

HEALTH IMPACT ASSESSMENT of The Genesee Valley Greenway



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Executive Summary

The Genesee Valley Greenway State Park (GVG) offers great potential as a recreational amenity that could also play a role in helping area residents improve their health.

This western New York open-space corridor passes through woodlands, wetlands, river and stream valleys, farmlands, glacial gorges and historic villages across 90-miles in Monroe, Livingston, Wyoming, Allegany and Cattaraugus counties. The focus of this Health Impact Assessment (HIA) is the northernmost, 50-mile portion located in Monroe and Livingston counties.

Operated by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), the master plan envisions the GVG as a regional destination part of a interstate trail system. Existing active recreational opportunities within the GVG include hiking, walking, biking, cross-country skiing and snowshoeing.

As with all forms of active transportation, increased and enhanced physical activity at the GVG may lead to improved health outcomes. However, current issues related to public access, infrastructure and safety could be keeping the GVG from reaching its potential as a destination for public recreation, off-road linkages to nearby communities, parks and other trails – and contributing to health disparities.

Key issues potentially contributing to health disparities and affecting health outcomes include trail-surface conditions, safe-road trail crossings and limitations to usage by vulnerable populations.

- Existing trail conditions are rough and composed of soil, grass, and cinders, as opposed to stone dust.
- The GVG crosses many state or county routes with intersections that are not clearly marked with pedestrian-crossing signs or other warnings.
- Some portions of the trail are not easily accessible or do not meet the needs of all potential users, including low-income and at-risk populations, older adults and people with disabilities.

Common Ground Health and the Genesee Transportation Council (GTC) produced this Health Impact Assessment (HIA) as part of their efforts to advance health-informed transportation decision-making across the Genesee-Finger Lakes region. It is the result of extensive research and analysis, as well as guidance and feedback from an array of stakeholders from community health, transportation, planning and community engagement.

To assess the potential health disparities that may currently exist, four health determinants were identified for further analysis: physical activity, access and infrastructure, safety and social cohesion (how well integrated and connected a community is socially).



Following are a set of recommendations that can help increase usage of the GVG, and in the process, help improve people's health. The recommendations involve:

- Promoting more physical activity along the Greenway and increasing trail use, understanding that insufficient physical activity can lead to significant health disparities such as cardiovascular diseases, cancers, diabetes and depression.
- Maximizing Greenway utilization through better-connected infrastructure.
- Encouraging more community engagement with the Greenway, including accommodating the needs of vulnerable populations.
- Enhancing user safety, by adding more crosswalks at roadways, providing lighting and signage improvements and designing safer road crossings.
- Better integrating community-outreach efforts and increasing structured activities to draw more users.

This HIA could lead to concrete actions that could positively impact the Greenway's future appeal, safety and viability; help to overcome identified health disparities; and foster improved health outcomes among its proximate population centers and throughout the region.

Health Impact Assessment Recommendations

Physical Activity

Ensure accessible, safe, and maintained trails to promote physical activity.

Specific Actions:

- Partner with governments and community organizations to promote physical activity.
- Ensure that programming and events are inclusive of vulnerable populations.

Promote trail use along the Genesee Valley Greenway.

Specific Actions:

- Work with regional tourism organizations to develop campaigns on active-living health benefits of local trails/hubs for area residents/visitors.
- Utilize campaigns to increase overall awareness and usage of the Greenway as an active transportation/recreation corridor.

Access and Infrastructure

Encourage overall engagement with the Greenway.

Specific Actions:

- Make trail-access points frequent near population centers and integrate with off-trail amenities.
- Provide trail hub connections to nearby business districts, parks and schools.
- Create both public transportation/rideshare hubs at trailheads near population centers.
- Encourage adjacent businesses to promote the trail and partner with farmers markets to promote activity on the trail.

Develop protocols to capture baseline data on trail usage over time.

Specific Actions:

- Install trail counters at multiple locations, including trail heads near municipal centers.
- Document changes/improvements of trail conditions and corresponding data on increased trail usage.
- Analyze data collected to inform trail infrastructure/maintenance enhancement.
- Report trail counts and overall trail utilization to NYS Parks.

Accommodate needs of all potential Greenway users, especially vulnerable populations.

Specific Actions:

- Ensure trails are ADA-compliant when in proximity to residential/senior housing, with ADA parking available.
- Enhance trail surface conditions to stone dust or asphalt near population centers.

- Enhance trail where cyclists are impeded, especially in the southern Livingston County.
- Encourage public transportation providers with routes along Greenway to include bike racks on buses.
- Create parking areas with room for horse trailer parking.
- Improve cross-slope and remove tree roots to create a firm and stable surface.

Maximize utilization of Greenway by encouraging infrastructure that connects with trail.

Specific Actions:

- Provide connections such as new trails, sidewalks, bicycle lanes and public-transit stops.
- In rural areas where the trail utilizes the road, expand the shoulder width to accommodate cyclists/hikers.

Promote walking and biking as mobility options to low-income and at-risk groups.

Specific Actions:

- Develop safety campaigns/trail-use education to raise awareness/improve trail usage.

Increase access to healthy foods and encourage physical activity.

Specific Actions:

- Coordinate and co-promote the location of farmers' markets near trail heads.

Safety

Enhance traffic safety for all users.

Specific Actions:

- Ensure crosswalks are designed for all users.
- Develop crosswalks at roadways in Livingston and Monroe counties that cross trail points.
- Where paths for pedestrians/cyclists must intersect with the road, place crossings to increase visibility and clearly mark crosswalks for motor-vehicle drivers to identify.
- An ADA-compliant grade/trail surface condition should be present at all road crossings.

Enhance personal safety within the Genesee Valley Greenway State Park.

Specific Actions:

- Provide adequate way-finding signage and lighting.
- Implement solar lighting in high-use areas near well-traveled roads and parking lots.
- Create mile markers every half mile on the trail.
- Provide information kiosks with maps at major trail heads to guide trail users.
- Indicate proximity to municipalities including POIs/facilities on wayfinding signage.



Trail/road intersections are advertisements for trail and must be kept to a high standard.**Specific Actions:**

- Paint gates regularly, remove weeds from guard rails, replace faded signs and remove graffiti.
- Provide “graffiti walls” or other opportunities for creative expression, where graffiti exists.
- Facilitate easy ways to report graffiti/illegal dumping to NYS Parks Police via text messaging or a mobile mobile-optimized application.

Design road crossings to be safe and to mitigate pedestrian-bicyclist accidents.**Specific Actions:**

- Design signage/crosswalks with traffic-calming infrastructure to lower speeds/make motorists aware of pedestrian/bicyclist intersections along the Greenway.
- Prioritize road-crossing infrastructure enhancements around intersections that currently have incidents of pedestrian-bicyclist and motor-vehicle accidents.
- Disallow curbside parking near trail intersections and provide adequate off-road parking.
- Work with NYSDOT/Governor’s Traffic Safety Committee to educate motorists on pedestrian/dismounted cyclists’ right-of-way laws.

Social Cohesion**Foster ownership and involvement in the Greenway.****Specific Actions:**

- Design environments that promote formal and informal social interaction.
- Involve those living around the Greenway in the planning process.
- Update the community on activities and trail maintenance.

Encourage better integration of community-outreach efforts.**Specific Actions:**

- Develop annual stakeholder touchpoints with Greenway-managing entities.
- Work with the NYS OPRHP and FOGVG to create an annual stakeholder meeting to strengthen relationships and gather feedback on the Greenway.
- Develop strategic operational/programming/promotional guidelines based on stakeholder feedback to enhance outreach efforts to prospective new trail users of the Greenway.

Increase engagement with Greenway over the long-term.**Specific Actions:**

- Work to integrate the Greenway into local/regional comprehensive and economic plans.
- Focus on local town/village planning and development within Livingston and Monroe counties.
- Integrate other ecological/heritage tourism planning on a local, county or state level.

Initiate surveys on an annual/bi-annual basis for trail users/non-users local to the Greenway.

Specific Actions:

- Establish baseline data on trail users' demographics.
- Track median physical-activity levels on the Greenway.
- Utilize survey results to inform policy development and involve stakeholders (NYS Parks).
- Utilize collected data to inform trail infrastructure/maintenance enhancement.

Increase programming/structured activities to draw low-income and at-risk groups.

Specific Actions:

- Coordinate bike rides and walks with area community groups.
- Work with schools to offer after-school youth-development programs.
- Hold community events/activities at trail hubs within proximity to population centers to increase use of the trail.





Section 1: Introduction

In August 2016, Common Ground Health and the Genesee Transportation Council (GTC) jointly pursued a Memorandum of Understanding (MoU) to embark on an effort to advance health-informed, transportation decision-making across the Genesee-Finger Lakes region. The project blended Common Ground Health's mission to, "bring focus to community health issues via data analysis, community engagement and solution implementation" with GTC's ongoing efforts "to maximize the contribution of the transportation system to the social and economic vitality of the Genesee-Finger Lakes region."

Regional experts gathered to assist in the guidance and shared learning for two Health Impact Assessments (HIAs). Per the MoU, the first task within the Advancing Health-Informed Transportation Decision-Making project was to:

Convene a steering committee with representatives of key stakeholders in regional transportation, health and planning to build knowledge of regional transportation-health linkages and help guide the project, including HIA Learning Collaborative participants and staff from the GTC, regional and municipal planning agencies, Monroe County Health Department and other organizations, as appropriate. Establish baseline understanding of where and how HIA has added value to transportation decision-making in other regions to inform subsequent project tasks.

Following a review of possible projects, the GVG and Rochester's Bike Share program were selected for separate Health Impact Assessments. This report focuses on health disparities and outcomes of the GVG State Park in its northernmost 50-mile portion located within Monroe and Livingston counties, which are indicated in the maps below. Conducted from 2016 to 2018, the assessment is the culmination of extensive research and analysis as well as guidance and feedback from a wide array of stakeholders in the realms of community health, transportation, planning and community engagement.



MONROE COUNTY

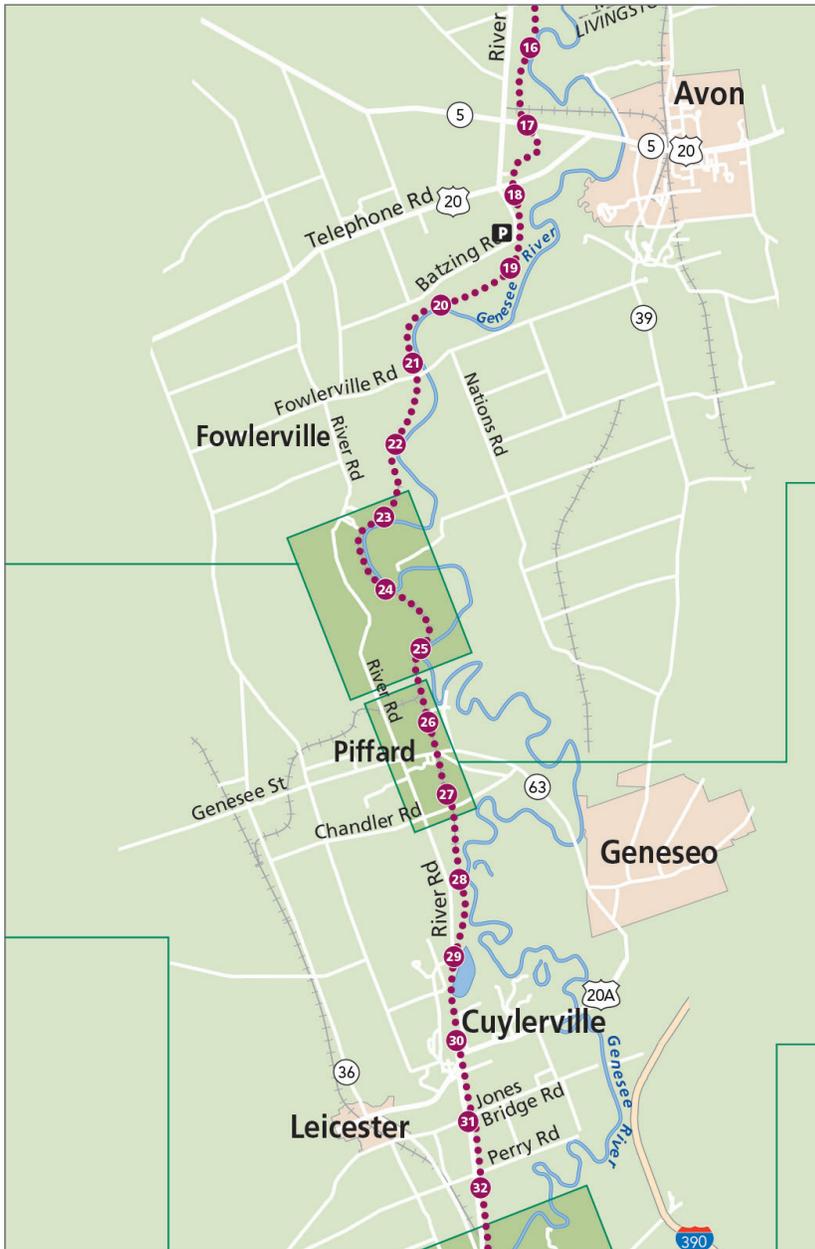


Monroe County GVG



LIVINGSTON COUNTY

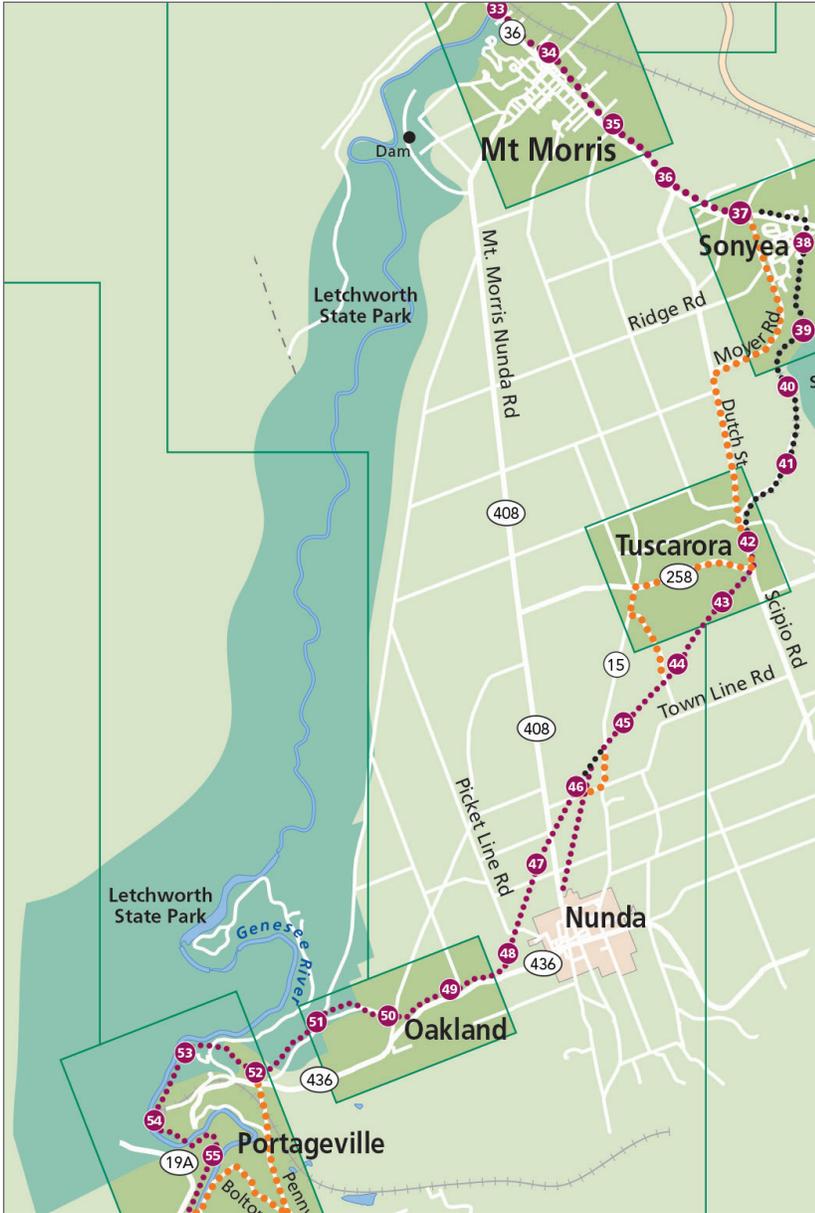
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Livingston County GVG

LIVINGSTON COUNTY

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Livingston County GVG



Section 2: The Genesee Valley Greenway State Park and Health

2.1 THE GENESEE VALLEY GREENWAY STATE PARK

The Genesee Valley Greenway State Park (GVG) is a 90-mile, open-space corridor located in western New York and operated by the NYS OPRHP. The park includes a public, multi-use trail and features a variety of natural and historic resources (New York State Office of Parks Recreation and Historic Preservation 2013). The Greenway is a rails-to-trails recreation corridor, and its full 90-mile scope extends north to south from Rochester to Hinsdale, NY, which is located near the New York-Pennsylvania border (See Appendix A for the map). A “rail trail” is a multi-purpose public path (paved or natural) created along an inactive rail corridor (Schmid 2001). Rail trails can be used for both recreational and transportation-related physical activity (Flink CA 2001) and are most often acquired or built by local, state or federal government agencies. These trails are often managed by public agencies, land trusts, nonprofits or community foundations (Rails-to-Trails Conservancy 2017). Rail trails in the U.S. have grown substantially in the last 30 years, from an estimated 250 miles in 1985 to more than 31,000 miles in 2017, with 8,000 additional miles possible (Rails-to-Trails Conservancy 2017).

2.1.1 Park Components, History and Stakeholders

Components

There are more than 16,000 miles of trails in New York State, and the Greenway is one of the largest recreational assets in the state alongside the 350-mile Long Path, and more than 2,000 miles of Adirondack Park trails (New York State Office of Parks, Recreation and Historic Preservation 2010). In January of 2017, New York State announced the Empire State Trail a 750-mile trail (to be completed by 2020) spanning the state from New York City to Canada and Buffalo to Albany, that will create the longest multi-use state trail in the nation (<https://www.ny.gov/programs/empire-state-trail>). Most of the GVG State Park consists of trail that has been converted from a historic railway bed and canal towpath. The trail is composed of a variety of surface conditions including a clearcut, overall level surface with cinders, gravel and mowed grass. The Greenway passes through woodlands, wetlands, river and stream valleys, farmlands, glacial gorges and historic villages in 16 towns across five counties: Monroe, Livingston, Wyoming, Allegany and Cattaraugus counties. Similar to other rails-to-trails conversions, the GVG State Park provides opportunities for public recreation and off-road linkages to communities, parks, other trails and attractions in the region, including Letchworth State Park, which attracts more than 750,000 visitors or more each year (Spector and Riback 2017). Presently, 42 miles of the GVG State Park are open to the public in Livingston and Monroe counties — 32 miles between Rochester and the Livingston County village of Mt. Morris and another 10 miles in the Livingston County towns of Nunda and Portage (New York State Office of Parks Recreation and Historic Preservation 2013).

Genesee Valley Greenway State Park Management Plan

Adopted in 2013, the GVG State Park Management Plan provides long-term direction for the management and use of the GVG. The plan addresses the entire length of the Greenway and

recommends several key management strategies to: enhance the recreation and economic benefits for the public and local communities; further develop the Greenway as an alternative transportation corridor; preserve physical links between ecological communities and environmental protection; and preserve historic and cultural resources found throughout the trail and park (New York State Office of Parks Recreation and Historic Preservation 2013, 13).

According to the plan, New York's statewide trails system is envisioned as an interconnected "world-class" network of trails designed in part to be sustainable; provide a wide array of recreational opportunities; connect parks, forests, open spaces, historic and cultural sites with public facilities, communities and neighborhoods; and attract economic opportunities while providing for alternative means of transportation. The plan also specifically states a goal to "promote the health and well-being of state residents" and otherwise enhance quality of life for residents and visitors across New York State. The document concludes that trails "are good for the environment, good for health, good for the economy, and help improve the quality of life in every community." (New York State Office of Parks, Recreation and Historic Preservation 2010, 2).

Genesee-Susquehanna Greenway

Another key GVG component is its potential to be a regional destination by creating an interstate trail system. Known as the Genesee-Susquehanna Greenway or Triple Divide Trail, this potential extension would span 230 miles north along the Genesee River and Pine Creek to Lake Ontario in Rochester, N.Y., and as far south as to the Susquehanna River in Williamsport, Pa. The Genesee-Susquehanna Greenways interconnectivity to Rochester was also cited in the GTC Long-Range Transportation Plan 2040 as having potential positive economic impact based on the annual estimates of Pennsylvania's Great Allegheny Passage Trail System, which is recorded as exceeding \$40 million in annual economic impact (Genesee Transportation Council 2016). In 2010, the Genesee River Wilds group designed a strategic plan that would link the GVG with the Pine Creek Trail in Pennsylvania, linking three important parks in the region: Letchworth State Park, Allegany State Park and the state parks and state forests that form the Pine Creek Gorge (Genesee River Wilds 2015). According to the strategic plan, the trail would attract hikers, bicyclists, canoe and kayak enthusiasts and more (Kerkeslager 2011).

History

While the GVG's history as a public amenity is relatively recent, its transformation as a rails-to-trails project began due to its route along the Genesee Valley Canal (1840-1878) and the Pennsylvania Railroad Rochester Branch (1882-1963/1971). The concept of a 90-mile Genesee Valley Greenway, located along the former railroad and canal corridors was introduced to the Rochester region in 1991 by the statewide nonprofit, New York Parks and Conservation Association, now known as Parks & Trails New York. After receiving \$2.5 million in Intermodal Surface Transportation Efficiency Act (ISTEA) funding, in 1994, the NYS Department of Environmental Conservation, NYS Office of Parks, Recreation and Historic Preservation, and the Friends of the Genesee Valley Greenway formed a unique three-way partnership to purchase 80 miles of former rail corridor from Rochester Gas & Electric and begin development of the northern 50 miles for recreational use. NYSDEC and NYS OPRHP agreed to contribute \$515,860 for a total project cost of \$2,579,300. At that time, the parameters of the project included:

Acquisition of the 80 miles of canal and railroad corridor owned by Rochester Gas & Electric in Livingston, Wyoming, Allegany and Cattaraugus counties. In June 1997, New York state acquired a 30-foot-wide, permanent easement along the 80 miles of rail bed owned by RG&E. In 2000, the state



paid RG&E an additional \$107,400 and took title to the entire corridor, including the rail bed, canal prism, and other railroad and canal associated lands. Development of the northernmost 50 miles of corridor as a multi-use trail and greenway in Monroe and Livingston counties involved clearing of brush and other encroaching vegetation, installation of gates and informational and directional signage, repair and replacement of culverts, repair of trail surface, stabilization and repair of historic culverts, and development of parking areas (New York State Office of Parks, Recreation and Historic Preservation 2013).

Stakeholders

The following entities have historically been responsible for the operation, management and maintenance of the GVG:

Office of Parks Recreation and Historic Preservation (OPRHP) - as owner of the land and in its role as representing the welfare of the people of the state of New York, OPRHP's core responsibility is for the operation and management of the Greenway, including the trail and all the resources associated with it throughout the corridor. OPRHP enters into agreements with volunteer organizations, local governments, state agencies and others who are interested in assisting with specific management activities, such as adoption of trail sections, trail-ambassador activities, enforcement and maintenance activities (New York State Office of Parks Recreation and Historic Preservation 2013, 21).

The Friends of the Genesee Valley Greenway (FOGVG) - has been part of planning for the GVG since the nonprofit organization was formed in 1993. FOGVG's mission is to develop, maintain and interpret the GVG State Park as a multi-use trail and historic and natural-resource corridor between the Erie Canalway Trail in Rochester and Cuba, N.Y. The organization's efforts are devoted to establishing additional miles and maintaining existing miles of the trail, preserving and interpreting historic and natural resources along the Greenway corridor, and developing communications, programs, activities and community partnerships that continue to stimulate the use and enjoyment of the Greenway by both residents in, and visitors to, New York state.

The New York State Department of Environmental Conservation (DEC) - created in 1970, the DEC combined all NYS programs designed to protect and enhance the environment into a single agency. Its mission is to conserve, improve and protect New York's natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being. The DEC and OPRHP managed the GVG from 1994-2010. In 2011 the GVG ownership was fully transferred to the OPRHP. Presently, FOGVG and OPRHP have a Memorandum of Agreement outlining their relationship and the various responsibilities assigned.

2.2 WHAT IS HEALTH?

According to the World Health Organization, health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization 2017). For the purpose of this report we are utilizing the World Health Organization's definition of health, while also defining parameters of the social determinants of health that occur within the built environment and are relevant to this project. The social determinants of health are the conditions in which people are born, grow, live, work and age (World Health Organization 2017).

According to Healthy People 2020, health determinants are defined through five key sectors, which include policymaking, social factors, health services, individual behavior, and biology and genetics (United States - Office of Disease Prevention and Health Promotion 2017).

To broadly understand the HIA's goals, it is important to better understand the values that guide the process and how social determinants affect health outcomes. The International Association of Impact Assessment has identified the guiding values for HIA. The GVG HIA seeks to integrate each of these guiding values throughout this assessment and to report on the social determinants that may impact health determinants and lead to greater health outcomes. Each of the guiding values is defined below:

Democracy – People have the right to participate in the formulation and decisions of proposals that affect their life, both directly and through elected decision makers. In adhering to this value, the HIA method should involve the public and inform and influence decision makers. A distinction should be made between those who take risks voluntarily and those who are exposed to risks involuntarily (World Health Organization 2001).

Equity – The desire to reduce inequities that result from avoidable differences in health determinants and/or health status within and between different population groups. In adhering to this value, an HIA should consider the distribution of health impacts across the population — paying specific attention to vulnerable groups —and recommend ways to improve the proposed development for affected groups.

Ethical use of evidence – Transparent and rigorous processes are used to synthesize and interpret evidence. Best-available evidence from different disciplines and methodologies is utilized, all evidence is valued and recommendations are developed impartially. In adhering to this value, the HIA method should use evidence to judge impacts and inform recommendations. It should not set out to support or refute any proposal; it should be rigorous and transparent.

Comprehensive approach to health – Physical, mental and social well-being is determined by a broad range of factors from all sectors of society (known as the wider determinants of health). In adhering to this value, the HIA method should be guided by the wider determinants of health (Human Impact Partners 2011).

2.3 HOW MIGHT THE GREENWAY IMPACT HEALTH?

The GVG represents more than 90 miles of a multi-use trail system across New York State, the vast majority of which involves long segments in natural corridors. The Greenway's activities focus on recreational opportunities that include hiking, walking, biking, cross-country skiing, snowshoeing and more. As with all forms of active transportation, increased and enhanced physical activity may lead to improved health outcomes. This HIA seeks to study a variety of health determinants and examine the linkages to improved health, while also assessing what health disparities may exist or are being caused by present conditions, such as trail-surface conditions, safe road crossings of the trail, and the usage of vulnerable populations and their access to engaging the Greenway's northernmost 50 miles.



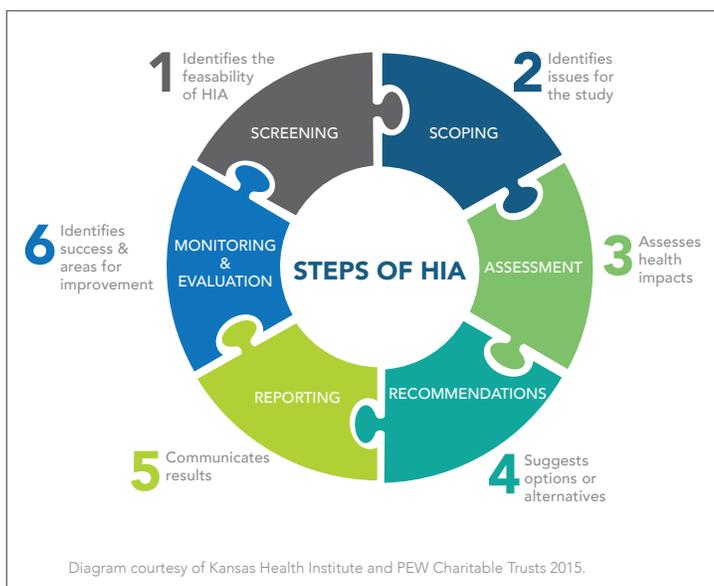
In addition to physical-activity health benefits, the Greenway may also be able to improve mental health through a variety of ways, including the psychological benefits of being in nature and the building of community through trail programming. How the GVG is safely accessed will also be further examined throughout the scope of this HIA, while also referencing documented health impacts of other rails-to-trails and greenways.

2.4 WHAT IS A HEALTH IMPACT ASSESSMENT?

As defined by the National Research Council, "HIA is a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects." - (National Research Council of the National Academies 2017).

Currently, according to the Health Impact Project, there are nearly 420 completed or currently in-progress HIAs across the U.S. addressing local, county, state and federal projects. HIAs evaluate a vast variety of topics impacting the built environment including transportation, land use, physical activity and more (The PEW Charitable Trusts 2015). In New York state, we are aware of only three completed HIAs, two of which have been published to the Health Impact Project website, including one studying access to waterways here in Rochester, N.Y.

The six steps of an HIA are illustrated and summarized below but also appear in this report as a section-by-section guide to illustrate how each step was applied to the GVG HIA.



- Screening - Determine whether an HIA is needed and likely to be useful.
- Scoping - In consultation with stakeholders, develop a plan for the HIA, including the identification of potential health risks and benefits.
- Assessment - Describe the baseline health of affected communities and assess the potential impacts of the decision.
- Recommendations - Develop practical solutions that can be implemented within the political, economic or technical limitations of the project or policy being assessed.
- Reporting - Disseminate the findings to decision makers, affected communities and other stakeholders.
- Monitoring and Evaluation - Monitor the changes in health or risk factors and evaluate the efficacy of measures that are implemented and the HIA process as a whole (PEW Charitable Trusts 2014).

2.5 WHY CONDUCT THE GVG HIA?

When selecting this project for a HIA, the steering committee considered that an HIA on the GVG (or a portion of the GVG) may lead to a broader understanding of the population that utilizes the trail. It was acknowledged that the HIA could lead to strategic recommendations and actions that could be implemented on the GVG and within surrounding communities which could foster improved health outcomes and help to overcome identified health disparities in the region.

In a broader context, during the course of this project, we became aware that funding for NYS Parks is partially based on park admissions, as parks that demonstrate the greatest attendance generally receive higher levels of funding. As the Greenway does not currently and has never required or accepted admission fees, it cannot easily track the number of patrons or generate revenue in the same capacity that other NYS parks are able to. This presents a challenge for making the case for a level of funding sufficient to ensure the Greenway's long-term development and operation.

This GVG HIA will help to define other ways beyond traditional economic impact calculations that the Greenway benefits NYS Parks and especially the health and safety of its surrounding population. In conducting this assessment, a new opportunity exists to learn more about the makeup of the community affected by the Greenway, which may lead to strategic recommendations that will impact its future enhancement, appeal, safety and viability. The assessment also seeks to identify monitoring and evaluation protocols to better capture data and trends that may lead to better promotion and integration of the Greenway with its proximate population centers.

Throughout this HIA's scoping process, the steering committee helped to identify and prioritize potential health determinants that could lead to improved health outcomes and help to mitigate health disparities. Those health determinants have been analyzed and the results of their study are discussed in greater detail in the following sections of this report.



Section 3: GVG HIA Methodology

3.1 HIA PROJECT TEAM

The HIA Project Team consisted of four Common Ground Health staff members:

Albert Blankley – Director of Research and Analytics

Benjamin Woelk – Health and Community Infrastructure Analyst

Deidre Reid – Health Planning Research Analyst

Kathi Lynch – Health Planning Research Analyst

3.2 STEERING COMMITTEE

A steering committee was established with experts from across Monroe and Livingston counties and the city of Rochester to assist in the guidance and shared learning of this HIA. Members included planners, community advocates, representatives from higher education, authors of previous HIAs, and transportation experts. Membership of the committee is listed below:

Angela Ellis - Planning Director, Livingston County

Erik Frisch - Active Transportation Specialist, City of Rochester

Fran Gotcsik – Senior Consultant, Parks & Trails New York

Jody Binnix - Program Manager, Genesee Transportation Council

Katrina Korfmacher, Ph.D. - Director of Community Outreach, Environmental Health Sciences Center, University of Rochester Medical Center

Kristine Uribe - State Park Manager, Genesee Valley Greenway State Park

Rochelle Bell - Environmental Planner, Monroe County

Theresa Bowick, R.N. – Cruise Captain, Conkey Cruisers

3.3 SCREENING

As noted earlier, the purpose of screening is to determine the value and feasibility of HIA in a particular decision-making context. Screening starts with the identification of a specific decision or proposal (Bahtia 2011).

An initial project list was vetted by a six-step screening exercise to determine which project may have the highest need and to demonstrate why the project was a viable candidate. From a list of potential projects, two were selected for HIA, including the GVG (See Appendix B for details on the six-step process and rationale).

When embarking on the screening process, strong consideration was given to local and regional built environment assets that could impact health outcomes. In analyzing the history and development of the GVG, it became evident that, since its inception, a detailed analysis of potential health benefits and an overall regional demographic profile of actual and potential trail users had not been conducted in a widespread or systematic way.



3.4 SCOPING

3.4.1 Parameters of the Assessment (Vision, Study Area)

Vision

To obtain stakeholder feedback on a range of social determinants of health, a detailed scoping exercise was conducted with the steering committee. A half-day workshop was conducted at Common Ground Health that led to three prioritized health determinants being identified for future assessment: physical activity, access and infrastructure, and safety. After follow-up conversations with the GVG State Park and FOGVG, social cohesion was incorporated into the Greenway analysis.

Study Area & Demographics

In addition to the prioritized health determinants, it was determined that this HIA should focus on the northernmost 50-mile portion of the GVG, specifically Monroe and Livingston counties. The decision of the study area was based on several factors, including a desire to focus on the GVG's most populated segment, issues with territory outside of the GTC's municipal planning boundaries, and concerns about the project timeline and expanded scope if the study were to include all 90 miles of the trail.

As a baseline, we have included the demographic profiles of each target county to identify the nature of the populations living in those counties and to further examine where vulnerable populations may be present within communities near the Greenway. By further examining the local population we may better understand potential barriers to health and overall access to the Greenway. The literature in this report links low socioeconomic status as a barrier to both physical and mental health outcomes and cites that disadvantaged populations may include women and minorities. Further analysis and literature on equitable access may be found throughout the prioritized health determinant sections of this report.



TABLE 1	MONROE	LIVINGSTON
Population	750000	65000
White	71%	91%
Black	15%	2%
Hispanic/Latino	8%	3%
Asian	5%	1%
Other	1%	3%
Married Couples	43%	50%
Single Heads of Households (M or F)	18%	15%
Female head of household	14%	12%
Non-Family	39%	35%
% under 65 yrs with a disability	9%	9%
% living below poverty Line	15%	13%
% seniors living below poverty line	7%	7%
% food insecure in previous 12 mos	22%	25%

Table 1-Population, Monroe and Livingston Counties, (2015 Census Bureau 5-year estimate, 2013-14 BRFSS)

Within each county, there are also differences in the populations in the communities through which the GVG passes. Table 2 below illustrates a few of those differences.

TABLE 2	ROCHESTER 14611	SCOTTSVILLE 14546	PIFFARD 14533	MT MORRIS 14510
Population	17340	5005	1828	4778
White	24%	86%	95%	92%
Black	64%	11%	0%	3%
Hispanic/Latino	13%	4%	0%	0%
Asian	1%	1%	1%	0%
Other	5%	0%	4%	5%
Married Couples	15%	48%	49%	42%
Single Heads of Households (M or F)	42%	17%	14%	23%
Female head of household	33%	14%	14%	19%
Non-Family	43%	35%	37%	35%
% living below poverty Line	42%	8%	3%	20%
% seniors living below poverty line	13%	6%	3%	16%

Table 2-Population throughout the GVG, (2015 Census Bureau 5-year estimate, 2013-14 BRFSS)

3.4.2 Affected and Most Vulnerable Populations

Equity was previously identified as being one of the five guiding values of Health Impact Assessment, and a primary goal for this report is to be considerate of those populations that may fall into categories of increased health disparities. This HIA integrates data that assists in helping to identify who the most affected and vulnerable populations among the northern portion of the Greenway may be, taking into consideration household incomes, minority populations and disparate health outcomes. Those populations are identified and cited within the scope of this report, in an effort to determine strategies and develop recommendations that may lead to increased engagement and an overall improvement of health outcomes.

3.4.3 Identification of key issues

Four health determinants were prioritized and selected for further analysis to assess the potential health disparities that may currently exist and for the exploration to reach improved health outcomes. The health determinants selected are:

- Physical Activity
- Access and Infrastructure
- Safety
- Social Cohesion



Section 4: Physical Activity

4.1 PHYSICAL ACTIVITY AND HEALTH LITERATURE REVIEW

The World Health Organization (WHO) defines physical activity as, “any bodily movement produced by skeletal muscles that requires energy expenditure.” To prevent chronic disease and remain “sufficiently active,” the WHO recommends that adults should do at least 150 minutes of moderate-intensity physical activity (walking, cycling and sports) every week, or 75 minutes of vigorous-intensity activity (exercise). A balanced combination of moderate-to-vigorous intensity physical activity can also suffice to reach the recommend levels (World Health Organization 2017).

Physical activity has significant health benefits and contributes towards the prevention of non-communicable diseases, including reducing the risk of hypertension, coronary heart disease, stroke, diabetes and various types of cancer. Physical activity may also reduce depression. Regular physical activity is beneficial to people of all ages and backgrounds, having positive effects on health, longevity and quality of life (United States Department of Health and Human Resources 2017). Physical activity has also been found to improve self-image, self-esteem, physical and mental wellness, and overall health (Ross 2007). Only 25 percent of all adults reach recommended physical activity levels across the nation. Where achieving the recommended amount of physical activity can lead to positive health outcomes, insufficient physical activity can lead to significant health disparities, which include cardiovascular diseases, cancers, diabetes and depression. (Handy 2005) One in three adults (36.5 percent) are obese (Center for Disease Control and Prevention 2017). A lack of physical activity is one of the leading risk factors for death in adults (ages 18-64) worldwide. People who do not reach the proper recommended physical activity levels have a 20-to-30 percent increased risk of death compared to those people who are sufficiently active (World Health Organization 2017). Here in the U.S., it is estimated that 60 percent of the adult population is at risk for diseases associated with a lack of physical activity (National Institute on Aging 2000).

How traditional versus active transportation leads to chronic disease was studied in San Francisco in a report that documented that each hour spent in a car per day was associated with a six percent increase in the risk of becoming obese. However, for each kilometer walked, a 4.8 percent reduction of the risk of being obese was recorded (Kitamura, Mokharian and Laidet 1997). A lack of physical activity also contributes to high economic costs. One study stated that the medical costs based on the current trends of obesity will reach as high as \$344 billion in related cost by 2018 - or 21 percent of the nation's direct spending on health care (United Health Foundation, the American Public Health Association and Partnership for Prevention 2009).

Physical activity data in the U.S. also reveals disparities across socioeconomic groups (Braveman, et al. 2010). A further breakdown of insufficient physical-activity levels was examined in several studies that noted that certain demographic groups, including senior citizens, children, low income households, minorities, and people with disabilities, face significant barriers to getting enough physical activity, and have higher rates of physical inactivity (Church 2010).

Other data demonstrated that women tend to be less physically active than men, with minority women typically being the least physically active (World Health Organization 2017). African Americans and Hispanics also were found to engage in less physical activity compared to whites. Differences in physical activity levels also vary by age, with those 65 years or older having the least amount of physical activity than any other age group (Ross 2007, 96).

According to an analysis of creating active-living communities, one of the most “powerful interventions” in public health to enable physical activity should be to ensure that safe, attractive and convenient places for physical activity are fostered. The report also cited the need to create motivational and educational programs to ultimately encourage the use of those places (Sallis, et al. 2006). Parks can provide a safe and affordable place to be physically active for all ages, ethnicities and abilities. A study conducted in the U.S. indicated that about one-quarter of adult men and women used a walking, hiking or bicycling trail at least once per week to participate in some related form of active transportation (Librett, Yore and Schmid 2006). Trails were also associated with a 51 percent increased chance of meeting the Center for Disease Control and American College of Sports Medicine recommendations for physical activity (Huston, et al. 2003). Other research has shown that residents who have access to walking/biking trails are 55 percent more likely to meet physical-activity recommendations (R. C. Brownson 1999).

One HIA focused on improving a municipal parks and recreation system in the U.S. to have a larger positive health impact and highlighted the importance that a neighborhood environment can play to either enable or discourage physical activity. The absence of lighting, sidewalks or lack of other people exercising may play in to the decision of an individual to use a community trail, including whether the trail is perceived to be close enough to access (Town of Davidson, North Carolina 2013). A project in Aberdeen, N.C. cited the importance of utilizing “evidence-based strategies” to change the built environment to increase physical activity. Those strategies included improving the connectivity of sidewalks, improving road crossings, traffic calming and building new walking trails. It was determined that some of the infrastructure improvements (sidewalks, crosswalks) would particularly benefit low-income neighborhoods (Buescher, et al. 2011). However, building a trail without addressing neighborhood physical environments conducive to physical activity, or failing to address concerns of trails being within a close proximity, may not have the intended positive effects on physical activity (Abildso, Zizzi and Laurie C. Abildso 2007). A study published in the American Journal of Preventive Medicine found that trails may be of particular importance in rural areas where walking or bicycling for transportation or exercise has been found to be less prevalent. The study found that the inclusion of trails within parks had the strongest association with increased levels of physical activity (Librett, Yore and Schmid 2006, 399-405). Several related studies of adults living in rural Missouri found 32 to 55 percent of trail users reported increased physical activity levels after they began using local trails (Brownson, Baker, et al. 2004) (Brownson, Housemann, et al. 2000).

Research indicates trail use positively impacts the frequency of physical activity (Troped, Saunders, et al., Associations between self-reported and objective physical environmental factors and use of a community rail-trail 2001) and also corresponds to the amount of physical activity achieved in the local community (Evenson, Herring and Huston 2005), especially among those who are new to exercising (Gordon, Zizzi and Pauline 2004) (Ferdinand, et al. 2012).

It is important to note that the proximity to the trail is considered to have a direct relationship on “behavior settings,” individual’s relationship to the built environment and, in this instance, its relationship to physical-activity levels (Ball, et al. 2001) (Kirtland, et al. 2003) (Spangler 2005). Numerous studies examining urban trails and physical activity for trail users demonstrate that living within .05 miles of a trail is associated with up to a 50 percent increase in the likelihood of meeting physical- activity recommendations (Abildso, Zizzi and Laurie C. Abildso 2007, 374-383) (Dunton, et al. 2009) (Huston, et al. 2003) (Pierce, et al. 2006) (Troped, Saunders, et al., Correlates of Recreational and Transportation Physical Activity Among Adults in a New England Community 2003) (Troped, Saunders, et al., Associations between self-reported and objective physical environmental factors and use of a community rail-trail 2001).

In a study conducted in Australia, the presence of shops, parks and/or paths within walking distance was also positively associated with walking for exercise in Australian adults. Nationally, perceived access to recreation facilities was significantly related to physical-activity levels in a sample of Sumter County, S.C. residents (Ferdinand, et al. 2012). A survey of trail users in Morgantown, Va. was conducted on a series of 12 miles of paved trails. The survey found that 94 percent of survey respondents were attaining 150 minutes of leisure-time physical activity per week, the amount recommended by the CDC, and that 25 percent of the trail users became regular exercisers (three or more times a week) as a result of the development of the trail (Gordon, Zizzi and Pauline 2004). An HIA conducted in Globe, Ariz. found that a trail extension would provide the opportunities for physical activity, and a safer route for their resident pedestrians and bicyclists than any other infrastructure that was currently available, which could lead to increased physical-activity rates. The study also cited that increased rates of physical activity would also decrease health-care expenditures (Paramount Public Health Services 2015). Literature regarding the cost savings associated with trail infrastructure creation compared overall economic investment in trails to their estimated cost savings on public health and found that for every \$1 invested in trails, the resulting physical activity that occurred because of their creation, led to \$2.94 direct medical benefit per trail user (Wang, Macera and Scudder-Soucie, et al. 2004, 174-179).

4.2 PHYSICAL ACTIVITY AND THE GVG

According to the 2016 Gallup-Healthways Well-Being Index, the Rochester region ranked 68 out of 189 Metropolitan Statistical Areas in the Physical Health category which Gallup defines as “having good health and enough energy to get things done daily” (Sharecare 2016). In 2010 New York State Parks published the Statewide Trails Plan that included statewide health statistics and survey results of trail users. According to the report, 60 percent of adults in New York State are overweight or obese and obesity-related illnesses were costing the state more than \$7.6 billion per year. The plan suggested that trail benefits may include weight control, the reduced risk for cardiovascular disease and diabetes, and reduced risk of some cancers among other potential health benefits. The plan also notes that trail use can strengthen bones and muscles and improve mental health and mood (New York State Office of Parks, Recreation and Historic Preservation 2010, 3). According to a survey included in the plan, 63 percent of New Yorkers utilize trails for walking/jogging, 30 percent for biking, and an additional 20 percent for hiking or backpacking. The trail participation results also indicated that 86.3 percent of all trail users reside within a 20-mile radius of the trails they utilize, making them “local users.”

4.2.2 Existing Health conditions

In order to identify health disparities the literature indicated could be linked to physical inactivity, further examination into county-level rates of obesity, diabetes and hypertension were researched. Respondents to the Monroe County 2013-14 Behavioral Risk Factor Surveillance System (BRFSS) reported the following: 24 percent of adults and 14.5 percent of children were obese, 9.5 percent had physician-diagnosed diabetes, 30 percent had physician-diagnosed hypertension, and 11 percent reported having had poor mental health for 14 or more days in the last month.

In Livingston County, respondents to the 2013-14 BRFSS reported the following: 34 percent of adults and 19 percent of children were obese, 12 percent had physician- diagnosed diabetes, and 30 percent had physician-diagnosed hypertension, and 12 percent reported having had poor mental health for 14 or more days in the last month.

4.2.3 Current Physical Activity Levels

For added context, current physical activity was similarly researched in counties along the northernmost portion of the Greenway. In Monroe County, nearly 75 percent of residents reported having participated in leisure-time physical activity in the past 30 days (New York State Department of Health 2013-14).

In Livingston County, approximately 67 percent of residents reported having participated in leisure-time physical activity in the past 30 days (New York State Department of Health 2013-14).

Studies have shown that participating in regular physical activity reduces the risk of chronic diseases such as heart disease, stroke, type 2 diabetes, colon and breast cancer, and reduces the risk of premature death. It also contributes to improved mental health. Trail use reduces barriers to physical activity by reducing cost and, depending on proximity, access to the trail. There has been little research, however, in the use of trails by race or ethnicity on a local level.

4.2.4 Decisions/Policies Impact

One program that encourages physical activity is Adopt-a-Trail, which is included in the GVG State Park Master Plan and is being implemented by the FOGVG. This program offers opportunities to local committees, businesses, service clubs, user groups, families, individuals and others to adopt sections along the entire trail so that volunteers can participate in various trail improvements and assist with general maintenance. Adopt-a-Trail signs that identify the organization volunteering to maintain a trail section are displayed and include a phone number for trail users to call to report trail problems and for information about the Adopt-a-Trail program.

There were also several policies cited by others on a regional level that could be adopted to increase physical activity levels along the GVG. They include:

- Development of a trail parallel to the Black Creek Stream Corridor connecting the GVG, Black Creek Park, and Churchville Park in the towns of Chili and Riga (Regional Trails Initiative (RTI) 2002).
- Development of a trail parallel to the Oatka Creek Stream Corridor connecting the GVG and Oatka Creek Park to the Monroe/Genesee County line (RTI 2002).
- Regional Trails Initiative 2016 that has the GVG loop at Letchworth State Park transitioning from a natural trail to a long, on-road segment (RTI 2016).
- The Livingston Transportation Connectivity Plan, which fosters partnerships and connections for the purpose of supporting and promoting a vital and sustainable Livingston County.

A potential barrier to physical activity on the GVG is in Livingston County, where diverting trail users on-road creates conflicts with motorists.

4.3 PHYSICAL ACTIVITY RECOMMENDATIONS

Insufficient physical activity can lead to significant health issues, such as cardiovascular diseases, cancers, diabetes and depression. Much research for this HIA focused on identifying ways for utilizing the GVG to potentially improve physical activity. Physical activity data showed disparities across socioeconomic groups and demonstrated that women tend to be less physically active than men, with minority women typically being the least physically active.

An analysis of active-living communities revealed that ensuring safe, attractive and convenient places for physical activity can foster more physical activity. Other HIAs also were studied to identify other ways to improve a municipal parks and recreation system. For this HIA, existing rates of obesity, diabetes and hypertension at the county level also were researched.

Given the potential impact of physical activity on health outcomes, finding ways to increase the physical activity of the residents of Livingston and Monroe counties through the Greenway has the potential to positively impact people's health in those communities. Based on the research and analysis, the following physical-activity recommendations are proposed:

Physical Activity

Ensure accessible, safe, and maintained trails to promote physical activity.

Specific Actions:

- Partner with governments and community organizations to promote physical activity.
- Ensure that programming and events are inclusive of vulnerable populations.

Promote trail use along the Genesee Valley Greenway.

Specific Actions:

- Work with regional tourism organizations to develop campaigns on active-living health benefits of local trails/hubs for area residents/visitors.
- Utilize campaigns to increase overall awareness and usage of the Greenway as an active transportation/recreation corridor.



Section 5: Accessibility & Infrastructure

5.1 ACCESS, SOCIAL EQUITY AND HEALTH LITERATURE REVIEW

When prioritizing access and infrastructure as one of the health determinants for study, this report sought to explore the topic of access through the examination of the built environment, trail proximity, equity and food access.

The linkage of health and the built environment has the potential to significantly impact both physical and mental health, as well as equity and social well-being (Jackson and Kocklitzky 2010) (Ewing and Kreutzer 2006). The East Bay Greenway cited that the primary benefit of the rail to trail was increased physical activity, according to its Health Impact Assessment and a lack of pedestrian- and bicycle-friendly streets and trails was recognized as one of the leading causes of failure to achieve minimum recommended amounts of physical activity in urban environments here in the U.S. (Heller and Bhatia 2010). Another Health Impact Assessment recommended enhancing trail infrastructure as a way to encourage physical activity and improve overall health outcomes, noting that trails are inherently “a low-cost recreation opportunity and can extend active transportation opportunities to all populations and demographics.” (Molina, et al. 2012). In a study of trails in North Carolina, trails were associated with a 51 percent increased chance of meeting the Center for Disease Control/American College of Sports Medicine recommendations for physical activity. Additional studies have also indicated an increased likelihood of individuals reaching recommended physical-activity levels when those trails provide opportunities for walking or biking (Huston, et al. 2003) (R. C. Brownson 1999).

Areas that lack access to parks, trails and green spaces can limit an individual’s ability to take advantage of these resources and thereby limit their ability to meet daily recommended levels of physical activity for families and children (Blanck, et al. 2012). Multiple studies have shown that the closer residents’ homes are to a trail or park, the more likely they are to use the trail (Furuseth and Altman 1991) (Moore and Graefe 1994) (Ottensmann 2008). The proximity baseline varies among studies, however. For example, one study cited the distance from a user’s home needed to encourage use of a trail to be less than .3 miles or five minutes walking time (Rosso, Auchincloss and Michael 2011). In Arlington, Mass., those living outside of a quarter mile distance from a trail were associated with 55 fewer minutes per week of walking or biking. An additional study in Massachusetts found that among 363 adults, the likelihood of using a suburban rail-trail decreased by 42 percent for every .25 mile increase from their homes to the trail (Troped, Saunders, et al., Associations between self-reported and objective physical environmental factors and use of a community rail-trail 2001). In Los Angeles, individuals living within two miles of a park were 34 percent more likely to exercise there (Cohen, Deborah, et al. 2006) (Troped, Saunders, et al. 2003). A Minneapolis study found a rapid decrease among bicyclists who had to travel 1.5 miles or further to access trails (Krzek, El-Geneydy and K 2007) and a study of 12 rural counties in Missouri, determined that 38.8 percent of those who had access to trails used them, despite the fact that nearly half of that population had to travel 15 miles or more to access them (Brownson, Housemann, et al. 2000).

In addition to proximity, studies have shown that the design and connectivity of trail infrastructure also affects trail use. While some residents may live near the park, built environment barriers such as busy roads, fences or a lack of signs and signals can create barriers to using those places (Blanck, et al. 2012). One study demonstrated a direct correlation between connectivity and higher walking rates in communities that are considered walkable, which led to increased physical activity and health outcomes (Hess, et al. 1999). As mentioned, studies have demonstrated that the design of communities influences physical activity among residents (Saelens, Sallis and Frank 2003). In highly



“walkable” neighborhoods, many people live close and have direct routes to services or amenities that include opportunities for shopping, recreational facilities and government services (Buescher, et al. 2011, 12). Having multiple destinations has been proven to determine whether an individual will select walking or bicycling as their mode of travel over the automobile (Frank, Andresen and Schmid 2004). The East Bay Greenway also concluded that increasing trail use would help to shift short-trip transportation away from motor vehicles and towards walking and biking (Heller and Bhatia 2010). Community trail-use studies have also shown various sociodemographic factors that significantly correspond to related trail use. For example, younger people were found to be more likely to use trails than older people (Troped, Saunders, et al., Associations between self-reported and objective physical environmental factors and use of a community rail-trail 2001). According to statistics, nearly one in five U.S. seniors does not drive and relies on walking and public transportation in order to obtain basic daily needs. Barriers in the physical environment that make walking difficult for seniors may include high traffic speeds, uneven or irregular sidewalks, long intersection crossings, a lack of shade and a shortage of places to stop and rest. Other factors include service or infrastructure deficiencies that lead to insufficient transit service. These built environment factors can have serious health impacts particularly among seniors including having them not leave their homes (Lynott 2009).

The material makeup of trails, especially their surface condition, has also been linked to an increase in use (Gobster 1995) (Andereck, et al. 2001) (Reynolds, et al. 2007). In one walkability and biking assessment, half of survey respondents reported using a trail in the Pinal Creek area of Arizona for recreation, but 94 percent of survey respondents felt that the trail was difficult to use and needed improvements (Paramount Public Health Services 2015, 48). In a study of four neighborhoods in Ontario, Canada, researchers found that parks with paved trails were almost 26 times more likely to be used for physical activity than parks without paved trails (Kaczynski, Potwarka and Saelens 2008). According to several studies among women in rural areas and a study that analyzed walking behaviors and physical activity, barriers beyond infrastructure included money, health, interest in the trail, opportunities to use the trail, ability, perceived neighborhood safety, motivation, possible injury, traffic and cleanliness (Osuji, et al. 2006) (Eyler, Brownson, et al. 2003).

Equity and Access

The relationship between socioeconomic status (SES) and health outcomes is considered to be a reliable predictor of mortality, morbidity and disability in the U.S., as well as in most industrialized nations (Adler, et al. 1993). Numerous studies have shown that health inequalities are associated with income levels (Marmot 2005) (McDonough, et al. 1997) (Mustard, et al. 1997) (World Health Organization 2003). For example, adults who are poor are three times more likely to suffer from chronic illness and twice more likely to have diabetes and heart disease than adults who are wealthy (Braveman and Egerter, Overcoming obstacles to health: Report from the Robert Wood Johnson Foundation to the commission to build a healthier America n.d.). According to an article published in the *Journal of Epidemiology and Community Health*, equity in health can be defined as, “the absence of systematic disparities in health or major social determinants of health between social groups who have different levels of underlying social advantage or disadvantage.” Examples of populations that can be considered socially disadvantaged include those living in poverty, females and/or minority groups (Braveman and Gruskin, Defining Equity in Health 2003). Public parks are an especially important resource for low-income and minority communities who lack access to other venues for physical activity due to cost or distance. However, lower SES neighborhoods often have fewer free-for-use physical activity resources (Estabrooks, et al. 2003) (Leslie, et al. 2010) (Cohen, McKenzie, et al. 2007). Multiple studies show that low income communities have significantly less access to recreational facilities than wealthier communities which results in health disparities among

that population (Ross 2007). Proximity to parks was also cited as the “key issue” for low-income residents in Los Angeles (County of Los Angeles Department of Public Health 2007).

A person’s income level greatly affects their available opportunities for physical activity through access to walkable streets and proximity to schools, parks and public space (Institute of Medicine 2012) (Jackson and Stacy, Designing Healthy Communities 2012) (Clifton, Morrissey and Ritter 2012). Several studies have demonstrated that residents with higher incomes are more likely to use walking trails than those with lower incomes, and individuals with a college education or higher are more likely to use trails than individuals with less education (Brownson, Housemann, et al. 2000) (Librett, Yore and Schmid 2006) (Troped, Saunders, et al., Associations between self-reported and objective physical environmental factors and use of a community rail-trail 2001). These findings are important to consider when proposing an urban rail trail (Paramount Public Health Services 2015).

A HIA in Georgia integrated recommendations to “ensure equity in implementation priority, site selection and resource allocation through the equitable distribution of green resources throughout the region.” The HIA focused on areas that are currently underserved to provide new opportunities for populations that have the greatest need to engage in infrastructure that would lead to a high influence on population health (Dills, et al. 2014). The HIA also prioritized access to job opportunities near trails and greenways and recommended connecting trails and greenways to employment centers so residents could use these amenities as a commute option, “thereby contributing to potential health benefits associated with physical activity, exposure to nature, and possibly social capital.” (Kockelman, Chen and Nichols 2013) (Pucher, Dill and Handy 2010) (Transportation Research Board 2012).

5.2 ACCESS, SOCIAL EQUITY AND THE GVG

As indicated by the demographic research conducted for this report, 15 percent of Monroe County residents and 13 percent of Livingston County residents fall below the federal poverty level. Additional demographic research sought to identify potentially disadvantaged populations including women and minorities. In addition to the primary research conducted for this report, a variety of access issues have been identified on a local basis by the Regional Trails Initiative (RTI) from the GTC. The RTI’s purpose is to develop a comprehensive and achievable action plan for community leaders to create and maintain a safe, accessible and highly functional regional trail system that is fully integrated with the existing transportation system (Genesee Transportation Council 2002). The RTI first published Phase 1 in 2002 and conducted its most recent Phase III update in 2016.

According to a survey conducted by the Phase III RTI, the GVG was the fourth most frequently used trail in the Genesee-Finger Lakes region, behind only the Genesee Riverway Trail and the Brighton and Pittsford sections of the Erie Canalway Trail. Of the 235 trail users surveyed, the most important benefits of trails were recreation and exercise, followed by transportation. The same study also outlined what trail users felt discouraged about, including an overall lack of awareness of trail systems and a lack of “continuity or connectivity.” The survey identified that users felt that the most important trail amenities were directional signs, mile markers, and benches along the trail (Genesee Transportation Council 2016). A key survey finding also identified that many respondents had the desire to use trails more often. Ninety-one percent of those surveyed expressed that they would use trails more often if they could easily walk or bike to one from their home or workplace. Of those surveyed, 77 percent indicated that they use trails for walking and hiking, while another 72 percent stated they bicycle on trails (Genesee Transportation Council 2016, 1.9).



5.2.2 Geographic/ Population Access

The GVG supports hiking, running, bicycling, horseback riding, skiing, snowshoeing and snowmobiling. A 2008 GVG user survey found that most trail use occurs between May and August and the trail is used primarily for bicycling and hiking. The trail is used year-round, with some respondents indicating that they also cross-country skied, snowshoed or snowmobiled on the trail in winter months.

The GVG is easily accessible via 31 waypoints/trailheads located between Genesee Valley and Letchworth parks. The waypoints have gates that prevent most motor vehicles from accessing the trail.

Since most waypoints/trailheads are located near roadway intersections, they may be easily accessed via public transportation. As seen on the map, the GVG crosses a number of state or county routes.

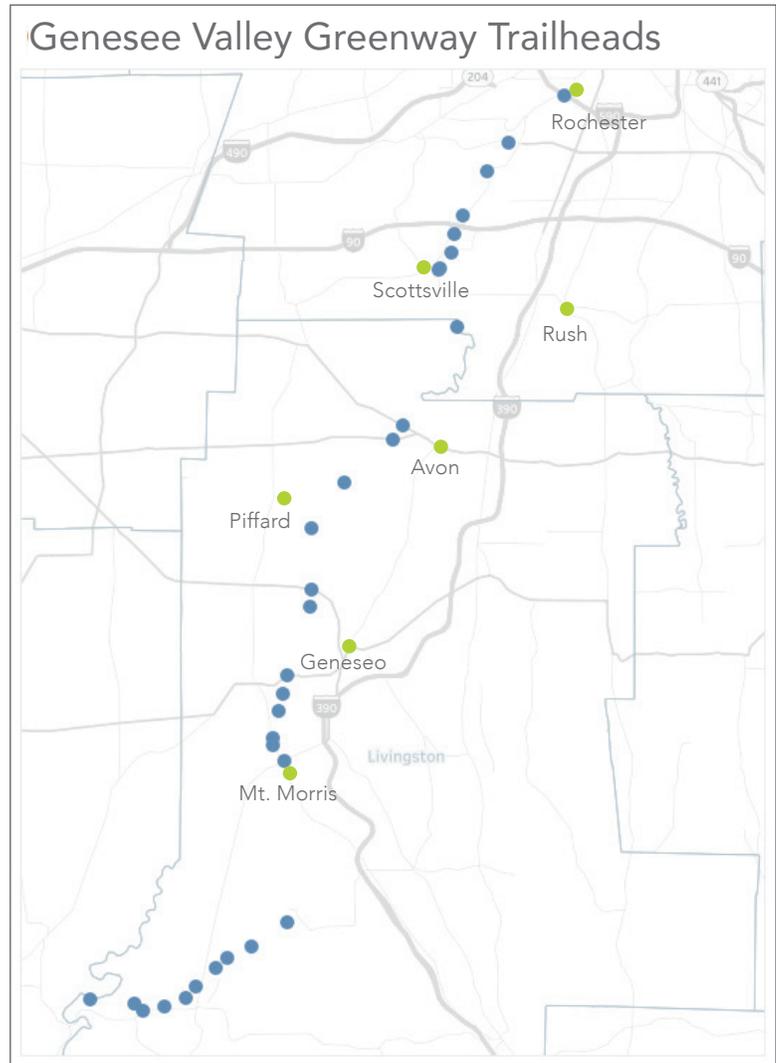
While all waypoints are easily accessible, not all are clearly marked. In fact, only a handful of them are marked with signage or striped crosswalks to facilitate safe crossing of intersecting streets. Access to the trailhead may be unsafe because of lack of wayfinding signage, no bike lanes, and no sidewalks or sufficient shoulder on busy streets.

Mt. Morris appears to have the best access to the trail as the GVG passes directly through the village, and there are two waypoints that access the trail. Both of these access points have clearly marked pedestrian crossing stripes in the street.

A boardwalk was built in Scottsville to connect the trail to businesses in the village. In addition, the Regional Trails Initiative 2016 update describes a plan to develop a multi-use trail connecting the GVG from Scottsville Road to Ballantyne Road.

The hamlet of Piffard also provides access to the GVG at the Yard of Ale, a restaurant at an access point on NYS Route 63 that has served the community since the 1800s.

One other example of a geographic access barrier includes a double-arched culvert at Black Creek, that was cited as a key infrastructure link (bridge) that is failing and may require \$1 to \$2 million in structural improvements to repair. The culvert is also of historic significance (built c.1840) and may require preservation efforts to support its viability.





Culvert located at Black Creek

5.2.3 Trail Infrastructure/Conditions

Trail conditions impact trail infrastructure and access. Inclement weather causing washouts, ongoing trail maintenance, easement/right-of-way issues, and acquisition issues along various portions of the trail disrupt trail use.

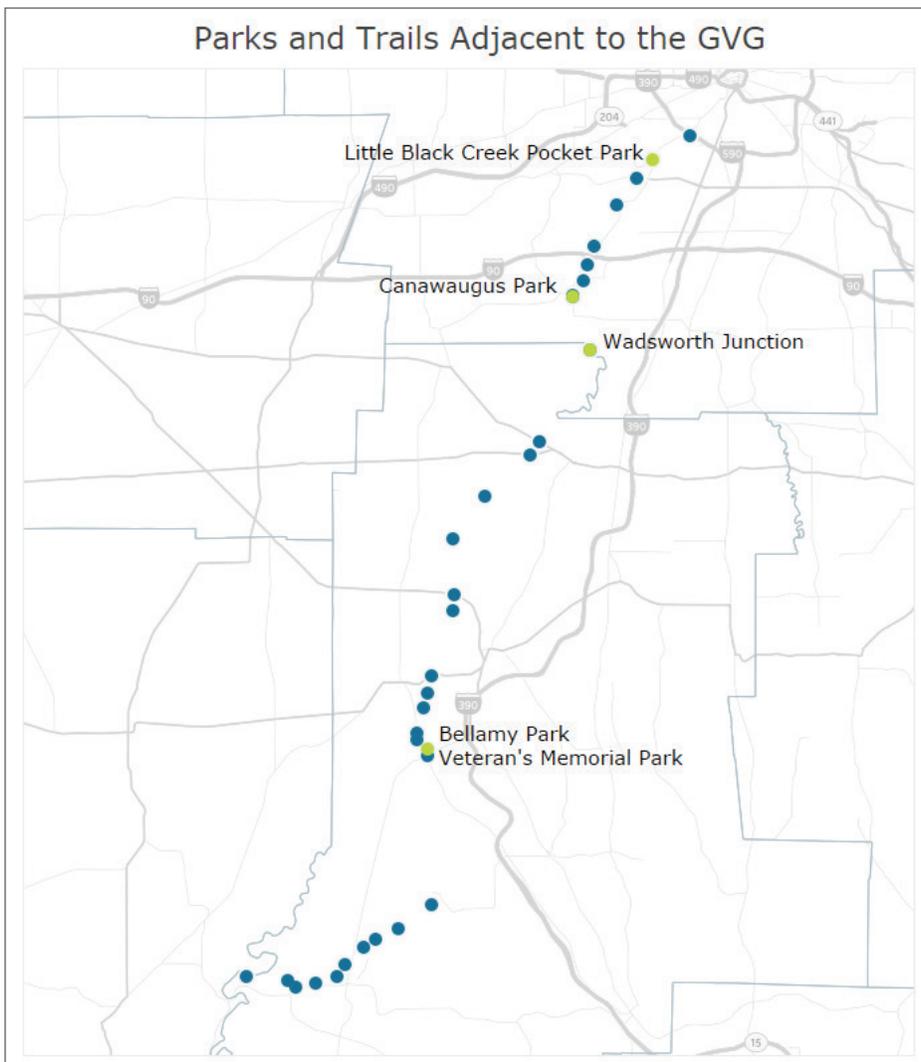
- Ownership of an easement along a CSX rail-crossing section is being sought along Scottsville Road. New York State currently owns it.
- The double-arched culvert at Black Creek mentioned above is a key link that needs repair.
- As a former rail bed, GVG’s slopes are minimal, making it generally accessible for people with varying physical abilities. However, some sections present greater challenges due to erosion/ settling and the removal of railroad overpasses or underpasses. (p2-Accessibility Guidebook)
- GVG is listed as a wheelchair-accessible trail by TrailLink.com, even though only the trail’s first two miles are paved.
- Some steering committee members expressed concern about existing trail conditions being rough and composed of grass and cinders (versus stone dust) and they questioned the TrailLink.com rating as ADA-accessible based on the actual trail-surface condition.

5.2.4 Greenspace/Trails Access

The Greenway connects to other trails and greenspaces in Monroe and Livingston counties. These include the Erie Canalway Trail (east/west) at Genesee Valley Park (GVP), the Genesee Riverway Trail (north/south) at GVP, the Canal Street Boardwalk in Scottsville, and the Lehigh Valley Trail 2.6 miles south of Scottsville. The trail also passes near northern and southern entrances to Letchworth Park, the Erie-Attica Trail and a portion of the Finger Lakes Trail near Mt. Morris, Letchworth, and Portageville.

Other examples of well-maintained neighborhood parks/trails/greenspace close to the Greenway include:

- Brookdale Preserve between Brook Road and Ballantyne Road, Chili
- Little Black Creek Pocket Park, on the west side of Scottsville Road
- Canawaugus Park, Scottsville
- Veterans Memorial Park, Mt. Morris
- Wadsworth Junction at Route 251 and Route 5
- Route 408 near Bellamy Park



5.2.5 Food Access

Food insecurity is defined as a reduction in the quality, variety and desirability of diet with little or no indication of hunger (low security) or multiple instances of disrupted eating patterns and hunger (very low security).

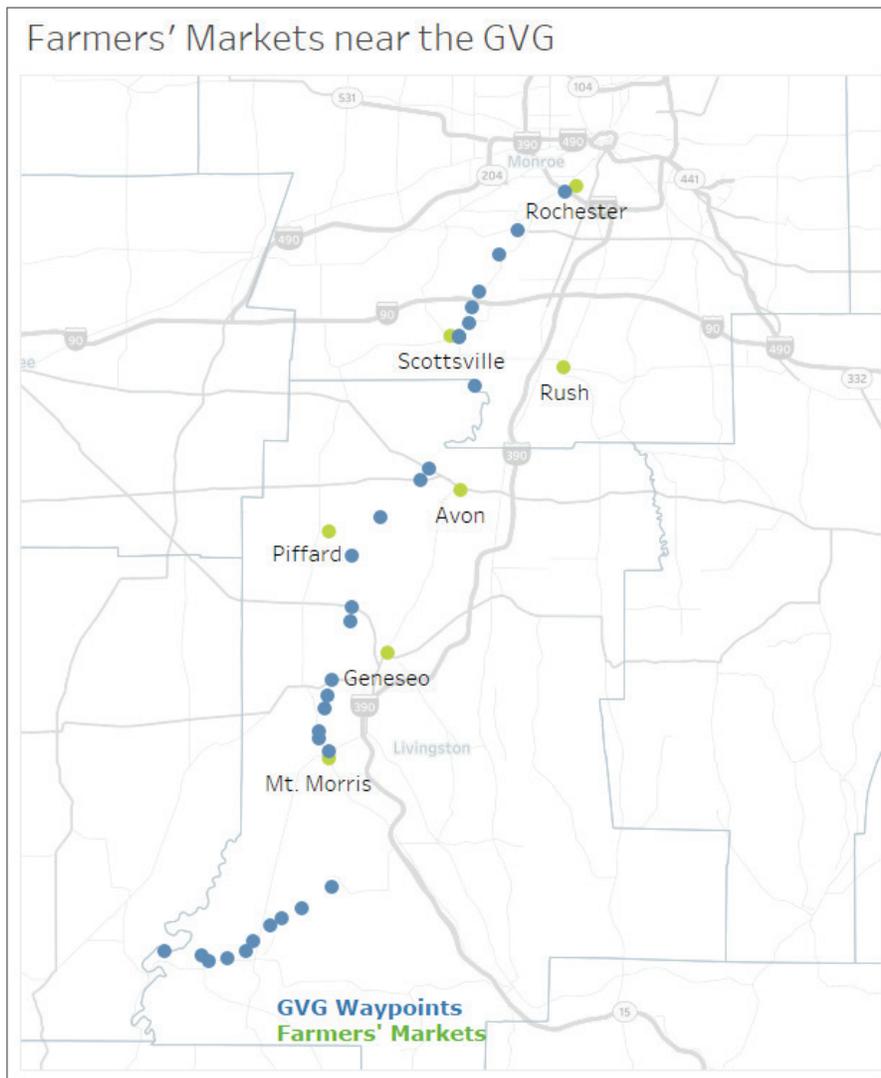
Food insecurity is related to both the supply of food available to individuals and the access those individuals have to that food.

In 2014, 29 percent of adults in New York State reported experiencing food insecurity in the previous 12 months. In that same time period, Livingston County reported a food insecurity rate of 26 percent and Monroe County reported a rate of 23 percent (New York State Department of Health 2013-14).

Many food-insecure households are in or near a food desert or a food swamp. A food desert is an area that lacks access to affordable fruits, vegetables, whole grains, low-fat/non-fat milk or dairy alternatives, and other foods that make up the full range of a healthy diet. In an urban setting, that area is defined as being both low income and being located more than a half mile from the nearest

supermarket. Monroe County's ZIP code 14611 is a food desert. Mt. Morris is the only community in Livingston County near the GVG that is also defined as a food desert. Additionally, in 2014, more than 18,000 Livingston County residents reported having experienced food insecurity, and access to food ranked the third-highest priority in a 2016 community needs assessment (Livingston County Planning Department 2016).

Three farmers' markets in Monroe County operate within six miles of the GVG — one in Rochester, one in Rush, and another in the village of Scottsville. All are open July through November and all are open Wednesday evenings. Of those three, only the market in Rochester accepts Electronic Benefits Transfer/ Supplemental Nutrition Assistance Program (EBT/ SNAP).



Livingston County has four farmers' markets within 20.25 miles of the GVG —two in Mt. Morris, one in Geneseo and one in Piffard while several markets fall outside of that proximity in Avon and Lima. All are open June through October. The Geneseo market and one of the Mt Morris markets accept Electronic Benefits Transfer/ Supplemental Nutrition Assistance Program.

The GVG facilitates access to those farmers' markets in close proximity to the trail and may help minimize the occurrence of food insecurity.

5.3 ACCESS & INFRASTRUCTURE RECOMMENDATIONS

Access limitations to the trail and the current trail conditions can have an impact on trail usage, which can affect physical and mental health. The material makeup of trails, especially their surface condition, has also been linked to an increase in usage.

Research showed that areas that lack access to parks, trails and green spaces can limit the ability of individuals take advantage of these resources - and thereby limit their levels of physical activity. Other HIAs have demonstrated that better connected and accessible trails lead to improved physical activity and overall health outcomes.

Since most waypoints to the GVG cross roads and highways, they may be easily accessed via public transportation. However, while all waypoints are accessible, not all are clearly marked for pedestrian traffic. And, while the Greenway generally has an acceptable ADA slope, it lacks a compliant trail surface to accommodate all users.

Based on these findings, the following accessibility and infrastructure recommendations are proposed:

Access and Infrastructure

Encourage overall engagement with the Greenway.

Specific Actions:

- Make trail-access points frequent near population centers and integrate with off-trail amenities.
- Provide trail hub connections to nearby business districts, parks and schools.
- Create both public transportation/rideshare hubs at waypoints/trailheads near population centers.
- Encourage adjacent businesses to promote the trail and partner with farmers markets to promote activity on the trail.

Develop protocols to capture baseline data on trail usage over time.

Specific Actions:

- Install trail counters at multiple locations, including waypoints/trailheads near municipal centers.
- Document changes/improvements of trail conditions and corresponding data on increased trail usage.
- Analyze data collected to inform trail infrastructure/maintenance enhancement.
- Report trail counts and overall trail utilization to NYS Parks.

Accommodate needs of all potential Greenway users, especially vulnerable populations.

Specific Actions:

- Ensure trails are ADA-compliant when in proximity to residential/senior housing, with ADA parking available.
- Enhance trail surface conditions to stone dust or asphalt near population centers.
- Enhance trail where cyclists are impeded, especially in the southern Livingston County.
- Encourage public transportation providers with routes along Greenway to include bike racks on buses.
- Create parking areas with room for horse trailer parking.
- Improve cross-slope and remove tree roots to create a firm and stable surface.

Maximize utilization of Greenway by encouraging infrastructure that connects with trail.

Specific Actions:

- Provide connections such as new trails, sidewalks, bicycle lanes and public-transit stops.
- In rural areas where the trail utilizes the road, expand the shoulder width to accommodate cyclists/hikers.

Promote walking and biking as mobility options to low-income and at-risk groups.

Specific Actions:

- Develop safety campaigns/trail-use education to raise awareness/improve trail usage.

Increase access to healthy foods and encourage physical activity.

Specific Actions:

- Coordinate and co-promote the location of farmers' markets near trailheads.



Section 6: Safety

6.1 SAFETY AND HEALTH LITERATURE REVIEW

Personal Barriers - Safety

The built environment can contribute to a trail's safety. For example, high-speed roads with narrow shoulders, uneven trail surfaces and hidden entrances may create real and/or perceived threats to personal safety, and such concerns may become barriers to trail use. Trails that are free of crime and pedestrian injury have been correlated with the amount an individual walks with actual or perceived safety (Loukaitou-Sideris 2006). A CDC study found that fear of lack of safety reduced physical activity most in those over 65, women and minorities (Center for Disease Control and Prevention 1999). People are likely to be active if they perceive their neighborhood to be safe from crime and people have lower rates of physical activities when they fear crime (Evenson, Block, et al. 2012). Another study associated the amount of walking an individual does with actual or perceived safety (Loukaitou-Sideris 2006, 369-379). A Rails to-Trails Conservancy study specifically looked to address "safety and fear of crime" as a trail-use barrier. The study examined minor and serious crimes in trails found in urban, rural and suburban locations. The study found no evidence of burglaries near homes adjacent to trails in urban areas and a rate of only .01 percent for suburban trails. Issues of minor infractions including property damage, graffiti and littering occurred more frequently along urban trails than any other. The study concluded that severe crimes "do not occur at high rates" and that these results indicated that trails are safer than other public spaces (Rails-to-Trails Conservancy 2000). Others have cautioned that when advising individuals to be more physically active, one must consider the "social norms for activity, resources and opportunities for engaging in physical activity" and be aware of issues that may include area crime, traffic or unpleasant surroundings. Without those considerations being addressed, physical activity levels were "unlikely to produce behavior change." (McNeill, Kreuter and Subramanian 2006). Studies have shown that crime in outdoor areas, high-density traffic, low air quality, and a lack of parks, sidewalks or recreation facilities may dissuade people from using built environment assets and reduce the access that people have to those spaces (World Health Organization 2017).

The East Bay Greenway located within San Francisco also cited issues around unsafe trails and trails that were "perceived to be unsafe." The lack of real and perceived safety became a barrier to trail use and to enabling people to take advantage of the potential for improved health outcomes. The East Bay Greenway also recognized that a lack of safety was associated with the immediate health risk of injury from traffic and pedestrian accidents and the long-term mental health risk associated with stress and social isolation. Such safety concerns can lead to reduced physical activity and a lack of overall engagement with the trail (Heller and Bhatia 2010, 18). According to research published in the *American Journal of Public Health*, the most frequently reported places that people feel safe walking, exercising, or using for recreational purposes are neighborhood streets and sidewalks, followed by public parks and open space (Powell, Martin and Chowdhury 2003).

Traffic Safety

While research demonstrates that crime and personal safety are not documented as significant issues or concerns on trails, injuries related to traffic — and specifically pedestrian and bicyclist collisions with automobiles — may be a determining factor in people's overall trail use. In an assessment

on community-trail use of “new and repeat exercisers,” both safe and well-designed trails were described as enablers for trail use, while trails with unsafe conditions emerged as a primary concern among new exercisers. Safe access from residential areas, among other concerns, were cited as barriers to achieving regular physical activity (Gordon, Zizzi and Pauline 2004). According to research published in *Forensic Science International*, pedestrians and cyclists are two of the most vulnerable types of road users and account for a high number of motor-vehicle-related injuries. Injuries from pedestrian or bicycle collisions involving motor vehicles are also more severe compared to other causes of injuries (Graw and König 2002) (Haileyesus, et al. 2007). A national study found that those walking and biking in areas without bike paths or trails were twice as likely to feel endangered compared to those using bike paths or trails (Zegeer, et al. 1994). New trail users also cite safety as a specific concern when choosing whether or not to utilize a trail (Burbidge and Goulias 2009).

According to the *American Journal of Epidemiology*, walking is the most common form of physical activity, and recreational use can improve health through environmental design (Nagel, et al. 2008). According to one trail HIA, rail trails and multi-use paths are specific built environment elements that can encourage more walking and biking, and an overall safer space for recreationists (Paramount Public Health Services 2015, 26). Evidence shows that there is a reduced risk of injury on off-road paths in comparison to roadways (Moritz 1997) (Tinsworth, Cassidy and Polen 1994). However, proper trail crossings are “crucial to ensure all users can safely access and use the trail” because many bicyclist and pedestrian collisions occur at trail intersections (Huggert and Powell 1998) (Rails-to-Trails Conservancy 2017).

Although risk of injury is reduced on trails, trail intersections may be particularly dangerous for trail users. Intersections in urban areas have been found to be particularly unsafe, due to “the more frequent conflicts between pedestrian, cyclist and motor-vehicle flows.” According to Traffic Safety Facts 2016, close to 75 percent of pedestrian fatalities occurred in urban settings, and 18 percent of pedestrian fatalities occurred at intersections (USDOT - NHTSA 2017). Similarly, 75 percent of cyclists who died in motor-vehicle crashes were in urban areas; however, only 3 percent of these fatalities occurred at intersections (USDOT - NHTSA 2017). A review of vulnerable road users also reported that while bicycle paths are safer, bicycle paths may increase collision risk at crossings (Organization for Economic Co-Operation and Development 1998).

According to the National Highway Traffic Safety Administration, pedestrian and bicycle fatalities from automobile collision are on the rise. In 2016, there were 5,987 pedestrian fatalities – the highest number since 1990 and an increase of 9 percent from the prior year. In addition, there were 840 bicyclist fatalities in 2016, the highest number recorded since 1991 and an increase of 1.3 percent from the prior year. (USDOT - NHTSA 2016)

An *American Journal of Public Health* report observed that while some residents may live near a greenway, high traffic roads or a lack of signs and signals could create physical access barriers to safely accessing a greenway (Lusk, et al. 2013). An HIA conducted in Wisconsin noted that barriers to walking for physical activity include a lack of pedestrian-friendly infrastructure, failure to maintain trails, dangerous street crossings, and high traffic passing through neighborhoods. These factors were linked deterrents of trail usage. (Attard-Sacco, Inzeo and Moran 2012) (Nagel, et al. 2008). An HIA examining greenway infrastructure in the San Francisco Bay Area found that greenway use could prevent a significant portion of injuries if it became the chosen route by cyclists and pedestrians, replacing the busy roadways where injuries were prevalent. That HIA also added that special consideration should be given to safety in the design of crosswalks where the trail intersected with the roadway (Dills, et al. 2014, 67). According to a traffic-engineering study of two-lane roads with high traffic, marked crossings with raised medians and refuge islands experienced half the pedestrian-crash rate relative to similar crosswalks without raised medians (Retting, Ferguson and

McCartt 2003). The Victoria Transport Policy Institute also cites that traffic-calming measures have a very beneficial impact on walking and cycling rates (Littman 1999).

A pedestrian connectivity plan & HIA in Robbinsville, N.C. outlined that safety concerns must also be incorporated into greenway design. The report discussed improving safety by reducing falls and pedestrian and bicycle conflicts. The report also stressed preventing automobiles from having inadvertent access to trails or greenway-entry points by intoxicated or inattentive drivers. Additionally, the report sought to introduce trail- design standards compliant with the Public Rights-of-Way Accessibility Guidelines (PROWAG) and the American Association of State Highway and Transportation (AASHTO) Officials Guide for the Design of Bicycle Facilities. It cited monitoring the volume and mix of trail users to determine if trail widths were safe and appropriately designed. Street crossings were given specific consideration to ensure that trail users were visible to traffic at trail crossings and intersections (Kostelec Planning, Vitruvian Planning 2013).

A report on injury prevention for walkers and bicyclists showed that the likelihood that a person walking or bicycling will be struck by a motorist varies inversely with the amount of walking or bicycling normally present in the community. If the increased trail traffic is well-managed, and trail users and drivers become more “accustomed to the volume and flow,” evidence shows that the proportion of injuries and crashes can actually decrease with additional trail users. Evidence supporting the concept of “safety in numbers.” It demonstrated that motorists are less likely to collide with a pedestrian or cyclist if more people are walking or biking. It further demonstrated that with even a small trail-user volume increase, injury risks to the individual pedestrian or bicyclist would likely decrease (Jacobsen 2003). One report also demonstrated that implementing an educational program promoting bicycle and pedestrian safety, focused on new and/or inexperienced riders and walkers, would likely mitigate any potential increases in injury risk (Dills, et al. 2014, 7).

Other safe design protocols include the installation of appropriate signage for both wayfinding and identifying potentially dangerous intersections. A National Park Service trail outlined the importance of having appropriate signs to enhance engagement, prevent trail users from becoming lost and create a safer experience. The plan noted that signage can be the “quickest and easiest way” to leave trail users with a positive impression and experience (National Park Service 1996). The guide also discussed the utilization of Manual on Uniform Traffic Control Devices (MUTCD) Pedestrian Crossing Warning Signs and recommended their installation in advance of trail crossings where trail use and roadways intersect. The plan stated that the signs are especially important where visibility is limited by road curvature, vegetation or hills. The Erie-Cattaraugus Community Trail Health Impact Assessment here in New York state identified similar strategies to improve trail safety, which included installing signage and crosswalks and utilizing traffic-calming strategies to lower vehicle speeds and make motorists more aware near the trail and at trail crossings. The HIA also sought to ensure that the trail was wide enough to accommodate multiple users (Erie-Cattaraugus Community Trail n.d.).

6.2 SAFETY AND THE GVG

Research indicates that issues of personal safety can deter walking. In one national study, residents of neighborhoods with more graffiti and litter and less open green space were 50 percent less likely to be physically active and more than three times more likely to be obese than residents from communities with accessible public spaces and trails (Ellaway, Macintyre and Bonnefoy 2005). Creating visible and open spaces and eliminating undergrowth in the built environment has been linked to positive effects on perceived personal safety (Jansson, et al. 2013). The safety portion of this report has sought to assess safety concerns as they relate to both traffic, trail infrastructure and personal safety. The findings are recorded below.

6.2.1 Current Safety Concerns (Traffic, Crosswalks)

As stated earlier, the GVG crosses a number of state or county routes. Many of these intersections are not clearly marked with pedestrian crossing signs or other warnings.

At mile two of the trail, users need to cross Scottsville Road (CR 383) at Paul Road to reach the access point on Ballantyne Road (CR 252). A one-mile section of new GVG trail was officially opened on Sept. 30, 2017. The paved trail extends from Little Black Creek south to the CSX railroad tracks, resulting in three continuous miles of paved Greenway trail, extending from GVP to the rail crossing. The newly opened trail section closes a long-standing gap in the 90-mile GVG State Park. Before the trail section was completed, trail users were required to detour to Scottsville Road (Friends of the Genesee Valley Greenway 2017). Hikers head west on Ballantyne Road, where sidewalks are present on both sides of the street until Theron Street. Here the sidewalks end and users must then walk on the shoulder to reach the gates to the GVG on the south and north sides of Ballantyne Road. There are GVG signs on the north and south sides of the street just before the trail entrance, but these are short and obscured by vegetation. The speed limit on Scottsville and Ballantyne roads is 35 miles per hour, but the limit increases to 45 miles per hour on Ballantyne Road just west of the gates. [According to GTC's 2015 Genesee-Finger Lakes Regional Trails Initiative, this issue will be resolved with the development of a 1.4-mile, multi-use trail, the GVG/Scottsville Road Connection, along Scottsville Road.]



The roadway crossing in Culyerville could be improved with a high visibility crosswalk and signage to alert motorists of trail users entering the roadway.

GVG Crossing at Culyerville, photo courtesy of Genesee Transportation Council

In addition to the access point noted above, there are more than 20 access points to the GVG that cross roadways. Most have GVG signs posted near the access points, but many are low to the ground and obscured by vegetation. Most access points also don't have pedestrian crossing signs or a painted-crossing area in the road for trail users and to alert motorists of pedestrians. As the *Democrat & Chronicle* reported in 2014 about the stretch of the trail on Route 63 near Piffard: "You need to be careful walking these roads, with their blind curves, rollercoaster-style rises and falls and wafer-thin shoulders. Get over to the far left or right as soon as you see or hear a vehicle. These are the roads that people love to go booming down." At least two access points are at a curve in the road. The picture above shows one of those intersections. Pedestrian-crossing signs are posted before the curve in the road and the speed limit is 30 mph, but trail users crossing here are at increased risk of injury.



GVG crossing at Scottsville Road.

The majority of the access points along the GVG are across roads that provide easy trail access. Since most of the trail is in a rural setting, there are not crosswalks at most of the waypoints/trailheads. Small signs are usually posted to indicate the trail entrance. Where the Greenway crosses streets in more urban locations, crosswalks may or may not be present.

Between 2011 and 2015, the traffic-pedestrian accident rate in Monroe County was 3.9 percent (National Highway and Traffic Safety Administration 2016). Fourteen percent of these accidents were fatal. There were 179 accidents reported within 0.15 miles of the GVG. Of these, six were collisions with a bicyclist (one fatal) and one was a collision with a pedestrian. It is unclear whether those involved were trail users at the time of the accidents.

In Livingston County between 2011 and 2015, the traffic-pedestrian accident rate was 8.2 percent (National Highway and Traffic Safety Administration 2016). There were 110 accidents reported within 0.15 miles of the GVG. Of these, three were collisions with a bicyclist, six were collisions with a pedestrian, and none were fatal. Six of these accidents occurred in Mt Morris. It is difficult to determine if these accidents involved GVG trail users or the general public.

Wayfinding has also been expressed as a concern by stakeholders and users of the Greenway. The GVG has few mile markers for reporting one's location in case of an emergency. It was also reported that GVG trail heads that had once listed the road/intersection being crossed were intentionally removed by a previous GVG manager. It is unknown why this decision was made, but the current management is seeking to have those road signs reinstated/replaced.



Signage examples of the GVG including trailhead markers and kiosk.

Some signs containing information about hours of operation, instructions, directions and reminders about trail rules and regulations are available. Other signage and kiosks with trail information and history are available along the trail.

The trail provides adequate infrastructure for biking, but the terrain may be bumpy at some locations.

There are a number of other issues with regard to safety on the trail. Lighting is not provided for the GVG even though the trail is open until 10 p.m. and most waypoints are not well lit. In a 2008 survey, only 9 percent of respondents indicated that they visited the trail in the evening.

A lack of cellphone reception in areas along the GVG was also cited as a potential safety concern, as there are no callboxes along the trail.

The lack of marked crosswalks was also mentioned as a concern and echoed information provided by the Regional Trail Initiative (2016), which cited Cuylerville as one potential dangerous road crossing. NYS Parks and the Monroe County Department of Transportation are in ongoing discussion about seeking painted crosswalks for four road crossings of the GVG – Brooks Road, Morgan Road, Quaker Road, and Route 383.

6.2.2 Safety Issues (Trail Infrastructure/ Conditions)

Heavy rain in the spring of 2017 caused the washout of a portion of the trail in Livingston County just south of York Landing. A barrier and signs were provided to alert users to the instability of the trail near the washout (shown right).

The GVG Facebook page and the FOGVG website (fogvg.org) provided timely information and warnings for potential trail users. In addition, the spring 2017 newsletter reported that the trail had been re-routed to avoid areas that frequently flooded and washed out and that an area between Paul Road and Ballantyne Road had been paved.

There are frequent Facebook and website updates on trail conditions and upcoming trail events.



Erosion and washouts on the GVG

6.2.3 Personal Safety Issues (Crime)

The GVG is patrolled by New York State Parks Police. Anecdotal information indicates that most trail transgressions involve graffiti, but the NYS Parks Police Department reports that the majority of crimes reported in 2015 in both Monroe and Livingston Counties involved larceny.

There are no call boxes along the GVG and areas along the trail may have limited cellular reception.



Table 3 below shows the three-year average number of crimes in the Parks Police Department, vs. Monroe County (New York State Division of Criminal Justice Services 2016).

TABLE 3		MONROE PARKS PD	MONROE COUNTY
2011 to 2013	Total Crime	12.3	24717
	Violent Crime	0.7	2673
	Property Crime	11.7	22044
2012 to 2014	Total Crime	13.3	23270
	Violent Crime	0.7	2528
	Property Crime	12.7	20742
2013 to 2015	Total Crime	11.7	21641
	Violent Crime	0.3	2479
	Property Crime	11.3	19162
2014 to 2016	Total Crime	5.7	20183
	Violent Crime	0.0	2410
	Property Crime	5.7	17774

Table 3 - Three-year crime rate in the Parks PD vs. Monroe County, (NYS Division of Criminal Justice Services 2016)

Table 4 below shows the three-year average in the Parks Police Department, vs Livingston County (New York State Division of Criminal Justice Services 2016).

TABLE 2		LIVINGSTON PARKS PD	LIVINGSTON COUNTY
2011 to 2013	Total Crime	11.0	1119
	Violent Crime	0.3	51
	Property Crime	10.7	1068
2012 to 2014	Total Crime	10.7	1060
	Violent Crime	0.3	52
	Property Crime	10.3	1007
2013 to 2015	Total Crime	9.3	956
	Violent Crime	0.3	60
	Property Crime	9.0	896
2014 to 2016	Total Crime	5.7	956
	Violent Crime	0.0	60
	Property Crime	5.7	816

Table 4 - Three-year crime rate in the Parks PD vs. Livingston County, (NYS Division of Criminal Justice Services 2016)



As the literature indicates, litter has been documented as creating perceptions of personal safety concern and discouraging potential trail users from utilizing trails or greenspace with those conditions. The NYS Parks Manager for the GVG related concerns regarding ongoing dumping at Little Black Creek Park. With support from the NYS Parks Police, enforcement is being stepped up to halt this illegal activity.

6.3 SAFETY RECOMMENDATIONS

When considering recommendations to improve the Greenway's safety, researchers looked at issues related to both personal safety and traffic safety. The research showed that, not surprisingly, trails that are free of crime and pedestrian injury correlate to the amount an individual walks with actual or perceived safety.

A CDC study found that fear of lack of safety reduced physical activity most in those over age 65, women and minorities. Injuries related to traffic, and specifically pedestrian and bicyclist collisions with automobiles, may be a determining factor in people's overall use of trails. As a result, reducing the risk of accidents along the Greenway may attract trail users who are hesitant to use the trail.

The following recommendations focus on safety, in an effort to increase access and engagement. They include providing adequate safety at access points for all users and on ways to prevent users from becoming lost.

Safety

Enhance traffic safety for all users.

Specific Actions:

- Ensure crosswalks are designed for all users.
- Develop crosswalks at roadways in Livingston and Monroe counties that cross trail points.
- Where paths for pedestrians/cyclists must intersect with the road, place crossings to increase visibility and clearly mark crosswalks for motor-vehicle drivers to identify.
- An ADA-compliant grade/trail surface condition should be present at all road crossings.

Enhance personal safety within the Genesee Valley Greenway State Park.

Specific Actions:

- Provide adequate way-finding signage and lighting.
- Implement solar lighting in high-use areas near well-traveled roads and parking lots.
- Create mile markers every half mile on the trail.
- Provide information kiosks with maps at major trail heads to guide trail users.
- Indicate proximity to municipalities including POIs/facilities on wayfinding signage.



Trail/road intersections are advertisements for trail and must be kept to a high standard.

Specific Actions:

- Paint gates regularly, remove weeds from guard rails, replace faded signs and remove graffiti.
- Provide “graffiti walls” or other opportunities for creative expression, where graffiti exists.
- Facilitate easy ways to report graffiti/illegal dumping to NYS Parks Police via text messaging or a mobile-optimized application.

Design road crossings to be safe and to mitigate pedestrian-bicyclist accidents.

Specific Actions:

- Design signage/crosswalks with traffic-calming infrastructure to lower speeds/make motorists aware of pedestrian/bicyclist intersections along the Greenway.
- Prioritize road-crossing infrastructure enhancements around intersections that currently have incidents of pedestrian-bicyclist and motor-vehicle accidents.
- Disallow curbside parking near trail intersections and provide adequate off-road parking.
- Work with NYSDOT/Governor’s Traffic Safety Committee to educate motorists on pedestrian/dismounted cyclists’ right-of-way laws.

Section 7: Social Cohesion

7.1 SOCIAL COHESION AND HEALTH LITERATURE REVIEW

The *Canadian Journal of Sociology* defines social cohesion as “the willingness of members of a society to cooperate with each other in order to survive and prosper.” (Stanley 2003). In an article published by the United Nations, social cohesion was called the “glue that holds society together.” The writers describe cohesive societies as ones that protect people against life risks, have trust among neighbors and governmental institutions and “work towards a better future for themselves and their families.” In addition, greater inclusiveness, more civic participation and increased opportunities for upward mobility were cited as contributing factors to a socially cohesive society (United Nations Department of Economic and Social Affairs 2012). Strong social environments have consistently been shown to impart significant health benefits, according to multiple studies (Berkman and Kawachi 2000) (Sullivan, Kuo and Depooter 2004).

It has also been demonstrated that communities with strong social cohesion experience better health outcomes when compared to poorly integrated or socially disconnected communities. Evidence has correlated the relationship between these social factors and overall rates of physical activity (McNeill, Kreuter and Subramanian 2006). Research has shown that a lack of social cohesion can increase health disparities, including the risk of mental health problems, heart disease and even death (Berkman and Kawachi 2000) (Kawachi and Kennedy 1997). Other studies document the relationship between perceived neighborhood safety as a “critical enabler” for residents’ ability to engage in physical activity. The study links strong social relationships and trust with improved social cohesion in communities, leading to an overall enhanced sense of neighborhood safety (Jang 2000). Communities with higher levels of social cohesion have more people walking at recommended levels (Wen, et al. 2007) and such “community participation” was ranked as the most important strategy to maximize health benefits in the Erie–Cattaraugus Community Trail HIA. (Erie-Cattaraugus Community Trail n.d., 42) Positive social interaction has been shown to decrease feelings of loneliness and increase lifespan for individuals (Thompson and Aspinall 2011). However, it is important to note that social isolation is more frequently found in those living in poverty and among communities with the highest income inequality, which has been documented to lower social cohesion, increase violent crimes and heighten rates of heart disease (Wilkinson and Marmot 2003).

The overall walkability of a place has proven to have many other individual and community health benefits, such as opportunities for increased social interaction, an increase in the average number of neighborhood relationships, and reduced crime due to more people walking and having the ability to watch over the neighborhood while doing so (Bicycle Federation of America Campaign to Make America Walkable 1998). The greening of open space has also been proven to promote social cohesion (Kuo and Sullivan 2001), and these places have been deemed “vital neighborhood spaces,” to increase social cohesion (Harvard Kennedy School of Government - Saguaro Seminar 2012). Research has shown a positive relationship between parks and social cohesion, including an increase in the number of neighborhood interactions and overall social connectedness in green spaces (Sullivan, Kuo and Depooter 2004). Having familiarity with one’s neighbors can lead to perceived safety and increase the likelihood of physical activity, according to the East Bay Greenway and other studies. Regular walking has been associated with a perception of having active neighbors that leads to further “social networking and interactions” that can increase health outcomes including lifespan, improved mental health and reduced crime (Addy, et al. 2004) (Haq 2011). Different groups of people interact in these spaces, which simulates social cohesion (Peters, Elands and Buijs 2010). National research has also concluded that green space is an important factor for mental health,



especially anxiety and depression (Groenewegen, et al. 2012). Here in the U.S., the most common mental disorder is depression, which affects nearly 26 percent of the adult population (Chiu, Demler and Walters 2005). However, depression can be improved by interaction with other people and even with low-intensity level exercise, such as walking (Jackson and Stacy, *Designing Healthy Communities* 2012). Natural space decreases levels of anxiety and depression and improves mood and self-esteem (Allen 2008). Activities like walking for exercise with other people have been shown to reduce depression symptoms by enabling relationships with others through social activities.

Research suggests that social cohesion is the primary purpose that people visit open outdoor spaces, with physical activity as a secondary benefit (American Planning Association 2017). The American Planning Association also identifies a wide range of benefits associated with parks and greenspace and cites them as one of the quickest and most effective ways to build a sense of community and improve quality of life. They also report that barren spaces have the opposite effect on a community, and that they are “more frightening to people and are more crime prone than parks landscaped with greenery and open vistas.” (Jackson and Stacy, *Designing Healthy Communities* 2012). In areas where people are dissatisfied with available green space, there is a 2.4 times increased risk for mental health issues (Guite, Clark and Ackrill 2006). People who live in areas with quality greenspace report fewer health issues than those living in areas without them (Maas, et al. 2006).

To foster social cohesion and maximize trail benefits, targeted promotion efforts are needed (Wiggs, Brownson and Baker 2008). Specific barriers consistently mentioned are lack of knowledge of the trail and/or motivation to use the trail. A Health Impact Assessment in Marquette, Michigan recommended that to decrease these barriers, a health focused outreach and programming effort was necessary to increase use of the trail for physical activity (Wisconsin Bureau of Environmental and Occupational Health, Wisconsin Division of Public Health 2011). Parks, recreation departments and community groups can have a role in educating residents about physical activity and ways to become more active (Henderson, et al. 2001). Three key elements to developing community capacity to improve health include the mobilization of assets to improve health, the expansion of assets diversifying as time passes, and sustaining community efforts over time to improve community health status (Stokols, et al. 2003). Additionally, rail trails like the East Bay Greenway show that programming structured activities to draw low-income and at-risk groups through coordinated bike rides or walks was a necessary and recommended strategy (Heller and Bhatia 2010, 13). Several other case studies have illustrated that programming and outreach efforts may increase social cohesion and physical activity. A 2010 evaluation of pilot projects at three U.S. national parks (Acadia, Point Reyes, Zion) found that distributing promotional materials, such as maps and brochures, was associated with an 11-percent increase in trail use of 60 minutes or more (Hoehner, et al. 2010).

Supportive policies at the local, state and federal levels, leadership from local government officials and trail advocates, and community involvement are critical components of the development process (Eyler, Lankford, et al. 2010). Another HIA identified developing appropriate policy and programs, such as safety campaigns and trail education, to encourage walking and biking particularly among low-income groups (Molina, et al. 2012, 2). Additionally, here in NYS, one of the primary goals of the Statewide Trails Plan was to “encourage the use of trails to increase physical activity and combat the obesity epidemic, as well as reduce the risk of many chronic diseases” through increased education about and promotion of New York state trails among the general public (New York State Office of Parks, Recreation and Historic Preservation 2010, 9). Regionally, Erie Canalway Trail users recognized that the trail had a positive effect on their well-being. In a survey of trail users, 100 percent said the trail “had a very positive effect on me.” (Scipione 2014). Additionally, almost half of survey respondents (45 percent) indicated they usually travel the trail with others.

7.2 SOCIAL COHESION AND THE GENESEE VALLEY GREENWAY

7.2.1 Population Demographics

As the literature indicates, regular walking has been associated with a perception of having active neighbors that leads to further social networking and interactions that can increase health outcomes, among other benefits.

In Monroe County, 94 percent of residents felt their neighborhood was suitable for walking and physical activity, and nearly 75 percent of residents had participated in leisure-time physical activity in the past 30 days. That number increased to 97 percent in Livingston County, but only approximately 67 percent of residents had participated in leisure-time physical activity in the past 30 days. (New York State Department of Health 2013-2014)

Access to health care also plays a role in a community’s social cohesion. A recent study showed that a decrease in social-cohesion scores in a community occurred when levels of health insurance decreased in that community. As seen Table 5 below, there are significant differences with regard to healthcare access and mental health rates in Monroe and Livingston counties.

TABLE 5	MONROE	LIVINGSTON
% uninsured	7%	7%
# primary care physicians/ 100K population	134	45
No regular doctor	10.7%	4%
% living in health professional shortage area	28%	0%
% stressed about having enough money for mortgage or rent	35%	43%
% reporting poor mental health	11%	12%

Table 5 - Healthcare access and Mental Health rates in Monroe and Livingston Counties, (Robert Wood Johnson Foundation 2016), (Community Commons 2016), (New York State Department of Health 2013-14) Sources: (Robert Wood Johnson Foundation 2016), (Community Commons 2016), (New York State Department of Health 2013-14)

7.2.2 Current Social Cohesion trends on the GVG

The Friends of the Genesee Valley Greenway (FOGVG) organizes hikes and other trail events and provides updates on its website and Facebook page, as well as a newsletter to its members that lists upcoming hikes, volunteer opportunities and updates on trail development and conditions. Recently, when the Groveland Correctional Facility and Sonyea State Forest section of the GVG opened, the spring 2017 FOGVG newsletter provided information about this new section of trail and the requirements for accessing it on the Correctional Facility grounds.

Some barriers to social cohesion include lack of safety, high levels of transiency (transitory nature), lack of information about activities and lack of volunteer opportunities. The FOGVG newsletter, website, and Facebook page, as well as the NYS Parks Facebook page, would likely help to mitigate these barriers by encouraging residents to get involved. Enabling the community to participate in both decisions and policies has been cited as a needed approach and method to increase social cohesion (Bertotti, et al. 2012).



7.2.3 Existing programs related to Social Cohesion

As the literature indicates, promotion and programming are a core method of increasing social cohesion. We are currently aware of several ongoing and existing GVG programs designed to increase social cohesion along the Greenway.

FOGVG offers membership and provides access to organized hikes along the trail and volunteer opportunities to help with enhancement and maintenance. Many projects along the trail, such as installation of kiosks and benches, trail maintenance and gate painting are completed by FOGVG members, scouts, students in local schools, and other hiking and snowmobile clubs (Friends of the Genesee Valley Greenway 2014).

The Adopt-a-Trail program mentioned earlier offers opportunities to local committees, businesses, service clubs, user groups, families, individuals and others to adopt sections along the entire trail so that volunteers can participate in various trail improvements and assist with general maintenance.

Wegmans Passport to Family Wellness booklets are available at various Wegmans locations and have been used to record visits to the trail. Pages in the booklet are rubbed on signposts as proof of having completed a portion of the trail.

Both the NYS State Parks and Friends of the GVG actively participate in social media (primarily Facebook) to update followers on trail activities, closures and events. A quarterly newsletter also enhances social cohesion efforts.



Adopt-a-Trail signage.



Wegmans Passport trail marker.

7.3 SOCIAL COHESION RECOMMENDATIONS

Research showed a link between strong social relationships and improved social cohesion in communities, which improves a sense of safety and can lead to greater physical activity, including walking. In addition, communities with strong social cohesion experience better health outcomes when compared to poorly integrated communities or communities that are less socially connected.

Social cohesion has also been cited as a primary purpose that people visit open outdoor spaces, with physical activity following as a secondary benefit. Regular walking has been associated with a perception of having active neighbors that leads to further social networking and interactions that can increase health outcomes as well.

To date, no GVG-specific data on social cohesion have been collected, but other data and HIAs support the notion that increased stakeholder engagement and community involvement can positively impact physical activity levels and social-cohesion rates.

The following recommendations focus on efforts to increase trail use through structured activities in partnership with local stakeholders. Because the GVG spans both urban and rural settings, we expect these recommendations to have a broad impact on social cohesion, and subsequently, on health outcomes.

Social Cohesion

Foster ownership and involvement in the Greenway.

Specific Actions:

- Design environments that promote formal and informal social interaction.
- Involve those living around the Greenway in the planning process.
- Update the community on activities and trail maintenance.

Encourage better integration of community-outreach efforts.

Specific Actions:

- Develop annual stakeholder touchpoints with Greenway-managing entities.
- Work with the NYS OPRHP and FOGVG to create an annual stakeholder meeting to strengthen relationships and gather feedback on the Greenway.
- Develop strategic operational/programming/promotional guidelines based on stakeholder feedback to enhance outreach efforts to prospective new trail users of the Greenway.

Increase engagement with Greenway over the long-term.

Specific Actions:

- Work to integrate the Greenway into local/regional comprehensive and economic plans.
- Focus on local town/village planning and development within Livingston and Monroe counties.
- Integrate other ecological/heritage tourism planning on a local, county or state level.



Initiate surveys on an annual/bi-annual basis for trail users/non-users local to the Greenway.

Specific Actions:

- Establish baseline data on trail users' demographics.
- Track median physical-activity levels on the Greenway.
- Utilize survey results to inform policy development and involve stakeholders.
- Utilize collected data to inform trail infrastructure/maintenance and enhancement.

Increase programming/structured activities to draw low-income and at-risk groups.

Specific Actions:

- Coordinate bike rides and walks with area community groups.
- Work with schools to offer after-school youth-development programs.
- Hold community events/activities at trail hubs within proximity to population centers to increase use of the trail.



Section 8: Summary of Recommendations

The Summary of Recommendations represent the span of all synthesized recommendations within the four prioritized health determinants found within this HIA. Further analysis on the recommendations themselves, as well as prior research on other HIAs recommendations made, assisted in the identification of four overarching categories that the recommendations represent. The four categories of recommendations submitted in this report were identified as the following: Stakeholder Participation and Community Engagement, Data Collection, Integrated Infrastructure Improvements, and Programming and Outreach.

This section further identifies each recommendation made, and provides rationale as to why the recommendation was justified, and why it was assigned to one of the four corresponding categories.

The summary report of those findings are below:

GENESEE VALLEY GREENWAY RECOMMENDATIONS

Stakeholder Participation and Community Engagement

1. Foster ownership and involvement in the Greenway. (Social Cohesion)

- a. Design environments that promote formal and informal social interaction.
- b. Involve those living around the Greenway in the planning process.
- c. Update the community on activities and maintenance of the trail.

2. Ensure accessible, safe, and maintained trails to promote physical activity. (Physical Activity)

- a. Partner with local and state governments and community organizations to promote opportunities for physical activity through collaborative events and programming on the Greenway with NYS Parks and Friends of the GVG.
- b. Ensure that programming and events are inclusive of vulnerable populations.

3. Encourage overall engagement with the Greenway. (Access & Infrastructure)

- a. Make trail access points as frequent as possible and, when possible, integrate them with off-trail amenities.
- b. Provide trail hub connections to nearby business districts, parks, and schools.
- c. Create both public transportation and rideshare hubs at trailheads.
- d. Encourage adjacent businesses to promote the trail, including partnering with farmer's markets to promote physical activity on the trail.



4. Promote trail use along the GVG. (Physical Activity)

- a. Work with regional tourism organizations to develop a marketing/PR campaign focused on active living and the health benefits of local trails and hubs for area residents and visitors.
- b. Utilize marketing/PR campaigns to increase overall awareness of the Greenway as an active transportation and recreation corridor to increase overall usage.

5. Encourage better integration of community outreach efforts. (Social Cohesion)

- a. Develop annual stakeholder touchpoints with the managing entities of the GVG.
- b. Work with the NYS OPRHP and FOGVG to create an annual stakeholder meeting to strengthen relationships and gather feedback on the Greenway.
- c. Develop strategic operational, programming and promotional guidelines based on stakeholder feedback to enhance cooperative outreach efforts to prospective new trail users of the Greenway.

6. Increase engagement with the Greenway over the long-term. (Social Cohesion)

- a. Work to integrate the Greenway into local and regional government comprehensive and economic development plans.
- b. Focus on local town and village planning and development efforts within Livingston and Monroe counties.
- c. When possible, integrate other ecological or heritage tourism planning that is occurring on a local, county or state level.

Rationale: Recommendations 1 through 4 are based on a number of HIAs that identified the importance of having residents involved in the decision-making process to foster inclusion and belonging. HIAs conducted in both urban and rural regions saw an increase in access and linkages to amenities that could assist in the promotion and programming of trail systems. Another HIA found that endorsement and prioritization of marketing were key to the future of programming and public outreach that could enhance physical activity on the Genesee Valley Greenway. The collaborative approach was also echoed on a national level in several trail HIAs. (Davidson, Pinal Creek Trail, Erie-Catt, Atlanta Beltline, Marquette County Ice Age Trail, Mid-South Regional Greenprint)

Recommendation 5 was submitted by this HIA's Steering Committee with input from NYS Parks and FOGVG and seen as a positive step to enable greater access through ongoing advocacy and outreach efforts.

Recommendation 6 was also prioritized by this Steering Committee as it pertained to improved social cohesion by enhancing trail surface conditions that could be designed for all users, an approach that is also supported by Health Impact Assessments conducted on other Greenways (Androscoggin, East Bay Greenway).

There have been no data collected to date to determine whether stakeholder engagement and community involvement have an impact on physical activity levels or on social cohesion or access/infrastructure rates along the GV Greenway.

The FOGVG organizes activities and volunteer opportunities along the Greenway, hosts meetings open to the public, publishes a quarterly newsletter, and maintains a website and Facebook page to inform its 540+ followers about upcoming events and trail conditions. The GVG State Park Facebook

page, maintained by NYS Parks, also provides information about trail events and conditions and the Wegmans Passport to Family Wellness program allows users to record their visits to the trail. These are all likely to contribute to increased use of the trail and to social cohesion amongst users.

The Adopt-A-Trail program also provides volunteer opportunities in various trail improvement projects and assistance with general maintenance, which also could contribute to social cohesion and the overall appearance and accessibility of the GVG.

One HIA cited above found that the increased supply of trails means increased use. The Groveland Correctional Facility and Sonyea State Forest section of the GVG opened in March 2017 and this year's annual meeting was preceded by an outing along this section of the trail. Most recently, a new section of the GVG opened on Scottsville Rd near the Little Black Creek Park, which eliminates the need for trail users to travel along the shoulder of Scottsville Road. These events provide opportunities to determine whether trail use is increased by adding new section and increasing access at key points along the trail.

DATA COLLECTION

7. Develop protocols to capture baseline data on trail usage over time. (Access & Infrastructure)

- a. Install trail counters at multiple locations, especially where trail heads are in proximity to municipal centers.
- b. Document changes and improvements of trail conditions and any corresponding data on increased trail usage.
- c. Analyze data collected to inform where trail infrastructure or maintenance may need enhancement.
- d. Report trail counts and overall trail utilization to NYS Parks.

8. Initiate surveys on an annual or bi-annual basis for both trail users and non-users in local proximity to the Greenway. (Social Cohesion)

- a. Establish baseline data on trail users' demographics
- b. Track median physical activity levels on the Greenway
- c. Utilize survey results to inform policy development and involve stakeholders such as NYS Parks.
- d. Utilize collected data to inform where trail infrastructure or maintenance may need enhancement.

Rationale: These recommendations combine tactics used in both urban and rural trail HIAs (Atlanta Beltline, Erie-Catt). GTC also recently reported that a trail counting apparatus may be deployed to assist with data collection.

The most recent survey of GVG users was conducted in 2008. It collected data from users about where they traveled from, how often they used the trail, and in what manner they used it. To date, there have been no other surveys conducted to track usage over time, physical activity over time, or to determine what motivates individuals to use the trail.

INTEGRATED INFRASTRUCTURE IMPROVEMENTS

9. Enhance traffic safety for all users. (Safety)

- a. Ensure crosswalks are designed for all users.
- b. Develop crosswalks at roadways in Livingston and Monroe County that cross trail access points.
- c. Where paths for pedestrians and cyclists must intersect with the road, place pedestrian and cyclist crossings to increase visibility and clearly mark crosswalks for motor vehicle drivers to identify.
- d. An ADA compliant grade/trail surface condition should be present at all road crossings.

10. Enhance personal safety within the Genesee Valley Greenway State Park. (Safety)

- a. Provide adequate way-finding signage and lighting.
- b. Implement solar lighting in high use areas near well-traveled roads and parking lots.
- c. Create mile markers every ½ mile on the trail.
- d. Information kiosks with maps should be provided at major trail heads to guide trail users along the Greenway
- e. Wayfinding signage should indicate the proximity to nearby municipal centers including points of interest and facilities available.

11. Accommodate the needs of all potential Greenway users, especially vulnerable populations. (Access and Infrastructure)

- a. Trails should be ADA-compliant in areas in close proximity to residential or senior housing with ADA accessible parking spots available.
- b. Enhance trail surface conditions where cyclists are impeded, especially in the southern half of Livingston County
- c. Encourage all public transportation providers with routes along the Greenway to include bike racks on buses.
- d. Create parking areas with room for horse trailer parking.

12. Maximize utilization of the Greenway by encouraging infrastructure that connects to the trail. (Access and Infrastructure)

- a. Provide connections such as new trails, sidewalks, bicycle lanes and public transit stops
- b. In rural areas away from municipal centers expand roadway shoulder width to accommodate cyclists/hikers more safely.

13. Trail/road intersections are advertisements for the trail and thus must be kept to a high standard. (Safety)

- a. Paint gates regularly, remove weeds from guard rails, replace faded signs, and remove graffiti
- b. Where graffiti trouble spots exist, provide “graffiti walls” or other opportunities for creative expression along the facility
- c. Facilitate easy ways to report graffiti or illegal dumping to NYS Parks Police via text messaging or an application optimized for mobile.



14. Encourage greater numbers of users of all ages and abilities to utilize the trail. (Access and Infrastructure)

- a. Enhance current trail conditions to better accommodate walking, jogging, bicycling and ADA design standards, where possible.
- b. Upgrade trail surface from dirt to stone dust or asphalt (depending on location)
- c. Improve cross-slope and remove tree roots to create a firm and stable surface

15. Design road crossings to be safe and to mitigate pedestrian/bicyclist accidents. (Safety)

- a. Design signage and crosswalks with traffic calming infrastructure to lower speeds and make motorists aware of pedestrian/bicyclist intersections along the Greenway.
- b. Prioritize road crossing infrastructure enhancements around intersections that currently have many pedestrian/bicyclist and motor vehicle accidents.
- c. Disallow curbside parking near trail intersections
- d. Work with NYSDOT and Governor's Traffic Safety Committee on efforts to educate motorists on pedestrian or dismounted cyclists' right-of-way laws.

Rationale: Recommendations 9 and 10 were developed from policies and protocols adopted in several HIAs focused on safety for all users, with both city and town municipalities coordinating. Although the Greenway generally has an acceptable ADA slope, it lacks a compliant trail surface to accommodate all users. Also, Steering Committee discussions resulted in personal safety being ranked a low priority for the Greenway based on lack of prior incidents. These recommendations are primarily focused on good way finding to prevent users from becoming lost and focus on adequate safety at access points for all users. The recommendations are primarily based off of recommendations pertaining to trails primarily in urban settings (Davidson, Atlanta Beltline, Atlanta Beltline, Glendale Riverwalk).

Recommendations 11 and 12 address access infrastructure issues involving the Genesee Valley Greenway's trail surface while also citing uniform recommendations from parks, trails, and greenway HIAs pertaining to way-finding, ADA compliance, and creating pathways to nearby amenities. The recommendations are based on a combination of urban and rural trails and greenway policies found in other HIAs. The Steering Committee requested that guidance on how to better connect municipal population centers be integrated into our HIA. Other HIAs have demonstrated that better connected and accessible trails lead to improved physical activity and overall health outcomes (Atlanta Beltline, East Bay Greenway, Pinal Creek Trail, Glendale Riverwalk, Loch Haven Park, Erie-Catt, Androscoggin, Atlanta Beltline, Middlesex Greenway).

Accident data collected along the Greenway between 2011 and 2015 indicate that accidents within 0.15 miles of the GVG occurred in Livingston County at more than twice the rate of those that occurred in Monroe County. However, the fatality rate in Livingston County was 0 percent compared to 14 percent in Monroe. These differences are most likely attributable to the fact that the majority of the GVG is located in Livingston with only ~13 miles of it located in Monroe County. We have not been able to determine whether those involved in accidents along the GVG were trail users.

The above recommendations (13-15) stem from identified issues pertaining to safety along the GVG, including issues of graffiti, trail conditions, overall upkeep, and unmarked crosswalks through Monroe and Livingston County. In addition to supporting literature from Greenway HIAs that identified similar safety concerns, recommendations on safety have been prioritized in an effort to increase access and engagement (Glendale Riverwalk, Middlesex Greenway, East Bay Greenway, Erie-Catt).

The Adopt-A-Trail program also provides volunteer opportunities in various trail improvement projects and assistance with general maintenance, which also could contribute to safety along the GVG.

PROGRAMMING AND OUTREACH

16. Promote walking and biking as mobility options to low income and at-risk groups. (Access and Infrastructure)

- a. Develop safety campaigns and trail use education to raise awareness and improve overall trail usage.

17. Increase social cohesion through programming structured activities to draw low income and at-risk groups. (Social Cohesion)

- a. Coordinate bike rides and walks with area community groups.
- b. Work with schools to offer youth development programs following the school day.
- c. Hold community events and activities at trail hubs within proximity to population centers to increase use of the trail.

18. Increase access to healthy foods and encourage physical activity. (Access and Infrastructure)

- a. Coordinate and co-promote the location of farmers' markets near trail heads.

Rationale: In the 2013-14 eBRFSS, 75 percent of Monroe County residents and 67 percent of Livingston County residents reported that they had participated in leisure time physical activity in the past 30 days. Future eBRFSS results might reflect improvements in physical activity that could be attributed to increased trail use due to specific programming.

The above recommendations focus on efforts to increase trail use through programming an array of activities in partnership with local stakeholders. The recommendations cited here are supported by other urban and rural HIAs as they relate to outreach. (Quequechan River Rail Trail, East Bay Greenway, Pinal Creek Trail, Middlesex Greenway, Greenville, Davidson)

Activities sponsored by the FOGVG, the Wegmans Passport to Family Wellness program, and the Adopt-A-Trail program, all mentioned above, would likely contribute to increased use of the trail and to social cohesion amongst users.



Section 9: Monitoring & Evaluation

9.1 PROCESS EVALUATION

In the early days of this Advancing Health-Informed Transportation Decision-Making project, it was identified that an increase in scope to evolve this report from a Desktop HIA to Intermediate HIA was warranted based on the overall scope of the project. Desktop HIAs traditionally do not involve aspects of primary research beyond existing data or stakeholder engagement but the convening of a Steering Committee enabled the scope and depth of the HIA to increase and broadened the scope of new analysis that was able to be conducted. Due to the enormous geographic scope of the GVG it was recommended by the Steering Committee that this HIA focus on its 50-mile northernmost portion only. The decision to narrow the parameters of assessment was also due in part to the fact that the Greenway extended beyond the geographic boundaries that Common Ground Health and the Genesee Transportation Council represent.

The Steering Committee was able to provide guidance on the total scope and parameters of our study and were representative of populations found in those areas. Throughout the year and a half long project, the Steering Committee prioritized health determinants to analyze and synthesized new recommendations to increase health impacts and overcome health disparities. A project team consisting of four staff members at Common Ground Health facilitated Steering Committee meetings, captured stakeholder feedback, collected research, and authored this HIA.

9.2 IMPACT & OUTCOME EVALUATION

Over the course of the next three years, Common Ground Health will monitor any policy or programmatic changes made to the GVG that align with the recommendations herein. We strongly encourage all decision-makers associated with the GVG to consider these recommendations in all GVG decisions going forward and to collect data associated with health impacts as an evaluator component of any projects.

9.3 MONITORING PLAN

The health indicators identified throughout this document provide a basis for further understanding the health impacts of the GVG and recommendations made in this document. Several recommendations indicate a need to collect more data on trail users and the direct impacts that the trail has on health outcomes. Community level data may indicate shifts in overall population health but will be difficult to attribute to the GVG itself.



It was beyond the scope of this HIA to fully examine all health impacts or disparities associated with the GVG. Further study and research may lead to a more comprehensive knowledge of the health determinants prioritized in this study. Additionally, other social determinants of health beyond the scope of this study may be further examined. Based on the scope of this HIA, other ideas for further study may include:

- A HIA on the southernmost 40-mile portion of the GVG in NYS including Wyoming and Allegany Counties.
- An annual user survey to more comprehensively understand who is and who isn't accessing or utilizing the Greenway and identify overall demand for recreational assets and what further barriers to access may exist.
- A further in-depth study of food deserts along the entire 90-mile scope of the Greenway with identification of where food access may be improved.
- A study further examining areas of high pedestrian or bicycle accidents with motor vehicles and identification of target areas in need of improved and enhanced crosswalks.
- A study on where and how public transportation may better integrate with GVG trailhead access points.
- A detailed examination of how improved trail-surface conditions may increase overall engagement with the Greenway including populations in need of ADA accommodations.



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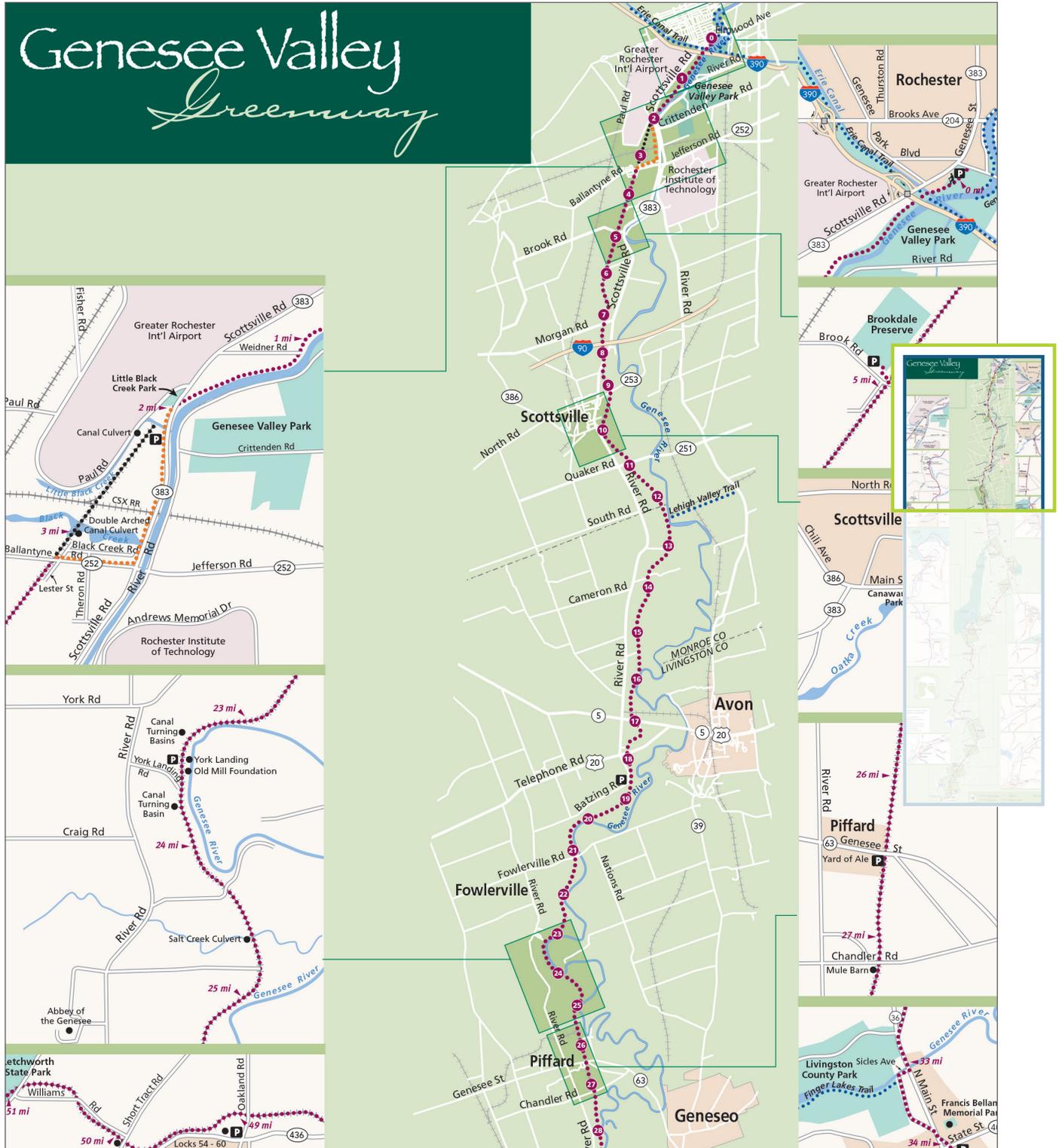
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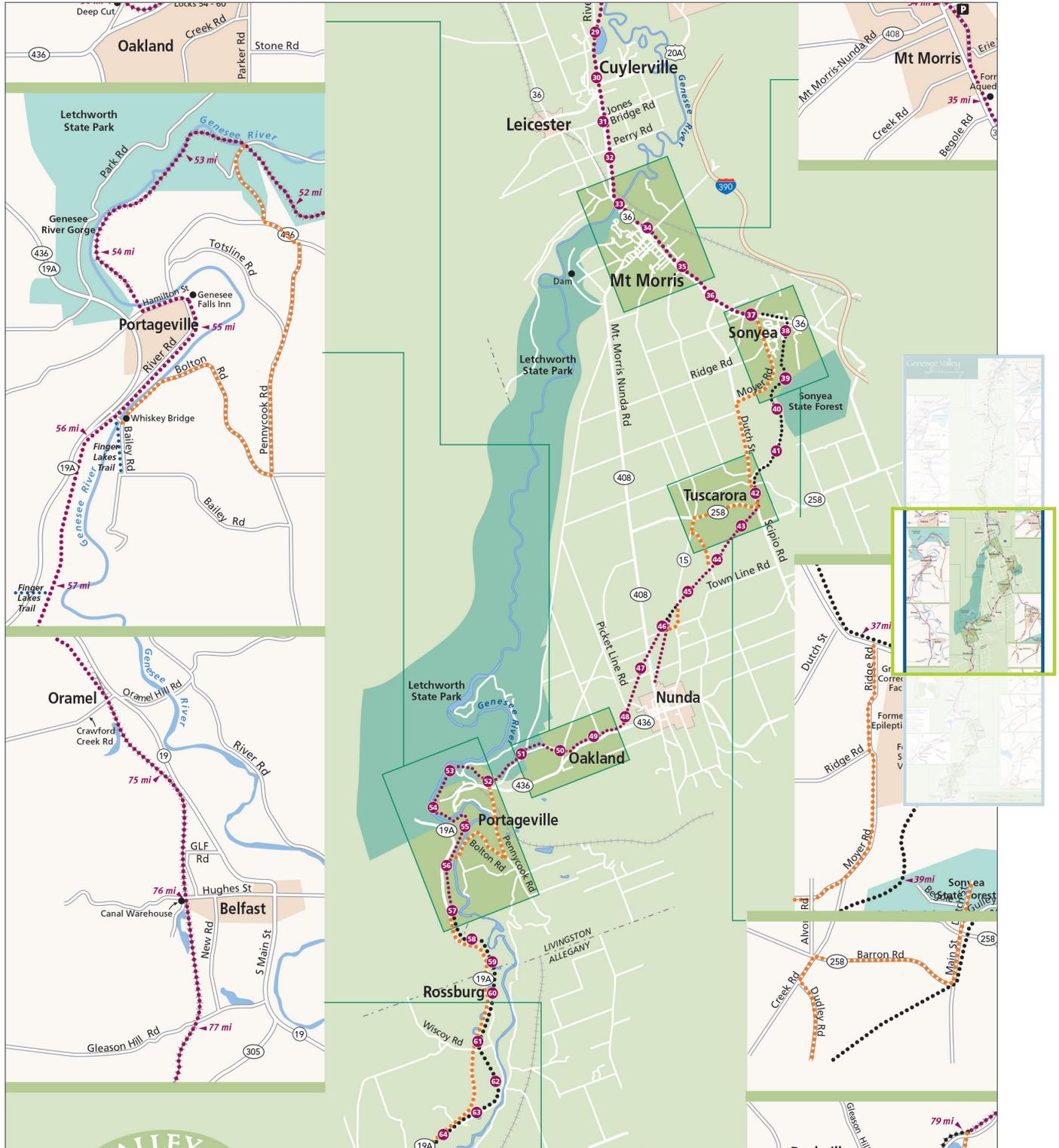
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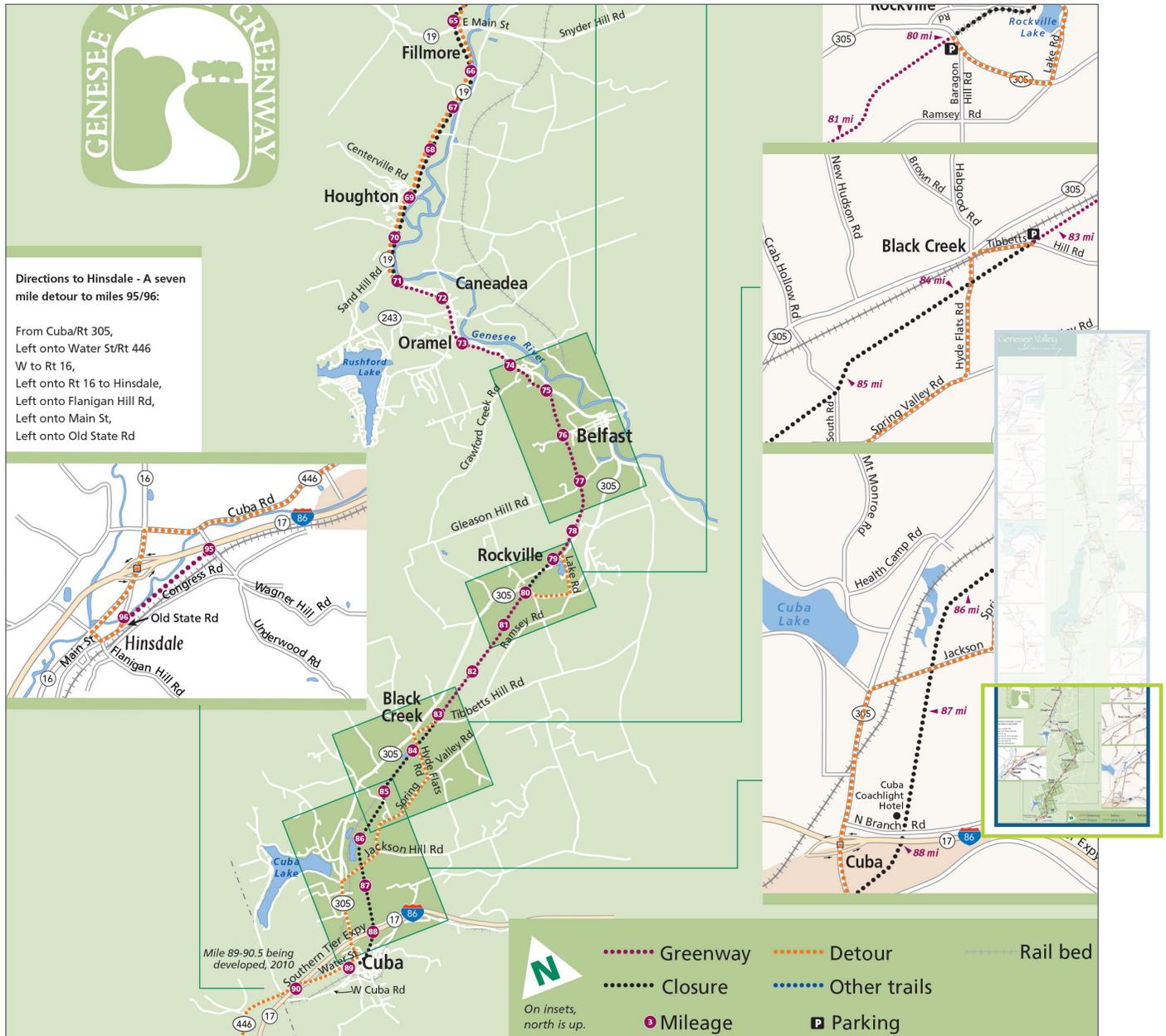
Appendix A – Complete Map of the Greenway (1 of 3)



Appendix A – Complete Map of the Greenway (2 of 3)



Appendix A – Complete Map of the Greenway (3 of 3)



Appendix B - Screening Exercise

SCREENING CRITERIA	GENESEE VALLEY GREENWAY STATE PARK	ROCHESTER AREA BICYCLE SHARING
<p>1. Is there a DECISION regarding a policy, plan, or project, CURRENTLY UNDER CONSIDERATION whose outcomes are likely to impact health?</p>	<p>Identifying sustainable NYS funding for state-designated parks and trails (NYS Legislature approves NYS Parks budget; budget allocation at NYS state parks regional level)</p> <p>The revenue/support model at a state level could be changed from its currently based park admission fees to incorporate the value of health outcomes.</p> <p>(Greenway admission is free.)</p> <p>Stakeholders: <i>Friends of Genesee Valley Greenway, New York State Parks, Monroe County, Livingston County, Wyoming County, Allegany County.</i></p> <p>Integration and engagement of active transportation policies at the county/ municipal level in communities within close proximity to the Greenway.</p> <p>Public safety</p> <p>Regional integration to other trail systems/parks (NYS Parks, NYS DEC, Monroe County, City of Rochester)</p> <p>Announcement of Empire State Trail, 750-mile trail traversing NYS (January 2017)</p> <p>Transportation Alternative Program (TAP, NYSDOT) (active transportation) – federal funding (Greenway trail enhancement between Rochester, NY and Scottsville, NY 12 miles.)</p> <p>Regional economic development. Could be making funding decisions about how they might connect businesses to the greenway.</p> <p>(LRTP 2040) Tourism is linked to economic development and then, in turn, linked to health.</p>	<p>Implementation of program through Phase 1 with potential projection through Phase 4:</p> <ul style="list-style-type: none"> - Locations of bike docks, - Cost - Linkages to municipal active transportation networks - Provision of safety equipment - How will program be funded (advertising, public/private sources) - Timeline for program expansion - Location of future phases - Use of other trail systems - Public safety <p>Other transportation policies related to the bike share program: Are bikes allowed on public buses?</p> <p>What are the policies that incentivize or hinder bike infrastructure (worksite wellness, universities, green certification)?</p> <p>Are there programs or resources to support children biking?</p> <p>Are there options for different types of bikes, tricycles, senior friendly?</p> <p>Learning from other municipal bike share programs on issues related to equity and health disparities.</p>

SCREENING CRITERIA	GENESEE VALLEY GREENWAY STATE PARK	ROCHESTER AREA BICYCLE SHARING
2. Does the decision-making PROCESS allow for input from an HIA?	May be interest at state level (NYS Parks) in engagement in HIA process. The HIA may raise awareness of the Greenway and potential health outcomes in nearby municipal population centers.	More information on key project stakeholders and decision-makers needed.
3. Would the HIA bring NEW INFORMATION to the decision-making process? Is HEALTH already a part of the discussion?	<p>Health outcomes are not currently part of the conversation/evaluation regarding the Greenway.</p> <p>An HIA would help reframe the discussion to include health and bring new info re: rates of physical activity and the impact on the populations in close proximity to the trail. To date, no studies on neighborhoods close to trail and how they do or do not connect to and use it.</p> <p>One outcome would be to systematically document the value of the Greenway in terms of health as, has been documented in other multi-use trail reports and HIAs.</p>	<p>The HIA may raise awareness of equity and health disparities related to Phase 1 implementation.</p> <p>Highlight equity implications of funding, locations, etc. May highlight nuances in tradeoffs for health (traffic safety, physical activity, air quality improvement)</p> <p>HIA could connect economic development and health implications (or perhaps was already considered and just not explicitly stated as health)</p>
4. Can the HIA be completed within the TIMELINE for the decision, and with the RESOURCES available?	<p>Yes, depending on decision.</p> <p>Ex: Annual budget for NYS Parks via NYS Legislature.</p>	Dependent upon how the bike share is phased and related to what equity and health disparities are identified.
5. What is the likelihood that the HIA findings and recommendations will RECEIVE CONSIDERATION by decision-makers?	Likely. NY Parks, Monroe County, municipalities would be open to recommendations.	<p>Likely. The City of Rochester may implement new policies/procedures because of related health outcome data.</p> <p>Other municipalities with active transportation plans must have appropriate infrastructure prior to integration into the Rochester Area Bike Share program.</p>
6. Is there the potential for VULNERABLE POPULATIONS to be more adversely affected than others?	Potentially. There may be equity issues associated with varying levels of access to the trails and recreational opportunities.	There are likely to be equity issues around location and cost.



Appendix C - Scoping Worksheets

PROJECT:		GENESEE VALLEY GREENWAY		
Health Determinant:	Physical Activity			
Priority:	1 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
Who are the people living near the Greenway? How do their demographics compare to people living elsewhere?	What population centers are in close proximity to the Greenway? What is the makeup of those population centers? Will people with social or economic vulnerabilities be impacted?	Population by Town/ Village/CDP, Racial/ Ethnicity, SES	U.S. Census - American Fact Finder, 2015 ACS 5- year Population Estimate, SPARCS	Evaluation metrics for determining if attendance rates improved over time will be established. Comparing to a national example that has similar urban/ suburban make-up, trail length. Segments of Erie Canalway Trail. (Rochester Area towards the West - Orleans County) Possibly limited to NYS. Geographic proximity of population centers/ Erie Canal comparison.
What are the existing health conditions of those living in proximity of the Greenway?	What are the current rates of chronic diseases? Will chronic disease and poor mental health rates be affected by an increase in physical activity levels?	Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN), Mental Health	U.S. Census, SPARCS, BRFSS, other HIAs	Review rates over time. Projection of local versus visitor. Economic Impact of the Erie Canalway Trail report - Fran. (within 5 miles)
What are the current levels of physical activity for people living near the Greenway?	How would the population be impacted by increased physical activity? Will projected changes in access/exposure physical activity levels?	Engagement in physical activity	BRFSS, County Health Profiles - Common Ground Health	Is this data available, and does it make the assumption that people are using the Greenway if they live near it? Change in physical activity levels should be measured over time. Inventory of existing exercise resources (park outdoors, indoor)

PROJECT:		GENESEE VALLEY GREENWAY		
Health Determinant:	Physical Activity			
Priority:	2 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
What decisions are currently being made that may impact physical activity levels on the Greenway?	Are there pre-existing policies that encourage Physical Activity at a State, County, (Monroe, Livingston) or Municipal level? Are there opportunities to adopt additional policies that will increase physical activity levels along the GVG? Are there policies that are creating barriers to physical activity on the Greenway?	NYS Parks policy documents, County-level Master Plans, NYS Legislature approved funding budgets.	Livingston County Transportation Connectivity Plan, Monroe County DES, DOT, Parks/ NYSDOH, NYS Parks, Identified municipalities (TBD) Comprehensive Plans. Monroe County Land Use report - R. Bell. Regional Planning Council, GTC LRTP - Jody, Capital Improvement Program, Genesee-Finger Lakes Regional Planning Council	Should national policies regarding active transportation also be addressed? Private decisions should also be integrated.
What are the existing health conditions of those living in proximity of the Greenway?	What are the current rates of chronic diseases and poor mental health? How would these rates be impacted by increased accessibility to the GVG?	Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN), Mental Health	U.S. Census, SPARCS, BRFSS, other HIAs	Change in health conditions will be measured over time.
What are the existing access issues experienced by people living near the Greenway?	Where is the Greenway most accessible? Where is the Greenway least accessible? What population centers demonstrate the best access, and why? What is the optimal distance for walking/biking to the Greenway in those centers? Do people with social or economic vulnerabilities have barriers to access?	Population by Town/ Village/CDP, Racial/ ethnic Make-up, Household Income, Population Density, Baseline proximity trail engagement standards.	U.S. Census - American Fact Finder, 2015 ACS 5 - year Population Estimate, GIS, County Health Profiles, Peer-reviewed reports. Field Data - Fran	How could the Greenway be better activated as a commuting corridor between population centers? Heatherbrooksthesis.pdf and Economic_Impact_of_the_Erie_Canalway_Trail_Full_Document (1).pdf define proximity as < 5 miles. (GVG, Erie Canal) Trail Proximity and Use Built Environment and Psychosocial Factors.pdf defines engagement as .25 walking/.50 biking



PROJECT:		GENESEE VALLEY GREENWAY		
Health Determinant:	Physical Activity			
Priority:	3 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
What are the existing issues regarding trail infrastructure and access?	Do current trail conditions provide adequate access? What types of active transportation does the trail currently support? Could access be improved with trail improvements? How does seasonal use affect trail usage?	Trail reports, County Planning reports, ADA Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN) Mental Health.	SPARCS, BRFSS, other HIAs, NYS Genesee Valley Park, FOGVG, ADA Standards for Accessible Design	2016 Transportation Alternatives Program Application by OPRHP. Lack of Access is a mitigating factor in health disparities - trail infrastructure can limit access. Adding amenities such as benches/comfort stations.
What are the existing conditions of parks/trails/greenspace in neighborhoods within proximity of the Greenway?	Can neighborhoods with identified green space disparities utilize the Greenway? How will improved access impact health outcomes?	County/Municipal Land Use Maps, Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN) Mental Health, Land Use analysis	SPARCS, BRFSS, County Health Profiles - Common Ground Health, U.S. Census, GIS, National Parks and Recreation Association	Does having neighborhoods that suffer with greenspace issues in proximity to the Greenway enhance the value of the Greenway?
What existing transportation/active transportation infrastructures link to the Greenway?	How can public transportation play a role in increasing access? What other trails and greenspaces connect with the Greenway? Are there other plans or policies that will increase access to the Greenway via external transit/trails?	County transportation maps, trail maps, Master/Comprehensive Plans	Monroe County, Livingston County Transportation Connectivity Plan, NYSDOT, Monroe County Parks, NYS Parks GIS, CoR Planning, other municipal Comp. Plans	Does Empire State Trail integration factor into linkage?
What are the existing conditions regarding access to food in communities in proximity of the Greenway?	Are there food deserts in those communities? Does the Greenway enable to additional food sources for people living in those communities?	USDA food desert maps, geographic distance to grocery stores, chronic disease rates.	SPARCS, BRFSS, County Health Profiles, GIS, Food Farm Health Research, NYSDOH, NY Agriculture & Markets	Could planted community gardens become a potential remedy when lack of access to grocery stores exists? Are there farmers' markets in proximity to the Greenway?
What are the existing health conditions and demographics of those living in proximity of the Greenway?	What are the current rates of chronic diseases and poor mental health along the GVG? Are there vulnerable populations along the GVG that may be more susceptible to safety-related issues?	Injury, death, stress, physical inactivity, chronic disease rates	U.S. Census, SPARCS, BRFSS, other HIAs	Is this relevant? Do we wish to include issues of personal security (crime) which has not traditionally been an issue on the Greenway?

PROJECT:	GENESEE VALLEY GREENWAY			
Health Determinant:	Physical Activity			
Priority:	4 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
What are the existing safety issues trail users caused by traffic in proximity of the Greenway?	Where does the Greenway cross over roadways in Monroe/Livingston county? What are the traffic patterns along those roadways at their intersection with the GVG? What are the speed limits at those crosswalks? Does the speed accommodate for pedestrian crossing? What are the traffic/pedestrian accidents rates along the GVG in Monroe/Livingston? Do they differ from rates in the rest of the counties? Do crosswalks accommodate vulnerable populations?	Injury, death, stress, physical inactivity, chronic disease rates	NHTSA, NYSDOT, ADA Standards for Accessible Design, MCDOT, LCDOT, SPARCS, NYS Parks, FOGVG	Do perceived issues around safety contribute to health disparities including physical inactivity, stress, and chronic disease rates? Does social cohesion come in as a separate health determinant or within safety/access?
What are the existing issues regarding trail infrastructure and safety?	Is the trail adequately marked with wayfinding signage? Does the trail provide adequate infrastructure for biking? Are crosswalks designed for all users? Are road crossings adequately marked and/or have security lighting? Does the trail follow safe design standards (visibility, well-maintained trails and vegetation)? How does the use of the trail change seasonally?	Trail design guidelines, signage, visibility, trail maintenance protocols	NYS Parks, FOGVG, NPS, American Trails, USDA Forest Service Standard Trail Plans and Specifications, USDOT Federal Highway Administration, National Recreation and Park Association, Project for Public Spaces/Street Life Project	Seasonal use may be more safety related than just infrastructure, but reference to snowmobiles being authorized on the Greenway during the winter months.



PROJECT:		GENESEE VALLEY GREENWAY		
Health Determinant:	Physical Activity			
Priority:	5 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
Are there existing issues regarding personal safety along the GVG?	What types of accidents and/or crime, if any, occur on the trail? Is the trail monitored regularly? Are basic rules of the trail being adhered to by users? Are safety design strategies, such as call boxes, available along the trail? Do seasonal changes impact personal safety concerns?	Accident, crimes, and arrest rates along the GVG	Reports from local police department reports, New York State Department of Environmental Conservation Officers and New York State Park Police	http://www.fogvg.org/trail_user/uses.php
What is the existing population in proximity to the Greenway in Monroe and Livingston County (Phases 1-4)?	What population centers are in close proximity to access points of the GVG? What are the makeup of those populations? What is the average population density of GVG communities?	Population by Census Tract, Racial/Ethnic Make-up, Household Income	U.S. Census - American Fact Finder, 2015 ACS 5- year Population Estimate, ArcGIS, other trail reports/HIAs.	
What are the current trends in social cohesion in population centers in proximity to the Genesee Valley Greenway?	What are current crime rates in the neighborhoods? Is there basic access to healthcare? What are home ownership/ security rates? Do residents feel their neighborhood is suitable for walking and physical activity?	Home ownership/ security rates, % that feel is suitable for walking and physical activity,	SPARCS, BRFSS, other HIAs, Monroe County Adolescent Health Report Card, MCAHS, Monroe County Youth Risk Behavior	
	Are there other trail projects around the nation that have implemented programs to increase access and users? Are there barriers to increased social cohesion occurring?	Reports from population centers with active trails that contribute to, economic, or social factors.	Other HIAs, BRFSS, Bernard's typology of social cohesion	https://www.oecd.org/dev/pgd/46839973.pdf



PROJECT:	GENESEE VALLEY GREENWAY			
Health Determinant:	Physical Activity			
Priority:	6 of 6 (identified health determinant)			
Geographic Scope:	Monroe/Livingston			
Existing Conditions Research Questions	Framing	Indicators	Data Sources	Notes
What are examples of positive health outcomes that occur from increased social cohesion?	Are there identifiable issues of mental health? What are chronic disease levels as they pertain to physical activity?	Chronic Disease (Obesity, Diabetes, CHD, Stroke, HTN) Mental Health - including substance abuse (drug related hospitalizations), stress, suicide mortality rates,	SPARCS, BRFSS, other HIAs, Monroe County Adolescent Health Report Card, MCAHS, Monroe County Youth Risk Behavior	
Are there any existing programs that are encouraging social cohesion along the GVG in Monroe or Livingston County?	What are these programs and how have they impact social cohesion? What populations are these programs affecting?	Increased engagement, population demographics, increased physical activity, increased health outcomes.	FOGVG, Livingston County Transportation Connectivity Plan, GTC Walkability Action Plan	More examples may be needed. National examples may be included.





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