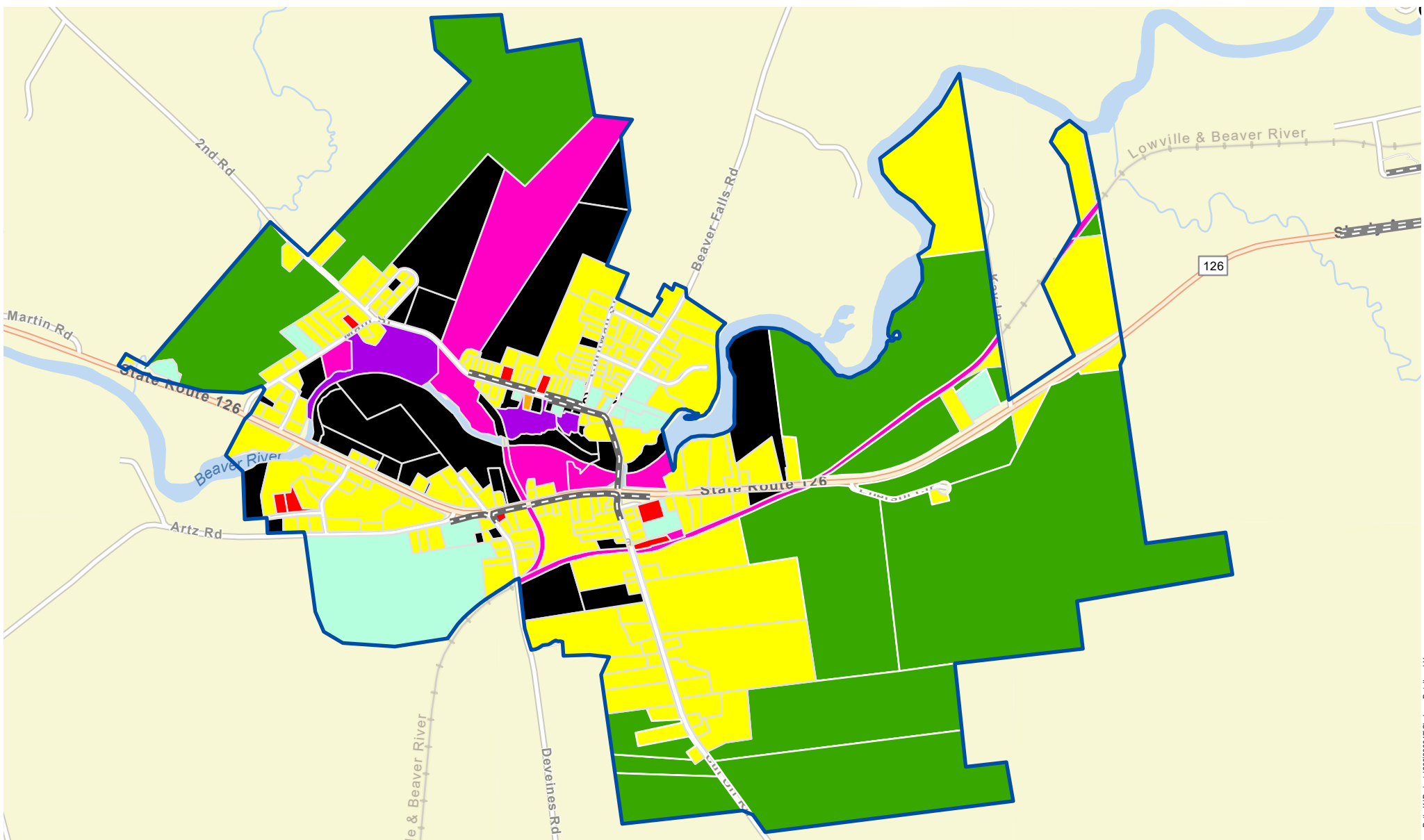
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## Land Use

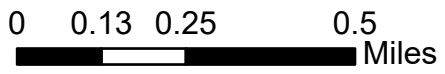
In addition to the public feedback received on priority areas for improved pedestrian infrastructure, municipalities can also draw from their land use maps to identify locations that would benefit from improved pedestrian connectivity. Commercial areas or community services (library, post office, etc.) disconnected from the pedestrian network could benefit from being included in future pedestrian infrastructure improvement projects.



Sources: Basemap - World Street Map



- Beaver Falls Sidewalks
- Beaver Falls Boundary
- Agricultural
- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services

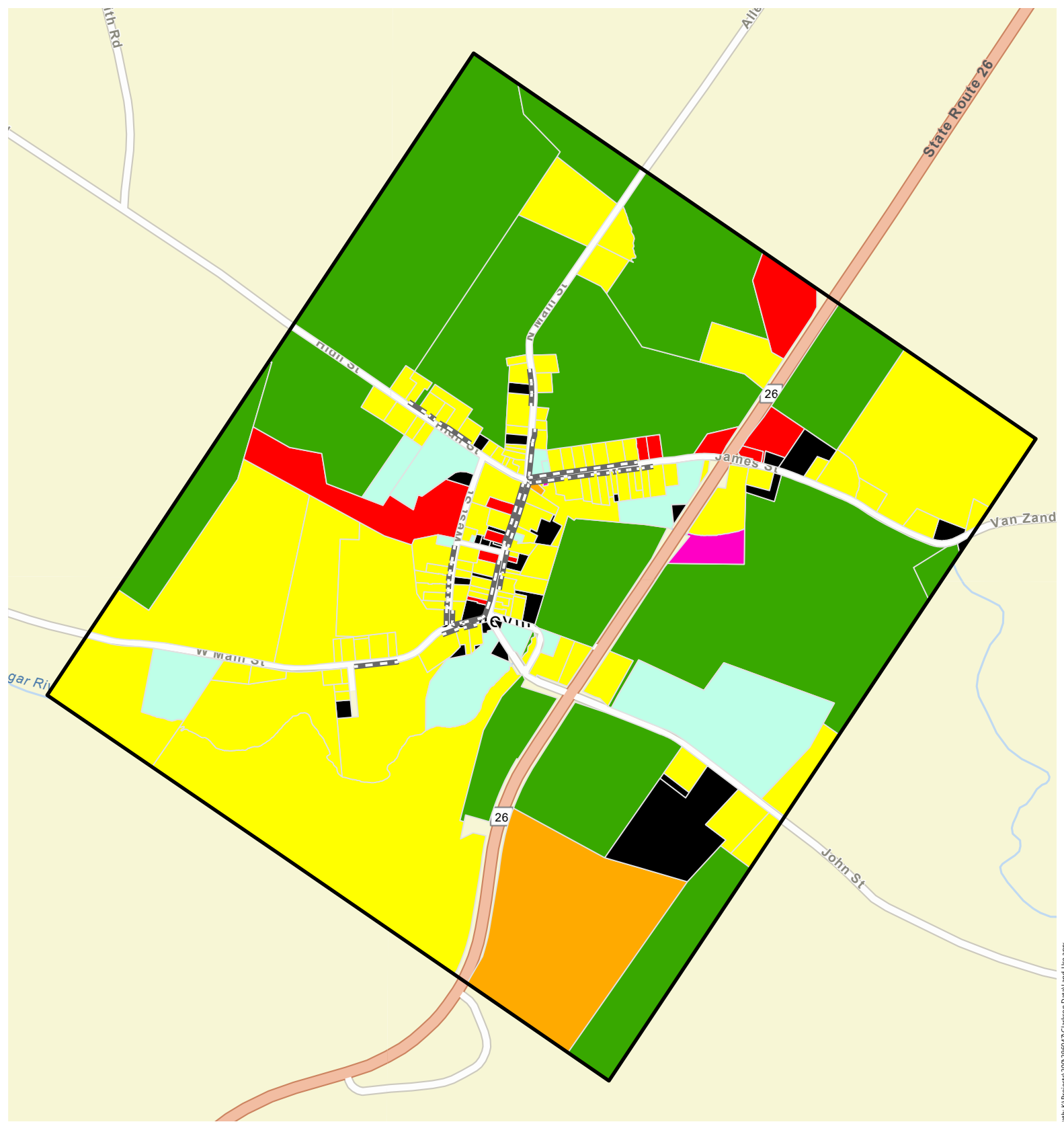


**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of Beaver Falls**  
 Land Use

Lewis County September 2023 New York

Figure  
**3.14**

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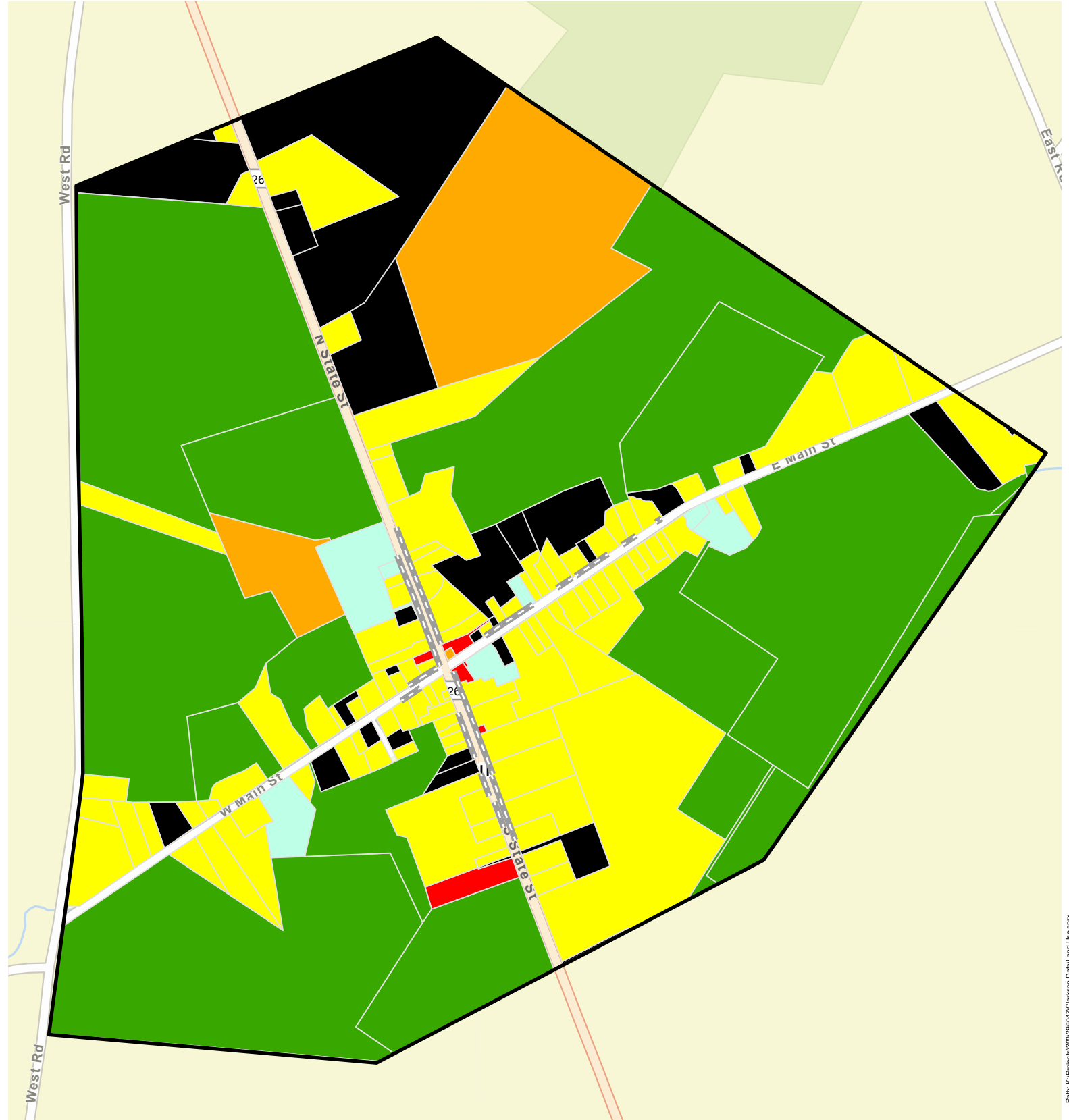
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 NEW YORK **EDR** **Clarkson**  
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**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Constableville**  
**Land Use**  
 Lewis County September 2023 New York

Figure  
**3.15**

Sources: Basemap - World Street Map

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Sources: Basemap - World Street Map

- |  |                 |                            |
|--|-----------------|----------------------------|
|  | Turin Sidewalks | Vacant Land                |
|  | Turin Boundary  | Commercial                 |
|  | Agricultural    | Recreation & Entertainment |
|  | Residential     | Community Services         |



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NEW YORK

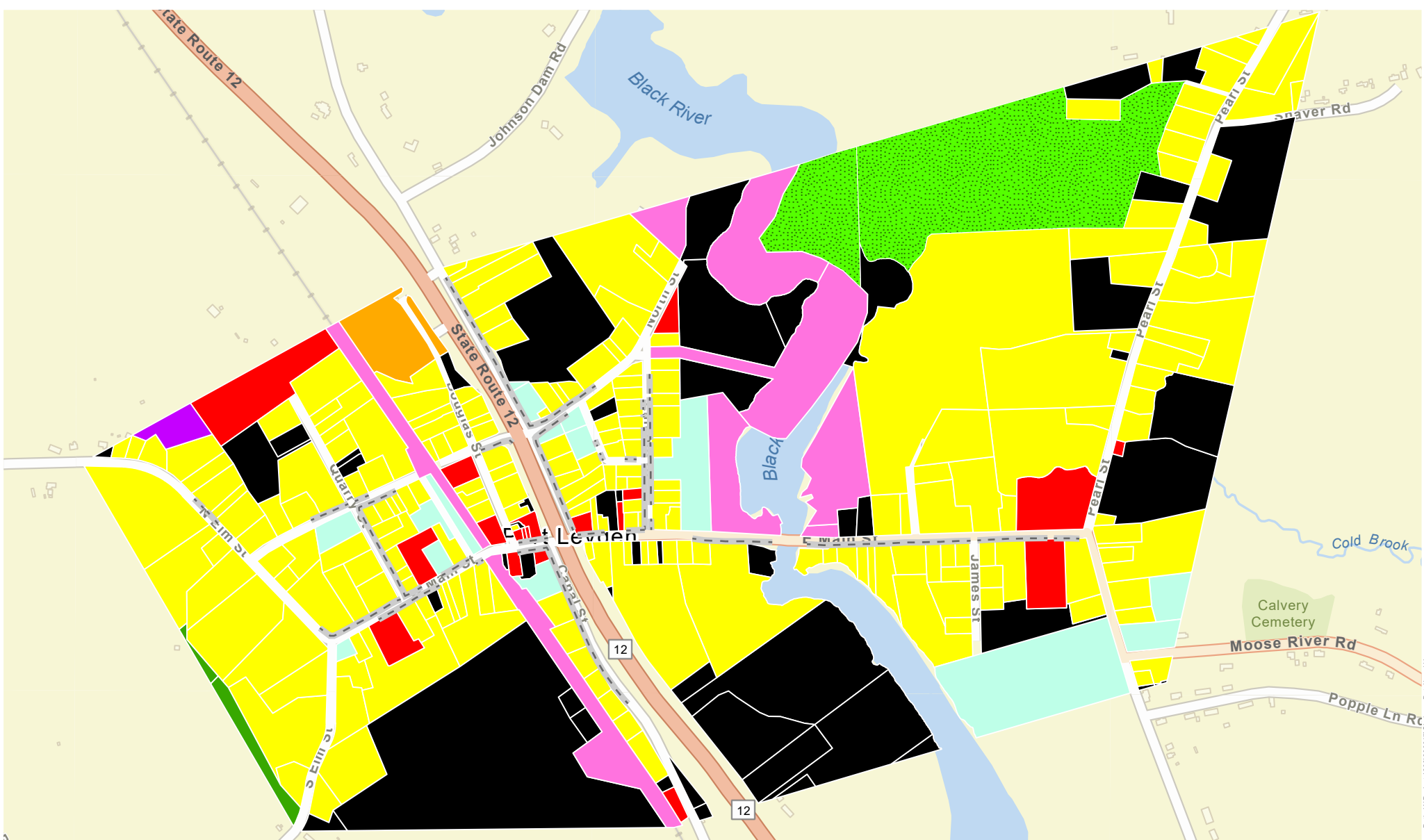
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**Lewis County**  
Lewis County Complete Streets Plan  
**Village of Turin**  
**Land Use**

Lewis County September 2023 New York

Figure  
**3.16**

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- Port Leyden Sidewalks
- Agricultural
- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services
- Wild, forested, conservation lands and public parks

0 0.13 0.25 0.5 Miles

Sources: Basemap - World Street Map

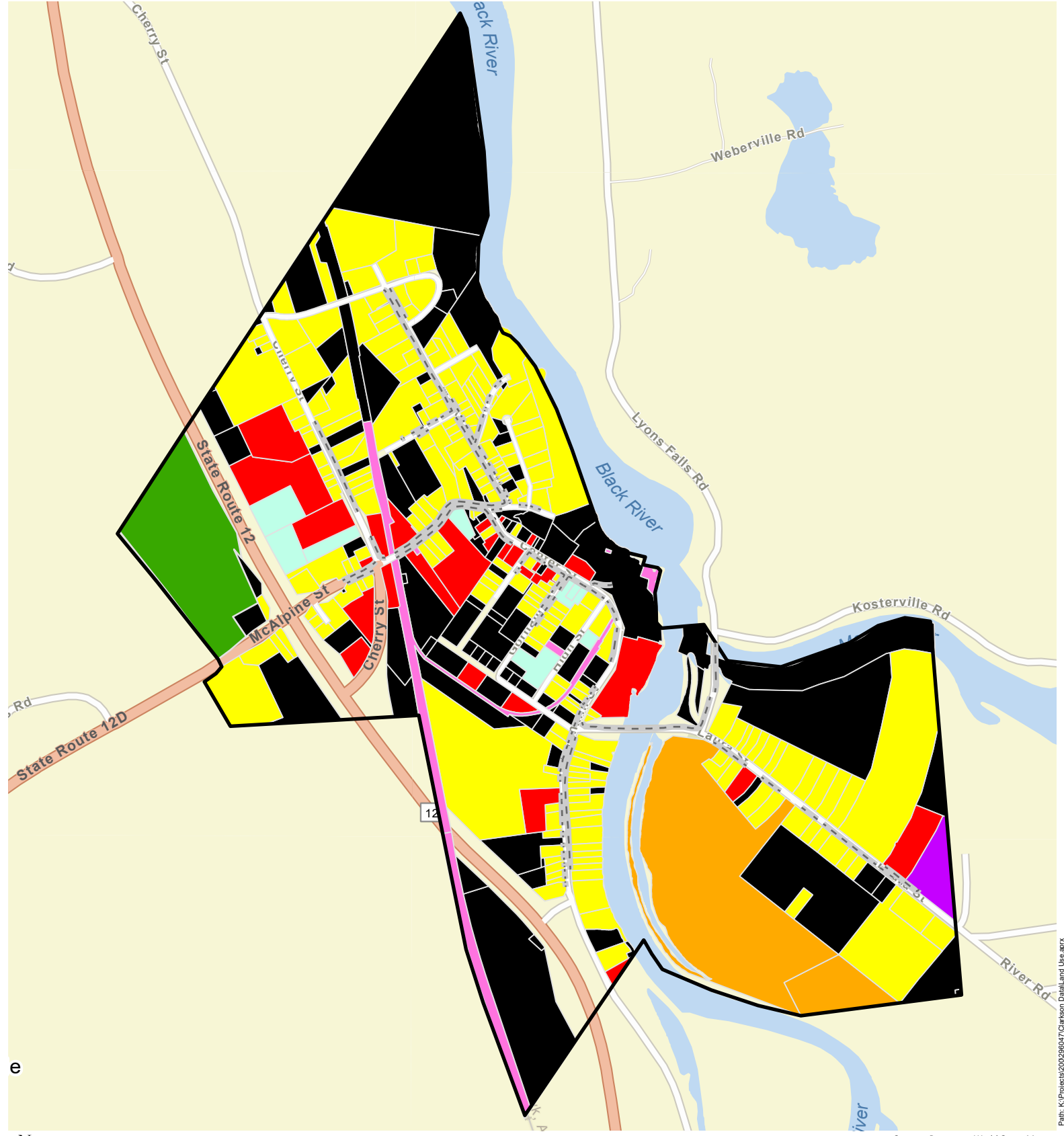


**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Port Leyden**  
 Land Use

Lewis County September 2023 New York

Figure  
3.17

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 Lyons Falls Sidewalks  
 Lyons Falls Boundary  
 Agricultural  
 Residential  
 Vacant Land  
 Commercial  
 Recreation & Entertainment  
 Community Services  
 Industrial  
 Public Services  
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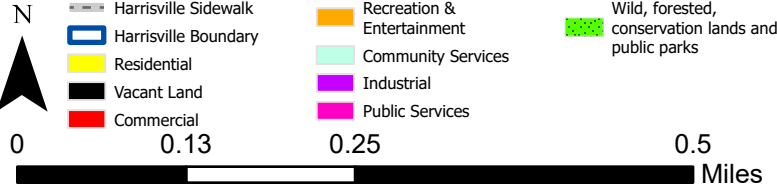
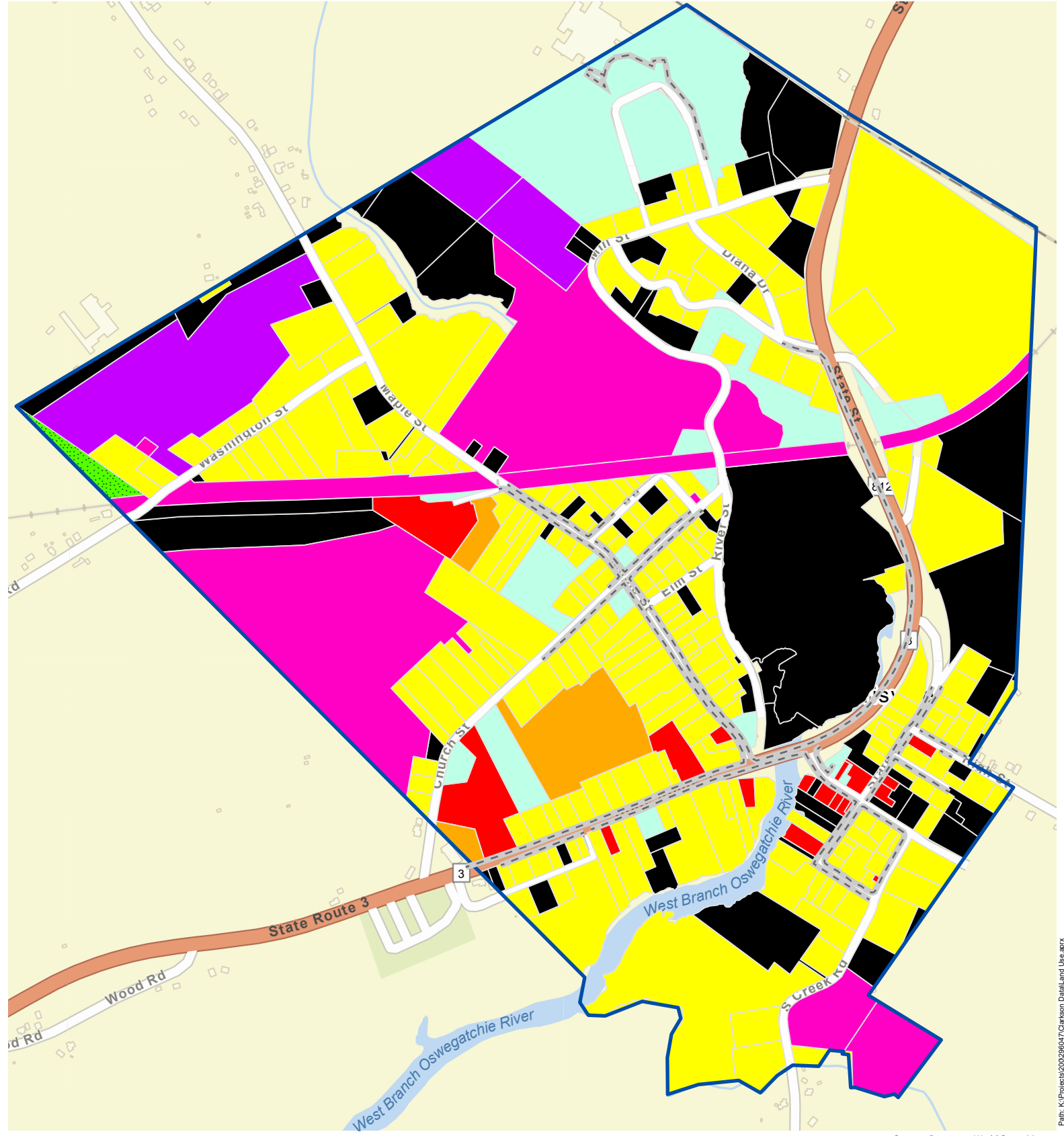
Sources: Basemap - World Street Map

**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Lyons Falls**  
**Land Use**  
 Lewis County September 2023 New York

Figure  
**3.18**



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- Harrisville Sidewalk
- Harrisville Boundary
- Residential
- Vacant Land
- Commercial
- Recreation & Entertainment
- Community Services
- Industrial
- Public Services
- Wild, forested, conservation lands and public parks

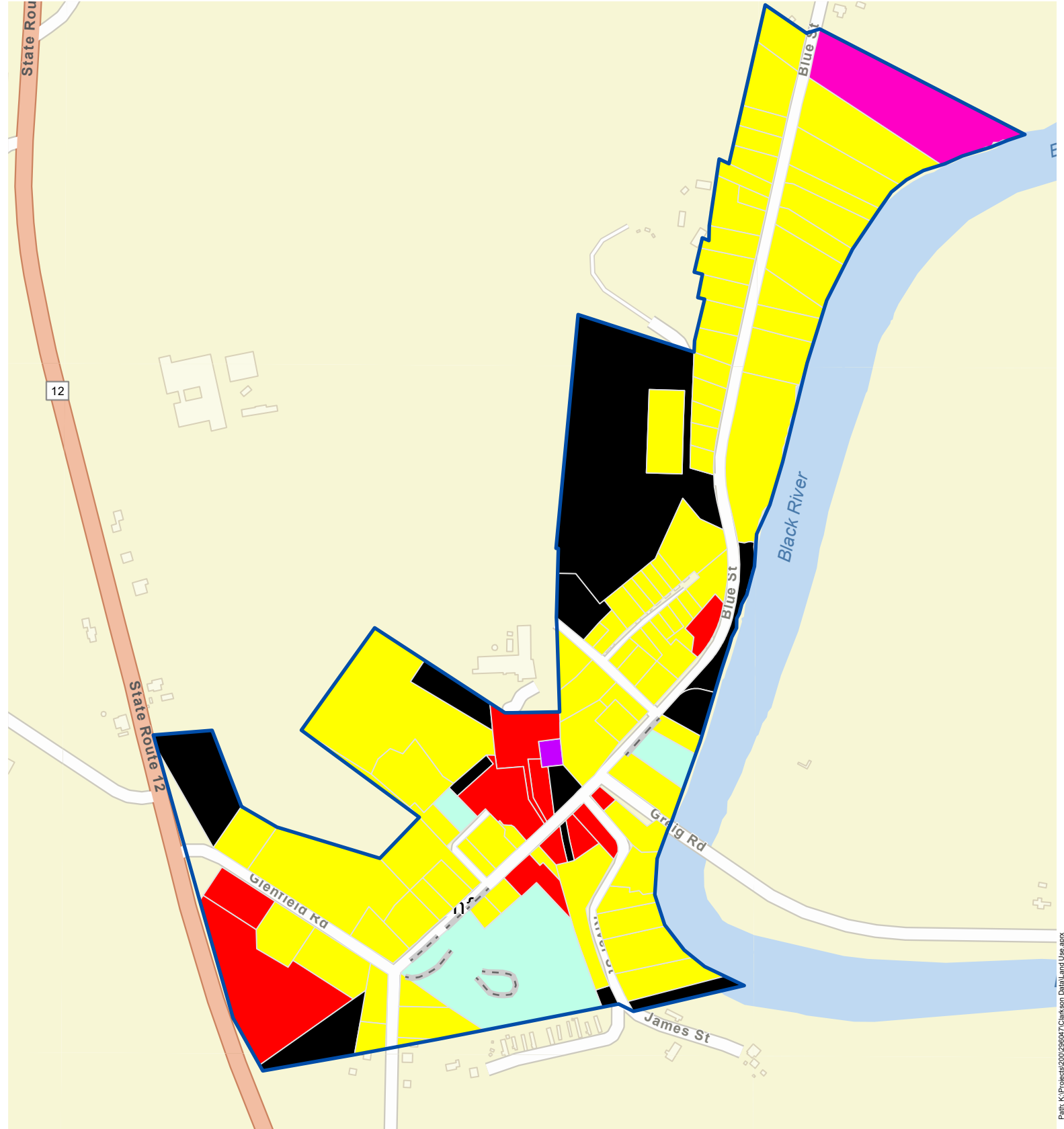
Sources: Basemap - World Street Map



**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of Harrisville**  
**Land Use**  
 Lewis County September 2023 New York

Figure  
**3.19**

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 --- Glenfield Sidewalks  
 [Blue Outline] Glenfield Boundary  
 [Yellow] Residential  
 [Black] Vacant Land  
 [Red] Commercial  
 [Light Blue] Community Services  
 [Purple] Industrial  
 [Pink] Public Services

Sources: Basemap - World Street Map

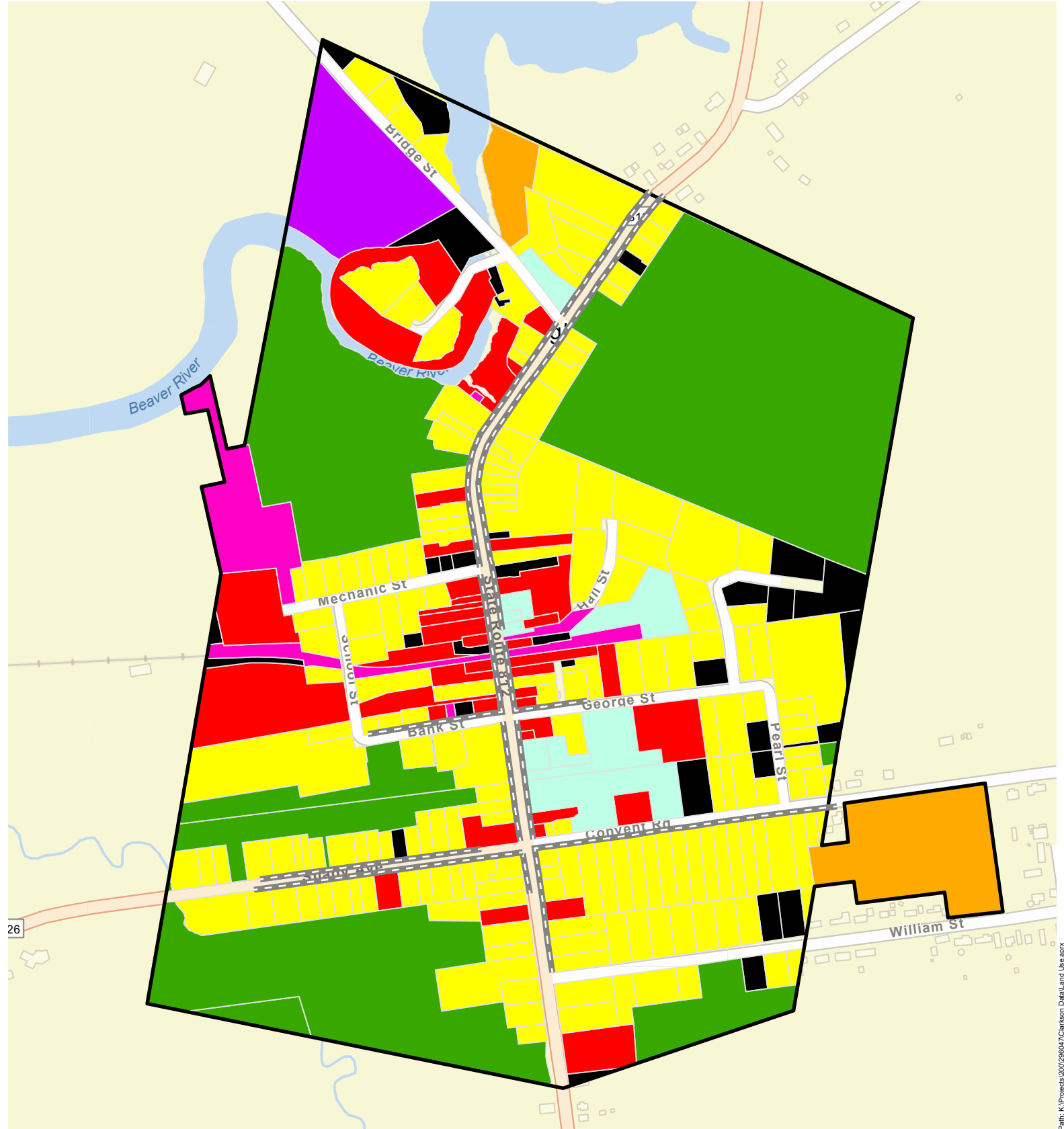
**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of Glenfield**  
**Land Use**  
 Lewis County September 2023 New York

Figure  
**3.20**



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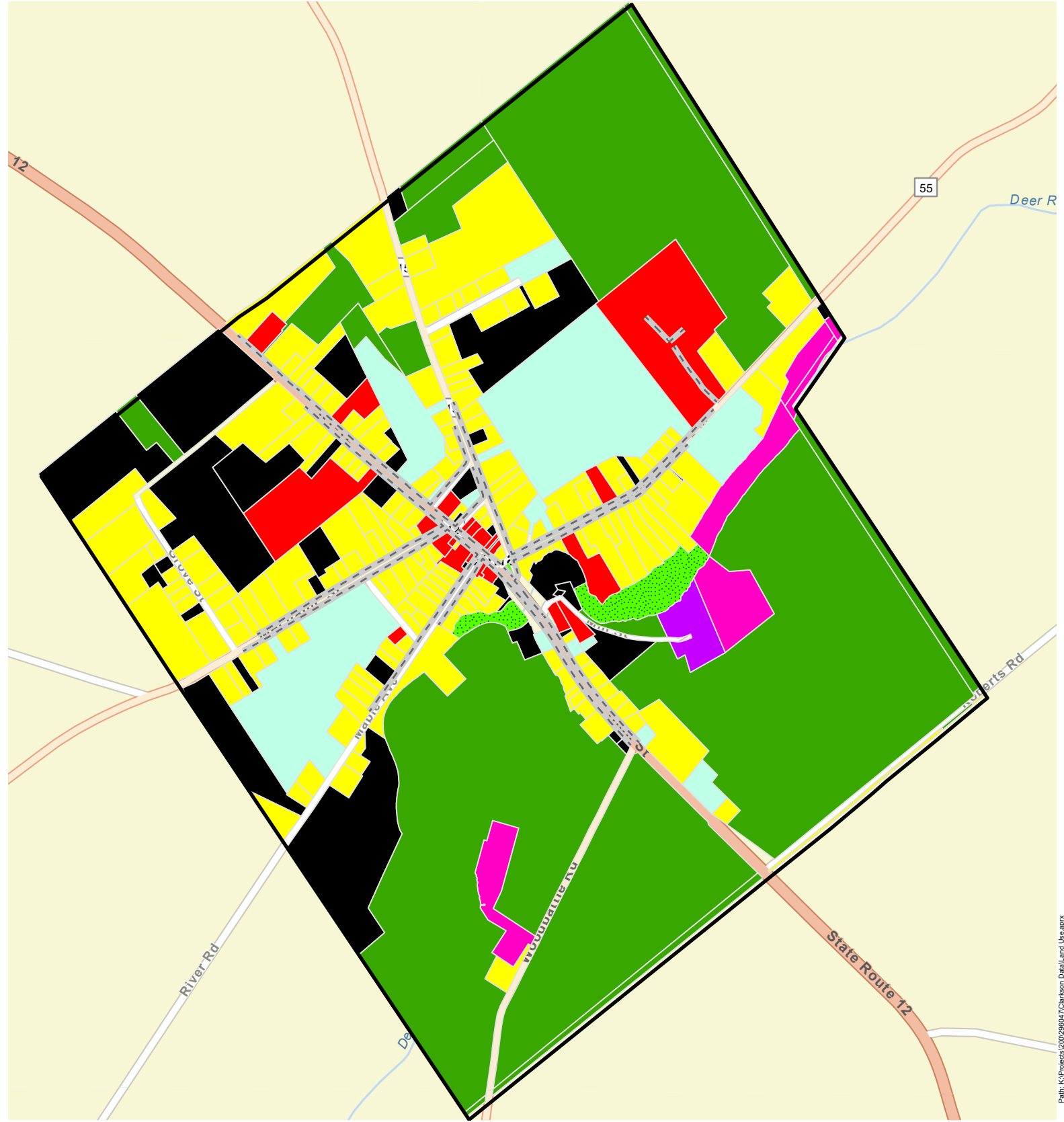
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 NEW YORK **EDR** **Clarkson**  
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**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Croghan**  
**Land Use**  
 Lewis County September 2023 New York

Figure  
**3.21**

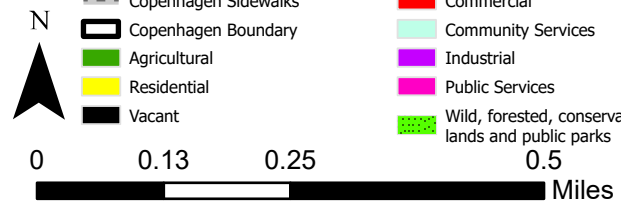
Sources: Basemap - World Street Map

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- Copenhagen Sidewalks
- Copenhagen Boundary
- Agricultural
- Residential
- Vacant
- Commercial
- Community Services
- Industrial
- Public Services
- Wild, forested, conservation lands and public parks

Sources: Basemap - World Street Map

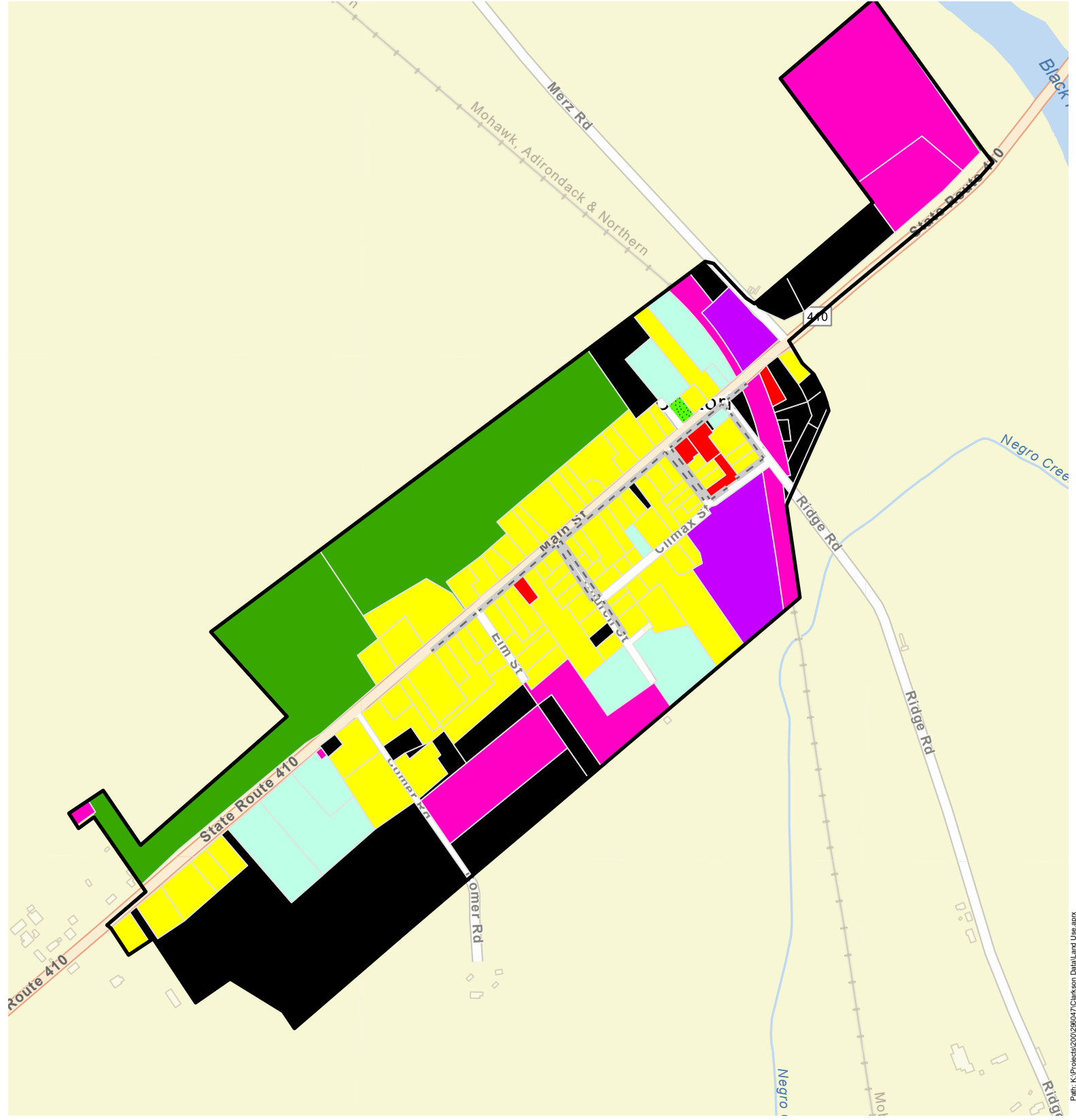


**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Copenhagen**  
**Land Use**

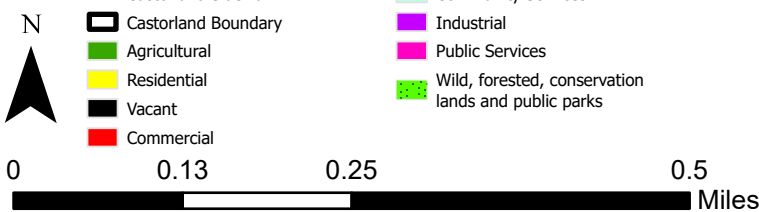
Lewis County September 2023 New York

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**3.22**

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- Castorland Sidewalk
- Castorland Boundary
- Agricultural
- Residential
- Vacant
- Commercial
- Community Services
- Industrial
- Public Services
- Wild, forested, conservation lands and public parks



Sources: Basemap - World Street Map

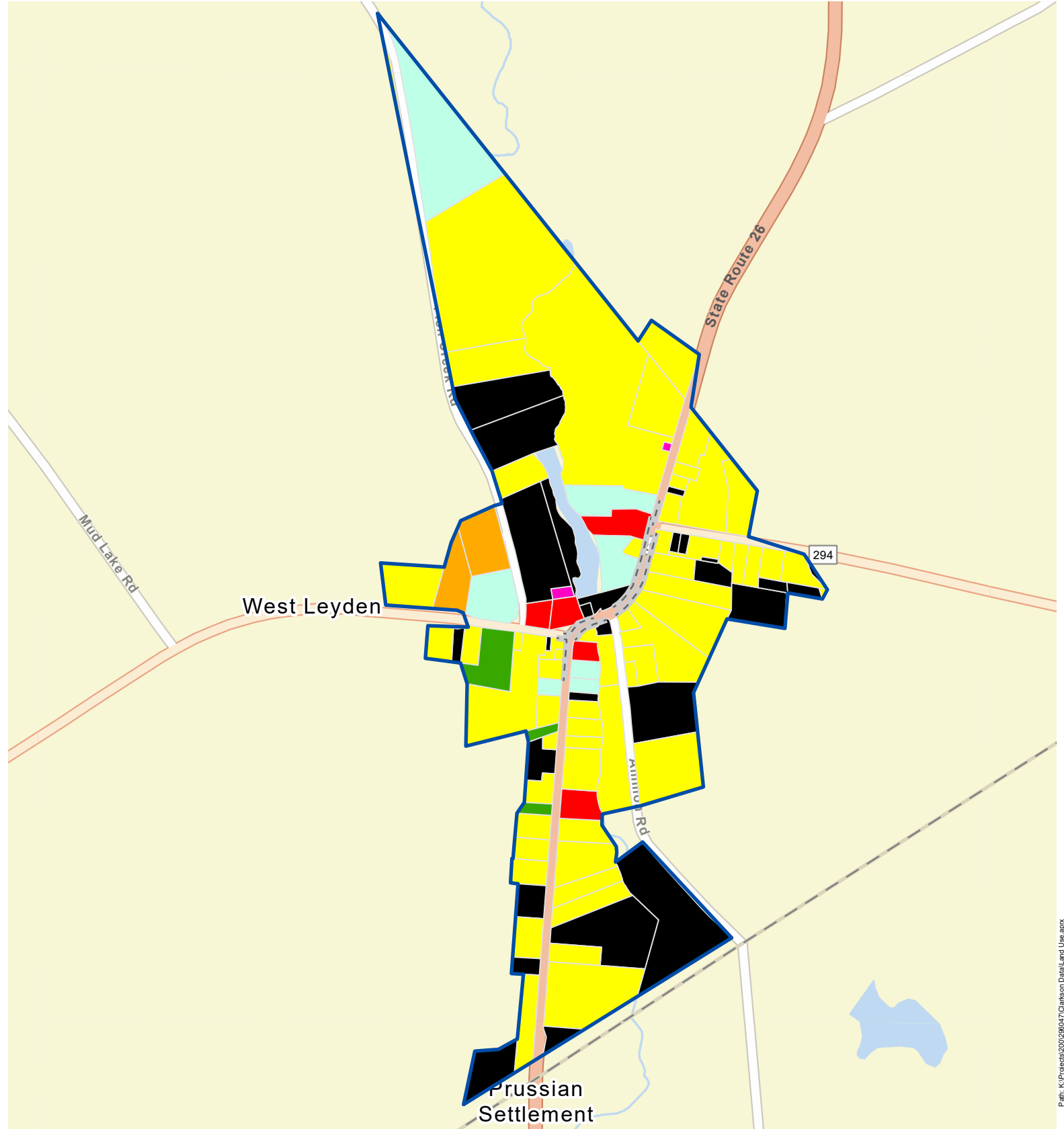


**Lewis County**  
 Lewis County Complete Streets Plan  
**Village of Castorland**  
**Land Use**

Lewis County September 2023 New York

Figure  
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N  
 West Leyden Sidewalks  
 West Leyden Boundary  
 Agricultural  
 Residential  
 Vacant  
 Commercial  
 Recreation & Entertainment  
 Community Services  
 Public Services

0 0.06 0.13 0.25 Miles

Sources: Basemap - World Street Map

**Lewis County**  
 Lewis County Complete Streets Plan  
**Hamlet of West Leyden**  
**Land Use**  
 Lewis County September 2023 New York

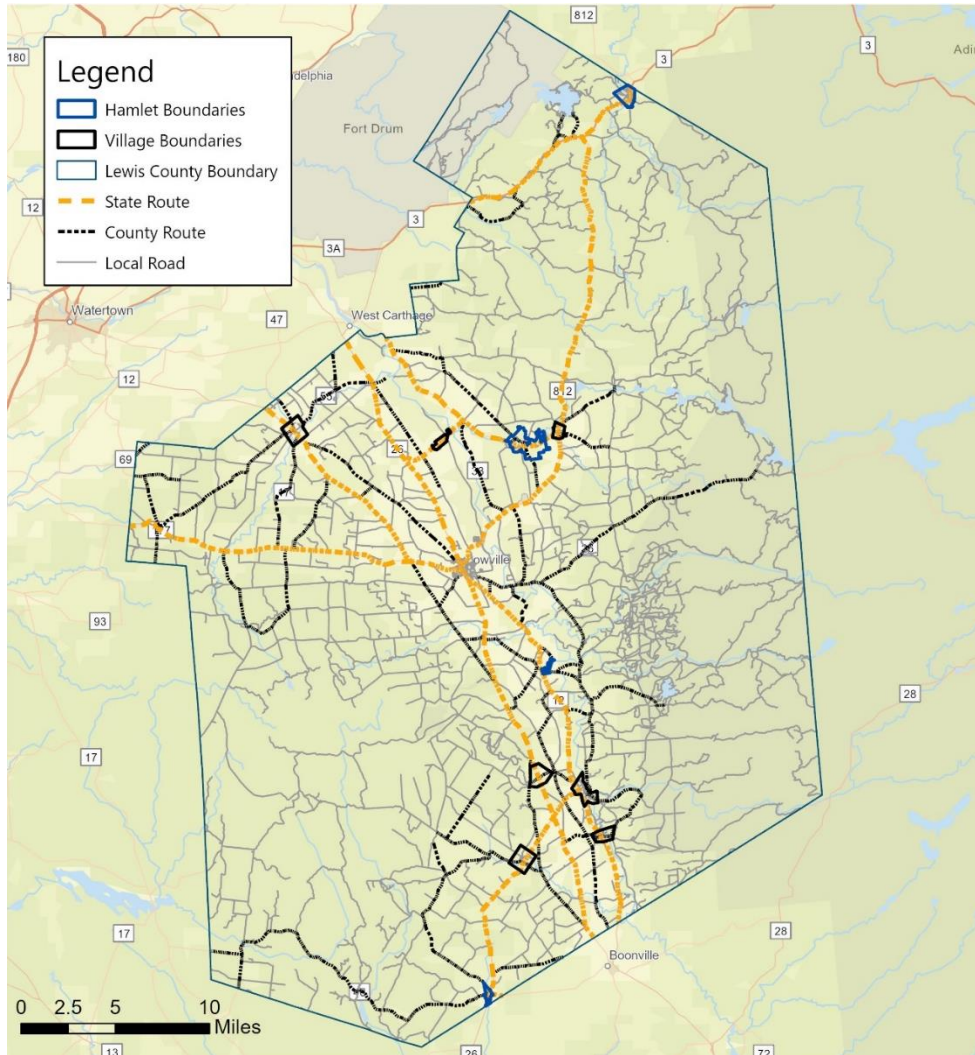
Figure  
**3.24**

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## VEHICLE CIRCULATION

Lewis County roads connect its municipalities, as well as to other major population centers in the region, such as north to Watertown and Fort Drum and south towards Rome and Utica. Major State Routes through the County include State Routes 12, 12D, 26, 177, and 812.



Map Figure 3.25 - Major Routes Map (See Appendix For full map)

### Issues

Lewis County roads need to address the needs of its residents, workers, and businesses, which means that there are several priority areas that need to be considered when assessing and planning for the future of the County roadway system.

**Congestion** – Any roadway project must address congestion associated with peak traffic and future delays

**Transportation and Land Use** – Transportation projects should recognize changes in land use patterns to respond to growth and have the flexibility to respond to those changing needs as the County demographics continue to change.

**Complete Streets** – Complete Street guidelines should be used for the design of all roads to be agreeable to alternative transportation modes (such as bicycling)

**Safety** – Transportation projects must provide safe streets for all users

**Efficiency** – Projects should deploy techniques and technology that will help existing systems operate rate efficiently without requiring the need for building new capacity.

**Drainage** – Assessments are needed on the impacts of flooding on County roadways and the potential effects of climate change on these conditions

#### *Travel Corridors*

The County has major North-South roadways that account for the majority of inter- and intra-County travel. These roads run through all the Villages and Hamlets, and intersect within the Village of Lowville, making it a key hub for managing traffic issues within the County. These corridors are critical to facilitating daily commuter traffic, therefore when designing improvements for individual roadways it's important to consider the potential impacts on all roadways within the area.

Due to the topography of the County in the Black River Valley, the major travel corridors are generally the North-South travel along State Routes 12 and 26. Average Daily Traffic (ADT) Data from the Villages and Hamlets show that the heaviest traffic flowing through them generally originates from State Routes.<sup>6</sup> The exception to this trend is the Village of Beaver Falls, where State Route 126 has some of the lowest ADT numbers, while the heaviest traffic flows along 2<sup>nd</sup> Road (County Route 8).

Due to State ownership of the heaviest flow roads within the Villages and Hamlets, municipalities will have to work closely with the State Department of Transportation (NYSDOT) so that all roadway improvement projects are in alignment with state standards.

#### *Drainage and Flooding*

Lewis County experiences periodic heavy rain events that damage roads, property, and infrastructure. With climate change fueling more frequent and intense severe weather events, County roadways must be protected using flood mitigation strategies that will lessen the disruption to travel and connectivity within the region in the aftermath of these events. This can be achieved through the identification of roadways with drainage problems that are at risk of flooding and damage during future heavy rain events.

#### *Safety*

Safety is a priority when designing roads for all users, and this Complete Streets Plan provides strategies that balance the different needs of motorists, bicyclists, and pedestrians. Vehicle crash data provided by Clarkson CEM Consulting Group (C3G) provides the ability to identify which

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<sup>6</sup> See appendix for figures 6.1 – 6.10 on Average Daily Traffic

Village or Hamlet roadway may require redesign or further analysis to address unsafe conditions.



Map Figure 3.26 – Vehicle Crash Overview (See appendix for full map)

Most of the crashes within the County took place outside of the Village/Halmet Centers, however, the ones that did were concentrated in Constableville, Turin, and Lyons Falls. These 6 crashes within Village limits account for 5% of all crashes that have occurred within the County.

## CHAPTER 4 – COMPLETE STREET VISION, GOALS, AND DESIGN GUIDE

### VISION

Lewis County takes pride in its small-town culture, pristine landscape, recreational opportunities, rich farming and forestry heritage, and overall quality of life<sup>1</sup>. To enhance these assets, especially the quality of life within the region, the Lewis County Complete Streets Plan aims to promote improved safety conditions for transportation users, improved public health and recreational activities and strengthened economic development opportunities through the implementation of complete streets polices, strategies and goals. The needs of a variety of potential users – such as motorists, pedestrians, bicyclists, seniors and individuals with disabilities – have been taken into account through the provision of enhanced transportation options, while preserving the unique rural characteristics of Lewis County.

### GOALS AND OBJECTIVES

**Goal 1:** Ensure the safety and convenience of all users of the transportation system, not just motorists, are considered. This includes pedestrians, bicyclists, emergency responders, adjacent land users, and freight providers

#### *Objectives*

- \* Complete ‘missing links’ in the sidewalk infrastructure, particularly to schools and other critical destination nodes.
- \* Prioritize bicycle and pedestrian accommodations so that those with low mobility, seniors, children, and low-income populations are able to access shopping, schools and other services

**Goal 2:** Ensure that the Complete Street design solutions align with the context and character of the community

#### *Objectives*

- \* Consider complete streets strategies only where appropriate within the local context – not every road needs sidewalks, crosswalks or bike lanes to accommodate Complete Street concepts
- \* Recognize the need for flexibility to accommodate different types of streets and users

**Goal 3:** Use complete street strategies to create healthier, more active communities

#### *Objectives*

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<sup>1</sup> Lewis County Comprehensive Plan: [Lewis-County-Comprehensive-Plan.pdf \(lewiscountyny.gov\)](#)



- \* Provide an integrated, connected and safe network of pedestrian and bicycle infrastructure to promote increased opportunities for physical activity

**Goal 4:** Promote the use of complete street principles and best practices, and adhere to recognized design standards for all new construction, reconstruction and maintenance projects

*Objectives*

- \* Establish a decision-making framework for future design and development along transportation corridors and intersections
- \* Develop a strategy for both systematic and phased implementation through both public and private improvements

**Goal 5:** Boost the economic development within town centers, villages and hamlets in Lewis County

*Objectives*

- \* Retain and attract residents and businesses by providing multimodal transportation opportunities
- \* Support pedestrian and bicycle friendly improvements to promote more vibrant, attractive and viable communities
- \* Promote the economic well-being of businesses and residents

**Goal 6:** Implement Complete Street improvements that are cost effective

*Objective*

- \* Consider the initial costs and life cycle costs related to Complete Street infrastructure, including costs for maintenance of corridor infrastructure (snow shoveling and sidewalk maintenance)
- \* Consider the tradeoffs and costs of not providing safe pedestrian bicycle accommodations against initial capital costs

**Goal 7:** Increase Lewis County's attractiveness as a destination for recreation opportunities

*Objectives*

- \* Improve the trail linkages between recreational areas and village centers to support tourism and economic development
- \* Strategically place bike accommodations at recreational facilities to promote dedicated bike/pedestrian trails whenever practicable. Improve the safety and signage of designated on road bike routes.



Fish Creek Access Trail - West Turin

## COMPLETE STREET ALTERNATIVES TOOLKIT AND FACILITY DESIGN GUIDANCE

There are many potential strategies that Lewis County can utilize to help increase pedestrian and bicycle mobility to aid in the contribution to creating Complete Streets. This section provides the County with a “toolkit” of widely used transportation tactics to address pedestrian and bicycle needs. This toolkit was used to consider potential design, program, and policy solutions for the County, and ultimately create the set of facility recommendations in the following section.

Each of the strategies addressed in the alternatives toolkit presented on the following pages vary in terms of intensity of implementation, and thus cost. Given that the County has a limited budget, and tradeoffs must occur between implementing different transportation and streetscape design strategies, it is important to consider the capital resources required to implement each of the recommended solutions.

In addition, each strategy has varying impacts to different user groups in the County. Each user group will have different expectations and each strategy will benefit some user groups, while potentially being detrimental to others. It is important to consider these tradeoffs when selecting the appropriate solutions for the County.

It is also crucial to consider the environmental impacts of each transportation solution presented. Given the increasing impact that climate change has on the built environment, it is more important than ever to analyze how any new facility, program, or policy will affect the sustainability and resiliency of the community. The toolkit contains information on the potential negative or positive sustainability and resiliency consequences of implementing each strategy.

It is important to carefully consider all of these attributes before selecting the appropriate solution for the County active transportation challenges. The toolkit presents this information in tabular format that makes it easy to compare the varying impacts each strategy may have on the built environment and the many user groups it may influence. The following subsections describe the potential cost, user group, and sustainability impacts presented in the alternatives toolkit developed for the County.

### User Impacts

As mentioned previously, the main user groups in the County will have varying needs and preferences for transportation facilities. A positive change for one user group may translate into a detrimental result for another. For instance, a refuge island, may improve safety for pedestrians or motorists, but may have a negative impact on bicyclists. The different user groups considered for each alternative include: pedestrians, bicyclists, motorists, neighbors, emergency vehicles, and municipal Department of Public Works. The different user preferences for active transportation alternatives are listed below:

### Pedestrian Preferences

- \* Buffering from moving vehicles
- \* Aesthetically pleasing surroundings and amenities
- \* Safe environment
- \* Shorter walking distances
- \* Access to community facilities and destinations



### Bicyclist Preferences

- \* Well-connected network of bicycling facilities
- \* Safe travel routes
- \* Direct routes
- \* Access to community facilities
- \* Access to bicycle parking facilities



### Motorist Preferences

- \* Minimal traffic delay and conflicts
- \* Parking and access to businesses and community facilities
- \* Consistently designed facilities
- \* Neighbor Preferences

### Neighborhood connectivity

- \* Neighborhood character
- \* To feel safe and secure
- \* Access to property, businesses, and community facilities



### Emergency Vehicle Operator Preferences

- \* Space to operate and maneuver vehicle
- \* Minimal conflicts and delays
- \* Safe travel routes
- \* Unobstructed access

### Local Department of Public Works (DPW) Preferences

- \* Local DPW's typically operate at the direction of their respective municipal elected officials and have the following responsibilities with respect to the maintenance and operations of all public works within their municipal boundaries, including the care, control, supervision, alterations, maintenance, repairs, and regulations of all matters related to:

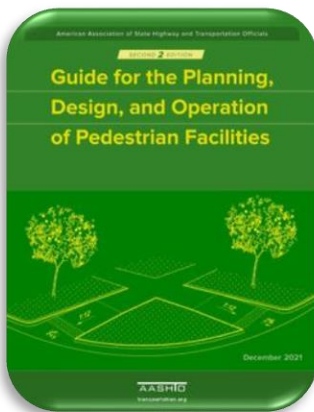
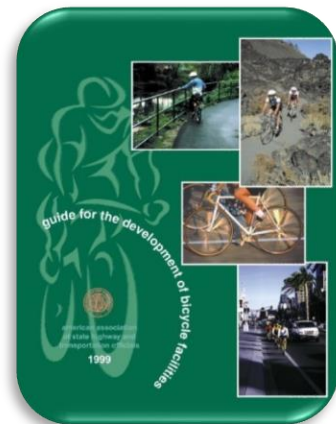
- Local streets including paving, regrading, sweeping, sprinkling or oiling, snow and dirt removal
- Sidewalks, curbs, accessible ramps, and gutters including paving, regrading, cleaning of ice and snow (if not completed by property owner)
- Municipal utilities including sewer system, gas, water, electric, and associated utility poles
- Maintenance of local parks, squares and other public spaces
- Downtown lighting, signage, and landscape planting systems

## FACILITY DESIGN GUIDANCE

The design guidelines contained in this section are intended to support the recommendations presented in this Complete Streets Plan, and to serve as an ongoing reference for Lewis County municipalities. They are not intended as comprehensive design standards. Rather, they reference existing design standards and provide clarification or supplemental information as necessary. There are several primary sources of bicycle and pedestrian facility design information that were used to develop the guidelines provided in this section and that should be referred to for additional guidance.

### *American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities*

This document is intended to present information on how to accommodate bicycle travel and operations in most riding environments. It is the design guidance upon which most state and local design guidelines are based. In many jurisdictions this document is considered to set the minimum values for bicycle design.



### *AASHTO Guide for the Planning, Design, and Operations of Pedestrian Facilities*

This document is intended to present information on how to accommodate pedestrian travel and operations in (primarily) roadway environments. It is the design guidance upon which most state and local design guidelines are based. In many jurisdictions this document is considered to set the minimum values for pedestrian design.

### *NY Department of Transportation Highway Design Manual Chapter 17 Bicycle Facilities Design*

This document provides guidance for bicycle facilities that are included in Department of Transportation designs. Because of the scope of this document, its design criteria, while they are

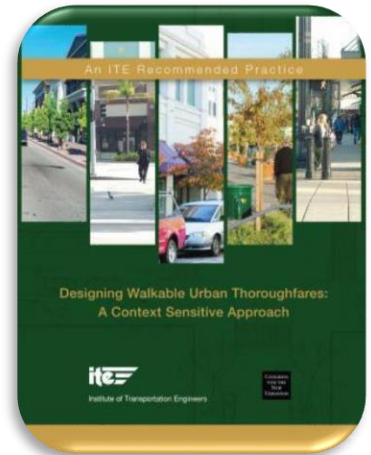
relevant to local projects, are not required to be met for local projects unless Federal Transportation Funds are used.

#### *NY Department of Transportation Highway Design Manual Chapter 18 Pedestrian Facilities Design*

This document provides guidance for pedestrian facilities that are included in Department of Transportation designs. Because of the scope of this document, its design criteria, while they are relevant to local projects, are not required to be met for local projects unless Federal Transportation Funds are used.

#### *Institute of Transportation Engineers Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*

This document's development was supported by the Federal Highway Administration (FHWA). Designing Walkable Thoroughfares helps designers understand the flexibility for roadway design that is inherent in the AASHTO guide A Policy on the Geometric Design of Highways and Streets with a focus on balancing the needs of all users.



#### *Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD)*

The MUTCD is the national standard for signing, markings, signals, and other traffic control devices. New York State has also adopted a supplement to the MUTCD that provides New York specific standards.

#### *Federal Highway Administration Separated Bike Lane Planning and Design Guidance*

Outlines planning considerations for separated bike lanes (also sometimes called "cycle tracks" or "protected bike lanes") and provides a menu of design options covering typical one-way and two-way scenarios. To encourage continued development and refinement of techniques, the guide identifies specific data elements to collect before and after implementation to enable future analysis across facilities in different communities. It identifies potential future research, highlights the importance of ongoing peer exchange and capacity building, and emphasizes the need to create holistic ways to evaluate the performance of a separated bike lane.

The following pages contain design best practices and guidelines for the following facility types:

- \* Bike lanes
- \* Multi-use paved shoulders
- \* Shared lane markings
- \* Bike routes
- \* Bike boulevards
- \* Bike parking facilities
- \* Sidewalks
- \* Shared use paths
- \* Curb ramps

- \* Midblock crossings
- \* Complete Streets
- \* Speed Limits
- \* Wayfinding

Lewis County should utilize the information contained in this section when developing design concepts for the recommendations included in this Complete Streets Plan to ensure that the facilities implemented are consistent with national standards.

### **Bike Lanes**

A bike lane is a portion of the roadway that has been designated for preferential or exclusive use by bicyclists by striping, signing and pavement markings (the MUTCD does not require signs, but in New York the legal definition of a bike lane requires signs). Bike lanes are intended for one-way travel, usually in the same direction as the adjacent travel lane. Bike lanes should be designed for the operation of bicycles as vehicles, encouraging bicyclists and motorists to interact in a safe, legal manner. Bike lanes should be designated with bike lane markings, arrows, and bike lane signs.

#### *Width*

The AASHTO Guide for the Development of Bicycle Facilities provides guidance on the width of bike lanes. The following points summarize this guidance:

- \* Under most circumstances the minimum recommended width for bike lanes is 5 feet;
- \* For roadways with no curb and gutter and no on-street parking, the minimum width of a bike lane is 4 feet;
- \* Along sections of roadway with curb and gutter, a usable width of 4 feet measured from the longitudinal joint to the center of the bike lane line is recommended (this means that 4 feet of pavement is sufficient when coupled with the gutter pan; it is also conceivable to interpret the guidance as meaning that even narrower pavement can be used as long as a total of 5 feet of ride-able surface is maintained);

- \* Additional width is desirable on higher speed roadways.



Conventional Bike Lane

possible in order to limit the speed of cars in the right turn lane. Fast moving traffic on both sides can be uncomfortable for bicyclists (NACTO). Section 4.8 of the AASHTO Guide for the Development of Bicycle Facilities (2012) provides numerous graphics illustrating bike lane markings at intersections. Bike lanes should be continuous through intersections. For example, if a bike lane is provided to the intersection, a receiving bike lane should be provided on the departure side of the intersection.

### Intersections

At intersections, bike lanes must be designed to encourage legal movements at the intersection; this includes proper positioning of bicyclists and motorists. Bike lane stripes should be dashed on the approaches to intersections without right turn lanes. Where there are right-turn lanes, through bike lanes must be placed to the left of the right turn lane. Right-turn only lanes should be as short as

### Buffered Bike Lanes

A buffered bike lane is a bike lane that is separated from adjacent through lanes by a striped out buffer area. In some locations it may be desirable to use less than the full space available for a bike lane. Such locations include sections of roadway where a wide bike lane might be perceived as on-street parking or another travel lane. In these locations a buffered bike lane may be considered. A buffered bike lane may also be considered where a bike lane of six or more feet is being provided to meet a minimum level of accommodation. At mid-block locations the buffered bike lane is separated from the travel lanes by a chevroned buffer. The width of the buffer will vary depending upon such conditions as motor vehicle speed, percent heavy vehicles, roadway cross slopes, and desired level of accommodation of bicycles. At intersections, buffered bike lanes must be striped to allow for right turning motorists. Typically this is done by eliminating the buffer on the approach to intersections and striping the area as one would a regular bike lane.



Buffered Bike Lane

## Multi-Use Paved Shoulders

In terms of Bicycle Level of Service, simply providing delineated space that can be used by bicyclists is secondary to designating bike lanes. Roads with paved shoulders where no other active transportation facilities exist are shared by more than one type of user (bicyclists, pedestrians, in-line skaters and vehicles for emergency use). Design of new or retrofit of existing paved shoulders should comply with AASHTO standards; “on uncurbed cross sections with no vertical obstructions immediately adjacent to the roadway, paved shoulders should be at least 4 ft. wide to accommodate bicycle traffic. Shoulder width of 5 ft. is recommended from the face of a guardrail, curb, or other roadside barrier to provide additional operating width...” Areas with expected higher bicycle use should have increased shoulder widths as necessary in addition to areas where motor vehicle speeds exceed 50 mph or are used by trucks and buses.

### *Signing Roadways with Paved Shoulders*

Municipalities may want to sign some roadways with paved shoulders to either guide bicyclists to destination or to alert motorists to the presence of bicyclists. The sign would be supplemental



Bicycle Warning Sign  
(W11-1)

to simply provide space for bicyclists within the shoulder. If the subject roadway is along a designated bicycle route, then bike route guidance signs can be used to alert bicyclists to the presence of the interregional or state route. If Municipalities, or others based on the jurisdiction of the road, determines it is appropriate to warn motorists of the potential presence of bicyclists along a section of roadway with paved shoulders, then special signing, if approved by NYSDOT, would be required. The Bicycle Warning sign (W11-1) alone could be used as it is to alert road users to locations

where unexpected entries into the roadway by bicyclists could be expected. The NYSDOT MUTCD section 1A.03 Design of Traffic Control Devices states:

### **Option 03A**

Highway agencies may develop word message signs to notify road users of special regulations or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, new word message signs may be used without the need for experimentation.

Any change to a word message sign that can be considered more than a minor modification see next Option) shall be approved by the New York State Department of Transportation before it is implemented.



## Option 03C

With the exception of symbols and colors, minor modifications in the specific design elements of a device may be made provided the essential appearance characteristics are preserved. Such minor revisions may include making a word plural or singular; changing the hours listed on a sign; word deviations such as “road” for “street” on a sign; etc. Although the standard design of symbol signs cannot be modified, it may be appropriate to change the orientation of the symbol to better reflect the direction of travel.

### Bike Routes

Bike routes are not an actual facility type. A bike route is a designation of a facility, or collection of facilities, that links origins and destinations that have been improved for, or are considered preferable for, bicycle travel. Bike routes include a system of route signs that provide at least the following basic information: destination of the route, distance to the route’s destination, and direction of the route.



Bike routes can be designated in two ways: General Routes and Number Routes. General Routes are links tying specific origins to specific destinations. Number Routes form a network of bike routes that do not necessarily connect specific destinations, but serve as general travel routes through an area. General Routes connect users to destinations within a community. Typical destinations include the following:

- \* Attraction Areas (i.e. libraries, parks, etc.)
- \* Neighborhood Areas (i.e. historic neighborhoods, etc.)
- \* Trail Networks or Trailheads.

Bicycle Guide (the D11 series in the MUTCD) states that signs may be provided along designated bicycle routes to inform bicycle route direction changes and to confirm route direction, distance, and destination. Typical signs that convey the basic way-finding information for general routes can be designed for Lewis County. The MUTCD provides a number of different types of signs that can be used to provide guidance along bike routes. Some communities implement bike routes with unique designations (numbers or names). These routes should be designated using Bike Route signs. Shared use paths have design criteria for many of the same parameters as roadways. These include widths, horizontal clearances, design speed, horizontal alignment, stopping sight distance, cross slopes, grades, vertical clearance, drainage, and lighting. The AASHTO Guide for the Development of Bicycle Facilities should be consulted for design values.

## Bike Boulevards

A bike boulevard is a local street or series of contiguous street segments that have been modified to provide enhanced accommodation as a through street for bicyclists while discouraging through automobile travel. Bike boulevards usually make use of low volume, very low speed local streets. Often, streets are made more accommodating for bicyclists by significantly keeping motorists' speeds and volumes low. Often bike boulevards include bicycle friendly traffic calming treatments (speed cushions, mini traffic circles, chicanes with bike bypass lanes, etc.) to reduce speeds of motor vehicles along the roadway. While local motor vehicle traffic is maintained along the bike boulevard, motor vehicle traffic diverters may be installed at intersections to prevent through motor vehicle travel while having bypasses for bicyclists to continue on along the bike boulevard. Bike boulevards can be facilitated by connecting the ends of cul-de-sac roadways with shared use paths. At intersections the bicycle boulevard should be given priority over side streets. Because of low motor vehicle speeds and volumes, bike lane markings are often not necessary along bike boulevards. Shared Lane Marking (SLM) may be used along bike boulevards. Alternatively, larger than normal bike symbols supplemented with the text BIKE BLVD have been used to designate bike boulevards. In some communities, bike boulevard networks begin as a "one-off" system of bike ways. When a primary arterial roadway cannot be improved to a point where most cyclists feels safe and comfortable using the facility, a parallel roadway - often one street off the main road (or "one-off") - may be improved with bicycle facilities and traffic calming features to provide an enhanced cycling street. By paralleling the main road, the "oneoff" network provides access to the businesses along the arterial using a pleasant cycling roadway. A "oneoff" roadway can be improved in stages: initially with signage and shared lane markings and then into a bike boulevard by instituting more substantial features such as traffic calming and diverters. Since bike boulevards typically serve as bike routes, wayfinding signage should be provided. This signage should include destination, direction, and distance (or travel time) information to attractors. Wayfinding adds to the utility of bike boulevards because it educates cyclists that there are safe, comfortable ways of accessing areas by bike.

## Bike Parking Facilities

It is recommended that bicycle parking is provided at major destinations throughout Lewis County. Bicycle parking, at its most basic level, encourages people to ride. Bicycle parking should be provided on a firm stable surface with convenient connections that are ADA accessible. Well designed and properly executed bicycle parking can provide the benefits below.

- \* Bicycle parking not only invites cyclists in, but shows the business values sustainability, which is an increasingly important factor in the decisions of consumers.



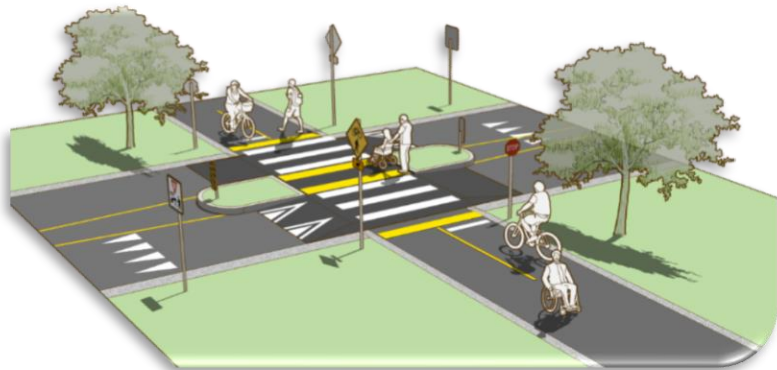
- \* Good bike parking benefits the disabled. By providing adequate, well-planned bike parking, business owners or property managers can ensure that hand rails and ramps intended for accessibility purposes are not clogged with bicycles looking for a bike parking spot.
- \* Pedestrians also benefit when orderly and aesthetic bike parking is provided. Not only does it improve the appearance of the area, it ensures that sidewalks and benches intended for pedestrians are not cluttered by bikes that do not have a designated parking space.
- \* In this way, bike parking can also prevent damage to other street furniture like garbage cans, posts, benches and trees.
- \* Covered shelters: provide protection from weather, promoting year round use.

Bike Parking can also act as public art in the County, contributing community character and municipal branding.

Stairways can include a channel to guide a variety of bicycle tires where the stairs do not turn and are relatively short. This can work when a handrail is down the middle of a staircase allowing room for the channel to be on the edge.

### Shared Use Paths

Shared use paths are facilities separated from motor vehicle traffic by an open space or barrier and either within the highway right-of-way or an independent right-of-way. They are open to many different user types and are often used by bicyclists, pedestrians, skaters, wheelchair users, joggers, and other non-



motorized users. Motor vehicles are not allowed on shared use paths except for maintenance and emergency vehicles in specific circumstances. Most shared use paths are two-way facilities. Shared use paths have design criteria for many of the same parameters as roadways. These include widths, horizontal clearances, design speed, horizontal alignment, stopping sight distance, cross slopes, grades, vertical clearance, drainage, and lighting. The AASHTO Guide for the Development of Bicycle Facilities should be consulted for design values. The MUTCD provides the standards for signing, striping, and markings shared use paths. In most cases, the signs and markings use on shared use paths are smaller versions of those used on roadways. Many shared use paths are separated from the roadway network. Consequently, street name signs should be provided at intersecting roadways to help users orient themselves to the roadway network. Wayfinding signs should be used on paths and to potential destinations along the path such as locations where users can access water fountains and restrooms. At trailheads

and rest areas, the distance and direction to the next trail head should be posted. Most shared use path projects will be paved. Asphalt and Portland cement concrete are the two most common surfaces for shared use paths. In areas where path use is expected to be primarily recreational, unpaved surfaces may be acceptable for shared use paths. Materials should be chosen to ensure the ADA requirements for a firm, stable, slip resistant surface are met. Even when meeting ADA criteria, some users such as in-line skaters, kick scooters, and skateboarders may be unable to use unpaved shared use paths. The geometric and operational design of shared use paths is quite similar to that of roadways. However, additional considerations such as aesthetics, rest areas, amenities, and personal security are also important to ensure the maximum number of potential users are encouraged to use the path for both utilitarian and recreational purposes. Sometimes local resistance to implementing shared use paths and other trail facilities exists because of perceived potential negative impacts to neighboring communities, usually in terms of property values and crime or vandalism. A valuable resource in discussions of these matters is a summary of national research conducted for a state department of transportation. The studies cited collectively suggest that property values frequently increase following the construction of shared use paths while crime rates are sometimes found to decrease.

### Sidewalks

For the purposes of design, the term sidewalk means a smooth, paved, stable and slip-resistant, exterior pathway intended for pedestrian use along a vehicular way. All sidewalks constructed within the Lewis County should be compliant with the Americans with Disabilities Act (enacted on July 26, 1990 and updated September 15, 2010) and the US Access Board's Public Right-of-Way Accessibility Guidelines (PROWAG). Sidewalks should be provided on both sides of all public roadways.

#### *Sidewalk Width*

The preferred minimum sidewalk width is 5 feet. AASHTO's A Policy on the Geometric Design of Highways and Streets and the AASHTO Guide for the Planning, Design, and Operations of Pedestrian Facilities recommend sidewalks at the back of curb be at least 6 feet wide.

On roadways with curb and gutter, sidewalks should be located six feet from the back of curb when feasible. This minimizes the encroachment of curb ramps and driveway cuts into the sidewalk width. On roadways without curb and gutter sidewalks should be separated from the roadway as shown by the following criteria, which are given in a sequence of desirability:

- \* At or near the right-of-way line (ideally, 3 feet of width should be provided behind the sidewalk for access, construction, and maintenance),
- \* Outside of the minimum required roadway clear zone, or
- \* As far from the edge of the driving lane as practical.

Sidewalk alignments, which are set back from the roadway, should taper for alignment closer to the roadway at intersections. This will allow for coordinated placement of crosswalks and stop bars.

### *Sidewalk Slopes*

The maximum cross slope on a sidewalk is 2%. This maximum cross slope must be maintained across driveways and crosswalks. Sidewalks may follow the grade of the adjacent roadway. However, on new structures the grade of the sidewalk cannot exceed 5%. If a grade of more than 5% is required on a new structure, an ADA compliant ramp must be provided.



### **Curb Ramps**

A curb ramp is a ramp that cuts through or is built up to the curb. A blended transition is a relatively flat area where a sidewalk meets a roadway. Curb ramps and blended transitions are primarily used where a sidewalk meets a roadway or driveway at a pedestrian crossing location. Blended transitions include raised pedestrian street crossings, depressed corners, or similar connections between pedestrian access routes at the level of the sidewalk and the level of the pedestrian street crossing that have a grade of 5% or less. Accessibility requirements for blended transitions serve two primary functions. First, they must alert pedestrians that have vision impairments to the fact that they are entering, or exiting, the vehicular area. Second, they must provide an accessible route for those using wheelchairs or other assistive devices. Ideally, a separate ramp should be provided for each crossing of the roadway.

### **Midblock Crossings**



Controlled intersections are the best and most direct place for pedestrians to cross a roadway and are the most common pedestrian crossing locations. Still, more than 70 percent of pedestrian fatalities occur away from controlled intersections, so it is critical to design midblock crossings that both increase drivers' awareness of the crossing and expectation of encountering pedestrians and encourage pedestrians to cross in the designated

location. While drivers may not expect to encounter pedestrians at midblock locations as much as they do at intersections, midblock crossings have fewer conflict points between vehicles and pedestrians. This is an important safety factor to consider in comparison to crossings at intersections. Midblock crossings are different from intersection crossings in three important ways: there are many more potential crossing locations at midblock than at intersections, motorists are less likely to expect pedestrians crossing at midblock, and pedestrians with visual impairments have fewer audible clues for determining the best time to cross. Each of these differences leads to important design considerations for midblock crossings:

- \* **Make the crossing location convenient for pedestrians** - Midblock crossings are provided in locations where crossings at intersections are not available or are inconvenient for pedestrians to use. Midblock crossings must be placed in convenient locations to encourage pedestrians to use them rather than other, more convenient, unmarked midblock locations.
- \* **Make pedestrians aware of the opportunity to cross** - Provide aids for pedestrians with visual impairments to recognize the presence of a midblock crossing and the best opportunities for crossing. Auditory and tactile information should be provided for pedestrians with visual impairments since clues present at an intersection crossing are not always available at a midblock crossing (such as the sound of traffic stopping and starting).
- \* **Make drivers and pedestrians aware of their responsibilities and obligations at the crossing and provide opportunities to meet these responsibilities/obligations** - Use MUTCD guidance to establish a legal crossing. Vehicle approach, pedestrian approach, and traffic control design should provide pedestrians with clear messages about when to cross and drivers about where to yield. Where necessary, a refuge area should be provided for pedestrians to complete the crossing in stages. Traffic control devices can be used to create gaps in traffic for pedestrians to cross.
- \* **Make drivers aware of the crossing as they approach it** - Drivers should be warned of the pedestrian crossing in advance of the crossing location, and the midblock crossing should be highly visible to approaching drivers. Drivers should have clear lines of sight to the crossing so that pedestrians at the crossing are visible. The approach to the crossing should encourage drivers to reduce their speeds prior to the crossing. Drivers should be given plenty of time to recognize the presence of a pedestrian and stop in advance of the crossing.

It is important to note that midblock crossings may not be appropriate in all locations. This type of facility is best suited where there are long distances between intersections, a high level of pedestrian activity (e.g. hospitals, schools), and ample sight distance in both directions. Without these conditions, the preferred location of crossings is at an intersection where drivers are more likely to anticipate the presence of pedestrians in the roadway.

## Pedestrian Approach

The pedestrian approach is the area near the crossing where pedestrians wait on the side of the roadway and away from traffic until they are able to cross. It is often part of the sidewalk, if the sidewalk is adjacent to the curb line, or an extension or spur of the sidewalk that provides a path from the sidewalk to the crossing, if the sidewalk is not immediately adjacent to the curb. The pedestrian approach design should accomplish the following:



- \* Encourage pedestrians to cross at the marked crossing. The approach design should discourage pedestrians from crossing away from the marked crossing. The path to the crossing should be as direct and easy to navigate as possible.
- \* Keep pedestrians visible to approaching drivers and oncoming vehicles visible to pedestrians. Pedestrian furniture, traffic control devices, planters, and other objects should be located so they do not block pedestrians from the sight of approaching drivers. Also, on-street parking should be restricted near the crossing so that parked vehicles do not limit sight lines.
- \* In areas with high volumes of pedestrians, there should be sufficient space for pedestrians to queue as they wait for an appropriate time to cross. Pedestrian storage should be designed to prevent crowds of pedestrians from spilling onto the roadway. Pedestrian storage area design can be especially important at bus stops, and care should be taken so that children can wait a safe distance from the roadway while waiting for a school bus.
- \* Midblock curb extensions are a common and effective treatment at midblock locations and have many benefits. Make pedestrians, especially those with visual impairments, aware of the crossing location. In complex pedestrian environments, wayfinding signs may be appropriate to guide people to their desired destination. Auditory and tactile cues can be provided with traffic control devices adjacent to and in the sidewalk to direct pedestrians toward the crossing.
- \* Direct pedestrians to the proper location to activate a pedestrian signal (if present) and wait for an appropriate time to cross. Pedestrian-activated traffic control devices should

be accessible to pedestrians with visual impairments and those using wheelchairs, scooters, and walkers. The approach design should make clear where pedestrians should stand while waiting to cross.

As noted in the discussion about locating a midblock crossing, care should be taken to avoid locations where horizontal or vertical alignment of the roadway limit drivers' sight distance, view of the pedestrian approach to the crossing, or view of the crossing itself. Consideration should be given to how trees, shrubs, poles, signs, and other objects along the roadside might limit a driver's view of the crossing. On-street parking should be prohibited near the crossing using either signs and markings or physical barriers such as a curb extension, since a pedestrian who steps out into the road between parked cars can be blocked from the view of oncoming drivers. Signing and markings on and along the motor vehicle approach to a midblock crossing should be designed in such a way as to make drivers aware of the crossing in time to notice and react to the presence of a pedestrian, and to enhance the visibility of the crossing. Advanced warning signs should indicate any special traffic control used at the pedestrian crossing. Refer to the AASHTO Guide for the Development of Bicycle Facilities for examples of midblock control treatments for shared use paths. Traffic calming devices and other measures to prevent high vehicle speeds should be considered along routes with midblock pedestrian crossings. More than 80% of pedestrians die when struck by vehicles traveling at greater than 40 mph versus less than 10% when cars are traveling at 20 mph or slower. In addition, vehicles traveling at lower speeds require less distance to come to a complete stop when braking.

### Motorist Approach

As noted in the discussion about locating a midblock crossing, care should be taken to avoid locations where horizontal or vertical alignment of the roadway limit drivers' sight distance, view of the pedestrian approach to the crossing, or view of the crossing itself. Consideration should be given to how trees, shrubs, poles, signs, and other objects along the roadside might limit a driver's view of the crossing. On-street parking should be prohibited near the crossing using either signs and markings or physical barriers such as a curb extension, since a pedestrian who steps out into the road between parked cars can be blocked from the view of oncoming drivers. Signing and markings on and along the motor vehicle approach to a midblock crossing should be designed in such a way as to make drivers aware of the crossing in time to notice and react to the presence of a pedestrian, and to enhance the visibility of the crossing. Advanced warning signs should indicate any special traffic control used at the pedestrian crossing. Refer to the AASHTO Guide for the Development of Bicycle Facilities for examples of midblock control treatments for shared use paths. Traffic calming devices and other measures to prevent high vehicle speeds should be considered along routes with midblock pedestrian crossings. More than 80% of pedestrians die when struck by vehicles traveling at greater than 40 mph versus less than 10% when cars are traveling at 20 mph or slower. In addition, vehicles traveling at lower speeds require less distance to come to a complete stop when braking.



## Shared Lane Markings (Sharrows)



In some cases, traffic lanes are too narrow to be shared side by side by bicyclists and passing motorists. Where parking is present, bicyclists wishing to stay out of the way of motorists often ride too close to parked cars and risk being struck by a suddenly opened car door (being “doored”). Where no parking is present bicyclists wishing to stay out of the way of motorists often ride too close to the roadway edge, where they run the risks of being run off the road, being clipped by motorists who do not see them off to the side or misjudge passing clearance, or encountering drainage structures, poor pavement, debris, and other hazards.

Riding further to the left avoids these problems, and is legally permitted where needed for safety (Consolidated Laws of New York, Vehicles and Traffic, § 1234 (a)). However, this practice can run counter to motorist expectations. A Shared Lane Marking (SLM) sometimes called a “Sharrow”, is a pavement symbol that indicates it is legal and appropriate for bicyclists to ride away from the right hand edge of the roadway, and cues motorists to pass with sufficient clearance. While Sharrows are an accepted approach to bicycle pavement markings and have a role to play, they are not the preferred method to accommodate bicycle traffic and should only be used as a cycling facility in the situations indicated here:

- \* Due to the insertion or existence of a turn lane or a pinch point in a road, a dedicated bike lane must disappear and cyclists must merge with drivers; and
- \* On narrow, slow streets to alert drivers that cyclists are expected.
- \* Research suggests that SLMs:
- \* Alert motorists to the lateral location bicyclists are likely to occupy within the traveled way,
- \* Encourage safe passing of bicyclists by motorists,
- \* Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,
- \* Reduce the incidence of wrong-way bicycling, and
- \* Where on-street parking exists, to assist bicyclists with lateral positioning in a shared lane with on-street parallel parking to reduce the chances of a bicyclist impacting the open door of a parked vehicle.

SLMs are not to be used on shoulders or in designated bike lanes. MUTCD guidance suggests SLMs not be placed on roadways that have a speed limit above 35 mph.

SLMs encourage good lane positioning by bicyclists, and discourage them from riding too close to the pavement edge, curb, or parked cars. Riding away from the road edge allows bicyclists to avoid road edge hazards like drainage structures, poor pavement, and debris. It also places the bicyclist more directly in the motorist's field of vision which, along with proper SLM treatments, encourages the safe passing of bicyclists by motorists. According to the NYSDOT policy:

- \* SLMs should only be used to indicate the presence of a narrow lane; a narrow lane is a lane that is less than 14' wide... In a narrow lane, motorists and bicyclists must travel one after the other rather than side by side, and a motorist must leave the lane to safely pass the bicyclist.
- \* SLMs are sometimes used at the ends of bike lanes or shoulders to inform motorists that bicyclists no longer have a separate space and will be sharing the main travel lane.
- \* SLMs should be installed strategically and judiciously to ensure that their value is not reduced by overuse.

When used, SLMs should be placed after each intersection and then periodically spaced no more than 250 feet between markings. The previously referenced NYSDOT Shared Lane Marking (SLM) Policy includes a Narrow Lane sign assembly. It is a Bicycle Warning sign (W11-1) and an "In Lane" plaque (NYW5-32P). When used, the Narrow Lane assembly should be placed with the first SLM, then repeated as deemed appropriate within the section. It is neither necessary nor desirable to supplement every SLM with a sign assembly.

### Street Trees

The addition of street trees is a valuable asset to any city streetscape and is a key piece in improving walkability and urban vitality. Street trees go beyond being visually appealing and defining a space, and provide the following positive attribute to any city urbanscape:

- \* They protect sidewalks – mature trees form a barrier between vehicles and pedestrians walking on sidewalks;
- \* They reduce crashes;
- \* They draw people in – people like spaces that are well defined and have edges;
- \* They absorb stormwater – they assist in avoiding combined sewer and stormwater system overflows and flooding;
- \* They absorb UV rays and pollutants – especially airborne carbon dioxide emitted from adjacent vehicles;
- \* They improve property values;
- \* They improve retail viability; and
- \* They improve public health.

It is recommended that street trees be planted citywide wherever possible. Consider modifying City codes to require new development and streetscape improvement projects to include street trees and ensure that sufficient funding is allocated for tree plantings and maintenance.

## Speed Limits

On August 12, 2022, Governor Hochul signed Legislation (A.1007-A/S.2021-A) authorizing municipalities to reduce speed limits to 25 miles per hour. By reducing the lowest allowable municipal speed limit from 30 to 25 miles per hour, the new law aims to enhance street safety and reduce traffic-related injuries and fatalities. Lewis County municipalities may benefit from reducing select street speed limits to 25 miles per hour, particularly where there is a concentration of pedestrian and bicycle crashes. When considering this transition, a cost analysis of replacing existing speed limit signage versus enforcing the speed limit should be conducted.

## Wayfinding

Lewis County incorporated provisions for wayfinding signage in its 2009 Comprehensive Plan. An important component of safe Complete Streets and tourism is a robust wayfinding signage program. All Complete Street retrofit projects should give consideration to signage and other wayfinding amenities during their respective planning and design phases.

## OUTREACH & EDUCATION



A successful Complete Street network allows users to safely, appropriately and frequently utilize the roadway and its amenities. To assist in creating an effective, safe bicycle and pedestrian network, outreach and education will be necessary to promote multi-modal transportation options and to inform residents and stakeholders of the appropriate manner to operate within the local municipality's transportation facilities. Educating roadway users (bicyclists, pedestrians and motorists) about the rules of the road and safe bicycling and walking behavior is

essential, while at the same time, encouraging more people to get outside and walk and ride their bikes. The goals of the outreach and education recommendations in this section are to increase mobility options while improving safe and appropriate behavior by bicyclists, motorists, and pedestrians. A true Complete Street will attract users of different skill levels and ages, as well as provide opportunities for interaction with motorists and pedestrians. Education and outreach programs must consider all of these different user groups.

The 1999 version of AASHTO's Guide for the Development of Bicycle Facilities recommended that an education plan address the following four groups:

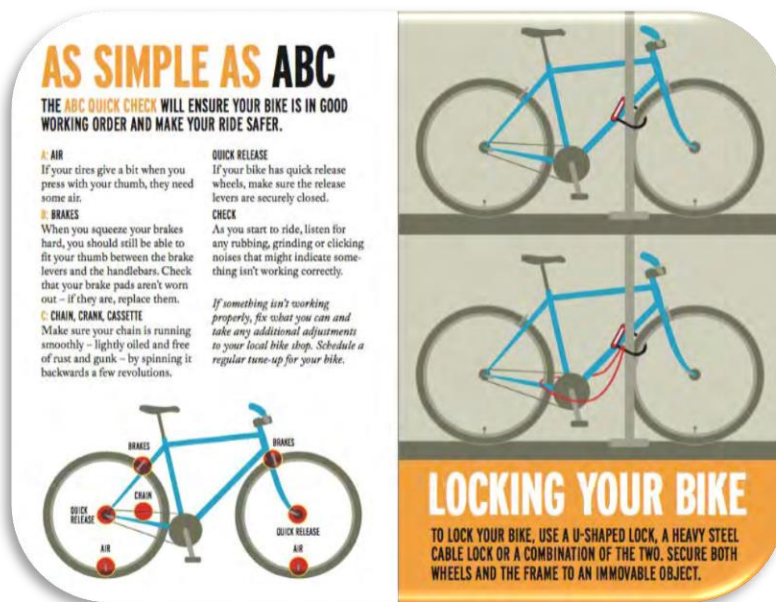
- \* Young bicyclists;
- \* Adult bicyclists;
- \* Parents of young bicyclists; and
- \* Motorists.

This Complete Street Plan recommends that the following groups be addressed as well:

- \* Senior pedestrians and bicyclists;
- \* Low income pedestrians and bicyclists;
- \* Visiting pedestrians and bicyclists; and
- \* School-age pedestrians and bicyclists.

### Informational Material Elements

It is important to make sure each group is addressed in multiple and suitable ways. For example, programs for young bicyclists should use age-appropriate curriculum and age-friendly language to explain concepts and issues. In addition, language barriers should be considered as educational materials are developed. The City should ensure that all parts of Kingston not only geographically, but also demographically, have equal access to active transportation information and facilities.



One of the key things to keep in mind when planning outreach and education efforts is not to “reinvent the wheel”. Many successful programs, campaigns and resources are available. There are many national resources, such as materials provided by FHWA and the League of American Bicyclists. Other communities throughout the U.S. and Canada have also already developed tools that can be adapted and modified for the City.

This adaptation is important in order to effectively localize the educational campaigns. Locally created campaigns that include materials with a local feel have been shown to have a more noticeable influence on motorist and bicyclist behaviors than generic FHWA-produced materials.

Bike and pedestrian education and outreach are vitally important in light of the growing number of distractions that motorists, pedestrians, and bicyclists face while traveling. The use of cell phones while operating a vehicle, bicycling, and driving has often been recognized as just as dangerous of an activity as drunk driving (Strayer et al, 2006). Fortunately, the number of fatal distracted-affected crashes has decreased between 2015-2016, but distraction-affected crashes still account for 9% of total fatal crashes in the US (NHTSA, 2019). Current trends, such as this, are important factors in designing bicycle/pedestrian safety, education and outreach programs. The framework for these recommendations was crafted with all this in mind.

## Develop Partnerships and Leverage Existing Resources

Connect partners to maximize the effectiveness of existing resources, programs, and materials. A list of potential partners has been developed, and their existing programs and partnerships have been inventoried to identify opportunities for new partnerships and enhanced use of resources. Some of these partners are already working together, but there are new partnerships that can be nurtured and developed, and new ways for existing educational materials to be used. Not all of the potential partners are specifically focused on bicycle/pedestrian-related issues, but may still be a useful partner for their ability to communicate with a certain segment of the population. Some examples of education and outreach programs are suggested here:



Consideration to spearhead and facilitate the *Safe Routes to School (SRTS) program* for local municipalities is very important. SRTS is a national program that addresses barriers that inhibit students from walking and biking to school. The County should work with local school districts and consider how the program could be

used to assess barriers at all local schools. Increasing the number of children that can safely walk and bicycle to school as well as protecting the safety of those that already do so requires a holistic approach.

## Create a Public Information Campaign

Continue coordinating an ongoing public information and enforcement campaign regarding safe sharing of the roadways for pedestrians, bicyclists and motorists.

**Pedestrians:** Law enforcement departments can take a leading role in improving public awareness of existing traffic laws and ordinances for motorists (e.g. obeying speed limits, yielding to pedestrians when turning, traffic signal compliance, and obeying drunk-driving laws) and pedestrians (e.g. crossing the street at legal crossings and obeying pedestrian signals). Many local law enforcement agencies have instituted annual pedestrian awareness weeks when they issue tickets to motorists who disregard pedestrian laws and warn pedestrians to follow the laws as well.

**Bicyclists:** A campaign should be designed keeping in mind the League of American Bicyclists' recommendation that communities make connections between the bicycling community and law enforcement. Sporadic enforcement will not result in significant improvements to bicyclist behavior and will likely result in resentment of law enforcement personnel. Those behaviors to be targeted should be determined at the outset of the law enforcement campaign. The following behaviors should be targeted consistently:

- \* Riding at night without lights;

- \* Violating traffic signals;
- \* Riding on sidewalks; and
- \* Riding against traffic on the roadway.

These four behaviors were chosen for two reasons. First, they represent particularly hazardous behaviors which result in many crashes. Secondly, and very importantly, the enforcement of these behaviors is easy to justify to the public. When coupled with (and in fact preceded by) a large-scale education campaign, the public will understand the importance of the campaign and consequently will accept the enforcement activity.

**Drivers:** While it's important that pedestrians and bicyclists behave appropriately and predictably when present in the right-of-way, it is critical that drivers are aware of and follow driving regulations that aim to make the right-of-way a safe space for all users. Therefore, it is recommended that the County follow the USDOT's Safe System Approach, as described in the graphic to the left. Drivers can be encouraged to practice safer driving practices by establishing a public notification system for roadway reconfigurations, utilizing a phased signage strategy at the site of roadway projects, and including additional enforcement measures during and after roadway improvements to ensure drivers are responding appropriately to new signs, marking, signals, etc.



In the planning and implementation of these public information campaigns, and transportation system improvements, it is essential to reflect the unique needs of vulnerable road users. According to the 1998 report, *Safety of Vulnerable Road Users*, by the Organization for Economic Co-operation and Development, "*Vulnerable road users*" is a term applied to those most at risk in traffic. Thus, vulnerable road users are mainly those unprotected by an outside shield, namely pedestrians and two-wheelers, as they sustain a greater risk of injury in any collision against a vehicle and are therefore highly in need of protection against such collisions." Vulnerable road users may include the older adults, children, persons with disabilities, and others.

## Create a Maintenance & Improvement Schedule

Schedule regular maintenance and facility improvements to keep bike lanes and walkways well-marked and free of snow and debris. The availability of bicycle and pedestrian facilities is one of the components that can lead to increased riding and walking in a community. However, facility improvements do not end at construction; facilities also need to be maintained to be useful. Maintenance needs require planning and budgeting. Sample maintenance activities include keeping roadways and bike lanes clean and free of debris, identifying and correcting roadway surface hazards, keeping signs and pavement markings in good condition, maintaining adequate sight distance, and keeping shared-use trails in good condition. Maintenance is an area where planning and attention can provide significant benefits for bicyclists and pedestrians at relatively modest additional cost.

Identification of maintenance needs for active transportation facilities, and institutionalization of good maintenance practices are key elements in providing safe facilities for bicyclists and pedestrians. Winter snow removal and year-round debris removal will be key maintenance concerns in the County. The importance of good planning and initial design cannot be overstated with respect to long-term maintenance needs. It is easier to obtain outside funding for facilities construction than for on-going maintenance, so planning and building correctly at the outset will reduce future maintenance problems and expense. Residents and businesses can be engaged in clean-up days, or help with snow removal.

### *Program Effectiveness Measures*

Program effectiveness measures can be used to determine if the recommended strategies meet their objectives, discover any areas that need change, justify funding, and provide guidance for similar programs. Baseline data is required prior to implementing recommendations. The City could observe the outcomes or contract with a consultant to measure effectiveness on their behalf. Observable outcomes include: number of crashes, injuries, and fatalities; behaviors; number of citations issued; number of people walking or bicycling; knowledge, opinions and attitudes; changes in organizational activity; traffic volumes; and traffic speeds.

The effort to enforce the traffic laws as they relate to bicycle and pedestrian safety should be addressed in an overall, county-wide, coordinated enforcement campaign. Targeted enforcement initiatives result in everyone following the rules of the road.

## CHAPTER 5 – COMPLETE STREET PLAN RECOMMENDATIONS, FUNDING, AND IMPLEMENTATION STRATEGIES

This guide was developed to provide policy and design guidance to governments, consultants, and community groups on the planning and design of the roadway for all users. Policies and principles identified within this guide should be applied in the following situations:

- \* Designing future streets or reconstructing streets in an area experiencing land development
- \* Implementing capital improvement projects, such as the construction/reconstruction of a street, intersection, or bridge.
- \* When resurfacing a street or conducting major work in the street, which may create an opportunity to modify some aspects of the street’s design

The guide should be used early on in the planning and design process to identify the desired dimensions and characteristics of a roadway. Policy recommendations should be used in conjunction with engineering judgment to ensure decisions for roadways are responsive to local conditions and site constraints.

Summarized in this section are specific infrastructure upgrades that are recommended for the eleven participating communities of the Lewis County Complete Streets Plan. These recommendations will be developed upon review of this draft report and discussion with the County. Concepts and renderings will be prepared to illustrate specific right-of-way improvements. Upon review of recommendations and concept designs, the design team will advance detailed plans as part of the final phase of this project.

*RECOMMENDATIONS AND CONCEPT DESIGNS TO BE PREPARED UPON REVIEW OF DRAFT REPORT, ORGANIZED AND ILLUSTRATED BY EACH OF THE ELEVEN PARTICIPATING COMMUNITIES.*