# HAMLET OF PAVILION

# ROADWAY SAFETY AND WALKABILITY AUDIT

NOVEMBER 2021

GTC

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# INTRODUCTION

The Genesee Transportation Council's (GTC) Unified Planning Work Program (UPWP) process provides federal funds for transportation planning activities undertaken by GTC, its member agencies, and on behalf of municipalities throughout the nine-county Genesee-Finger Lakes Region. The UPWP funds concept-level planning, analysis, and design initiatives. Project proposals must be consistent with regional *Long Range Transportation Plan*, a comprehensive plan for maximizing the transportation system's contribution to the social and economic vitality of the region. The LRTP sets the priorities and direction of the region as represented by GTC's goals and objectives, which include increasing the safety of the transportation system for motorized and non-motorized users.

The Town of Pavilion responded to the 2021-2022 call for project partnerships with a proposed Route 63 Corridor Traffic Calming/Safety Hazard Mitigation Study. Per the Town's application, heavy truck traffic attempts to minimize distance traveled by bypassing Interstate freight routes. In the year 2000, the school district expanded their campus, relocating the Middle and High School bus loop. The bus loop exits the campus directly across from the termination of York Road, effectively creating a four-way intersection with one uncontrolled leg. Southeast-bound traffic is reduced from two lanes to one lane at this point. As safe passing areas are limited, trucks and cars perform illegal and risky maneuvers to bypass traffic slowed by hilly terrain.

School buses encounter difficulty accessing Route 63, which affects traffic flow throughout the corridor and impacts egress from other campus parking lots. At other times, speed near the school is a concern of both the school district and nearby private businesses. In February 2020, approximately 50 percent of the Town population signed a public petition gauging community interest in mitigating safety risks along this corridor. The school district, bus drivers, and law enforcement are in agreement regarding the safety hazards that persist along the primary corridors. The Town has identified Route 63 as a commercial corridor in their comprehensive plan. However, current typical truck speeds and traffic conditions deter interest from commercial entities.

While the study was not recommended for funding by the UPWP Development Committee, the committee remained concerned about issues raised in the application. Subsequently, GTC staff offered technical assistance to conduct a roadway safety study jointly with the Town of Pavilion and the New York State Department of Transportation (NYSDOT).

The primary objectives of this document are to present the findings of roadway safety audits conducted for the Town of Pavilion as well as to identify potential physical improvements and policies to support roadway safety for all users within the Hamlet portion of the Town. The planning process described combines data analysis, survey, and stakeholder discussion to strengthen the resultant recommendations. GTC's Long Range Transportation Plan 2045 identifies a suite of recommendations under the health and safety umbrella to ensure that transportation facilities are designed for all users and provide self-enforcing cues to users regarding safe operation within the system. This effort seeks to moderate traffic conditions to improve safety of operations for all transportation system users, with emphasis on school-related activity, and support conditions more favorable to economic development.

## Audit and Study Methodology

GTC Staff developed a methodology to study roadway safety and walkability in the Hamlet that inventories current conditions related to safety along study area corridors and develops an action plan with recommended interventions. The interventions, rooted in promoting walkability, will aim to enhance safety and accessibility for all users of the roadways.

The study area has been expanded from the Town's original UPWP application to include all roadways within the hamlet. Sections of York Road and an extended section of Lake Street (Route 19) are included to examine access to the Elementary School and Pavilion Fire Department/Rec Hall/Babe Ruth League community destinations.

*Figure 1 – Study Area*

The study was completed by performing the following major tasks:

- Assembly of and collaboration with an advisory committee comprised of key stakeholders identified by GTC Staff and the Town of Pavilion. The committee was tasked with reviewing study material and work products before providing comments and proposed revisions. Subsequent steps will describe specific involvement of the committee, which is comprised of the following members:
    - Rob LaPoint – Town Supervisor, Town of Pavilion
    - Mary Kate Hoffman – Superintendent, Pavilion Central Schools
    - Tom Hart – Director of Transportation, Pavilion Central Schools
    - Jeremy McClellan – School Resource Officer, Genesee County Sheriff's Office
    - David Kinney – Resident, Hamlet of Pavilion
    - Heather Bachman – School and Community Policy Coordinator, Genesee Valley Educational Partnership
    - Kayle Stettner – Safety Evaluation Engineer, New York State Department of Transportation
- Convention of an initial meeting followed by a two-stage safety audit process.
    - The entire advisory committee participated in a walking tour of study area corridors to identify and participate in a stakeholder discussion regarding roadway safety issues and opportunities.
    - GTC staff performed a subsequent Pedestrian Environmental Quality Index (PEQI) assessment to pinpoint locations most in need of pedestrian facility improvements.
- Spatial analysis of long-term vehicle collision trends, roadway traffic volumes, and PEQI assessment results.
- Needs assessment incorporating stakeholder input.
- Development of a set of improvement strategies within the framework of an implementation plan in consultation with the NYSDOT Region 4 Traffic and Safety group.
- Re-engaging the advisory committee to vet potential strategies and help the Town prioritize projects for funding and implementation.
- Revision based on committee comments and finalization of the plan document.

# EXISTING CONDITIONS AND NEEDS ASSESSMENT

Per the Federal Highway Administration, Road Safety Audits qualitatively estimate and report on potential road safety issues and identify opportunities for improvements in safety for all road users. Efforts such as these aim to recognize which elements of the road present safety concerns, to what extent, to which roadway users, and under what circumstances. The effort should also pinpoint existing opportunities to eliminate or mitigate the identified safety concerns. The process differs from a traditional safety review in that the review team is independent of the design team, all roadway users are considered, human factors are an essential consideration, and a formal report is generated.

The *Hamlet of Pavilion Roadway Safety and Walkability Audit* assesses roadway safety in a number of ways. Statistical analysis is performed on collision and vehicle volume data, including the level of heavy truck freight volume compared to overall vehicle volume on major routes. Observable issues are identified by summarizing discussion during an Advisory Committee walking tour of the Route 63 corridor. A pedestrian environmental quality assessment is completed by GTC staff to quantify the quality of intersections and roadsides in promoting and active transportation as a viable alternative for certain trips while identifying which street design elements could improve those facilities. These diverse assessments lead directly to recommendations for intervention.

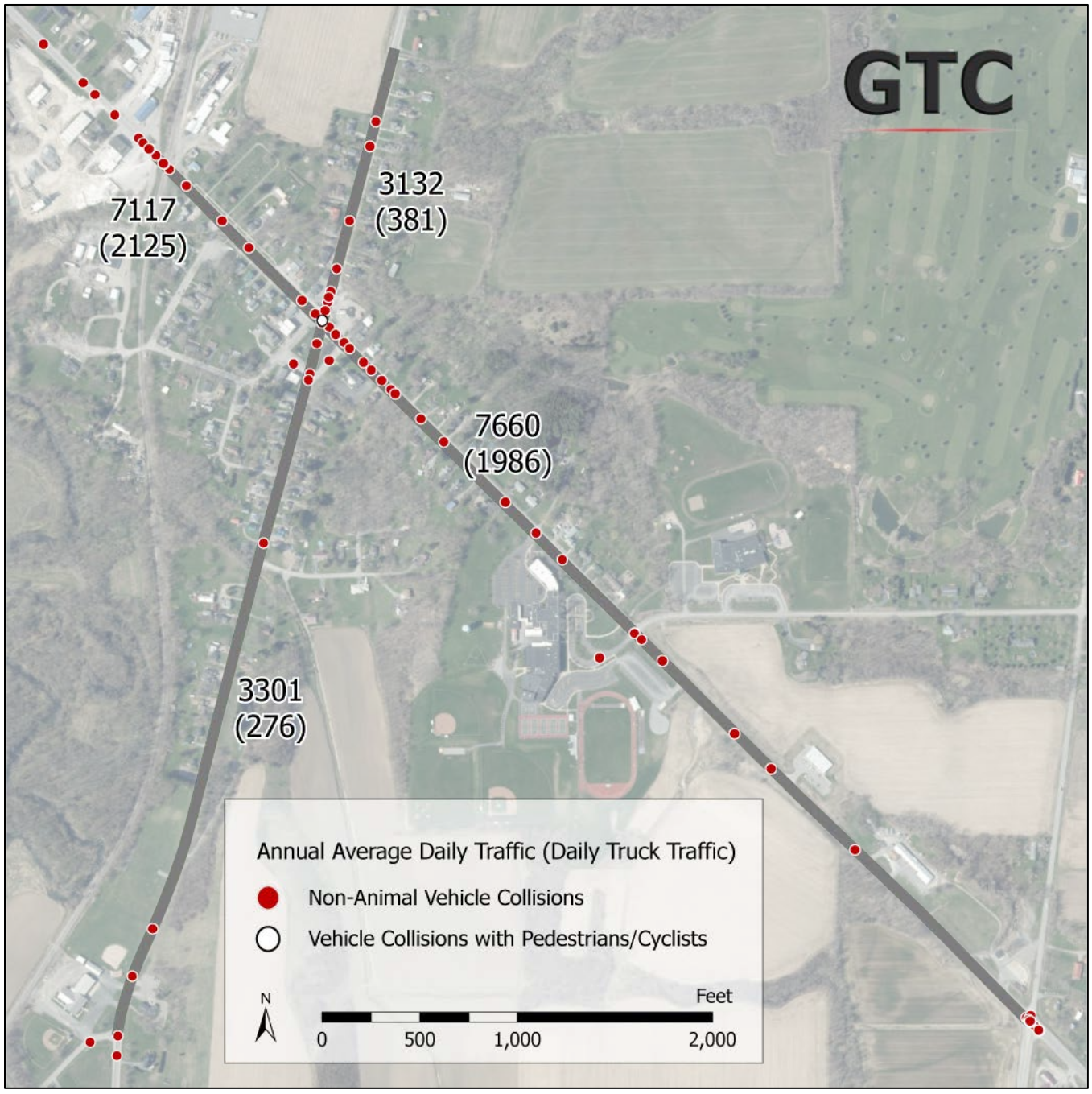
## Traffic Volume and Collisions

From January 1, 2011 to December 31, 2020, the study area experienced 145 non-animal collisions in which two individuals were killed, nine severely injured, and forty-eight experienced less severe injuries. Three collisions with pedestrians or cyclists were reported, one resulting in a fatality, all taking place at the intersection of Routes 19 and 63. The number of collisions along the Route 63 corridor within the study area exceeds the statewide average for rural highways,[1] with 2.97 crashes per million vehicle miles. While the absolute traffic levels are not notably high on Route 19 or Route 63, truck traffic represents 26 percent of vehicle traffic on Route 63 east of Route 19 and 30 percent of traffic west of Route 19, well within the highest grouping portrayed by New York State's Traffic Data Viewer.[2]

[1] New York State Department of Transportation, Average Accident Rates for State Highways by Facility Type.
https://www.dot.ny.gov/divisions/operating/osss/highway-repository/Average%20Accidents%20Rates%20Table_2016.pdf

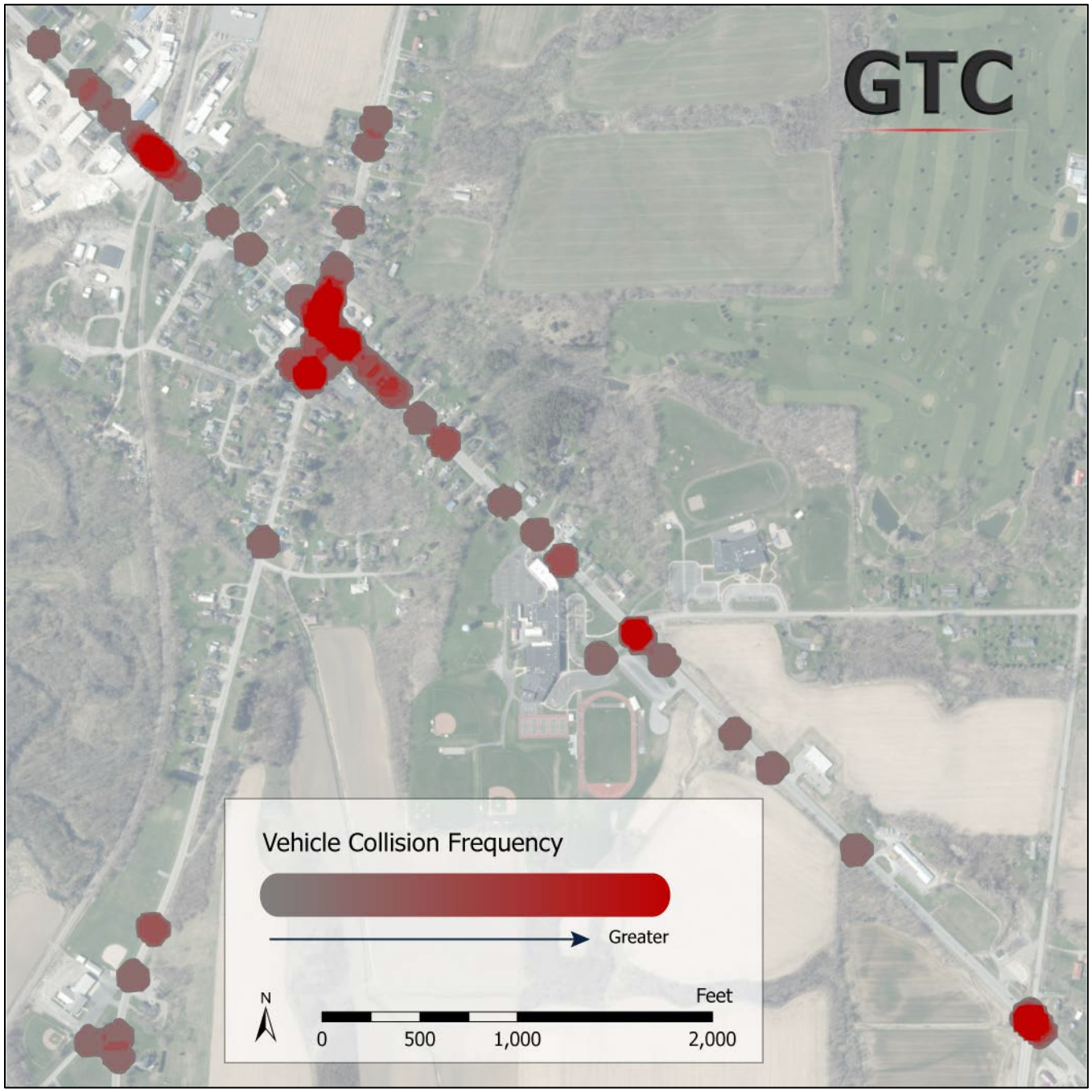
[2] New York State, Traffic Data Viewer.
https://gisportalny.dot.ny.gov/portalny/apps/webappviewer/index.html?id=28537cbc8b5941e19cf8e959b16797b4

*Figure 2 – Collision Location (2011-2020) and Traffic Volumes (2019)*



Mapping the frequency of collisions in Figure 3 reveals four major concentrations of crashes along Route 63. The intersections with Route 19 and Route 246/Perry Road greatly exceed state average rates. Collisions are also clustered at intersections of Route 63 with Woodrow Drive and York Road, the latter also serving as the school bus loop ingress/egress point for Pavilion Central Schools.

*Figure 3 – Collision Density (2011-2020)*



## Roadway Safety Observations

On July 7, 2021, the entirety of the project advisory committee participated in a walking tour of the Route 63 corridor from the Pavilion Town Hall on Woodrow Drive to the Junior and Senior High School. The tour allowed for initial in-person observations before performing statistical analyses and a more detailed pedestrian facility inventory. Committee discussion along the corridor identified barriers to safe use by vulnerable roadway users such as pedestrians, cyclists, and school bus riders.

Initial discussion centered on the Hamlet's primary four-way intersection where State Routes 63 and 19 cross. Issues noted by committee members included signal timing and the large traffic imbalance between the two routes. The pedestrian fatality cited in the crash analysis was mentioned. Business destinations at the center of the Hamlet are not considered to induce the traffic volumes observed.

Route 19 does not follow an original roadway alignment, and in fact bisects the traditional town square. Restoration of the square, however, would not have an impact on the greater issue, that of Route 63 cut-through freight traffic. Initial observations of southeast-bound Route 63 noted an additional lane for which removal could be analyzed. Concerns were expressed regarding possible queuing impact of southeast-bound freight traffic if lanes were removed.

*Figure 4 – Intersection of Routes 19 and 63 Facing Northwest*

The second and most notable location discussed was the intersection of Route 63, York Road, and the Pavilion Central Schools bus access. In addition to the High School situated immediately west of this intersection, the district elementary school is located just east of the intersection on the north side of York Road. Fundamental issues involve the ability of school buses to safely exit the high school grounds and the stacking of vehicles belonging to the parents of elementary school students on York Road at arrival and dismissal.

The issues are exacerbated by the merging of the two southeast-bound lanes at a point immediately after the intersection, leading to undesirable driver behavior in an effort to change lanes at the last opportunity. The speed of heavy freight traffic heightens concerns regarding school bus safety. The area lies completely within a 35-mph speed limit zone, but often requires active patrol by the Genesee County Sheriff's Department to improve driver compliance.

*Figure 5 – Heavy Freight Traffic on Route 63 at School Access*


Further southeast of the campus, the Town is engaged in efforts to develop commercial parcels. There is optimism that changing the character area and visual cues for drivers may result in reduced typical speeds through the corridor.

School bus routing patterns were discussed. As the majority of students live north and west of the school, only one of eight buses turns right from the school campus onto Route 63. Three buses

attempt to cross the intersection directly and four attempt a left turn onto Route 63. Concern was expressed that requiring all buses to turn right when leaving the school would not improve safety. The unsignalized intersection of Routes 63 and 246 is not considered safer for left turn movements due to sight distance and intersection angle factors.

## Pedestrian Environmental Quality

While Pavilion's most pressing issues involve motor vehicles, an opportunity exists within the Hamlet to promote walkability and pedestrian activity as an alternative to some motor vehicle trips. A primary benefit to walking for transportation is improved public health outcomes, especially with respect to respiratory and cardiovascular disease.

Transportation planning research shows that the decision to walk is greatly affected by the physical environment, the perception of safety, the location of destinations, and climate. Barriers that discourage walking include lack of physical separation in areas, traffic volumes, traffic speeds, narrow or missing sidewalks, poor lighting, and difficulty in crossing roadways.

In order to quantify walking conditions at intersections and along roadways throughout the Hamlet, GTC Staff has chosen to make use of the *Pedestrian Environmental Quality Index* (PEQI) evaluation system. Originally developed by the San Francisco Department of Public Health and adapted by UCLA's Center for Occupational & Environmental Health, PEQI assesses the presence and quality of a wide variety of indicators that impact pedestrian activity and safety. The individual indicators are grouped into the general categories of intersection safety, motor vehicle traffic, street design, land use, and perceived safety (see Figure 6).

*Figure 6 – PEQI Evaluated Categories*

| Intersection Safety | Segment Traffic | Street Design | Land Use and Perceived Safety |
|---|---|---|---|
| Crosswalk presence and type | Number of lanes | Sidewalk impediments and obstructions | Active storefronts |
| Traffic controls | Two-way traffic | Sidewalk width | Public art |
| Pedestrian signals | Vehicle speed limit | Curb presence | Abandoned buildings |
| Crossing distance | Traffic calming | Buffer zone | Graffiti/litter |
| Traffic calming | | Public seating | Pedestrian scale lighting |
| Pedestrian signage | | Driveway curb cuts | Visual attractiveness |
| | | Street trees, planters, and gardens | Feeling of safety |
| | | | Odors and/or noise |

The Intersection Safety category measures intersection features that provide access and mobility for pedestrians while providing awareness to oncoming traffic at pedestrian crossings. The Vehicle Traffic category measures factors that are predictive of exposure distance for pedestrian, conflict points, pedestrian injury severity, and pedestrian mobility. The Street Design category measures sidewalks, generally the only dedicated pathway for pedestrians. The Land Use category measures commercial uses and street aesthetics. Finally, the Perceived Safety category is informed by how physical features of an environment shape people's perceptions of safety and therefore their willingness to walk.

*Figure 7 – Permanent Sidewalk Obstruction – Hutchinson Street*

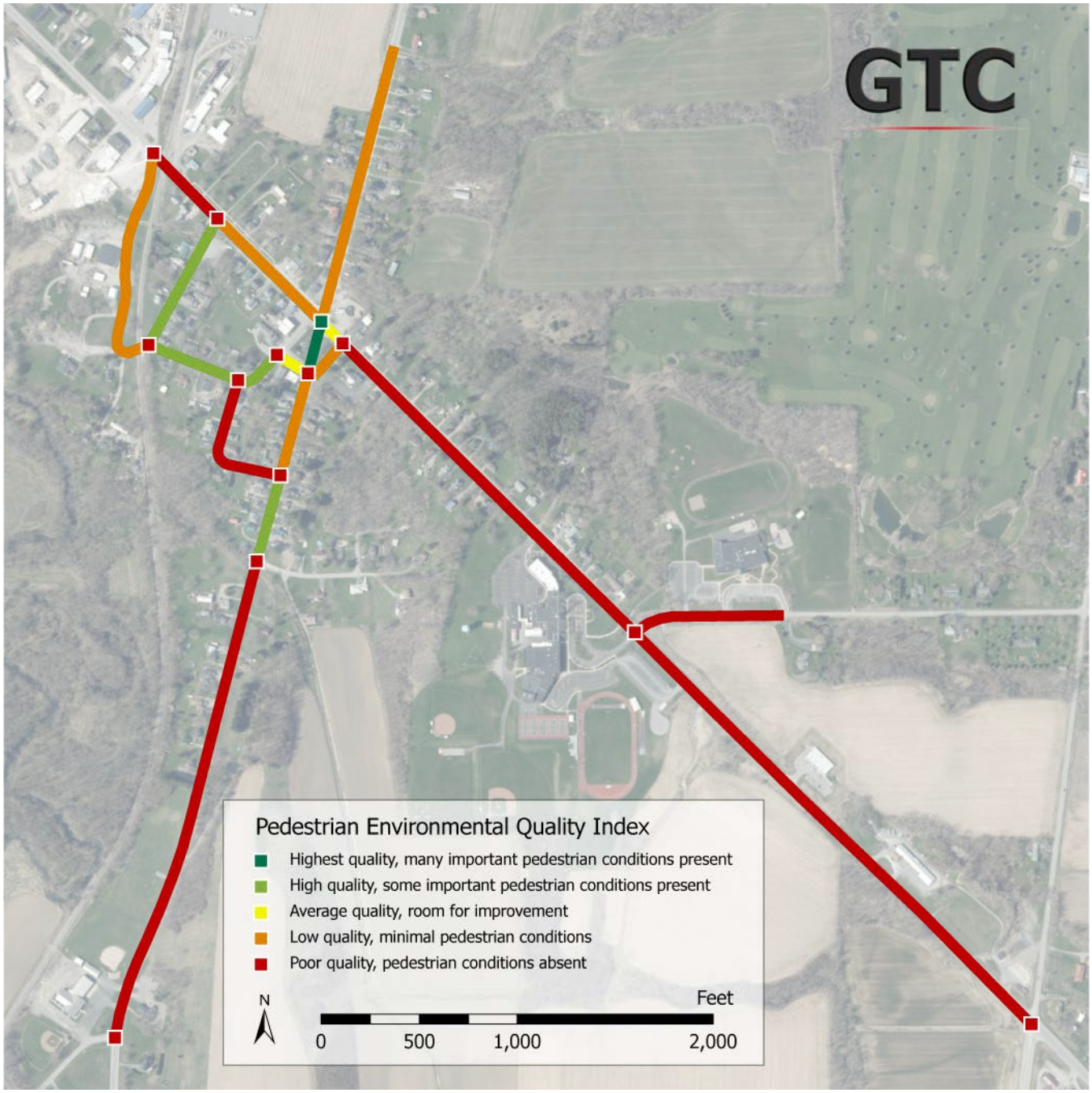
PEQI data is collected via an observational survey that collects the visual assessment of street segments and intersections by a trained observer. A survey form is completed for each individual intersection and street segment. After the data is collected, it is entered into a database so that indicator responses can be converted into numeric scores. Overall scores are created by aggregating individual indicator scores and normalizing the summary scores so that the maximum score is 100 and the minimum score zero. Normalization creates the flexibility for PEQI to be applied to both urban neighborhoods and rural centers.

Figure 7 displays a visual representation of the PEQI assessment of the Hamlet. Eighteen roadway segments and thirteen intersections were evaluated. The highest rated roadway segment, along Route 19 through the center of the Hamlet between Cato Street and Route 63, features elements not seen along most roadways such as curbs, planters, public seating, storefronts, and a historic site. Other highly rated segments such as St Marys Street, Hutchinson Street, and portions of West Park feature low vehicular volumes and speeds while boasting better tree shade, a grassy buffer between the sidewalk and the roadway, and minimal odors or noise. The worst rated roadway segments, typified by Route 63 south of York Road, are bordered by high-volume, high-speed traffic with no true sidewalk, buffer zone, shade trees, or any other pedestrian amenities.

Hamlet intersections offer a sharp contrast. Only one, at Routes 63 and 19, is signalized, has ladder crosswalks and pedestrian signals in all directions, and ADA-compliant curb ramps at all corners. While the other twelve intersections vary in terms of perceived safety due to vehicle volume and crossing distance, none are equipped with pedestrian features.

A number of roadway segments at the center of the Hamlet feature PEQI scores for which certain improvements would result in a jump in classification. For example, the sidewalk along Cato Street contains a significant surface impediment in the form of a complete step down, compromising access for those who require mobility aids. Remedying this situation would vault this segment into the high-quality grouping. Likewise, adding pedestrian scaled lighting and seating to segments of Route 19 currently at the high end of the low pedestrian quality grouping would result in a high-quality rating.

*Figure 8 – Pedestrian Environmental Quality Index Assessment Results*



# PRELIMINARY RECOMMENDATIONS

The on-site observations made by the Project Advisory Committee and the quantified results of the Pedestrian Environmental Quality Index reinforce a number of key themes related to roadway safety for users of all modes of transportation. GTC staff recommend a number of strategies to improve perceived roadway safety issues and the quality of the transportation system in the Hamlet.

- Evaluate reducing the number of Route 63 southeast-bound lanes from two to one between Route 19 and York Road
- Evaluate the warrants for a traffic signal at Route 63 and York Road intersection
- Install a school zone sign with flashing beacon, but without further speed limit reduction
- Deploy mobile speed indicators at multiple locations near the schools
- Conduct a sidewalk surface condition assessment and rehabilitate existing sidewalks in need of change
- Add sidewalks where they are desired, but not currently present
- Install pedestrian scale lighting along sidewalks
- Plant street trees in sidewalk buffers where they are not currently present

The following pages narrate the eight recommendations stemming from the roadway safety and walkability audit. For each recommendation, an overview of the concept is given, a basic cost estimate is provided, potential funding sources are identified, and actions required on the part of the Town or partner agencies are described.

## Lane Reduction – Route 63 between Route 19 and York Road

From the center of the Hamlet to just southeast of York Road, Route 63 features two southeast-bound travel lanes intended to allow vehicles to pass slower traffic travelling uphill. Previous observations note that the merging of these lanes immediately after the York Road intersection contributes greatly to perceived safety issues related to school transportation operations. While concerns about vehicle queuing on Route 63 are noted, removal of the additional lane as part of a roadway reconfiguration may realize the following benefits:

- Slower vehicular traffic speeds from the Hamlet center to the High School.
- Allow for the reallocation of twelve feet (12') of pavement width to improve pedestrian and bicycle accommodations.
- Simplification of the Route 63/York Road intersection; shorter crossing distance for cross- and left-turning traffic originating at the school campus.

### *Costs and Potential Funding*

Striping costs are typically approximately 25 cents per linear foot of 4-inch-wide stripe. Lane modifications would be completed as part of a future roadway paving project funded by state and federal sources.

### *Action Required*

The Town of Pavilion must submit a written request to the Traffic and Safety Division of the Region 4 New York State Department of Transportation office for traffic study and roadway reconfiguration.

## Traffic Control Signal at Route 63 and York Road

The intersection of Route 63, York Road, and Pavilion Central School District's school bus access is currently unsignalized. The Project Advisory Committee suggested a traffic signal to control traffic speeds and flow at the main High School access point during peak campus egress. To realize a traffic signal at this intersection, it should be evaluated per the Manual of Uniform Traffic Control Devices (MUTCD) to determine if it meets warrants for signalization.

### *Costs and Potential Funding*

Installation of a full function traffic signal costs approximately $350,000. Traffic signals are a safety countermeasure. If warranted, the installation could be funded using Highway Safety Improvement Program (HSIP) funds.[3] The Highway Safety Improvement Program is a core Federal-aid program of the Federal Highway Administration (FHWA) with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. If it is determined that this location does not meet the criteria for HSIP funds but a traffic signal is warranted based on vehicle movements, it is likely that the project would be eligible for other, less restrictive, fund sources.

### *Action Required*

The Town of Pavilion must submit a written request to the Traffic and Safety Division of the Region 4 New York State Department of Transportation office for a traffic signal request. Once an official request is made, NYSDOT will evaluate the location, collect traffic data, and determine the most appropriate operational improvement.

[3] U.S. Department of Transportation Federal Highway Administration, Highway Safety Improvement Program https://safety.fhwa.dot.gov/hsip/

## School Zone Sign with Flashing Beacon

The Project Advisory Committee inquired about the ability to establish a school zone with a further reduction of the speed limit. While a school speed limit may not be established where the school zone does not contain a marked crosswalk supervised by a crossing guard,[4] the Manual of Uniform Traffic Control Devices allows for signage and other device in school zones with an on-street crossing.[5] These include:

- Yellow pedestrian indicator pentagonal signs.
- Supplemental yellow SCHOOL signs.
- Yellow flashing beacons.

### *Costs and Potential Funding*

Capital and installation costs to acquire the sign and beacon are borne by the requesting entity (e.g., School District or Town). Retail sources price a 24/7 amber solar powered flashing beacon at approximately $2,250. Once installed, NYSDOT would maintain the installation while charging an annual maintenance fee of $1,068 per device.

### *Action Required*

The signage and beacon are installed by the requesting entity under a highway work permit.[6] Permit applications for sign installations in NYSDOT right of way should be returned to the regional office.

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[4] New York State Department of Transportation, What is the New York State regulation for posting a speed limit within a school zone?
https://www.dot.ny.gov/about-nysdot/faq/posting-speed-limit-within-a-school-zone

[5] Federal Highway Administration, Manual of Uniform Traffic Control Devices – Part 7 – Traffic Control for School Areas
https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part7.pdf

[6] New York State Department of Transportation, Highway Work Permits
https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/highway-permits

## Mobile Speed Indicators

Per the Safe Routes to School Online Guide,[7] portable speed trailers visually display drivers' real-time speeds compared to the speed limit. Portable speed trailers are most effective when the trailer flashes "SLOW DOWN" or mimics photo speed cameras or police cars when drivers exceed the limit. Some speed trailers have the capability to collect traffic count data and speed data throughout the day, which can be used to identify the most dangerous traffic times when more enforcement is needed. In some cases, back-up speed enforcement by officers may be needed when radar speed trailers are used. Speed trailers have the following advantages:

- Provides immediate feedback.
- Does not require officer to be present.
- Relatively low cost.
- Can (and should) be moved to varying locations near the school as compliance dips.

### *Costs and Potential Funding*

Costs for mobile trailers equipped with speed radar and displays range from approximately $7,500 to $10,000. Speed trailer acquisition in the region was once funded by federal Safe Routes to School funding. This stand-alone program was not continued once the Transportation Alternatives Program (TAP) was created. The purchase of a mobile speed indicator could be part of a larger TAP application, but minimum project costs preclude the use of TAP funds for acquisition of a single speed trailer.

The New York Governor's Traffic Safety Committee makes highway safety grants available to local government agencies to address a particular highway safety problem in their jurisdiction.[8] Proposals must address one of the program areas included in the state's Highway Safety Strategic Plan.

### *Action Required*

The Town, in coordination with the Genesee County Sheriff and Pavilion Central School District, should submit an application with narrative outline, supporting data, and details of proposed activities to the next Highway Safety Grant Program funding opportunity. As with the previous recommendation, use within the State right of way would require a highway work permit.

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[7] Pedestrian and Bicycle Information Center, Safe Routes to School Online Guide – Speed Trailers
http://guide.saferoutesinfo.org/enforcement/speed_trailer.cfm

[8] New York State Department of Motor Vehicles, 2022 Grant Program Descriptions and Application Information
https://trafficsafety.ny.gov/system/files/documents/2021/03/2022-call-letter.pdf

## Sidewalk Condition Assessment and Rehabilitation

The pedestrian environmental quality assessment identified sidewalk surface impediments at a high level along several streets within the Hamlet. A deeper assessment should be performed on existing sidewalks and curb ramps to ensure access and movement for people of all ages and abilities. The assessment should emphasize that:

- Sidewalk permit the unimpeded travel of individuals walking and those using mobility aids year round.
- Sidewalks should have a minimum clear width of five feet exclusive of the curb.
- Sidewalks should be continuous and connected across streets with crosswalks.
- ADA-compliant accessible curb ramps should be provided at designated crossings.
- Sidewalks must have adequate slope to promote stormwater runoff.
- Sidewalk surfaces should be stable and slip resistant.

### *Costs and Potential Funding*

New York State DOT's Quick Estimator Reference for active transportation project implementation cites $32 per square foot of four-inch-thick sidewalk.[9] This figure includes removal of the existing sidewalk, saw cutting, excavation, disposal, fill, subbase material, compaction, and the construction of the new sidewalk with associated curbing, patching and repairs to affected asphalt and concrete, topsoil, establishing turf, and finish work. All material and labor required to perform these tasks is included. This figure does not include any required adjustments to utilities.

The Transportation Alternatives Program, funded by FHWA and administered by NYSDOT, is a strong source of funding for sidewalk improvements. Note that project sponsors must provide a minimum 20 percent local share of funding for the project. Local match sources my include various state funding sources. The minimum federal share for each project is $500,000. Thus, the minimum local match is $125,000, resulting in a $625,000 minimum total project cost.

### *Action Required*

The Town applies for funds for sidewalk improvements during subsequent TAP solicitations. Assessment of the condition of existing sidewalks and ramps may be performed during the preliminary engineering phase of the project.

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[9] New York State Department of Transportation, Funding for Complete Streets
https://www.dot.ny.gov/programs/completestreets/funding

## New Sidewalk Installation

The pedestrian environmental quality assessment also noted that very few locations in the Hamlet, mostly limited to Route 63 immediately west of Route 19, featured sidewalks on both sides of the street. Additionally, eight of the eighteen street segments surveyed did not have sidewalks present on either side of the roadway. The Town should prioritize new sidewalk installation along streets within the Hamlet. New sidewalk installations and sidewalks on both sides of the street provide many benefits,[10] including:

- Reduction in vehicle collisions with pedestrians walking along the roadway.
- Reduction in mid-block crossing crashes.
- Increase in the number of trips made by walking.
- Increased recreational walking, thus improving public health.

### *Costs and Potential Funding*

New York State DOT's Quick Estimator Reference cites $160 per linear foot of four-inch thick, five-feet wide sidewalk. This figure includes all actions referenced in the previous recommendation.

Per the previous similar recommendation, the Transportation Alternatives Program is a leading funding option for a large sidewalk installation effort.

### *Action Required*

As with the previous recommendation, the Town would apply for funds for new sidewalk installation during subsequent TAP solicitations. Location selection should be performed by the Town before completing the application. If sidewalks are installed in the State right-of-way, the Town will be responsible for maintenance and will be required to enter into an agreement to this effect.

[10] Federal Highway Administration, Safety Benefits of Walkways, Sidewalks, and Paved Shoulders
https://safety.fhwa.dot.gov/ped_bike/tools_solve/walkways_brochure/walkways_brochure.pdf

## Pedestrian Scale Lighting

The pedestrian environmental quality assessment found no pedestrian scale street lighting along any of the roadway segments surveyed. Roadway lighting is often vehicle focused and does not necessarily provide pedestrian safety benefits. However, specialty pedestrian-level lighting may be placed over the sidewalks to improve pedestrian comfort, security, and safety. Points of emphasis regarding pedestrian scale lighting include:

- A majority of pedestrian fatalities nationally occur under low light conditions.
- Pedestrian injuries at nighttime are reduced by brighter or additional lighting that illuminates pedestrian crosswalks and reduces glare to motorists.
- Lighting is a factor in perceived walking comfort. Lack of lighting discourages walking after dark.

### *Costs and Potential Funding*

The Pedestrian Safety Guide and Countermeasure Selection System[11] cites median and average costs of streetlights in a range from $3,600 to $4,900 though lighting costs vary based on fixture types, required spacing, and other project-specific factors.

Lighting improvements are typically submitted in conjunction with TAP applications for larger sidewalk improvement projects.

### *Action Required*

Combining this and the two previous recommendations, the Town may choose to create a single pedestrian facility-focused TAP application for future solicitations. Lighting location selection and the required quantity of light fixtures should be understood by the Town before completing the application.

[11] Federal Highway Administration, Pedestrian Safety Guide and Countermeasure Selection System
http://www.pedbikesafe.org/pedsafe/countermeasures_detail.cfm?CM_NUM=8

## Additional Street Trees in Sidewalk Buffers

Fully half of the roadway segments surveyed during the pedestrian environmental quality assessment lacked street tress and thus shade for the majority of the day. Trees planted in buffer areas between the roadway and sidewalk perform a wide variety of functions, including:

- Contribute to the character of the street.
- Reduce heat in summer, mitigate air pollution, and dampen street noise.
- Provide significant stormwater management benefits through soil storage. Larger trees decrease runoff more than smaller trees.

### *Costs and Potential Funding*

The Town of Bethlehem's Street Tree Inventory Analysis and Management Plan[12] cites $170 to procure each tree to be planted, $110 for planting activity, $100 for mulching, and $100 for watering in the first year. Adding 100 trees to the Town's streets would cost approximately $48,000, including initial maintenance activities.

A street tree augmentation and replacement program could be part of a TAP application for a larger sidewalk and lighting project. Ongoing tree care would require steady funding from the Town Budget.

### *Action Required*

The Town should develop a program that prioritizes tree planting in consideration of:

- The size of available growing area, soil, and drainage in specific locations.
- Spacing of trees and eventual width compared to the distance between trees and from the tree line to the sidewalk.
- Selection of an appropriate shade tree species, preferably deep- rather than shallow-rooted, such as Hickory.
- The presence of elements that would adversely impact or be adversely impacted by trees, for example, root structure versus underground utilities.
- Protection against tree root compaction from off-sidewalk pedestrian traffic.

[12] Town of Bethlehem, NY, Street Tree Inventory Analysis and Management Plan
https://www.townofbethlehem.org/DocumentCenter/View/13144/Lunchtime-Forum-DRG-Tree-InventoryPresentation-Bethlehem

# IMPLEMENTATION PLAN

Figure 9 represents a summary of the eight recommendations in the form of an implementation plan that adds implementation considerations – potential challenges to realizing the maximum benefit of each recommendation – to relative funding requirements and potential funding sources.

*Figure 9 – Strategy Summary*

| Strategy | Implementation Considerations | Relative Cost | Potential Funding Sources |
|---|---|---|---|
| Lane Reduction – Route 63 between Route 19 and York Road | ■ Would be included as part of a future roadway paving project.<br>■ Requires evaluation and determination by NYSDOT regional office. | $ | Federal Highway Administration |
| Traffic Control Signal at Route 63 and York Road | ■ Requires evaluation and determination by NYSDOT regional office. | $$$$ | Highway Safety Improvement Program |
| School Zone Sign with Flashing Beacon | ■ Deployment requires a highway work permit.<br>■ Annual maintenance fee. | $ | Local Sources<br>State Sources |
| Mobile Speed Indicators | ■ Coordination with Sheriff Dept. and State Police required as funding applications require supporting speed and citation data.<br>■ Deployment requires a highway work permit. | $$ | Highway Safety Grant Program<br>Local Sources |
| Sidewalk Condition Assessment and Rehabilitation | ■ Requires an existing facility assessment and replacement prioritization effort.<br>■ Large local match required. | $$$$ | TAP<br>Local Match |

| Strategy | Implementation Considerations | Relative Cost | Potential Funding Sources |
|---|---|---|---|
| New Sidewalk Installation | ■ Requires a new installation assessment and selection prior to funding application.<br>■ The town is required to maintain new sidewalks within State rights-of-way, if applicable.<br>■ Large local match required. | $$$$ | TAP<br>Local Match |
| Pedestrian Scale Lighting | ■ Install enough light fixtures to ensure uniform lighting levels.<br>■ Place lights in advance of crosswalks in both directions to avoid silhouettes.<br>■ Often funded as part of a larger sidewalk improvement project.<br>■ Large local match required. | $$ | TAP<br>Local Match |
| Additional Street Trees in Sidewalk Buffers | ■ Trees require routine maintenance including trimming and health assessment.<br>■ Trees should not compromise visibility of traffic signs, signals, or crosswalks. | $$$ | TAP<br>Local Match |